

**Small and medium enterprises and the effectiveness of technology
business incubators in Saudi Arabia**

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Abstract

Multiple studies have examined incubators in developed countries. However, as the literature review illustrates, there is a dearth of research concerning Technology Business Incubators (TBIs) in developing countries. This research presents two theoretical perspectives arrived at while investigating the effects of TBIs on technology small and medium-sized enterprises (SMEs) in Saudi Arabia (SA). SMEs are important to the success of economies. Many governments have thus used various initiatives to support SME growth. Business incubators are one such mechanism, identified as a successful tool for promoting development of SMEs worldwide. TBIs is to support technology SMEs by providing them with both tangible and intangible services.

This research adopts a case study approach to investigate the effects of TBIs on technology SMEs. Data was collected from nineteen participants using semi-structured interviews and documentation; all participants were Saudi with a range of links to TBIs and SMEs. They included incubator managers, incubated technology business owners, and non-incubated business owners. Data was then analysed using hermeneutics and other qualitative techniques.

Research findings include that the ‘ecosystem’ for SMEs in SA is weak, and that there is a general lack of awareness regarding TBIs in SA. A further discovery is that TBIs have a positive impact on SA SMEs incubatees. This finding was based on the comparative study of incubated technology businesses and non-incubated technology businesses. Results also show that TBIs in SA have an impact on the scale of new business startups, they reduce start up and operational costs, and heighten the development of technology SMEs and their credibility in the marketplace. Furthermore, the findings identify obstacles that SMEs encounter when attempting to join TBIs. To offer a grounding to the phenomena under investigation, the researcher applied institutional theory, and found that SA TBIs and SMEs are subject to four types of isomorphic pressure.

This research puts forward two novel theoretical contributions. First, it presents a way of understanding pressures on SMEs and how SMEs are related to isomorphism and competitive pressure by showing different timeframes for different kinds of isomorphic pressures on SA SMEs. Second, the research looks at the impact of the ‘ecosystem’ on the isomorphism pressure stages. Additionally, this research addresses the knowledge gap regarding the effects of TBIs in developing countries, specifically in SA. It also offers a comparative study between incubated and non-incubated technology SMEs.

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Dedication

To my parents, Mohammed and Gomasha, who gave me everything they could so I would make it to this day. For their unlimited support, for their full faith in me since I was a child. For a great way they brought me up and for planting the love of learning in me. And for being my first supporters in my decision to get a doctorate.

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List of Abbreviations

BIs	Business incubators
BIS	Department for Business, Innovation and Skills
CDSI	Central Department of Statistics and Information
CONTEC	Capitalization Program for Technology Enterprises
CUED	The Council for Urban Economic Development
CV	Curriculum Vitae
DZIT	The Department of Income of Zakat and income Tax
EBPP	Electronic Bill Presentment and Payment
EU	European Union
FINEE	Investment Fund for New Enterprises
GCC	Gulf Cooperation Council
GDP	The gross domestic product
ICT	Information and communication technology
INBIA	The International Business Innovation Association
INFODEV	Information for Development program
IS	Information system
IT	Information Technology
KACST	King Abdulaziz City for Science and Technology
MCI	Ministry of Commerce and Investment
MCS	Ministry of Civil Service
MEP	Ministry of economy and planning
NTBFs	The New Technology- Based Firms
NTBI	Non-technology business incubators
OECD	Organisation for Economic Co-operation and Development
ONS	The office for National Statistics
PACTI	Action Plan on Science, Technology and Innovation for National Development
RBV	The resource-based view
SA	Saudi Arabia
SAGIA	The Saudi Arabian General Investment Authority
SAMA	The Saudi Arabian Monetary Agency
SAR	Saudi Arabian Riyal
SASO	Saudi Standards, Metrology and Quality Organization
SBIN	The Saudi Business Incubator Network
SBIR	The Small Business Innovation Research
SMEs	Small and medium-sized enterprises
SPA	Saudi Press Agency
STC	Saudi Telecom Company
TBIs	Technology business incubators
UAE	United Arab Emirates
UK	United Kingdom
UKBI	United Kingdom Business Incubation
UKSPA	United Kingdom Science Park Association
UKTI	United Kingdom Trade and Investment
UN	United Nations Publications

UNIDO	The United Nations Industrial Development Organization
USA	United States of America
USD	United States Dollar
USI	University Science Park Incubator
VC	Venture capital
WTO	The World Trade Organization

Chapter 1: Introduction

1.1 Introduction:

Small and medium-sized enterprises (SMEs) are considered to be one of the most vital sectors in economies throughout the world as they create many new job opportunities (Elster and Phipps, 2013, p.5; Çela and Gaspari, 2015, p.114; Ekanem and Abiade, 2018, p.38). SMEs are also considered to be one of the major components in the economy and in the creation of jobs opportunities in the Gulf Cooperation Council (GCC) countries including Saudi Arabia (Hertog 2010, p.7). The importance of SMEs in the world originates from the fact that the vast majority of businesses in the world are SMEs. In Saudi Arabia, SMEs constitute 95% of the total number of companies¹ (Hertog 2010, p.17). In addition, the role of SMEs in Saudi Arabia has increased after joining the World Trade Organisation (WTO) (Almoawi and Mahmood, 2011, p.13).

Many countries, especially developing countries, seek to create new initiatives in order to diversify their economy. Among these initiatives are incubators (Özdemir and Şehitoğlu, 2013, p.283). This helps countries cope with the process of transformation into knowledge-based economies in a global economy (Kim and Jung, 2010, p.273; Abdul Khalid, 2012, p.1). The importance of knowledge-based economies has emerged as the essential source for the boom of the information and communication technology (ICT) sector (Abdul Khalid, 2012, p.1). Saudi Arabia is among those countries that sought to launch a National Plan for Science and Technology. That plan aims to transform the Saudi economy into a knowledge-based economy (Khorsheed et al., 2012, p.1). SMEs play an important role in this transformation. For example, Malaysia considers SMEs as the driving factor in transformation of the local economy (AbdulKhalid, 2012, p.1). Many governments around the world provide a number of initiatives that support SMEs including incubators (Ratinho, 2011, p.3; Özdemir and Şehitoğlu, 2013, pp.282-283). Khorsheed et al. mention, that through the National Plan for Science and Technology, Saudi Arabia launched several initiatives for national technology business incubators in Saudi Arabia.

The International Business Innovation Association (INBIA) defines incubators as follows:

“Business incubators nurture the development of entrepreneurial companies, helping them survive and grow during the start-up period, when they are most vulnerable ... provide their client companies with business support services and resources tailored to

¹ See section 2.2.2 for more information about SMEs percentage in many countries around the world.

young firms.” (INBIA, 2016).

Technology business incubators (TBIs) provide services similar to those services provided by general incubators, except TBIs provide services to technology-oriented businesses.²

This thesis explores the effect of technology business incubators in Saudi Arabia on SMEs. TBIs are considered to be one of the tools contributing to the transformation of developing countries into knowledge-based economies (Khorsheed et al., 2012, p.1).

The first technology business incubator in Saudi was established in 2008 (Al mubartaki et al., 2010, p.6; Khorsheed et al., 2012, p.2). The second annual report of Saudi Business Incubators Network (SBIN) stated that there were twenty-one incubators in Saudi Arabia, in addition to eight organisations that provide incubation among these services to support SMEs (SBIN, 2015). Saudi Arabia aims to spread the initiative of technology incubators to reach 80 incubators by 2025 (Alriyadh, 2013; SBIN, 2013) in order to attract local SMEs to high technology areas through incubators (Behairy et al., 2013, p.3).

1.2 Motivation and benefits:

Based on the literature review (see Section 2.2.2) it was determined that the majority of the total number of enterprises in the world are SMEs. For example, in Britain, 99% of the total number of companies are SMEs (BIS, 2015, p.1). This is a very large percentage, revealing that such companies are of particular importance due to their role as employers and in relation to GDP (see Section 2.2.2). This research investigates the impact of incubators on SMEs considering different points. These points cover the motivation and contribution of this research:

- The Saudi Government has a national plan for the transition to a knowledge-based economy. Many other countries in the world have this orientation as mentioned in section 1.1. Many governments have started and supported incubators as an initiative for economic growth (Ratinho et al. 2010, p.6), with the initiative of incubators spreading throughout the world (Özdemir and Şehitoğlu, 2013, pp.282-283). The Saudi Government started its National Plan for Science and Technology. Part of that national plan which began in 2008 was an intention to expand technology incubators to reach 80 incubators by 2025 as mentioned in section 1.1.

² For more info, see section 2.4.3.1

- In contrast to the approach of the Saudi Government to expand incubator initiatives, the literature review showed a lack of research about incubators in the Saudi context. There are a few articles mentioning Saudi incubators as a part of a Middle East study (e.g. Al-mubarak and Busler, 2012). However, fewer articles are about Saudi incubators within the context of their own economy (see. Khorsheed et al., 2012). For in-depth research, there is just one PhD thesis on Saudi incubators (see Alsheikh, 2009), and it has a very narrow scope and geographical coverage as only one incubator was investigated in only one city. Alsheikh (2009, pp.327-328) mentions that there is a need for future researchers to cover the limitations of this research, by replicating it with a wider sample. Since no researcher appears to have addressed this issue to date, this thesis aims to fill this gap. Moreover, the lack of research in a SA context is wider than incubators' research, the lack of research more broadly for SMEs in SA, is stated by Hertog (2010, pp.27-28).

This research seeks to fill this gap and search widely to investigate larger numbers of incubators. This was mentioned as a gap requiring further research by Alsheikh (2009, pp.327-328). In addition, it seeks to cover most of the incubators in the major cities in Saudi Arabia. This is a challenge as Saudi Arabia is a country covering a large area of 2,149,690 km² (The World Factbook, 2018), and its major cities are scattered between the north and south and the east and west. It is necessary to cover multiple regions to discover if any differences emerge between the several cities. Whereas there is scarcity of research about the local Saudi context as stated, highlighting the importance of this research is necessary to explore the impact of existing incubators in Saudi Arabia and provide guidance for incubators seeking to establish themselves in the future.

- Incubators provide many services for incubated business; these services provide several benefits. First, incubators usually decrease the operating costs for start-up enterprises (Bøllingtoft and Ulhøi 2005, p.267; Tamásy 2007, p.462; Bruneel et al 2012, p.111). Second, incubators contribute to the growth of the incubated business (Ratinho et al. 2010, p.7). Third, incubators increase the survival rate of companies remarkably, by 80–90% (European Commission, 2002, p.xi). In UK, the survival rate of businesses in their second years is 75.6%, compared with incubated businesses where the rate is 92% (Fox, 2014, p.4). In the Saudi context, there is a lack of research covering this aspect. However, a recent article (2015) has studied factors that

can be involved in the success of technology start-up businesses, by developing a model based on the examination of 10 hypotheses that are related to growth and survivability of the technology start-up (Almakenzi et al., 2015, p.147). One of the research questions is the effect of technology business incubators on SMEs in Saudi Arabia. The benefits of the services that are provided by SA incubators, will be addressed through this research and will be determined by the second research question of this research. Through conducting a comparison between incubated and non-incubated SMEs in SA. These points are mentioned by Alsheikh (2009, p.328) as future research tasks.

- One of the important benefits of incubators is to contribute to start-ups and create new jobs. Hertog (2010, p.7) states that SMEs in GCC countries (including SA) are considered an important sector for job creation. Many governments in developed and developing countries such as the United States of America (USA), United Kingdom (UK), Germany, Italy, France, and Saudi Arabia have started TBIs as a mechanism for creating new jobs (Aberham, 2011, p.7; Al-mubaraki and Busler, 2012, p.153; Khorsheed et al., 2012, p.1). In North America, INBIA (2016) estimated that incubators in 2011 had helped about 49,000 start-up companies and created about 200,000 full-time jobs. Unemployment is a serious issue in Saudi Arabia, and there is a national program to help job seekers called "Hafiz" that supported 1,658,201 job seekers in the year 2012 (Alriyadh, 2013). In a recent report in the second quarter of 2017 from the General Organisation for Social Insurance in SA, the unemployment rate in Saudi Arabia was stated to be 17% (Okaz, 2017). In addition, in SA there is an excess of graduates (Alsheikh 2009, p.319). With an annual increase of 12.2% in the number of graduates in SA during the five years from 2010 to 2014 (Aldiaan, 2016). This underlines the need for initiatives such as incubators at a national level, as well as at the local level. Moreover, it is significant that incubators could contribute to increases in jobs by creating new SMEs and new job opportunities.
- This research will study the impact of incubators upon SMEs in Saudi Arabia, which may contribute to an increase in people's knowledge regarding starting up and creating new enterprises, by providing them with evidence and guidance for the introduction of incubators at the local level. The culture of employment in Saudi Arabia favours the public sector (Alsheikh 2009, p.319), however, according to

Alsheikh (2009, p.326) there is a necessary shift towards the private sector among young graduates.

- One of the research questions is:

To identify the obstacles facing SMEs when they attempt to join technology incubators in SA. As Alsheikh (2009, p.327) stated, a “major limitation in this [his] study” is that there are few studies about incubators in Saudi Arabia as a potential tool for addressing the problems faced by SMEs. This research attempts to address these issues.

- There has been an increase in incubator initiatives in the last two decades in developing countries. However, the measurement of the incubators’ success is different (Scaramuzzi, 2002, p.3). There are few studies investigating the impact of incubators and how they contributed to the success of the incubated businesses (Shane and Venkataraman, 2003, p.183; Scillitoe and Chakrabarti, 2010, p.155). Incubators in developing countries also have varying degrees of success amongst themselves. It can be said that it may be useful to investigate the impacts of incubators upon Saudi SMEs. This is one of the objectives of this research.

In addition to the foregoing, section 2.11.5 ‘*Studying technology business incubators*’ also highlights additional motivation for and benefits of this research.

1.3 Research aim and objectives:

This study aims to investigate the effects of TBIs upon SMEs in the Saudi environment. The current research aims to achieve the following objectives:

- To understand the roles that technology incubators in Saudi Arabia play upon SMEs.
- To examine the impacts and benefits of TBIs in Saudi Arabia.
- To assess the barriers facing Saudi SMEs when they attempt to join local incubators.

1.4 Research questions:

The research aim and objectives can be achieved by answering these research questions:

1. In what way might TBIs affect SMEs in the Saudi Arabian environment?

2. What are the potential impacts and benefits which might arise from the application of TBIs to SMEs in Saudi Arabia?

3. What are the potential obstacles that SMEs encounter when they attempt to join technology incubators in Saudi Arabia?

1.5 Organisation of the thesis:

This research is composed of seven chapters. In order to achieve this research aim, objectives and questions that have been mentioned in section 1.3 and 1.4 will be covered through this research.

Chapter Two: This chapter covers the literature review, starting with an introduction to the literature. Next, SME definitions in general are approached and Saudi institution definitions are discussed. This is followed by the importance of SMEs in the world, starting a new SME and the obstacles that new SMEs face. The chapter then, distinguishes the different types of incubators to reach definitions of a TBI as the focus of the research. Following that, the chapter examines the literature about incubators, what they do, their roles, how they select candidates and how the candidates graduate. The incubators in developing countries are explored. Next TBIs in SA are reviewed, albeit with the lack of research available. Following this the importance of studying TBIs is discussed. Then, a discussion of seven theories is presented through sixteen subsections. Institutional theory is addressed in more detail since it is the theory that will be applied in this thesis. The sections also cover how institutional theory has been chosen and justified. A thematic summation is introduced before the end of the chapter. Finally, the previous research in the field is summarised.

Chapter Three: This chapter outlines the research methodology that has been applied in this research. Firstly, the chapter outlines research philosophy in general, and how the ontology and epistemology theories can be used in research. Secondly, there are three types of paradigms, and an explanation of their use is given. Thirdly, there is a justification of the research methodology that has been selected. Fourthly, there is a discussion of the quantitative and qualitative research approaches. Fifthly, four types of research methods are explored. Sixthly, there is a justification of choosing a case study as a research method. Seventhly, the data collection methods for this research have been addressed by explaining the selection of the case studies and reviewing the case study protocol. Eighthly, the approach

for the data analysis has explained in details in six subsections. There is an exploration of hermeneutics as a technique for data analysis, and justifying this as the choice of research method. The subsections also explain the final coding that has been reached. The final sections are the planning of fieldwork to collecting the data. This is followed by the pilot study and a discussion of actual fieldwork conducted for this research.

Chapter Four: The aim of this chapter is to outline the findings of the actual fieldwork that has been conducted with nineteen interviewees using the research methods that are described in Chapter Three. The findings have been divided into three large categories, each one of them having sections. Each category aims to answer one of the three questions of this research (section 1.4). The findings investigate the effects of TBIs in SA by interviewing the participants from a group of incubators' managers and SME owners. The SME owners are incubatees and non-incubatees.

Chapter Five: After presenting the findings of this research in chapter four, this chapter presents the data analysis by using hermeneutics technique that has been addressed in chapter three. The chapter discusses the findings stated in chapter four with a literature review. This chapter also follows the division of the previous chapter, by dividing the analysis into three large categories. Each one of them has sections that aim to answer research questions posed in this thesis. Moreover, these sections examine the impacts of TBIs upon SA SMEs, and how the findings are relevant to the literature review, followed by the analysis of the researcher.

Chapter Six: This chapter concentrates on theory, discussing the theory that has been applied in this research. Institutional theory literature has been addressed in the literature review. The main focus of this chapter is to examine the findings of this research (chapter four) and identify the institutional aspects that are relevant to this research scope, whether upon incubators or SMEs in the SA context. This chapter presents two novel theoretical contributions as one of the main contributions of the thesis.

Chapter seven: The main outline for this chapter is the conclusions and recommendations. This chapter contains recommendations for the stakeholders about incubators and SMEs in SA. Also, research contributions are stated and the limitations of the study are addressed. Finally, suggestions for further research are presented.

The next chapter presents the literature review which presents the theoretical background relating to incubators and their impact on SMEs.

Chapter 2: Literature Review

2.1 Introduction:

As outlined in Chapter One, the aim of this research is to investigate the effects of TBIs upon SMEs in the context of SA. The research aim, objectives, motivations and research questions have been presented. This chapter presents a review of the literature related to the research topic.

The SA government is seeking to shift to a knowledge-based economy through its National Plan for Science and Technology (Khorsheed et al., 2012, p.1; KACST, 2016). Solow (1956, p.65) explained economic growth through concentrating on technological advancement as a basic element in creating fortunes in advanced economies. At the present time, the idea that technological change enhances economic growth is a wide-ranging idea (Romer, 1990, p.72; Ratinho et al. 2010, p.3). Therefore, Ratinho et al. (2010, p.3) mention that growth driven by technological change will be responsible for the creation of knowledge. There is no doubt that technology is changing people's lives worldwide, as many historians believe that technology is a driving force of history (Aunger, 2010, p.1). Nevertheless, new start-up businesses can encounter difficulties related to technology. Such obstacles have the potential to cause the failure of such projects (Ratinho et al., 2010, p.2). This can be seriously challenging for start-up businesses. In particular a third of new European enterprises fail before reaching the second year of their life, and more than half do not survive the seventh year (OECD, 2002, p.36; Aerts et al. 2007, p.254). In these circumstances technology has a vital role to play, because it is an essential factor for economic growth (Gust and Marquez, 2004, p.1), and without it, it is very difficult to make high risk investments especially when the economy stumbles (Sauner-Leroy, 2004, p.1; Aerts et al., 2007, p.254). Start-up companies play an important role in the process of innovation (Aerts et al., 2007, p.254). Almakenzi et al. (2015, p.147) state that to promote innovation in SA, it is essential to support innovative ideas and turn them into start-up companies. The national SA TBIs initiatives was established with the aim of accelerating the growth of technology start-up businesses (Khorsheed et al., 2012, p.2).

This chapter focuses on three subjects in the literature review. These are: firstly, small and medium-sized enterprises; secondly incubator initiatives in developed and developing countries and thirdly incubators and theories. The next sections will address these topics in more detail.

2.2 Small and medium –sized enterprises (SMEs):

Small and medium-sized enterprises (SMEs) are considered to be one of the most important elements in economic development for developing and developed countries (Kamal and Flanagan, 2014, p.1; Çela and Gaspari, 2015, p.114). The effect of SMEs is recognized all over the world in terms of their contribution to the economy and the creation of jobs (Kamal and Flanagan, 2014, p.1). Hertog (2010, p.7) also adds that in Gulf region (GCC) countries, SMEs are considered a major factor in economic growth and the creation of jobs.

In the literature review, there is no definition that is agreed upon for SMEs (Kamal and Flanagan, 2014, p.2). The definitions also change in accordance with the economic size of countries (Çela and Gaspari, 2015, p.115). The European Union (2015, p.3) defines SMEs as: “Made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding 50 million euro [55.6 million US dollars], and/or an annual balance sheet total not exceeding 43 million euro [47.8 million US dollars].” The next section will address the definition of SMEs in SA.

2.2.1 SMEs definition in Saudi Arabia:

In Saudi Arabia, until December 2016 there was no agreement on the definition of SMEs. Hertog (2010, p.11) mentions that there are several definitions for SMEs in Saudi Arabia issued by several bodies such as The Saudi Arabian General Investment Authority (SAGIA). SAGIA considers an establishment to be a small-sized enterprise if the number of employees is less than 60 employees and the establishment to be a medium-sized enterprise if the number of the employees is less than one hundred employees.

Aljishi (2013) confirms that there is no standard definition for SMEs in Saudi Arabia and he relates some definitions for SMEs suggested by a number of authorities in Saudi Arabia:

- The Saudi Chambers Council classifies small enterprises as enterprises that consist of less than twenty employees with capital less than one million Saudi Riyals (260.000 US Dollars) excluding the land and the building of the project, and that its sales per year do not exceed five million Saudi Riyals (1.3 million US Dollars).
- The Saudi Industrial Development Fund defines SMEs as any profitable activity in which the number of employees is less than 25 employees and the volume of its annual sales does not exceed fifteen million Saudi Riyals (4 million US Dollars), and that the total budget does not exceed ten million Saudi Riyals (2.6 million US Dollars).

- The Saudi Credit Bank defines SMEs as those projects that employ less than ten employees and that have total assets excluding the real estate assets that are less than one million Saudi Riyals (260.000 US Dollars).

On the banking side, Bank Saudi Fransi classifies the enterprises as small enterprises if their annual sales range is between 5-30 million Saudi Riyals (1.3-8 million US Dollars) and it classifies them as medium-sized enterprises if their annual sales range is between 30-100 million Saudi Riyals (8- 26.6 million US Dollars) (Bank Saudi Fransi, 2016).

Due to the lack of a standard definition for SMEs, some studies researching SME projects in Saudi Arabia have regarded the number of employees to be a measurement defining the classification of SMEs (see Danish and Smith, 2012, p.220). Hertog (2010, p.10) mentions that because of the scarcity of financial information on companies whether public or private companies in the Gulf Region, the number of employees is taken as a mechanism for defining the size of the project in the Gulf Region (including Saudi Arabia).

By the end of the year 2016, specifically on 13/12/2016, a resolution was issued by the Small and Medium Enterprise Authority for approving the defining of small and medium-sized enterprises in Saudi Arabia as follows:

SMEs size	Number of full-time employees		Revenue (million Saudi riyals ³)
Micro	1-5	OR	0-3
Small	6-49		3-40
Medium	50-249		More than 40-200
Large	Exceed any of the criteria above		

Table 2.1 defining of SMEs in SA

2.2.2 SMEs around the world:

Most businesses start small, and small and medium-sized enterprises (SMEs) constitute the majority of the total number of enterprises in the world. For example, SMEs account for more than 95% of firms in the Organisation for Economic Co-operation and Development (OECD) countries (OECD, 2000, p.2). The two following sections show the numbers of SMEs in the developed and developing countries.

³ 1 million Saudi riyals equal about 266,000 USD.

2.2.2.1 Number of SMEs in developed countries:

The Annual Report of European Union (EU) 2010/2011 shows that SMEs in the EU-27 constitute about 99.8% of the total number of businesses (Wymenga et al. 2010, p.7). Moreover, 99.7% of American employees work in small businesses (U.S small business administration, 2011, p.1). According to the (UK) Department for Business Innovation and Skills in a report published on 14 October 2015, the total number of SMEs accounted for 99.9% of all enterprises in the United Kingdom, and 99.3% of which were small (0 to 49 employees) (BIS, 2015, p.1). Also, they account for 60% of the private sector employment (15.6 million) and for 47% (£1.8 trillion) of its turnover (BIS, 2015, p.1). In Brazil, micro and small enterprises represent 98% of the total number of existing enterprises (Scaramuzzi 2002, p.13). They also contribute to 21% of the Brazilian GDP and they employ about 60% of the active population (Scaramuzzi 2002, p.13). In Brazil from 2002 to 2012, there was a percentage increase of small enterprises' manpower of 67% (Bruha, 2014). That increase being from 28.6 million approximately to 47.4 million approximately, thus a rise of approximately 20.8 million (Bruha, 2014). Bruha, adds that the total percentage of the number of micro and small projects in Brazil represents 99.1%. Sebrae Center, the center that supports small enterprises in Brazil, mentioned that small businesses in Brazil constitute about 8.5 million small business (Sebrae, 2015). This section shows that the number of SMEs in developed countries is significant.

2.2.2.2 Number of SMEs in developing countries:

In most developing countries, micro and small scale enterprises constitute the majority of firms and a relevant share of employment, and play a crucial role for economic growth (Scaramuzzi, 2002, p.4). For example, SMEs in Malaysia shape about 93.8 % of the total businesses (Saleh and Ndubisi, 2006, p.1). The SMEs firms in Turkey account for 99% of the total firms (Akçomak, 2011, p19). Moreover, the number of SMEs in Indonesia amounted to 52 million companies (up to 2011) (Hutabarat and Pandin, 2014, p.374). They add that 97% of Indonesian manpower is employed in SMEs which contribute 60% to Indonesian GDP. Thereby, SMEs companies constitute the backbone of the Indonesian economy (Hutabarat and Pandin, 2014, p.374). In Saudi Arabia, SMEs account for 95 % of the total number of enterprises (Hertog 2010, p.17). Thus, SMEs are important pillars in the economy and in employment. In order for new enterprises to survive they need special attention in their early life, to enable them to carry on with their business year after year. As part of Saudi Arabia's support for SMEs, the Council of Ministers issued a resolution that by the end of 2015 a

public organisation would be established with the name ‘the public organisation for SMEs’, with a legal character that is both financially and administratively independent. The chairman of the board of the public organisation of SMEs is the Minister of Commerce and Industry (SPA, 2015). This section shows that the number of SMEs in developing countries is significant as well as the number of SMEs in developed countries mentioned in the previous section.

2.2.3 Starting a new SME:

Starting a new enterprise is considered a difficult stage whatever the ambitions of the project owners. This is due to the obstacles that owners of emerging enterprises face at the start-up stage. The following sections will discuss these obstacles in details.

2.2.3.1 Obstacles facing SMEs:

The first years for start-up companies are considered critical years in which the said companies suffer from many obstacles at the start-up stage such as obtaining administrative support and operational costs including rental charges and service charges (Bøllingtoft and Ulhøi 2005, p.267). Bøllingtoft and Ulhøi add that start-up companies usually find it difficult to overcome these obstacles. Zhu et al. (2014, p.4) mentioned that start-ups face many obstacles that they have to overcome due to the small size of the business. These can include a lack of experience, poor administrative aspects, high operational costs and little capital.

These obstacles are stronger in the transition economies (Schwartz and Blesse 2011, p.67). In Brazil, 80% of start-ups fail in the first year due to obstacles that face a start-up enterprise such as bureaucracy, administrative obstacles and the owners of the enterprises themselves having poor administrative skills (Scaramuzzi 2002, p.13). Start-up enterprises in the rural regions in South Africa face obstacles such as: poor education, lack of training and difficulty in obtaining finance, in addition to the poor infrastructure and a weak market (Chelule et al. 2011, p.2). The following sections discuss some obstacles facing SMEs.

2.2.3.1.1 Liability of newness:

Among the dangers that face start-ups is the ‘liability of newness’, where the emerging enterprises face a high percentage of failure due to a lack of suitable resources needed for these enterprises to survive in their early years (Schwartz and Hornych 2010, p.486). ‘Liability of newness’ has been defined as great risk of failure that new start-ups face in the first year of entering the market. This is due to a lack of suitable resources that assist them in

survival (Schwartz, 2013, p.304). The risk of failure of businesses within new and small enterprises is higher than the risk of failure of small businesses that are established or well-known companies in the sector. It is included under the name of ‘liability of newness’ (Stinchcombe 1965, p.148; Bøllingtoft, 2012, p.304). Freeman et al., 1983, p.692 mentioned a similar concept under the name of ‘liability of smallness’.

2.2.3.1.2 Finding resources:

Start-up enterprises face a huge obstacle at the start-up stage in making a comparison between the resources which are vital for the survival of the company and the real resources of the company (Schwartz, 2013, p.304). Part of being a start-up is having the resources that are necessary to start and develop an enterprise. This leads to acquiring a share in the market and overcoming the lack of credibility that is part of being a business start-up (McAdam and Marlow, 2007, p.363). Among the resources that start-up companies need most often is external finance (Ratinho et al. 2010, p.7). Usually, start-up companies direct their efforts to one of these three resources to obtain external finance: angel investor, venture capital or public subsidies (Clarysse and Bruneel, 2007, p.197; Ratinho et al.2010, p.7). However, SMEs suffer from the difficulty of obtaining finance in the short or long-term (Sadi and Henderson, 2011, p.405). Hutabarat and Pandin (2014, p.374) see that SMEs face two major obstacles: financial and non-financial obstacles.

2.2.3.1.3 Lack of skills:

Among the factors that may lead to the failure of start-up enterprises are poor administrative skills and or the inability to obtain finance for high-tech enterprises (Bøllingtoft and Ulhøi 2005, p.267). The owners of enterprises usually possess specialized knowledge in their field but they lack the general commercial skills (Lyons, 2000, p.11; Bøllingtoft and Ulhøi 2005, p.267). Many of the owners of SMEs lack the skills and knowledge necessary to attract foreign companies and to obtain concession rights from such foreign companies (Sadi and Henderson, 2011, p.405). With regard to factors that effectively cause failure for SMEs, Schwartz and Blesse (2011, p.67) mentioned that poor education in the commercial and management aspects of start-ups is one of the decisive factors that lead to failure. These include administrative skills, financial and marketing skills, human resources and procurement. Bruneel et al., (2012, p.112) mention that owners of start-up enterprises do not have the ability to deal with changes in the fast business environment due to a lack of skills

and administrative expertise. This may contribute to a high percentage of failure in emerging enterprises (Freeman et al., 1983, p.692; Bruneel et al., 2012, p.112).

Moreover, start-up enterprises lack a constant commercial relationship with clients and suppliers. Thus enterprises need to learn how to build this relationship, however, this takes a long time and comes at a high cost (Stinchcombe, 1965 cited in Schwartz, 2013, p.304).

In addition, start-up companies lack reputation and they need some time to achieve such reputation. That is of course related to the negative image generally associated with being a start-up company or a company that provides new services and products to the market (Schwartz, 2013, p.304) Therefore, Schwartz (2013, pp.304-305) adds that it is important for start-up companies to prove to clients, suppliers and investors that their companies can be relied upon. Also, the value of a business network for start-ups is considered a vital matter for the company (Ratinho, 2011, p.20). In addition, poor capital, poor administrative expertise within the work team, and inadequate skills to run the emerging companies may limit the growth of the company (Bruneel et al., 2012, p.112). The sections present a skills gap that some SMEs are facing as mentioned in the literature review.

2.2.3.1.4 Geographic factors:

Some studies have discussed the relationship between the owners of start-up projects and the geographic location. Attracting owners of projects to join an incubator in another area may not be possible due to the immobility of project owners (Tamasy, 2007, p.466). Tamasy, mentions that 75% of project owners in Germany had worked in the same city or region before they became self-employed. He adds the reasons, that project owners usually have relationships and business networks in their field of work which reduces the risk in starting a business. In addition, 65% of owners of incubated projects stay in the same city after graduation from the incubator and 23% decide to stay in a location that is about 30 kilometres away from the city of the incubator from which they have graduated (Sternberg et al. 1997 cited in Tamasy, 2007, p.466).

In section 2.7 of the incubation benefits, a number of researches that have discussed the geographic effect from another perspective have been cited, where such researches drew a comparison between the incubated and non-incubated projects. It is reasonable to suggest that one of the geographic factors is the difference in the location of the project whether it is located inside or outside the incubator. Finally, a real possibility is that the geographic location of the incubator can be influential. Qian et al. (2011, p.20) have confirmed in their study that the geographic location of the incubators in the USA is important. In addition,

based on the results of the analysis, they found that the incubators “are more likely to appear in counties with high levels of agglomeration and lower levels of business development” (Qian et al., 2011, p.21).

In the light of the importance of SMEs, the high number of new project failures, and the obstacles that face start-up enterprises, several initiatives had to be undertaken. One of these initiatives are incubators. It is believed that incubators increase a new firm’s chances of survival (Ratinho et al. 2010, p5; Koshy, 2010, p.12). Also, incubators are instrumental in promoting innovation and decreasing the high rate of start-up failures (Lalkaka, 2003, pp.168-169). The following sections will discuss incubators’ initiatives in more detail.

2.3 History of incubators:

The first incubator was established in Batavia, New York in the United States in 1959 by Charles Mancuso (Hackett and Dilts, 2004, p.57; Akçomak, 2011, p.7; Fox, 2014, p.8; Obaji et al., 2015, p.1627). Charles Mancuso, was a local real estate developer who acquired about a 79,000 m² building in Batavia Industrial Centre and then rented spaces to small and start-up projects (Adkins, 2001; Hackett and Dilts, 2004, p.57; Aerts et al. 2007, p.255; Hasselbach et al., 2010, p.121). The interior design of the building was based on dividing it into partitions. This enabled small and start-up projects to rent a space inside the building, some of them also requested business advice and others requested support in raising capital (Adkins, 2001; in Hackett and Dilts, 2004, p.57). Subsequently, the spread of incubators was slow during the 1960s and the 1970s. There was a huge increase in the number of incubators witnessed in the 1980s and 1990s, especially in the late 1990s where there was a big leap in numbers (Hackett and Dilts 2004, p.57-58). From the mid-1980s incubators’ objectives changed from space rental to adding value for businesses (Aerts et al., 2007, p.256; Akçomak, 2011, p.7). Aerts et al. (2007, p.256) describe the incubators’ objectives changing in the 1990s, as part of the “second incubator generation”. However, the third generation of incubators was during the late nineties when the concentration was on start-ups in ICT and the high-tech sector (Hackett and Dilts, 2004, p.58; Aerts et al., 2007, p.256). That shows that the incubators have evolved over three generations, since the first of concept of incubators started.

2.3.1 Incubators numbers around the world:

Nowadays, more than 7000 incubation programs have been established worldwide (INBIA 2016). For example, there are more than 300 incubation programs in Britain, these programs

provide their services to 12,000 companies (UKTI, 2011, p.2; Dee et al., 2011, p.14; Al-Mubarak and Busler, 2012, p.3). In 2014, Fox (2014, p.7) noted that more than half of the incubators and business accelerators that were then operating in Britain had opened over the previous three years. Fox, described this increase as a “dramatic increase” and that it places Britain in a good position in terms of its programs supporting start-up projects, more than any other European country. At the end of 2012 the number of incubators in the United States was over 1250 (INBIA 2016). In the European Union Countries, there are more than 900 incubators (Scaramuzzi 2002, p.7; Bruneel et al., 2012, p.110). In the European Union, there is a huge increase in the number of business incubators (BIs) and accelerators after the financial crisis, the increase amounted to 400% between the years 2007- 2013 (Salido et al., 2013, p.2).

This huge number of incubator programs makes incubation a phenomenon in many parts of the world (Bergek and Norrman, 2008, p.1). Incubators also create more than 50,000 job opportunities (Dee et al., 2011, p.14). Also, it is not only developed countries which have been busy adopting incubators initiatives, nowadays, developing countries have also been adopting incubator initiatives (see section 2.10), and this has become a recent phenomenon (Scaramuzzi, 2002, p.6). Section 2.11.4 will describe of adoption of TBIs in SA.

2.4 Defining “incubators”:

Incubators are initiatives established by governments, universities and research institutions (Bergek and Norrman, 2008, p.2). In developing countries, the majority of the incubators are funded by government (Akçomak, 2011, p.11). At this point it is useful to explain what is meant by incubators and why governments and other institutions see them as one of the tools for supporting start-up projects.

The International Business Innovation Association (INBIA)⁴ provides a definition for ‘business incubators’, it states that; “Business incubators nurture the development of entrepreneurial companies, helping them survive and grow during the start-up period, when they are most vulnerable ... provide their client companies with business support services and resources tailored to young firms.” (INBIA, 2016). United Kingdom Business Incubation (UKBI) defines incubators as: “a unique and highly flexible combination of business development processes, infrastructure and people, designed to nurture and grow new and small businesses by supporting them through the early stages of development and change”

⁴ The INBIA was originally formed in the USA but now operates internationally.

(UKBI, 2007 cited in UKSPA, 2015, p.1). This definition adds an important aspect, namely that the incubation system is a set of development processes which help start-up businesses to increase their chances of surviving and to achieve development. Accordingly, incubators are intended to provide the necessary support for start-up businesses to increase the chances of its success. Moreover, Hackett and Dilts (2004, p.57) gave the following definition: “A business incubator is a shared ... facility that seeks to provide its incubatees (i.e. “portfolio-” or “client-” or “tenant-companies”) with a strategic, value-adding intervention system (i.e. business incubation) of monitoring and business assistance”. This definition indicates that the services provided in incubators are of two types: tangibles and intangibles, and such comprehensive services promote the role of incubators.

Overall, it can be argued that most of the definitions are similar (Honig 2010, p.722) because they tend to focus on incubators being providers of services, and while these services differ from one definition to another, these services are commonly regarded as a key business activity to increase the survival of start-up companies. There are many definitions which have been proposed in literature and the reasons for choosing these definitions discussed above is that they complement each other. Özdemir and Şehitoğlu (2013, p.283) confirm that all definitions of incubators share a common characteristic which is that incubators aim to help start-up companies in their beginning stage to enhance their chances of survival and contribute to their success.

It makes to say that incubators are institutions that provide support for incubated enterprises through the provision of a set of tangible and intangible services and resources. Such services and resources should contribute to the growth and survival of projects in the start-up stage, during the incubation period. It is quite often the case that most of these services are terminated upon the expiration of the duration of the incubation stage. However, some support may continue in the post-incubation stage.

2.4.1 Incubators' names:

After discussing the definition of incubators and the essential role that they play, the researcher find that this concept involves supporting SMEs in their initial stages, mentioned in the literature review by many names. Bøllingtoft and Ulhøi (2005, pp.268-269) stated that incubators over the past years have taken several names such as: ‘Business Accelerators’ (Barrow, 2001, p.ix); ‘Research Parks’ (Money, 1970 cited in Bøllingtoft and Ulhøi, 2005, pp.268-269); ‘Science Parks’ (Martin, 1997 cited in Bøllingtoft and Ulhøi, 2005, pp.268-269); ‘Knowledge Parks’ (Bugliarello, 1998, p.41); ‘Seedbeds’ (Felsenstein, 1994, p.93);

‘Industrial Parks’ (Autio and Klofsten, 1998, p.30); ‘Innovation Centers’ (Campbell, 1989, p.58), ‘Technopoles’ (Castells and Hall, 1994, p.1) and ‘Networked Incubators’ (Hansen et al., 2000, p.75).” Despite differences between them, they share the same concept of supporting start-up enterprises.

2.4.2 Incubation methods:

The names of incubators are similar, having the same basic idea. Therefore, there are three methods of incubation which are as follows:

1. **Incubators (traditional):** Incubators are generally defined as: “an incubator is a physical location that provides a defined set of services to individuals or small companies.” (Davies, 2009, p.5). This turn provides a controlled environment for new or emerging enterprises through provision of administrative and financial services and renting a place that these companies can afford to pay (Hutabarat and Pandin, 2014, pp.374-375).
2. **Virtual incubation:** Virtual incubators can be considered to be the second generation of incubators (Scaramuzzi 2002, p.7). It is a type of incubation that provides services to SMEs that do not require to be physically inside the incubators. This makes virtual incubators less expensive. In addition, this type of incubation is suitable for enterprises that cannot be served by an incubator office in the same area as the start-up (Scaramuzzi, 2002, p.7). According to INBIA (2016), virtual incubators are defined as: “as the delivery of incubation services solely through electronic means”. INBIA (2016) adds that the terminology “Virtual incubator” can be used when the virtual incubator provides services to SMEs for those incubatees who do not exist in the incubator, or do not need a space inside the incubator.
3. **Accelerators:** The concept of business accelerators can be considered to be a relatively new concept. Business accelerators are distinguished by two aspects: the first one is the strong support for venture capital, and the second one is the shorter period of incubation (Scaramuzzi, 2002, p.7).

According to INBIA (2016), the difference between traditional incubators and business accelerators is as follows:

“Incubators typically provide client companies with programs, services and space for varying lengths of time, based on company needs and incubator graduation policies. Most accelerators take a group of companies, or a cohort, through a specific process

over a previously-defined period of time, culminating in a public pitch event or demo day. Accelerators also generally make seed-stage investments in each participating company in exchange for equity, while many incubators do not make this type of financial commitment.”

It can be noticed that INBIA (2016) had a different point to that mentioned by Scaramuzzi (2002, p.7), that the accelerators incubate a group of projects at one time for one specific program.

From the previous point regarding the difference between the types of incubators, it can be said that all types of incubators (irrespective of differences in their names) agree that they support the projects in the initial stages of their life cycle for the purpose of increasing their chances of survival and growth. However, the types differ in the methodology.

This research focuses on Technology Business Incubators (TBIs), the definition of Technology Business Incubators is mentioned in section 2.4.3.1 and the reasons for selecting TBIs in section 2.10.5. These reasons include whether it is a traditional incubator, technology business accelerator or technological virtual incubator. In this research, when the word “incubator” is used, then what is meant is the general meaning of supporting SME businesses by one of the incubation initiatives, and this is usually referred to as ‘traditional incubators’. However, in a case where initiatives are referred to as Accelerators or Virtual incubator, then a specific meaning has been determined.

2.4.3 Types of incubators:

The popularity of incubators around the world has produced several types of incubators. Many studies have divided them into several types depending on the nature of their work, the founder, and other factors. Grimaldi and Grandi (2005, p.111) classified incubators according to who owns them: namely whether it is in the private or the public sector. Others have suggested different classifications on the basis of the characteristics of business incubators. For example, classifications include strategic choice (for-profit, not-for-profit), in terms of their mission, interconnection to universities and geographical location (Carayannis and von Zedtwitz, 2005, p.95; Ratinho et al. 2010, p.4; Barbero et al., 2012, p.890).

Barbero et al. (2012, p.890) add that there are five types of incubators which are as follows: regional incubators; university incubators; virtual incubators; independent commercial incubators and company internal-incubators. Barbero et al. also adds classifications to these five types of incubators on the basis of whether they are for-profit or not-for-profit. The regional and university incubators are not-for-profit while the virtual, independent

commercial incubators and company internal incubators are for-profit. Moreover, some have classified them on the basis of management aspects (Aerts et al., 2007, p.2). Mahmood et al., (2015, p.238) mention another type of division for incubators which has four types: university; enterprises development; for-profit and not-for-profit incubators. Khorsheed et al. (2012, p.1) state that incubators are generally divided into three divisions: “mixed-use incubators, economic development incubators and technology incubators”. They add that based on NBIA in North America, there are about one thousand incubators, 43% of them are mixed-use incubators and 25% are technology incubators (INBIA, 2016). Scaramuzzi (2002, p.4) emphasizes the previously mentioned divisions for incubators, and incubators can be divided based on the type of mandate whether it is for-profit or not-for-profit, the agency establishing the incubator whether it is a governmental, private or mixed agency and on its orientation whether it is mixed–use or niche orientation. He adds that most of the niche incubators are technology incubators, and in the USA, technology incubators started to spread after the ‘internet bubble’ in early 2000 (Scaramuzzi, 2002, p.4). The next section will address the technology incubators.

2.4.3.1 Technology Business Incubators (TBIs):

One of the types of business incubators is technology business incubators (TBIs). TBIs are incubators which specialise in supporting high or advanced technology content (OECD, 1997, p.53; UNIDO, 1999, pp.2-3; Ratinho et al. 2010, p.5). Other terms apart from TBIs have also been used to describe these technology incubators which include; Science Park, Technology Park, Technology Incubator, Innovation Centre, hi-tech park, science city, and Technopark (Grandori and Giordani, 2011, p.258).

There are different players involved in the growth and development of technology business incubators, and there are roles played by government as well as industry, educational institutions and other research institutes which can help to foster development (Bergek and Norrman, 2008, p.2).

This thesis will be using the term technology business incubators (TBIs) as TBIs are the focus of this thesis. It is reasonable to suggest that the main objective of TBIs is to provide services that support technology projects in their primary stages until these incubated projects are capable of competing in the market (Aberham, 2011, p.15). Furthermore, TBIs are initiatives that aim to support emerging technology projects through the provision of a group of services such as office space and administrative support in addition to other services (Tamasy, 2007, p.462; Ratinho et al. 2010, pp.12-13; Khorsheed et al., 2012, p.1). Khorsheed

et al. (2012, p.1) add that these services which are provided to owners of technology incubated projects, are either tangible or intangible services. Ratinho et al. (2010, pp.5-6) define technology incubators on the basis of meeting two conditions out of three:

- 1- a clear goal to support a high-tech new venture,
- 2- a strong correlation with universities or research institutions,
- 3- its geographical location near to universities or research centres.

The definition by Ratinho et al. misses the main objective of TBIs and the requirements stipulated may mean some incubators do not fit the description. For example, some private incubators may find it difficult to be located near campuses or to have links with universities. Others with a location close to knowledge bases like universities or research institutions may be identified as technology parks rather than business incubators (UNIDO, 1999, p.6). However, some researchers see incubators and technology/science parks as synonymous (Lindelöf and Löfsten, 2004, p.134). Previously, the suggestion could be made that there were multiple opinions among researchers in the division of the types of incubators. Also, some researchers such as Qian et al. (2011, p.21) have a vision for incubators as agencies that support projects in their primary stages through the provision of common services such office space, business networking and administrative support.

Regarding the definition of TBIs, this research will depend on three elements:

- 1- Organisations that provide services and support to a project in their start-up phase.
- 2- Organisations that provide services to technological projects.
- 3- Technologically-oriented projects constitute more than half of the projects in the incubator.

2.4.3.1.1 TBIs around the world:

In China, technology incubators form the vast majority of the incubators which is about 87% (Scaramuzzi, 2002, p.14). In research conducted by Mahmood et al., (2015, pp.238-239), they mentioned that the number of technology incubators in China in 2002 amounted to 368, and it increased to 1239 in 2012. Moreover, some countries such as: Britain, Germany, Italy and France have also established technology incubators as a tool for creating new job opportunities and creating innovative companies (Aberham, 2011, p.7). In addition, a number of industrialised countries joined the previous countries by establishing technology incubators in the past decades of the eighties and nineties⁵ (UN, 2003, p.28; Aberham, 2011,

⁵ See section 2.10.4 about the technology incubators in SA.

p.7). Section 2.11.4 will provide further information about technology business incubators in Saudi Arabia.

2.5 Government role in supporting incubators:

Governments have increased their efforts to create a suitable environment for start-ups through many mechanisms and initiatives. These initiatives aim to help new projects in order to enhance their ability to survive. These initiatives have emerged and disseminated all over the world (Ratinho, 2011, p.3; Amezcua, 2010b, pp.18-22; Özdemir and Şehitoğlu, 2013, pp.282-283). Incubators are one of the initiatives that have received increasing attention as a tool for the development of projects and enhancing project survival. Thus they have become a tool to build a useful sector of Entrepreneurship (Özdemir and Şehitoğlu, 2013, p.283). Since the 1980s business incubators have become one of the most effective policy instruments available to foster enterprise within society (c.f. section 2.3 History of incubators). Over the past decades, incubators have succeeded in Western Europe and North America to become one of the best mechanisms in promoting business activities and local economic development (Adegbite, 2001, p157). In recent decades, governments have strenuously supported business incubators as one of the contributing tools for economic growth (Adkins, 2002 cited in Ratinho et al. 2010, p.3). Government has many roles and provides necessary support as well as funding to ensure that business incubators perform to their best (Lalkaka, 2002, pp.168-171). The ultimate aim therefore is to make sure that incubators help new enterprises to develop enough business competitiveness to survive and grow (Lalkaka, 2002, p.169-170).

The US Government has played an essential role in supporting incubators as a tool of development and of creating new job opportunities (Al-mubaraki and Busler, 2012, p.153). The US government has also provided sponsorship at local and international levels (Chandra and Fealey, 2009, p.74; Al-mubaraki and Busler, 2012, p.153). Özdemir and Şehitoğlu (2013, p.283) add that many governments have allocated resources for the setup and operation of incubators. Information for Development program (INFODEV) is one of the initiatives of the World Bank Group⁶ supporting forty incubators. (Al-mubaraki and Busler, 2012, p.153). The percentage of successful projects in these incubators ranges from 75% to 81% (Aberham, 2011, p.9; Al-mubaraki and Busler, 2012, p.153). The United Nations Industrial Development Organisation (UNIDO) had supported more than 500 incubators in developing

⁶ The World Bank Group, has supported forty incubators.

countries (Aberham, 2011, p.9; Al-mubaraki and Busler, 2012, p.153). The European Commission has financed about 160 incubators (Monkman, 2010, p.5; Aberham, 2011, p.9). Moreover, most of the developing countries support SME projects and a number of these countries use incubators to achieve this objective (Scaramuzzi 2002, p.13). Scaramuzzi adds that Brazil and China are examples of governments that have applied the incubator system as a tool of development that subsequently achieved a clear success.

Allen and Rahman (1985, p.12) suggested that technology business incubation for smaller firms is taking root and is gaining more attention from policy makers, universities and other research institutions. Developed as well as developing countries have focused upon developing the infrastructure necessary to build better business incubators, so that they can contribute more effectively towards sustaining new ventures (Allen, and McCluskey, 1990, p.71). The Saudi Arabian government has greatly supported and promoted the spread of incubator initiatives. Section 2.11.4 provides detailed information on the SA government regulations which aim to support incubator initiatives.

Among the models relating to government support for incubators and start-up projects is exemption from income tax and the tax imposed on the income of real estate properties (Zhang and Sonobe, 2011, p.3). In the Chinese context, the findings presented by Zhang and Sonobe (2011, p.22) have shown that government support is not enough to ensure the success of technological projects. However, it is important, linked with the high quality services that incubators provide to incubatees (Zhang and Sonobe, 2011, p.22). Based on what Zhang and Sonobe found in their research, it is important to combine the government support with providing quality incubation.

As shown in this section, governments from all over the world have increased their role and efforts to create incubator initiatives. These procedures can be seen from a perspective of coercive pressure (see section 2.15.6). The coercive pressures arise from official bodies such as governments, which in turn impose them on a particular organisation based on society's expectations. These societal aspects may also be the result of pressure on governments, such as finding solutions to unemployment.

2.6 Incubator services:

The point was made earlier in the context of incubator definitions that an incubator revolves around support. An incubator is designed in the form of an environment that provides support to start-up enterprises. It provides services and resources to such enterprises (Aerts et al.,

2007, p.255) and these services differ from one incubator to another (Aerts et al., 2007, p.260).

Incubators provide SMEs with two types of support; tangible and intangible resources (Gassmann and Becker, 2006, p.26). In the tangible part, incubators provide their incubatees with different types of services which vary from one incubator to another. They include; space, general office equipment, business networking, internet, meeting rooms and conference facilities (Aerts et al., 2007, p.260). The intangible services which incubators provide also vary from one incubator to another. They can be in the form of business planning, financial advice, marketing advice, consultation on various requests, an information centre, support with developing products, accounting, legal support, help with e-business, venture capital funding, managerial training, staff training and other services (Aerts et al. 2007, p.13). In addition, there are other services such as: guidance; administrative facilities; financial, legal and marketing support services shared between incubatees; reception; and car parking (Hackett and Dilts, 2004, p.55; Aerts et al., 2007, p.260; McAdam and McAdam, 2008, pp.278-282; Davies, 2009, pp.23-25; Schwartz, 2013, p.305; Bøllingtoft, 2012, p.306; Mahmood et al., 2015, p.149). Administrative services include a group of services such as training, project planning, project development, marketing, financial services and coaching (Chelule et al. 2011, pp.4-5). Incubators provide coaching as one of their services for incubatees (Ratinho et al. 2010, p.8; Dee et al., 2011, p.6). Coaching was found to be important for the incubatees' timely 'graduation' (Peters et al., 2004, pp.86-88; Ratinho et al., 2010, p.848). It has an effect on the growth and development of the company (Robson and Bennett, 2000 cited in Ratinho et al., 2010, p.848). Many incubators provide training within the package of services that they provide to the incubatees (Aerts et al., 2007, p.256; Ratinho et al. 2010, p.8). Training for incubatees is considered less interactive than coaching (Ratinho et al. 2010, p.8). Training courses contribute to the development of the human capital and this will be reflected in their performance (Colombo and Grilli, 2005, p.799; Davidsson and Honig, 2003, pp.306-307; Ratinho, et al. 2010, p.848). Consultation with the coach can be optional or mandatory, and on a free basis or for a fee (Peters et al., 2004; Ratinho et al., 2010, p.848; Abdul Khalid, 2012, p.59). The owners of incubated projects mention a fast take-off of the project through the incubator and through the provision of some services that may seem trivial services (McAdam and McAdam, 2008, p.288). These services, such as telephone and internet, contribute to the growth of the project. They do so by allowing owners of projects to concentrate on their projects during the launch and the initial stages of the project. (McAdam and McAdam, 2008, p.288).

Aerts et al. (2007, p.260) in his research, gave the percentages for the dissemination of services in European incubators. Meeting rooms had an availability of 96%, as the largest percentage for a service made available by an incubator, followed by networking with 88%. Then, business planning and forming a company with 86%. Next, internet with 85%, then assistance for obtaining financing or loan at percentage of 79% and the general accessories of office at a percentage of 77%.

2.6.1 The most important service:

In the literature review, there are several arguments about what is the most important service provided by incubators. It is noticeable that the most important service differs from one environment to another. Moreover, it differs based upon the place of the incubator. Ratinho (2011, p.11) mentions that the location of the incubator plays an additional role for potential clients and the market. Moreover, coaching has been considered to be the most important service which business incubators can provide to their incubatees (Mian, 1996, p.330; Hansen et al., 2000, p.77; Ratinho, et al. 2010, p.848). Aerts et al. (2007, p.260) mentions that there are some authors who consider networking an essential element for the success of emerging projects. Networking is considered a critical service for the owners of incubated projects, as it contributes to the survival and growth of the incubated business (McAdam and McAdam, 2008, p.285; Bøllingtoft, 2012, pp.306-307). Bøllingtoft (2012, pp.306-307) adds that business networks provide information, advice and resources for the owners of incubated projects. In addition, incubators contribute in creating networks between emerging incubated projects and universities, investors and supporting authorities (Hannon, 2005, p.66; McAdam and Marlow, 2007, p.363). Creating this environment of business networks for incubated project owners would help to overcome obstacles that face emerging projects in their primary stages (Lender, 2003 cited in McAdam and Marlow, 2007, p.363). Network theory can be a suitable method to study the incubator's network for the incubatees (see section 2.14.1).

On the other hand, many authors mentioned empirical evidence considering space to be the most important feature provided to incubatees (Chan and Lau, 2005, p.1226; Schwartz, 2013, p.305). Schwartz (2013, p.305) claims that space is the most important benefit by considering the shared resources which usually exist within the services provided to incubatees (McAdam and McAdam, 2008, p.285; Schwartz, 2013, p.305). Bøllingtoft (2012, p.309) mentioned that the provision of space for incubatees at a low cost is one of the two most important encouragements for project owners to join the incubator. It helps them to minimise the cost of setup and operation.

According to the literature review, a real possibility is that there are many services for incubated projects that are provided by incubators. It is important that incubators should provide services to incubatees which are high quality, so that they can contribute to the growth of incubated projects (Ratinho et al. 2010, p.4). However, if incubated projects cannot have access to several services from the incubator, then these projects shall be of the same level as the non-incubated projects existing outside the incubator.

Based on the foregoing, there is no absolute agreement among researchers as to what is the most important service provided by incubators. This, then, raises the question about the important services provided by an incubator as to whether these differ according to the environment.

2.7 Benefits of incubation:

It is recognised that incubators are a multi-task economic tool within socio-economic policy. As an economic tool incubators support small enterprises, employment, creation of wealth, innovation, transfer of technology and links between universities, research centres and the business community (Davies, 2009, p.5). Incubators can minimise obstacles that face start-up projects in their initial stages through the services provided which enable the project to start quickly (McAdam and Marlow, 2007, p.367). Being accepted in one of the incubators (i.e. on-incubator) has many benefits for the start-up company, the owner, and the employees. For example, incubatees gain easier access to government grants or venture capital, as well as assistance in the expansion of the market (Kim and Jung, 2010, p.276). It makes to say that the contributions made by the incubator in accelerating and developing companies, innovation and creation of jobs can be more important (The European Commission, 2002, p.7; Aerts et al. 2007, p.257). Hackett and Dilts (2004, p.59) mention that many researchers assume that incubators are one of the tools of development that help in creating new job opportunities in terms of their contribution to longer survival rates for start-up projects. Bøllingtoft (2012, p.309) states that there are two incentives that are equally important and they motivate the owners of the project to join the incubator. The first incentive is the practical incentive, as the space that is provided to incubatees has a low price that they are able to pay. In addition, the package of services that the incubators provide to incubatees contributes in reducing costs. Secondly, the existence of the project within the peer environment of the projects owners.

The following sections will discuss the benefits provided by incubators to incubatees by discussing five important tangible and intangible benefits that the researcher believes help incubatees to achieve growth.

2.7.1 Reducing costs:

Incubators are considered one of the tools that contribute in helping the owners of start-up projects in the initial stages through the provision of a set of services such as: office space; administrative services; reception and consultation from managers (McAdam and Marlow, 2007, p.361). They add that these services reduce the operational costs for the owners of the projects and encourage them to concentrate more on developing their products. On the other side, incubators contribute through their own business network in reducing the costs of resources and information for incubatees (Aerts et al. 2007, p.261). The most important role that is provided by the weretechnology business incubator system in Turkey is to motivate incubatees to run the risks and launch their projects through the provision of suitable services and environment (Özdemir and Şehitoğlu, 2013, p.289). Thus they are reducing the setup and initial operational costs while the private sector is still hesitant to enter the field of investment (Özdemir and Şehitoğlu, 2013, p.289). They decrease the overhead costs which can be a heavy burden on the institution especially when it is a starter company (Ratinho et al. 2010, p.6). Hackett and Dilts (2004, p.69) mentioned that among the main objectives of the incubator is to minimise the setup and operational costs for start-up projects through the provision of shared services and spaces with low prices which help them during the primary stages of the project.

A real possibility is that incubators' contribution in terms of reducing the initial stage's establishment costs and operation for project owners is a positive impact. This is because, in the initial stages, owners spend their capital on expenses associated with the development of their essential work, not on secondary elements such as office furnishings. In addition, the contribution made by incubators in reducing establishment and operation costs would contribute to the setting up of new, low cost projects. This can be seen in the case of several mega technological projects such as Apple, Google and Amazon, and other projects that started inside a garage. In their initial stages such projects were not able to incur the costs of setting up an office. The following paragraph discusses the effect of the incubator's environment in helping start-up projects that, for example, might have started in a garage.

2.7.2 Incubator environment:

The presence of these start-up companies in one place and the shared services enhance their knowledge and cooperation. Thus being accepted in an incubator might increase the opportunities for growth (Ratinho et al. 2010, p.7). In the literature review about business incubators, the researchers confirmed that the chances of cooperation between the owners of incubated projects who are working under one roof is often likely to take place (Bøllingtoft, 2012, p.305). Ratinho et al. (2010, p.7) add that the existence of incubated start-up projects under one roof and sharing joint resources has the potential to increase the cooperation between them and increase the formation of acquaintances and alliances. Bøllingtoft and Ulhøi (2005, p.278) mentioned in the MG50 (networked incubator) experiment that there was an agreement on the main elements including: 1- the exchange of information and knowledge between incubatees should be considered important and that they should be colleagues rather than being competitors 2- the objective is not sharing the same building, but the owners of the projects should spend time with each other in a social way. On the other hand, for the sake of building a suitable environment for the owners of projects, what is required of the establishment of incubators is to support the start-ups and not to compete among them (Al-Mubarak and Busler 2011, p.457). In addition, incubators provide the benefit of greater cooperation among incubatees including a set of services and skills (Bøllingtoft and Ulhøi 2005, p.269). That means that the incubator is not only a geographical location where the owners of the projects meet to reduce operational costs (Allen and Rahman, 1985, P.13; Bøllingtoft and Ulhøi 2005, p.269). From what has been mentioned in other research in the literature review, it can be shown that the incubator environment can add positive value for start-ups under one roof.

2.7.3 Survival rate:

Incubators seek to provide services to the incubated projects in their initial stages to increase the stability and growth of the projects and to increase their survival rate (Schwartz 2013, p.306). He adds that for this reason, the support provided by incubators to start-ups may contribute in increasing the long-term survival for the incubated projects. The most comprehensive objective for the incubators is increasing the incubatees' survival rate chances during the setup stages (Allen and Rahman, 1985, pp.12-13; Hackett and Dilts, 2004, p.60). Incubators contribute in supporting the owners of incubated projects for survival and growth during their initial stages (Al-mubarak and Busler, 2012, p.155). The survival rates

for incubatees can be considered to be one of the indicators that measure the performance of incubators (The European Commission, 2002, p.xi; Aerts et al. 2007, p.257).

With regard to the survival rate of incubated projects, the benchmark study of the European Commission (2002, p.xi) showed that there was a remarkable increase (80–90% still existing after 5 years) for incubated businesses when compared to the survival rate for other non-incubated SMEs (estimated at 30-50%) (Scaramuzzi 2002, p.24). With regard to non-incubated projects, the OECD (2002, p.36) mentions only 30-50% of non-incubated projects surviving into their eighth year. Between the end of 1980 up to 1990 the SME survival rate dropped each year in many countries including the USA, Canada, West Germany, Italy, Finland, Portugal, France (OECD, 2002, p.35). Reducing operational cost by shared facilities and receiving support with financial issues - either by advice or help with capital may increase the survival rate of the incubatees as the following state. The Office for National Statistics (ONS) in the UK began producing statistics in 2009 on survival rate percentages for business, which were still being collected up to 2014. The ONS found that the percentage of business survival in 2014 was 41.1% (ONS, 2014, p.8). Fox (2014, p.4) commented that the previous report is substantial in highlighting the importance of the incubators and accelerators in Britain for start-ups. He gives survival rates for businesses established in 2009 after two years (2011). The percentage was 92% for incubated businesses compared with 75.6% for all small projects. Abetti (2004, pp.26-33-34) in his study for 5 incubators out of 16, in Helsinki region in Finland, showed that incubators have a positive effect on incubated companies in terms of creation of new jobs, cost of operation and growth and regional unemployment. In addition, the survival rate reached 95% for incubated projects. Abetti also showed that incubators had contributed in building highly skilled jobs with low costs from governmental financing (Özdemir and Şehitoğlu, 2013, p.284). Moreover, there is a higher survival rate of incubatees who have been graduates from incubators (Monlar et al. 1997 cited in Kim and Jung 2010, p.11).

From what has been mentioned by several researchers, it is clear that incubators have an impact on increasing the percentage of surviving incubated projects when compared with non-incubated projects. This however leads us to ask a question: ‘Can the effect of incubators on increasing the percentage of surviving projects be generalised to all countries and all cultures?’

2.7.4 Credibility:

Start-up companies do not have reputation or legitimacy in the market. This may affect the relationships of the company in negotiating with suppliers, clients or financial organisations (Schwartz, 2013, p.305). Therefore, incubators play an important role by associating incubated projects with their own image, which enhances the credibility for incubatees (McAdam and Marlow, 2007, p.363; McAdam and McAdam, 2008, p.285; Schwartz, 2013, p.305). Being inside incubators gives a signal, that may increase the incubatees' credibility and legitimacy to a potential customer (Ratinho et al. 2010, p.17). McAdam and McAdam, (2008, p.285) mention in the literature review, that credibility can be considered one of the greatest benefits that the projects gain from incubation as their addresses become associated with the incubator. In addition to that, incubated companies have valued the great contribution in increasing the credibility for their companies resulting from the process of incubation (McAdam and McAdam, 2008, p.288; Ratinho, 2011, p.11). Credibility resulting from an external source can contribute in minimizing the obstacles of newness that start-up projects face (Singh et al., 1986, pp.171; Ratinho et al. 2010, p.7). Ratinho et al. (2010, p.7) adds that incubated businesses within incubators are able to show indicators of quality which contribute in increasing their credibility. The strict conditions for acceptance in the incubators have contributed in giving incubated projects the indications that they have a chance for growth (Ratinho et al. 2010, p.7). This increase in credibility can potentially contribute to increasing survival chances for the projects even in cases where fewer resources are available. (Singh et al., 1986, p.173; Ratinho et al. 2010, p.7). It can be considered that there is a clear effect resulting from accepting start-up projects in the incubators thus increasing credibility. However, it can also be said that this effect decreases when the companies grow and become more experienced (McAdam and McAdam 2008, p.288). Moreover, in a study conducted on Science Parks in Sweden, companies engaged in the field of biotechnology felt that the profile of the Park and the credibility linked with it made a significant difference to the development of such companies. However, those companies engaged in the field of information technology had the feeling that the difference made in their development was minimal (Lowegren, 2003 cited in McAdam and McAdam, 2008, p.285).

When they begin, projects have to prove that they are worthy of the trust from the customers they are targeting. This may be difficult to achieve for startups that are in their initial phases and do not have sufficient credibility. Through what is mentioned in the literature, it can be seen that incubators can play a role by demonstrating that these projects have been assessed

by a larger authority (incubators). This may add an aspect of credibility for incubated businesses.

2.7.5 Incubators role in growth:

Many literature reviews discussed the effect of the incubators through making comparisons between the incubated and non- incubated projects. In a study conducted by Lindelöf and Löfsten (2002, p.150) on the New Technology- Based Firms (NTBFs) in Sweden, he found that the NTBFs which are incubated in the science parks have a significant impact on incubatees concentrating on creative activities. This was greater than the NTBFs that are outside Science Parks (Yang et al. 2009, pp.77-78). There is another study (Colombo and Delmastro, 2002, p.1103) on 45 technology emerging companies incubated in technology incubators. They compared them with non-incubated companies but they have almost the same characteristics. The results of this study confirmed that the incubated technology projects have shown results and performance higher than their counterparts in terms of the growth of projects, the adoption of advanced technologies and building better networks especially with universities. In addition, their access to governmental funds became much easier. Moreover, Ferguson and Olofsson (2004, p.5) mentioned that in Sweden, science parks contribute in increasing the survival rates of the incubated projects more than the non-incubated projects. There is a significant impact for the incubators on the incubated projects compared with the non-incubated projects in the following aspects: increase in sales and manpower (Mian, 1997, p.275; Scillitoe and Chakrabarti, 2010, p.155); survival rate (Reitan, 1997, pp.292-295; Scillitoe and Chakrabarti, 2010, p.155) and innovation (Tamasy, 2007, p.460; Scillitoe and Chakrabarti, 2010, p.155). Bøllingtoft and Ulhøi (2005, p.272) stated that a number of researchers argued incubated projects have a failure rate less than the failure rate of non- incubated projects. In another study, it was found that the incubated projects have a rate of sales and employment higher than non-incubated projects (Akcomak and Taymaz, 2007, p.15; Özdemir and Şehitoğlu, 2013, p.285). In the empirical findings conducted by Yang et al. (2009, p.77) on the incubated NTBFs in science parks in Taiwan, they found that NTBFs invest more efficiently when compared with non-incubated NTBFs. They also add that the existence of a slight advantage of the incubated NTBFs results from the business network created by Science Parks. Empirical evidence also indicated support for the conception that firms which are on-incubators perform better than the firms that are off-incubators, with capacities for innovation, network, and outcomes (Colombo and Delmastro, 2002, p.1117; Löfsten and Lindelöf, 2002, p.150; Kim and Jung 2010, p.276).

There are some theories that provide appropriate tools that could contribute to achieving the goals of incubators in the success and growth of incubated projects. Some researchers have mentioned the use of dynamic capabilities theory in the incubators field. An example of this is Hackett and Dilts (2004a, p.46) who stated that incubators are seeking to build new successful projects and that the dynamic capabilities theory may contribute to giving these projects added value. The success of incubated projects would contribute to the incubator's success in general; where Ghasemizad et al. (2011, p.9279) mentioned that dynamic theory would contribute to the success of incubators if their internal and external resources are used to keep up with rapid developments in the surroundings. The efficient use of resources can achieve many outcomes. One key outcome is the efficient use of resources to complete crucial tasks in the life-cycle of the project, thus contributing to the success of incubated projects.

2.8 Incubators success factors:

There are number of empirical studies in the literature that have studied the factors that contribute to the success of incubators (Hackett and Dilts, 2004; Zhang and Sonobe, 2011, p.2).

Wiggins and Gibson (2003) have demonstrated that incubators should have five elements for success:

- 1- A clear vision of the mechanism for the measurement of success.
- 2- Training and development of leadership and entrepreneurial skills.
- 3- Provision of value-added services to incubatees.
- 4- A rational mechanism for the selection of incubatees.
- 5- Making sure that incubatees obtain suitable financial and human resources.

Peters et al. (2004) commented on the issue mentioned in point number three, that coaching and access to business networks are considered to be the two most important services that often play a role in the success or failure of incubators. They stated in a review of the literature, that they found that there are three essential elements provided by incubators that play an important role in the success of incubatees:

- 1- Provision of prospective support to incubatees.
- 2- Provision of support to incubatees for making and developing business planning.
- 3- Provision of support to incubatees for developing control systems in their primary stages.

The researcher sees that business planning at the present time is no longer of significant importance in the field of projects. This is contrary to the situation before 2007, when it was thought that business planning was important.

Buys and Mbewana (2007, p.357) mentioned that, through a search of the literature, they found 39 elements associated with the success of incubators. They selected eleven elements, because several of these elements share the same essence, or such elements are not related to the current situation of incubators in South Africa. The eleven elements are as follows:

- 1- Access to experts.
- 2- Developing a comprehensive action plan.
- 3- Strict criteria for selection.
- 4- Availability of funding.
- 5- Quality of entrepreneurs.
- 6- Support by concerned authorities.
- 7- Supporting government systems.
- 8- Supporting administration.
- 9- Financial sustainability.
- 10- Panel of experts.
- 11- Networking.

The results mentioned by Buys and Mbewana (2007, p.357) show that incubators that have had a conducive environment have more chance of success than incubators that did not have such an environment. They added that one of the important findings they found is that success factors that have a high linkage with incubator success also have a high linkage with each other. It is reasonable to suggest that it is difficult to determine the elements or conditions for the success of incubators (O'Neal, 2005, p.12). Instead, O'Neal said that there are two essential questions which are as follows: "What is meant by incubator success" and "What is it that the incubator sponsors are trying to achieve?"

The objective of the incubator can be considered to be the selection of projects that are most likely to fail without the support of the incubators, compared with projects that have indicators of success. This is necessary in order to find a solution for the problem of failure of projects in the market (Hackett and Dilts, 2004b, p.43; Zhang and Sonobe, 2011, p.3). Zhang and Sonobe (2011, p.3) indicate that the problem of projects in the market is not only found in developed countries. It also exists in developing countries. They added that this problem is not less important than the situation in developed countries. However, not all

incubators are successful (Buys and Mbewana, 2007, p.357). Consequently, it is important to study the factors associated with the success or failure of incubators.

2.8.1 University incubators related with success:

University incubators are incubators which are supported by universities and mainly oriented towards serving students and academics in the university. Zhang and Sonobe (2011, p.10) mentioned that there are some differences between general and university incubators. Firstly, there is a difference in the quality of inputs and outputs between the two types of incubator. Secondly, university incubators may have some additional benefits and facilities such as access to libraries and laboratories.

In the university education phase, incubators play a role in developing entrepreneurial skills and supporting projects for students and graduates (Voisey and Gornall, 2006, p.460). O'Neal (2005, p.11) mentioned that 70% of the developing companies they examined had employed student interns. He added that 40% of their staff were students, and 44% of the technological resources were obtained through indirect employment of teaching staff. It makes to think that this procedure on the part of developing companies directly aims to reduce the costs of employment through the employment of students. Rothaermel and Thursby (2005, p.1) mentioned that there are theoretically important facts that show that those incubators which are strongly linked with universities are more successful than others. They add that their results have shown that projects that are incubated in a university situation are less exposed to failure than others by a factor of 2.2. The importance of incubators being associated with a university is high by about 60% in comparison with other incubators, according to a Coopers and Lybrand study (1995). On the other hand, Zhang and Sonobe (2011, p.22) mentioned that the results of their research have shown that there is no difference between government and university incubators regarding their contribution to the success of incubated projects. They added that one of the important findings of their research is that the number of graduates from the incubator is basically associated with the quality of services provided by the incubator, and not based upon its location and being near a university. The researcher noted that the effect of incubators linked to universities was clearer in the old studies such as those of: 1- Coopers and Lybrand (1995). 2- Rothaermel and Thursby's (2005) study during the period 1998 to 2003 and 3- O' Neal (2005). This may be due to several factors including firstly that, in the 1990s, it was not possible for the public to search on the internet for information as easily as they can today. Consequently, the ease of access to experts from the university was one of the benefits of university incubators. Second, it is easier for the owners

of projects to obtain research findings and studies of the market from universities rather than depending on direct sources. Third, the name of the university could have increased the credibility of the project during the 1990s.

2.8.2 Managers and staff:

The previous researches mentioned that the managers of incubators play an important role in the life of incubatees through their interaction with the owners of incubated projects. This interaction contributes in increasing knowledge that in turn contributes to the survival and growth of such projects (Scillitoe and Chakrabarti, 2010, pp.158-159; Zhu et al., 2014, p.3). Thus, the manager of the incubator can be considered to be the main focus in the incubator and its environment, such that the manager of incubators is considered to be the essential source of knowledge for the incubatees through knowledge and experiences provided to them. This is in addition to his or her contribution through connecting them with the knowledge network (Sá and Lee, 2012, p.244; Zhu et al., 2014, p.3).

It makes to think that the time that the manager of the incubator spends interacting with the project owners affects the quality of the service provided to the incubatees to develop their projects (Hackett and Dilts 2004, pp.70-71-73; Scillitoe and Chakrabarti 2010, p.158; Zhu et al., 2014, p.3). The performance of the incubator is not only dependent upon its manager, but it also depends upon the benefit that the incubatees get from the programs and services of the incubator (Zhu et al., 2014, p.12). The construction of the incubator and its business network and services are important, but what is more important is how the incubatees benefit from these services (Zhu et al., 2014, p.14). It is reasonable to suggest that the managers of incubators have become more knowledgeable in how to assist their incubatees through making the services provided by the incubator available and valuable (Ratinho, 2011, p.165). However, incubators need managers who have experience and skills that can contribute in making the projects of the incubatees successful. The managers of the incubators should have a high level of commitment to the incubated project owners assisting them towards graduation from the incubator (Al-Mubarak and Busler 2011, p.456). Section 2.12.1.1 sets out the important role of incubator managers regarding selection criteria for candidate businesses.

It can also be said that the importance of the staff working in the incubator is no less than the importance of the management, because staff are responsible for the implementation of the rules and regulations of the incubator.

Zhang and Sonobe (2011, p.6) consider that one of the most important key additions to incubators are the services provided by the management of the incubator. This is due to the ability of management in terms of determining and selecting the projects that will be incubated, in addition to the high quality of training and development provided by the management for these start-up projects (Zhang and Sonobe, 2011, pp.6-7). In the USA, Wiggin and Gibson (2003, p.61) considered that the incubator team is a key aspect for the success of incubators. They added that, from the first, the manager of the incubator plays an important role in developing the future development of the incubator, since he sets the tone for the incubator.

From a theory perspective, the role of an incubator manager can be viewed from different angles. Agency theory can be taken into account as an appropriate theoretical framework for studying the connections between the managers of incubators and the other incubatees (Hackett and Dilts, 2004a, p.46). Researchers have used agency theory in the field of incubation (see section 2.14.5). These theories study the relationship between the principal, who is the manager of the incubator when it applies in the field of the incubator, and the owners of the incubated projects. This theory may contribute to enriching the knowledge of the role played by the incubator manager due to the importance of the role played by the incubator manager as mentioned by many researchers in this section. This theory, like other theories faces dissenting opinions. Hansen et al. (2000) and Hackett and Dilts (2004a, p.46) mentioned that agency theory ignores the role of the business network in the relationship between incubator managers and the owners of the incubated projects. The researcher sees that the impact of the incubator's manager can better be measured through methods other than agency theory. This is because incubator managers do not have enough power over the owners of the incubated projects to fit this theory; their role often decreases after they have accepted incubated projects and their role is restricted to a guidance role.

The success of incubated projects is considered the most important measure for incubators (see section 2.8.3). Incubator managers may therefore not play the full role of the traditional principal by imposing their opinions and convictions on incubated projects. This may also be due to the fact that the projects accepted by incubators have more entrepreneurial features than traditional features. Thus, this would open the way for another theory: behavioral theory. It is possible to apply behavioral theory in the field of incubators. Ghasemizad et al (2011, p.9279) consider that entrepreneurial behaviour is one of the personal qualities that is characterized by the owners of incubated projects. Behavioural theory (see section 2.14.6) studies external factors on incubators and incubatees (Hackett and Dilts, 2004a, p.54;

Ghasemizad et al., 2011, p.9279). The decisions taken by the owners of projects by there being a competitive or collaborative approach will affect the growth of the company. In addition, Nyangau (2016, p.12) mentioned that the neglect of agency theory would open up the way for other theories, which include network theory. Network theory has been used by several researchers in the field of incubators (see section 2.14.1). Such theory would study networks between the managers of incubators and incubatees in a broader area, when incubators take the role of mediator of a network between their incubatees and the relevant parties.

However, in a study of old incubators compared to new incubators conducted by Zhang and Sonobe (2011, p.22), they found that in China the quality of education of the management of the incubator has become less important in determining the performance of the incubator. They clarified that the reason for this is that incubators in China have recently become systemized and standardized. A question can be asked here about the possibility of transforming incubators into a methodised and standard place. Will this lead to a loss of some degree of creativity and discovery which incubators are striving to achieve? In addition, is this method consistent with the approach of other countries, or is it just suitable due to the nature of the Chinese culture where the government leads the direction of the country? While such questions are interesting, they are away from the main area of interest for this thesis, and will have to be left.

2.8.3 Incubators success measurement:

The measurement of the success of incubators is considered to be one of the first areas of research that was paid attention to in the literature. The Council for Urban Economic Development (CUED) is considered one of the first organisations to have conducted qualitative studies on incubators through conducting a study on 50 successful incubators (Peterson, 1985; O'Neal, 2005, pp.15-16). CUED studied the structure of the incubator whether it was a university, non-profit, or private incubator or other type of incubator. One of the most important studies (Birch, 1987) conducted in the USA between 1969 and 1976 showed that start-up projects created 80% of new jobs (Birch, 1987; O'Neal, 2005, pp.15-16). This study led to a change in policy in terms of supporting start-up projects, and also led to the explosive spread of incubators in the USA (Harrison, 1987; Shahidi, 1997; O'Neal, 2005, pp.15-16). This led to a need to understand the reasons for the success of incubators in order to replicate this experiment, and to conduct many studies and researches on the factors leading to the success of incubators (Peterson et al., 1985; Campbell et al., 1988; Smilor and

Gill, 1986; O'Neal, 2005, pp.15-16). The traditional method for measuring the performance of any commercial company is done directly through reading the data of profit and loss of the company (Voisey and Gornall, 2006, pp.456-457). In the field of technical business there are some huge technical businesses that cannot be measured merely based on the profit and loss in their financial reports. There are many large technology companies, for example Twitter, which have not achieved a profit for years but which are, in general, successful companies. Incubators generally seek to support leading technical projects that may not be applicable to some of the above benchmarks. TBIs can be an opportunity to support and create such projects that may achieve success after several years.

Although the majority of incubators are non-profit, they are considered to be traditional commercial enterprises as Hackett and Dilts (2004) and Voisey and Gornall (2006, pp.456-457) mentioned. Trying to apply a model for measuring the success of incubators may pose a dilemma (Sawhill and Williamson, 2001; Voisey and Gornall, 2006, pp.456-457). The measurement of the performance of non-profit incubators can be seen to be an easy process (Voisey and Gornall, 2006, pp.456-457). However, the measurement of the performance of incubators is difficult due to the difference in services and level of quality provided by incubators (O'Neal, 2005, pp.15-16). Many pieces of research that have been conducted on the performance of incubators have focused on the financial or economic aspect of the incubators, while a study of organisational theory could be beneficial (Cornelius and Remedios, 2005, p.1). They added that research into incubators should be conducted on a large-scale basis through the use of models that include authorities supporting incubators, the staff of the incubators, and incubatees. This point of view is supported by the results of the research by Voisey and Gornall (2006, p.445) that indicates that in the event that the incubator gives continuous support, then its assessment should involve more than just statistics. Voisey and Gornall (2006, p.455) suggest a mechanism for measuring the performance of incubators through what they call "hard measures" which include the number of incubated projects, the value of sales, and other measures. There is another mechanism, which is termed "soft management" which includes the identification of skills acquired from incubators. Moreover, there are many methods for measuring the performance of incubators, some of which rely on the number of those who have graduated from incubators, or the growth percentage of the incubated projects (Zhang and Sonobe, 2011, p.1). They mention that the assessment of incubators in China is based upon the number of graduates. However, this is considered to be an unrealistic means of assessment because the salaries of the

managers of the incubators is based on the number of graduates. Also, they add that to assess incubators on a fair basis, especially incubators that are in their primary stages, it should be based upon milestones achieved, instead of through quantitative indicators only. The researcher agrees with the opinion that this (milestones achieved) as a method of assessment may be suitable for the Saudi incubators that are still in the primary stages. The researcher's opinion is consistent with the views of Wiggins and Gibson (2003, pp. 60-61) namely that they support the view that each incubator should set measurements for success based upon the objectives that it intends to achieve. They add that the field of business incubators is a wide field; there are incubators that seek to create new jobs and others that have other aims including reducing the chances of failure. In the literature review, Ratinho (2011, p.182) mentions that dynamic capabilities theory can be one of the methods to measure the performance of incubators.

All research is different in terms of its nature and objectives. Since there are many pieces of research that seek to measure the performance of incubators, the nature and objectives of this research seek to discover the effect of incubators in Saudi Arabia, based on the fact that this research is considered one of the first academic studies into incubators in Saudi Arabia.

Many researchers have selected the method of the "calculation of the number of jobs" which are created by incubators through their incubated projects (O'Neal, 2005, p.13). O'Neal (2005) adds that this simple method ignores the most important aspect - that jobs are created on a large scale when projects survive after graduation. The researcher can see that depending on the number of jobs created by the incubator is a measurement that cannot be considered to be sufficient. However, it is possible to consider it as one of the elements that can be used to measure the performance of an incubator (provided one of its objectives is job creation).

The researcher agrees with what was mentioned in the OECD report (2002, p.v) regarding the importance of assessing the success or failure of incubators based upon the long term effect. This does not necessarily mean that the performance of incubators should not be assessed and developed on a continuous basis. However, the final judgment requires a long-range study to indicate whether or not incubators have had an impact. This effect should not be limited to the direct effect on incubatees, but also on the effect on the development of the economy.

2.9 Incubators disadvantages:

However, there are some studies that mentioned that there is little or a weak effect of the incubators upon the incubated business compared with non-incubated business. Westhead (1997, p.45) mentioned that incubated projects do not show a statistical increase more than

non-incubated projects. In addition, there is little effect or there is no effect at all on the incubated projects in terms of the survival rate and projects innovation (Tamasy, 2007, p.469; Scillitoe and Chakrabarti, 2010, p.155) and increasing the creation of job opportunities (Reitan, 1997, p.294; Scillitoe and Chakrabarti, 2010, p.155). Moreover, Scillitoe and Chakrabarti (2010, p.155) mentioned regarding incubators: that they have little effect, they do not have any effect on the success of the projects or increasing the survival rates and they do not encourage innovation.

Generally speaking, there are some defects within incubators that are rarely discussed in the extant literature (Barrow, 2001 cited in McAdam and Marlow, 2007, p.362). OECD (2002, p.v) argues that the performance of the incubator should be evaluated primarily based upon the results achieved by the incubator, i.e. the effect upon the incubatees and the expanded economic development. They add that judging the performance of incubators should be based upon the long-term impact achieved instead of judging on short-term measurements such as the number of incubatees in the incubator and the rate of failure.

Furthermore, there are a few studies which collected information in cases in which SMEs decided not to join incubators. For instance, in the research conducted by Sternberg et al. (1997 cited in Tamasy, 2007, pp.465-466) in Germany, it showed that only 3% of 1,021 SMEs in 108 technology business incubators said they would not have started their business if they were not in incubators. Tamasy (2007, pp.465-466) has two comments about the Sternberg et al study. The first is that 19% of the firms had existed for more than two years. The second, is that the majority of the business owners “took the support as an additional bonus” (Tamasy, 2007, pp.465-466). However, in a similar study of 48 firms incubated in Turkey, the results showed that only two of the companies would not have started their business if not located inside incubators (Akçomak and Taymaz, 2007, p.14).

However, various factors might have influenced the outcome, such as the methods used in selection and the strong selection bias of technology business incubators (Hackett and Dilts, 2004, p.68) (see section 2.11 for the methods of selections). Despite the increase and the wide spread of technology incubators, the reality remains that their performance varies unevenly between regions (Lewis, 2001, p.10). In the literature review, there is a variation in opinions regarding the effect of incubators worldwide (Yang et al., 2009, p.78; Scillitoe and Chakrabarti, 2010, p.155). Pena (2004, p.83) mentioned that he designed an initial model to enhance awareness of the effect of incubators. The findings showed that the model was ineffective in its aim of showing the effect of incubators on incubatees and that Pena needed a more comprehensive model to measure the effect of incubators on the incubatees. Yang et

al. (2009, p.78) mention that there are limited studies that have shown mixed results and that this argument needs more empirical studies to show the effect of incubators. Through the observation of a number of previous articles that formed negative opinions about the incubators, the researcher notices that they are dated, for example: Westhead (1997), Reitan (1997) and Sternberg et al. (1997). All these studies were before the beginning of the new millennium and before the internet bubble. This may mean that taking these studies as conclusive evidence is a difficult task in the light of the huge development that the world has witnessed in the technological field in the new millennium. In addition, several reports mentioned that the effect of incubators was not apparent in certain respects such as the percentage of survival and creating new jobs. It appears that some of the aspects in which the incubators have made a contribution have not been covered in the literature.

Moreover, there are no inclusive surveys on the status of incubators in developing countries (Scaramuzzi 2002, p.6). Incubators in developing countries will be addressed in section 2.11. As mentioned in Section 1.2, the research on incubators in SA is limited. The lack of research in this topic in developing countries is one of the research gaps that this research seeks to close. The next section will address the issue of location and how this can effect incubators.

2.10 Incubators geographic factor:

The geographical location of incubators has been discussed by a number of researchers in an attempt to understand its effect on the incubators and the incubatees whether in terms of the location of the incubator in the same city or state or at the level of countries.

In the USA over the past twenty years, there was a rapid spread of incubators. However, regions did not benefit from the distribution of incubators on an equal basis (Qian et al. 2011, p.2). Qian et al. (2011, p.7) add that incubators are distributed in the USA as follows: “78% of incubators are located in metropolitan areas, compared with 15% in micropolitan areas”. In Britain, the Government tries its best to spread incubators outside the capital city but despite these efforts, London has close to two thirds (61%) of the incubators and accelerators in Britain (Fox, 2014, p.3). In Brazil, 83% of incubators are in the South or South East of Brazil (Scaramuzzi 2002, p.15) which embraces the largest three cities in Brazil. Thus, the suggestion could be made that the number of incubators rises where the population is increasing.

Yang et al. (2009, pp.78-79) discussed several reasons for the location of the Science Park in Hsinchu city in Taiwan. First of all, it is only eight kilometres away from the capital city and forty kilometres away from Taiwan’s International Airport. Second, it is near to three

nationally distinguished universities. Third, it is near the largest research centre in Taiwan that employs more than four thousand researchers. Section 2.2.3.1 discussed the obstacles that face SMEs and the effect of location upon incubators and incubatees.

As part of the theory of incubators, an aim in the design is to target developed countries and the urban regions as rural regions lack the characteristics necessary for the implementation of incubators (Chelule et al. 2011, p.1). Chelule et al, reasons that incubators are unlikely to be practical in the rural areas due to geographic factors and demographic characteristics (Chelule et al. 2011, p.1). Moreover, the business activities of owners of urban projects are larger than those in the rural areas that suffer from a lack of such activities (Chelule et al. 2011, p.2). The existence of more incubators in major cities in comparison with small cities can be readily understood. Specifically, incubators exist in large numbers in places where people gather together. This poses a question: For technological projects, in an age of information and communications technologies, is it necessary that incubators should exist in major cities? Virtual incubators that can provide their services to the owners of projects sited outside the city in which the incubator exists. This places incubators that provide incubation to projects into two types for the assessment of performance: the first type is based on the performance of the incubator on the ground, and the second type is based upon the performance of the virtual incubator.

Davies (2009, p.5) mentions that over recent years, there has been support and guidance from INFODEV which contributed to the dramatic increase in the number of incubators in developing countries. Davies, (2009, p.5) adds that the requirements of these developing communities creates a different environment from the environment of societies in developed countries such as Europe and the US. Incubators in developing countries provide services that suit the local economic and financial environment (Scaramuzzi, 2002, p.26). In the literature, some authors discuss the point of view that the performance of incubators as a concept differs from one environment to another, which means that the research field is wide open for future studies.

2.11 Incubators in developing countries:

The phenomenon of incubators is considered one of the new initiatives in developing countries (Scaramuzzi, 2002, p.6). As stated previously (see section 2.7 '*Benefits of incubation*') incubators are one of the policy tools in several countries for supporting new ventures (see. Thierstein and Wilhelm, 2001, p.2; Abetti, 2004, p.20; Akçomak, 2011 p.8). However most of the studies are conducted in developed countries. In comparison there are

only a few studies which assess incubators' experience in developing countries (e.g Adegbite 2001, p.157; Scaramuzzi, 2002, p.6; Akçomak and Taymaz, 2007, p.2; Kim and Jung 2010, p.273; Hertog, 2010, pp.27-28). In developing countries, most incubators are not-for-profit incubators and they are usually financed by general sources (Scaramuzzi, 2002, p.6; Akcomak, 2009, p.11; Aberham, 2011, p.9). However, the idea of profit-making incubators is yet to grow in developing countries (Akcomak, 2009, p.11; Aberham, 2011, p.9).

Furthermore, in developing countries, incubators seek to provide services that are suitable for their economic environment through the provision of programs that are appropriate with the challenges that face local SME business (Scaramuzzi, 2002, p.6). However, there has been an increase in incubator programmes over the past ten years with variation in the degree of success achieved by these incubators (Scaramuzzi, 2002, p.3). The studies which focus on the different degrees of success of incubators were discussed in section 2.8. Based upon the foregoing, it can be said that there is a great need for further studies about incubators in developing countries for two reasons. The first is that incubators are considered to be new initiatives in developing countries, so the need for assessing and developing such initiatives would be beneficial. Has the experience of introducing incubators to an economy for the first time changed over time? The second reason is that the scarcity of research that deals with incubators in developing countries provides the chance for conducting research in this field in the future. Are understandings based on incubators in developed countries applicable in developing countries?

2.11.1 Incubators' funds:

Governments play an essential role in incubators' funds. In developing countries, most incubators' funds are provided by governments (Akçomak 2011 p.7). In Brazil, the Government works together with universities and industries to fund incubators (Almeida, 2005, p.417; Chandra and Fealey, 2009, pp.70-77). The Chinese Government plays a significant role in funding, organising and strategy (Scaramuzzi 2002, p.17). Section 2.5 outlines the various governmental regulations in support of incubators.

There are many initiatives by developed countries which are aimed at supporting the setting up of incubators in developing countries⁷ such as INFODEV (INFODEV, 2013). As governments in countries give a great amount of funding for incubators, these funds can

⁷ See section 2.11.3 incubators in GCC countries.

come with normative pressure in many forms. An example of this is rules and regulations that incubators or incubates are expected to follow (see section 2.15.6).

Business incubators are considered a more cost-effective tool compared to other programs to attract start-up businesses to local regions (Hackett and Dilts 2004, p.69). This raises the question of the ability of some poor countries in the developing world to adopt such initiatives, as these initiatives require funds that many poor countries cannot support.

2.11.2 Weaknesses in incubators in developing countries:

Akçomak (2011, p.3) states that there are four main weaknesses in incubators in developing countries:

1. Reliance on tangible services rather than intangible services.
2. Reliance on governments.
3. Lack of capacity in the shape of qualified incubator management.
4. Weaknesses in planning and solving problems creatively.

Also, Al-Mubaraki and Busler (2013, p.22) state that there are other weakness in incubators in developing countries:

1. Limited funding for start-up.
2. Limited entrepreneurial experiences.
3. Limitations of personal financial resources of entrepreneurs.
4. Limited technical awareness.

However, by drawing lessons from the experiences of developed countries in incubators, it will be possible to assess the suitability of these initiatives for the development and promotion of enterprise in developing countries (Akçomak, 2011 p.1). Commenting on what had been said by Akcomak (2011), benefit can be gained from the successful experiences of incubators in developed countries. This poses a question about the mechanism for implementing these successful initiatives in case there are differences in the environments in the two types of country, especially in terms of the cultural differences between many developed and developing countries.

2.11.3 Incubators in GCC countries:

At the level of GCC (gulf region) countries, the first incubator in Saudi Arabia started in 2008, which is the Bader technology incubator (Khorsheed et al., 2012, p.1; Almakenzi et al., 2015, p.149). Moreover, the first Science and Technology Park in Qatar was started in 2008 (Al-mubaraki and Busler, 2012, p.154). Al-mubaraki and Busler, add that there were also

initiatives and incubators in the United Arab Emirates (UAE) and Oman. The incubator established in Bahrain in 2003 was the first incubator in a GCC country. It was an initiative of the United Nations Industrial Development Organisation (UNIDO) in collaboration with Bahrain Development Bank (Al-mubarakhi and Busler, 2012, pp.153-154). Within this GCC context, the next section, will discuss the TBI initiatives in Saudi Arabia.

2.11.4 Technology business incubators in Saudi Arabia:

In the past few years Saudi Arabia has significantly focused on research and development with a budget of over 7.9 billion SAR (more than 21 billion USD) within the first National Plan for Science, Technology and Innovation (MEP, 2016, p.370).

In January 2008, the first information and communication technology (ICT) incubator was established in Saudi Arabia, this initiative was launched by the National Research Institute at King Abdulaziz City for Science and Technology (KACST)⁸ under the name BADIR (Al-mubarakhi and Busler, 2012, p.154; Almakenzi et al., 2015, p.149). The incubator is located in Riyadh, the capital city of the Kingdom of Saudi Arabia, in a location near KACST and a number of universities (Khorsheed et al., 2012, p.2). The area of the first Saudi incubators covers 1600 m² divided into more than 100 rooms that accommodate approximately 30 businesses (Al-mubarakhi and Busler, 2012, p.154; Khorsheed et al., 2012, p.2).

An absence of academic research pertaining to incubators in Saudi Arabia has been observed. The reason for the lack of studies is twofold. First, there are few studies on developing countries in general as mentioned in the previous section. Second, incubator initiatives are a recent phenomenon in Saudi Arabia. Khorsheed et al. (2012, p.2) mentioned that incubators in Saudi Arabia are still in their primary stages.

As the number of incubators in Saudi Arabia is growing yearly, SBIN (2015) mention in their '*Second Annual Guide to the Saudi Small Business Incubator Network*' that there are 21 incubators and accelerators in SA. The current situation in Saudi Arabia is that there are a number of technology incubators and mixed incubators (ie, projects that accept technical and non-technical projects). Lewis (2001, p.44) states that if 50 percent of the incubatees in an incubator are business technology incubatees, then it can be considered a technology incubator. Saudi Arabia in its national technology incubator policy framework, envisages having 80 TBIs by 2025 (Alriyadh, 2013b; SBIN, 2013). Thus, the importance of this study

⁸ King Abdulaziz city for science and technology is a governmental scientific corporation that has its own legal independent character and attached to the prime minister and its head office in Riyadh city (KACST, 2014).

lies in its attempt to assess the effect of existing incubators, and in providing guidance to incubators, which will be established in the future. From a theory perspective, the government's pressure to increase the numbers of TBIs in SA, can be seen as consisting normative pressure (see section 2.15.6).

The SA Government are continuing their support for SMEs. In fact, the Minister of Trade and Investment announced at the end of 2017 (14/12/2017) the launch of the private sector stimulus plan worth 200 billion riyals (\$ 53 billion) over the next four years (SPA, 2017). Starting from the end of the first quarter of 2018, and that this plan does not include the amounts spent by the State on projects annually through the general budget of the state, while, the amounts allocated to support the private sector (SPA, 2017). The plan includes 17 billion riyals (\$ 4.5 billion) to finance the private sector, and 17 billion riyals (\$ 4.5 billion) to raise efficiency and technology, in addition to allocating 12 billion riyals (3 billion riyals) 2 billion dollars) to stimulate SMEs (SPA, 2017).

The next section outlines the benefits of studying Technology Business Incubators.

2.11.5 Studying technology business incubators:

The importance of the technological development of agencies supporting projects has emerged in terms of their significant capability as a new route for the creation of jobs (Bøllingtoft and Ulhøi 2005, p.271). They add that based on the contribution made in terms of economic transformation, the role of incubators has emerged as a 'change agent'.

Scaramuzzi (2002, p.31) explains that the reason for the attention paid by the agencies supporting projects may be attributed to two matters. First, Technology-based businesses generally grow much faster than other projects. Second, these companies often quoted on the secondary stock markets within a short period of time. Moreover, the successful new technology-based firms (NTBFs) contribute in supporting the development of the local, regional and national economy through creating new jobs and increasing the profits of the projects (Reynolds and White, 1997, p.395; Scillitoe and Chakrabarti, 2010, p.155). This is in addition to their contribution to the innovation process (Acs and Audretsch, 1992, p.3; Scillitoe and Chakrabarti, 2010, p.155). Several researches (see. Scillitoe and Chakrabarti, 2010, p.155; Al-mubarak and Busler, 2012, p.153) have mentioned that incubators are one of the tools used by many agencies to support and develop the economy. This is done through the support provided by incubators for emerging projects and through some additional characteristics for TBIs such as being near to universities and research centres and also their relationship with them. Thus, TBIs are involved in technology transfer and contribute to the

creation of jobs and fortunes to great effect. TBIs support NTBFs through technology transfer and marketing technology projects (Colombo and Delmastro, 2002, p.1107; Ratinho, 2011, p.15). The effect of TBIs through supporting NTBFs may lead to job-creation and economic development through these projects (Audretsch, 2007 cited in Ratinho, 2011, p.15) and innovative entrepreneurship. Through a group of comparisons between TBIs and BIs (Ratinho, 2011, p.75) it is noticeable that TBIs provide a great number of services to its incubatees. In addition, TBIs select younger companies and determine stricter exit procedures than BIs. This coincides with the plans of Saudi Arabia for a national transformation from an economy based on oil to one based on a diversification of resources.

Also, see the two sections on the benefits of incubation 2.7 and the role of incubators in growth 2.7.5. These sections discussed several aspects of importance for incubators in general and technology incubators in particular.

Through what was mentioned in the literature review, in sections 2.11 and 1.2 '*Motivation and benefits*', it clearly shows that there is a gap in studies on incubators in SA. There is only one PhD study which was in 2009 and that examined one incubator in SA and in one city only. This research, however, does much more than conduct a field study on incubators in SA.

Most of the studies in the incubator literature focus on critical success factors for answering the following question: What are the factors that determine success, of incubators and their incubatees? (Alsheikh 2009, p.328). However, Hackett and Dilts (2004, p.74) state that we "must turn our attention from 'what' are the important factors to 'how' and 'why' and 'in what context' ('who' 'where' and 'when') as these factors are interrelated." This research covers this aspect, especially "in what context"; this has not been covered in the previous research investigating Saudi Arabian incubators. In addition, Alsheikh (2009, p.328) mentioned the "in what context" as one suggestion for future research. A number of researchers including Davies (2009, p.5) state that the incubators in developing countries differ significantly from incubators in developed nations. Davies justifies this by reasoning that companies' environment in the US and Europe is more mature. Scaramuzzi (2002, p.26) mentions that incubators in developing countries have provided services that suited the local environment economically and financially. Thus, the researcher has understood the importance of "in what context", and then the importance of crystallising the questions which have been highlighted in order to cover a specific environment. In this research, that environment will be SA, partly due to the huge scarcity in research on Saudi incubators as mentioned earlier, that does not correspond to the Saudi government's tendency to shift to a

knowledge-based economy (see Section 1.1). Since Saudi government has a great spending in supporting this trend and supporting SMEs (see section 2.11.4) to achieve the Saudi National Plan for Science and Technology.

As one of the limitations in his research, Alsheikh (2009, p.328) mentioned that he studied a general incubator rather than a specific type of incubator. Abdul Khalid (2012, p.50) adds that the previous research on incubators in Malaysia has focused on non-specific types of incubators; so in her PhD, she presented a study on the technology incubators. So, when the researcher began to develop his research questions, there was a focus on a specific type of incubator: technology incubators in particular. The focus on technology incubators is in line with first SA national plan for science and technology, toward transformation into an economy based on knowledge and technology, and supporting technical projects (see section 2.11.4)

There has been an increase in incubator initiatives in the last two decades in developing countries. However, the measurement of the incubators' success is different according to the environment (Scaramuzzi, 2002, p.3). There are few studies investigating the impact of incubators and how they contributed to the success of the incubated businesses (Shane and Venkataraman, 2003, p.183; Scillitoe and Chakrabarti, 2010, p.155). Incubators in developing countries also have varying degrees of success amongst themselves. With the SA the aim is to increase the opening of incubators to reach 80 incubators in the year 2025 (see section 2.11.4). Is it useful to investigate the ways TBIs might affect SMEs in the SA environment? And is there a difference between the SA experiences and international experiences?

A point raised by Alsheikh (2009, p.328), which could form a research proposal is: 'Is there a significant effect of Saudi incubators on the success of incubated projects?' Consequentially the following question has been formed by the researcher:

What are the potential impacts and benefits which might arise from the application of TBIs to SMEs in Saudi Arabia?

On another side, Alsheikh (2009, p.327) stated, a "major limitation in this [his] study" is that there are few studies about incubators in Saudi Arabia as a potential tool for addressing the problems faced by SMEs. The researcher sees that the shortcomings mentioned by Alsheikh can be answered in the context of the answer to the previous question. However, searching for obstacles that may face SMEs has taken the researcher to another perspective which is: are there any obstacles facing SMEs when trying to join the incubators in SA?

2.12 The ways of selecting firms to be incubated and the exit policy:

The conditions for the selection of incubatees and the procedure for exiting an incubator are considered to be important administrative aspects for incubators (Aerts et al., 2007, pp.4-5; Ratinho et al. 2010, p.9). Ratinho et al. (2010, p.9) explain the importance of these conditions of acceptance in the incubator as the procedures for exiting the incubator will affect the percentage of incubated projects, and will have a direct effect on the incubator. In cases where the conditions and procedures for acceptance in the incubator are very weak or very strong this may lead to the failure of the incubator itself (Aerts et al., 2007, p.256). Also, a difference regarding the objectives of the organisation among incubator shareholders may cause weakness in the selection process of incubatees or the exit procedure (Ratinho, 2011, p.98). The next three subsections will address: the selection processes for the incubates; selection criteria and the exit policy for the incubatees from the incubators.

2.12.1 The selection of incubatees:

Selection processes are the mechanisms which determine which start-up businesses are accepted in incubators and which are rejected (Bergek and Norrman, 2008, p.10). In the period from 1987 to 1990, most research on incubators focused on the selection process, and how incubators choose incubatees (Hackett and Dilts, 2004, p.59). It is commonplace among researchers to perceive the selection processes to be an important managerial task for incubators (e.g. Lumpkin and Ireland, 1988, p.60; Colombo and Delmastro, 2002, p.1119; Peters et al., 2004, p.88; Bergek and Norrman, 2008, p.23). The selection processes as a managerial task can be seen from a real options theory perspective as Hackett and Dilts (2004a, p.41) and Tong and Reuer (2007, p.7) state. The real options theory can provide insight for the incubator teams showing which candidate from those applying for the incubator may be accepted. Section 2.14.2 discusses the real options theory. Aerts et al., (2007, p.19) mention that the performance of the incubated projects is better when the incubator applies more elements in the selection of projects.

The selection criteria vary between incubators. Some incubators focus on particular selection criteria ignoring other criteria (Bergek and Norrman, 2008, p.11). It is natural that the selection processes will vary among incubators, to suit the requirements of the economy and the needs of the market. Since the definitions of incubators develop with time and on the basis of the needs of start-up businesses and the economic climate (Aerts et al. 2007 p.8).

This will mean that the selection mechanisms also vary. The next section will discuss the selection criteria.

2.12.1.1 Selection criteria:

Incubators have passed through several phases. The third generation of incubators have focused on the selection of start-up projects (thus the first stage) and possible indicators of future success. However, the previous generation sought to accept the older companies (Ratinho, 2011, p.176). The difference in the conditions of the project life-cycle between incubators may be an indicator of the orientation of the incubator (Ratinho et al. 2010, p.12). The life-cycle of the start-up at the time of joining the incubator may be one of the elements for the selection of the projects for incubation (Ratinho, 2011, p.58).

There are also elements that the incubators establish quite often as conditions for joining the incubator such as: the qualities of the owner of the project; the skills and experiences of the team; and other aspects related with the project itself (Lumpkin and Ireland, 1988, pp.76-77; Aerts et al., 2007, p.5; Ratinho, 2011, pp.86-87). These other aspects could include: the study of the project; the innovativeness of the product or service and financial aspects of the project (such as the expected profit and cash flow) (Lumpkin and Ireland, 1988, pp.76-77; Aerts et al., 2007, p.5; Ratinho, 2011, pp.86-87). These criteria also include: previous work experience; technical skills of the owner or the team; the characteristics of the target market; the characteristics of the product or service and the profit potential of the project (Hackett and Dilts, 2004, p.61; Bergek and Norrman, 2008, p.23). Bergek and Norrman (2008, p.11) mention that there are primarily two principles which form the basis for selection. The first is the idea. The second is the owner or the team. This is a great blend, which incubators need to focus on, because this is the core of success for business. To achieve the two conditions stated by Bergek and Norrman (2008), incubator managers must have access to the latest knowledge in relevant technological fields, to identify the great idea that fulfils a market need (Bergek and Norrman, 2008, p.23). In addition, the incubator manager must have the ability to judge personalities as well as expertise in the administrative field, to enable him or her to realise the skills or training which the owner or team may require (Bergek and Norrman, 2008, p.23).

Ratinho, (2011, p.74) drew a comparison between TBIs and non-technology business incubators (NTBI) for studying the conditions and criteria of incubation and exit policies in 12 incubators in North-Western Europe. He, found that TBIs tend to select technology projects of a short life-cycle (with an average of 0.76 years) (Ratinho, 2011, pp.89-90).

Adding, that the TBIs seek to apply more sophisticated selection conditions. 28% of the incubatees did not suffer from difficulties in the process of acceptance in the incubator. By comparing them with NTBIs, it was found that they selected a long life-cycle (with an average of 3.2 years) which made the acceptance procedures easier. Leading to 64.7% of the incubatees saying that they did not find difficulties in the process of acceptance in the incubator. In the context of the previously mentioned comparison given by Ratinho, it appears that the TBIs apply stronger criteria for incubation acceptances.

Merrifield (1987 cited in Aerts et al., 2007, p.256) described the selection process for incubatees, which is linked with the evaluation of the project itself; the chances of its success; and compatibility between the incubatee and the incubator.

Mian (1994 cited in Aerts et al., 2007, p.256) has studied six of the university technology incubators on the acceptance conditions, he found them as follows:

- 1- The project should be a technology project.
- 2- The project should have growth indicators.
- 3- The team should have appropriate qualifications.
- 4- The project can be marketed easily (product/ service/ procedure).
- 5- Existence of an adequate cash flow.
- 6- Preference should be given to industrial projects.
- 7- The ability to pay the rental rate.
- 8- The project should be consistent with the vision of the university and the investors.

McAdam and Marlow (2007, p.364) in their research on the incubators in the Republic of Ireland stated that the incubators that they studied have stipulated three elements as follows:

- 1- The incubated project should have a service or product that has a technological nature.
- 2- It should be capable of huge growth within three years to generate an income of one million Euros annually and to employ more than ten employees.
- 3- There should be a likelihood of exporting its goods or services.

What has been mentioned by researchers can be summarised in three main elements: 1- The project should be of a technological nature; 2- The members of the team should have skills that enable them to achieve success for their project and 3- There should be indications for the growth and success of the project.

However, determining which start-up business are “weak but promising” (weak in terms of lack of resources, but promising in terms of ability to build a successful business) and deciding which start-up businesses could not be supported or which do not need incubation at

all, is difficult and requires a deep understanding of the market, and the mechanisms of building a new successful business (Hackett and Dilts 2004, p.62; Bergek and Norrman 2008 p.23). Moreover, the selection process is not only focused on criteria, it also a matter of severity or flexibility in applying them on the basis of the ability of incubator managers to identify such businesses before acceptance (Bergek and Norrman 2008 p.23). Adegbite (2001, pp.162-163) stated that one of the main reasons for the low performance of incubators in Nigeria is due to poor administrative assistance, which is essential to business owners, and a team who lack these skills. The researcher is of the opinion that although balanced selection criteria that achieve the objectives of the incubator is important, the mechanism for implementing these criteria by the management and staff of the incubator is no less important (see Section 2.8.2 Managers and Staff).

The next table summarises the selection criteria that have been addressed in this section.

Selection criteria	Authors
The idea of the projects.	(Bergek and Norrman, 2008, p.11)
The life-cycle of the start-up at the time of joining the incubator.	(Ratinho, 2011, p.58)
The qualities of the owner of the project or the team.	(Lumpkin and Ireland, 1988, pp.76-77; Aerts et al., 2007, p.5; Ratinho, 2011, pp.86-87; Bergek and Norrman, 2008, p.11)
The skills and experiences of the team.	(Lumpkin and Ireland, 1988, pp.76-77; Aerts et al., 2007, p.5; Ratinho, 2011, pp.86-87; Hackett and Dilts, 2004, p.61; Bergek and Norrman, 2008, p.23; Mian,1994, p.517; Aerts et al., 2007, p.256)
Aspects related with the project itself including the study of the project; the innovativeness of the product or service; and financial aspects of the project.	(Lumpkin and Ireland, 1988, pp.76-77; Aerts et al., 2007, p.5; Ratinho, 2011, pp.86-87; Mian,1994, p.517; Aerts et al., 2007, p.256)
The characteristics of the target market.	(Hackett and Dilts, 2004, p.61; Bergek and Norrman, 2008, p.23).
The characteristics of the product or service.	(Hackett and Dilts, 2004, p.61; Bergek and Norrman, 2008, p.23).
The profit potential of the project.	(Hackett and Dilts, 2004, p.61; Bergek and Norrman, 2008, p.23).
The project should be a technology project.	(Mian,1994, p.517; Aerts et al., 2007, p.256; McAdam and Marlow, 2007, p.364)
The project should have growth indicators.	(McAdam and Marlow, 2007, p.364; Mian,1994, p.517; Aerts et al., 2007, p.256)
There should be a likelihood of	(McAdam and Marlow, 2007, p.364)

exporting its goods or services.	
The project can be marketed easily (product/ service/ procedure).	(Mian,1994, p.517; Aerts et al., 2007, p.256)
Preference should be given to industrial projects.	(Mian,1994, p.517; Aerts et al., 2007, p.256)
The ability to pay the rental rate.	(Mian,1994, p.517; Aerts et al., 2007, p.256)
The project should be consistent with the vision of the university and the investors.	(Mian,1994, p.517; Aerts et al., 2007, p.256)

Table 2.2 summary of the selection criteria.

2.12.2 The exit policy:

The exit policy is one of the most significant management characteristics of incubators (Ratinho, 2011, p.82). Most incubators have an exit policy that start-up businesses should leave the incubators after 3 to 5 years (European Commission, 2002, p.60; Bergek and Norrman, 2008, p.23; Ratinho, 2011, p.82). Furthermore, the exit policies are similar for the three generations of incubators, and the exit policies are usually not clear (Bruneel et al., 2012, p.115). Clear exit policies help the incubators to build a plan of action for their incubatees, they also help to prepare them for the post-incubation stage. Akçomak and Taymaz (2004, p.15) in their study of 48 firms in Turkey found that most start-up businesses do not have an applicable work plan, and the support from incubator management is not sufficient. The survey conducted by Ratinho et al. (2009, p.12) included 12 incubators located in six North-Western European countries and a total of 101 incubated companies. They asked incubatees if they knew when they intended to leave the incubation programme. The responses were negative. This indicates a lack of exit policy. Also, that may have other indicators such as, logically, lack of knowledge of the exit policy or a lack of planning.

Ratinho (2011, p.82) mentions that there is little evidence that incubators have clear rules and regulations on their policies for leaving incubators. Zhu et al. (2014, p.8) mentions that the owners of incubated projects should meet two conditions from three criteria set by the incubators to graduate from an incubator. First, the incubatees should have intellectual property rights. Second, the annual income for the incubated project should be more than 10 million Yuan (about one and a half million US Dollars) for two consecutive years. Third, the incubated project should be merged or acquired or should go public and become a listed company in China or abroad.

Bruneel et al., (2012, p.113) mention that the exit policy should be based on the annual income of the incubatees. While in other incubators, the exit policy is based on an agreement

between the incubator and the incubatee within certain criteria such as: level of income; performance of the incubatee (Peters et al., 2004, p.89; Ratinho, 2011, p.82) and a fixed time to leave the incubator, determined by the incubator (Allen and McCluskey, 1990, p.71; Peters et al., 2004, p.89; Ratinho, 2011, p.82). In most cases, incubators increase the rent in order to motivate the incubatees to graduate from the incubator (Allen and McCluskey, 1990, pp.68-70; Peters et al., 2004, p.89; Bruneel et al., 2012, p.113).

Bruneel et al., (2012, p.115) mentioned that in their study of seven European incubators, their exit policies were rarely specified for all three generations of incubators. They add that one incubator mentioned that generally time and performance are the two important elements while three of the incubators did not mention any criteria exit policies. Finally, only one incubator had a strict policy for incubated projects which was that incubatees should graduate from the incubator during three years. Scaramuzzi (2002, p.30) mentions that incubators should have clear exit policies and these policies should be limited by a specific time. Ratinho (2011, p.97) mentions that TBIs have stricter policies for exiting from incubators than BIs. Also, 34.7% of incubatees in TBIs know when they will exit from the incubator with an average of incubation life-cycle that equals three years. While the percentage of incubatees in the BIs who know when they will leave the incubator is 16.3% with an average incubation of more than five years (Ratinho, 2011, pp.89-90). Some researchers mention that the graduation process for incubatees is based on a case-by-case basis (Rothaermel and Thursby, 2005, p.1080; Ratinho, 2011, p.82). From the foregoing, several researchers have found that there are no clear policies in many countries around the world with regard to the existence of incubators. The researcher sees that the reason for this may be due to the fact that the main objective of incubators is the success of the projects in the first place. So, incubators are not similar to offices that are rented for a certain period indicating that the incubated project should not have to exit exactly on a particular date. Therefore, this gives more flexibility that should enable the project to achieve success. However, the long duration of this incubation period should be taken into consideration. This can have a negative aspect for the incubator in terms of the viability of incubated projects that have not graduated even after a long period of time. This poses the question on what is the effect of this lack of clarity of conditions for the viability of incubators and for the viability of the owners incubated project. For example, is this useful for them, or does it give them a license for noncompliance?

2.13 Incubators and innovation networks:

Incubators play an important role in creating dynamics for incubated SMEs through their vital role in establishing a network that includes stakeholders from governmental bodies, scientific, commercial, and industrial bodies (Lambert and Schaeffer, 2009, p.17). They add that incubators play a role in connecting big companies that want to invest in the innovations of incubated SMEs.

Since incubators have been defined in Section 2.4. This section explores innovation networks and their relationship with the incubators.

Many definitions have been suggested in the literature with regard to an innovation network. For example:

“An organization or body that acts an agent or broker in any aspect of the innovation process between two or more parties. Such intermediary activities include: helping to provide information about potential collaborators; brokering a transaction between two or more parties; acting as a mediator, or go between, with bodies or organizations that are already collaborating; and helping find advice, funding and support for the innovation outcomes of such collaborations.” (Howells, 2006, p.720).

Another definition is:

“Innovation networks, are all forms of organisations that serve the exchange of information, knowledge and resources and by suitable learning among at least three partners help to bring about innovation are based on confidence and stable cooperation relations.” (Innosupport, 2017).

Carayannis and Zedtwitz (2005, p.97) mentioned that innovation within the context of the research is a change in terms of "the yield of resources". Some researchers such as Hackett and Dilts (2004, p. 50) divided the resources of incubators into two sections and stated that external resources include innovation networks. They added that external resources can be summed up as being “the combination of the innovation communities encompassing the incubator and the clusters of industrial innovation networks connected to the incubator and related to the incubatees” (Hackett and Dilts, 2004, p.50). Incubators in general, and global incubators in particular, are means for the distribution of knowledge, based on the the form in which they are most effective and efficient whether that be at the local, regional or global level (Carayannis and Zedtwitz, 2005, p.106). There are many incubators that operate at the international level such as INFODEV initiatives, referred to previously, and the endeavor.org initiative that has initiatives for incubators in many countries of the world.

Through the definitions of incubators and network innovation, it can be said that there are many incubators that apply the concepts of network innovation to support the owners of the projects supported by these incubators. In some small countries such as Taiwan (as stated by Tsai et al. 2009, p.2), governments have a vital role to play in supporting and developing the infrastructure of technology and innovation networks through the implementation of certain policies and initiatives that support this orientation. They added that these initiatives include incubators, which play a crucial role in supporting innovative incubated projects. Saudi Arabian incubators have recently offered network innovation as one of the services provided by incubators (see section 4.3.1.7). This may be due to the fact that incubator initiatives in Saudi Arabian incubators are in the initial stage (see section 2.11.4). Currently they have just three types: incubator, accelerator and virtual incubator (see section 4.3.1.2). Some incubators play an important role in the creation of innovation networks by linking existing companies with innovative start-up projects (Thierstein et al., 2001, p.11).

Furthermore, section 2.4.1, dealing with the names of incubators pointed out that since the beginning of incubators, many names have been suggested. The section concluded that there are minor differences in incubators that share these multiple names, and that all of them share an important aspect which is the provision of services, and the support provided to the projects in their initial phases to enable them to succeed. Among these names is “Innovation Centers” as mentioned by Campbell (1989) and Bøllingtoft and Ulhøi (2005, p.267). Another related nearly synonymous name is ‘Networked Incubators’ (Hansen et al., 2000, p.75). The feature of network incubators is a set of institutional processes through which they transfer knowledge in the incubator’s network in order to develop the incubatees and market their innovations (Hackett and Dilts, 2004a, p.70). The network incubators are built on the basis of the relationships with the incubator and the cooperation between them (Bøllingtoft and Ulhøi, 2005, pp.271). A networked incubator which was studied by Bøllingtoft and Ulhøi (2005, p.226) has used a “bottom-up” approach which was developed by the incubatees themselves, as well as managing the incubator. This is the model that differs from the model that decision makers commonly use which is a “top-down” approach. Carayannis and Zedtwitz (2005, p.108) mentioned that the network will increase the degree of integration of the incubated projects in terms of obtaining an increase in production, distribution and marketing at local and international levels. Bergek and Norrman (2008, p.15) suggest that there is a better terminology for networking which is “network mediation”, in order to distinguish between the role of the incubator in establishing the network (as an environment) and the network as one of the services provided by the incubator. The researcher sees that this opinion is useful

in order to confirm the importance of incubators with regard to one of its roles, which is the building of culture and not only the provision of direct services. As Carayannis and Zedtwitz (2005, p.106) mentioned previously regarding the distribution of knowledge, Bøllingtoft and Ulhøi, (2005, p.105) also have a contribution to make. They state this is done through incubator networks, in these situation incubatees do not have the level of network which is available to the incubators who have established these relationships over the years.

Most incubators provide basic services such as space and financing, but the best incubators are those that provide a strong network that enables incubatees to compete in the market (Hansen et al., 2000, p.75). Networks play a vital role in the event that the institutionalised network is applied inside incubators, because networks will not depend on personal contacts for certain persons. Rather, they pass contacts on to achieve greater levels of networking (Hansen et al., 2000, p.79). The researcher sees that the environment and culture of the country in which the incubators exist may play a role in the expected outcomes, after the application of the institutionalised networking in the incubators.

From a theory perspective, network theory was the focus of incubator research between 1996-2000 (Hackett and Dilts, 2004, p.59). Network theory can be used as a tool for study on the effect of the network that is provided by the incubators. Moreover, the incubatees in the incubator benefit from two types of network (Bøllingtoft and Ulhøi, 2005, p.274), internal and external networks. The internal network is the sharing of available resources which helps in building social capital, while the external network includes relationships with clients, suppliers and others. Hansen et al. (2000) used network theory by saying that the main advantage and the added value of the networked incubators is that they build institutionalised processes to create a structure for transferring knowledge among incubatees in order to develop the incubated projects and market their innovation (O'Neal, 2005, pp.45-46). Network theory will be addressed in section 2.14.1.

Bøllingtoft and Ulhøi (2005, p.281) indicated that the basic findings of their research had shown that there are two aspects related to the mechanisms that may contribute to either increasing the networks or hindering them. The first aspect is the linked mechanisms among incubatees. The second one relates to the mechanisms connecting the incubators and the surrounding environment. They add that it may be difficult to differentiate between the two aspects in that the difference may be hazy. The researcher sees that there is no difficulty in distinguishing between the first and second mechanisms as mentioned by Bøllingtoft and Ulhøi, because incubators have internal and external policies and it is possible to identify which of these polices may hinder the network aspects. Section 2.6.1: 'The Most Important

Service’, discussed the point that many researchers have mentioned which is that the most important service provided by incubators is networking because of its great impact in supporting the emerging projects.

2.14 Incubators and theories:

In the literature, a lot of research has used various types of theory in the incubation research field. The focus of the incubation researchers from 1996-2000 was about theory (Hackett and Dilts, 2004a, p.59). Based on a review of incubation literature, Ahmad (2014, p.376) has stated that the previous researchers have favoured theories such as “new venture creation theory, the resource-based view (RBV), social network theory, dyadic theory and real options theory” to develop a concept of the incubation process. Some of the theories will be addressed in the next sections.

2.14.1 Network theory:

In the incubator field, many researchers have used network theory such as: Hansen et al. (2000) Bøllingtoft and Ulhøi (2005, p.266) and Scillitoe and Chakrabarti (2010, p.155). Section 2.13 has discussed networks as one of the services provided by incubators and its impact on start-up projects.

A network is defined as a collaboration between several parties that are embedded in a social context (Jørgensen et al., 2010, p.398; Sydow and Windeler, 2003). In literature, “social capital theory” and “network theory” are used synonymously (Bøllingtoft and Ulhøi 2005, p.272). In this research, networks terminology is used to refer to either of the two previous synonyms.

There are many researchers in the literature who focused on network theory, as was mentioned by Bøllingtoft and Ulhøi (2005, pp.272-273). Hackett and Dilts (2004, p.59) added that network theory was concentrated in the period between 1996 and 2000. Bolino et al. (2002) mentioned that the summary of what the previous researches submitted about network theory is that ‘individuals work together effectively when they know each other or trust each other’ (Bøllingtoft and Ulhøi 2005, p.273). Network theory provides an additional insight to incubators through several organisational and institutional operations that would contribute to the dissemination of knowledge in order to increase the development of the incubated projects and develop their innovations (Hackett and Dilts, 2004a, p.42). The application of network theory on incubators and entrepreneurs would contribute to our understanding of the effect of networks on access to knowledge and resources in order

develop projects (Peters et al., 2004; McAdam and Marlow, 2008, p.225). To clarify further the role played by incubators in the network process, McAdam and Marlow (2008, p.225) mentioned that incubators can be described as a “broker” that helps to link two unrelated authorities or people such as linking incubated projects with consultants or investors. They added that incubators contribute to creating informal links among incubated projects in order to contribute to building synergy among them and creating opportunities for work. In addition to the fact that the internal and external networks are equally important (Lyons, 2000; McAdam and Marlow, 2008, p.225).

However, Hackett and Dilts (2004a, p.42) have discussed that there is a gap in the literature in the mechanisms and methods of the operation of incubators. Thus there is not a full explanation of the dynamic contributions of incubators on incubatees. The researcher sees that although this was mentioned by Hackett and Dilts (2004) and in some of the most recent research that has addressed these aspects, there is still a gap as mentioned in Chapter One. Bøllingtoft and Uihøi (2005, p.284) added that the findings of their research on one of the incubators is through applying network theory and that there are huge social and commercial activities that have taken place. They commented that these activities, however, have followed the same rules as non-incubated projects follow.

Understanding the importance of networks inside and outside the incubator is important as a service provided by the incubator. However, it is not the only focus of this research which is seeking to understand the effect of incubators in general, not just the effect of a single service that incubators are providing.

2.14.2 The real options theory:

In incubator research, the real options theory can be applied if we consider the selection process of incubatees as an option process and that what is part of the process of incubation is subsequent options (Tong and Reuer, 2007, p.7).

The real options theory can be considered to be paying attention to the method of taking investment decisions where the administrative and organisational capabilities play an important role (Tong and Reuer, 2007, p.23). The real options theory emerges through a primary investment decision, then this decision is followed by subsequent investment decisions (Rosenberger, 2003 cited in Hackett and Dilts, 2004a, p.47).

The real options theory is used when the investment returns are not clear at the beginning. This is due to two reasons: non-confirmation and uncertain cash flows (Markman and Gianiodis, 2009, p.629). The real options theory is distinguished by providing the decision-

makers with a systematic tool that helps in taking decisions in the case of non-confirmation (Tong and Reuer, 2007, p.35). There are five factors that affect the real options theory which are as follows: 1- Non-confirmation; 2- Value of assets; 3- Incapability of regression; 4- Training costs and 5- Competition (Rosenberger, 2003 cited in Hackett and Dilts, 2004a, p.47).

Tong and Reuer (2007, p.7) stated that there are two new factors that are related to the real options theory. Firstly, researchers have paid increasing attention to the competitive environment that surrounds the companies. Secondly, the real options theory has been used to study the investments of some authorities such as research centres.

Hackett and Dilts(2004a, p.41) see a perspective which is relatively different from what Tong and Reuer (2007) say regarding using real option theory in incubator fields; they feel that using real option theory in the process of selecting the applicants for an incubator would contribute to the success of the start-up companies in their early stages. Hackett and Dilts (2004a, p.51) add that this model (in using real option theory) would provide managers with an initial examination point for projects during incubation stages. In addition, this perspective may contribute to the detection of projects that may fail quickly; this model may contribute to revealing such projects. This would reduce the cost of incubation for projects and open opportunities for new projects that benefit from incubation programs.

Some researchers have used the real options theory in the field of incubators. However, this researcher considers the previous formula, which has been suggested by Tong and Reuer (2007) for considering the incubatees as a real option, is arguable. The reservation of this researcher was explained by Junaid (2014, pp.381-382) namely that incubatees cannot be considered to be a real option where it would be impossible for the incubators to have control over the incubated projects and, therefore, later on to earn financial resources as subsequent options. He justified that by saying that the majority of incubators are government or university incubators or non-profit making organisations, so they do not have any share in the incubated projects. However, this researcher sees that the real options theory can be applied on profitable incubators in a narrow scope that scope being in incubated projects in which it has a share or is part of the selection process of incubatees. This research aims to study all types of incubators in the country under study, whether profit incubators or not-for-profit incubators, which makes the real options theory a non-preferred theory for this research.

2.14.3 The dynamic capabilities theory:

In the incubator field, the dynamic capabilities theory is considered to be one of the suitable theories for business accelerators and other programmes that seek to develop companies (Brown et al., 2016, p.820). Brown et al., (2016, p.820) mentioned that one of the important elements to achieve company success is not the financial resources they have, but their ability to 'sense' and 'seize' the new opportunities.

The dynamic capabilities theory is defined as: "the firm's ability to integrate, build and reconfigure internal and external competences to address changing environments" (Teece et al., 1997, p. 516). It can be described as the use of resources in a specific way in the operations of the company in order to match the current situation with the market or to create a new product (Eisenhardt and Martin, 2000, p.1107). The dynamic capabilities theory is one of the tools that is used for the development through the systems of the company in modification of the operation stages (O'Connor et al., 2008, p.3).

Learning is considered to be the main mechanism for companies to reach their dynamic capacities (Zollo and Winter, 2002; Ratinho, 2011, p.182). In addition, it is one of the problem solving tools (Nickerson and Zenger, 2004; Ratinho, 2011, p.182).

Fast and effective support to start-up companies needs to be considered by the decision-makers through new methods which are essential in the political frameworks (Brown et al., 2016, p.830). They added that developing countries should seek to develop the dynamic capabilities that aim to build innovative business models. In the way that incubators build new ventures, the dynamic theory contributes to converting these incubated projects to added value (Hackett and Dilts, 2004a, p.46). In addition, the dynamic capabilities theory may contribute to the incubator's success if it used to optimise their internal and external resources to keep up with the fast changes in the environment (Ghasemizad et al, 2011, p.9279). Through literature, Ratinho (2011, p.182) considered that the dynamic capabilities theory can be used in the measurement and the operation of incubators.

However, since the building of the competitive features has been considered to be the heart of the dynamic capabilities theory, it may be unattractive in the incubators field where they do not have several local competitors. This researcher sees that, due to the fact that the majority of incubators in the world and in Saudi Arabia in particular, have a government reference, the competition among them is limited.

2.14.4 The structuration theory:

In the field of incubators, structuration theory can be used for supporting the research that seeks to understand how to copy the experiences of the incubated projects inside the incubator, see Hackett and Dilts (2004a, p.47). They added that it can also be suitable for the studies that aim to develop the incubators.

The structuration theory is an approach that aims to understand the production and reproduction processes in social systems (Giddens, 1984; Hackett and Dilts, 2004a, p.47). Structuration theory was instituted by Giddens (1984) (see Short et al, 2010, p.57). Structuration theory considers individual behaviours to be interlinked and intervening in the social aspects that were formed previously (Short et al, 2010, p.57).

Structuration theory differentiates between logical and practical knowledge. Also, the usual use of knowledge adds an institutional character to the theory (Luoto, 2008, p.39). Structuration theory is increasingly used as an alternative methodology to study several organisational phenomena (Pozzebon and Pinsonneault, 2005, p.1354). Moreover, structuration theory has not given much attention to technology because its attention was mainly focused on the social sciences (Jones 1997; Pozzebon and Pinsonneault, 2005, p.1356). With the spread of technological systems in organisations, however, there were a number of attempts to expand structuration theory to include technological aspects in social studies (Walsham 1993, 2002; Pozzebon and Pinsonneault, 2005, p.1356). Hackett and Dilts (2004a, p.47) mentioned that structuration theory considers that incubators will fit into the surrounding environment so that incubators will be productive.

However, Pozzebon and Pinsonneault (2005, p.1354) suggested that the application of structuration theory is not free from difficulties due to two main reasons. Firstly, structuration theory is complicated and it is applied at a high level of abstraction. Secondly, it is difficult to link structuration theory with the other research methodologies and it is also difficult to apply it at an empirical level. Moreover, Luoto (2008, p.39) considered that one of the limitations of structuration theory is that the theory does not look clearly at the language processes and the role that plays. The researcher sees that the weakness of structuration theory in technology research and information systems, may be because it does not consider language as an important aspect. In fact, language is a vital source that plays an important role in our understanding of the phenomena under study. In this research, language plays an essential role as well as being the source from which the information is taken. In addition, to what Hackett and Dilts (2004a, p.47) state the way of applying structuration theory in the field of incubators is out of the scope of this research.

2.14.5 The agency theory:

In the field of incubators, there is some research that has used agency theory, such as: Mian (2014, p.91) and Schillaci et al, (2011, p.91).

Eisenhardt (1989) mentioned that agency theory endeavours to find a solution for two problems that were raised as a result of the relations of the agency. The first problem results between the principal and the agent when there is a difference of opinion on the objectives. The second problem is if the principal is not able to verify the feasibility of the work performed by the agent because it is difficult or expensive work. This difference of opinion between the principal and the agent is a result of the difference of vision on how to evaluate the risks and procedures that are taken in that regard.

Agency theory highlights the role of the relationship between superiors and subordinates with regard to the distribution of tasks by superiors to subordinates (Ghasemizad et al, 2011, p.9279). They add that most of the problems in organisations are due to the fact that superiors and subordinates find difficulty in adopting the same objectives and visions. Agency theory was used to search for start-up projects. Fama (1980) mentioned that when the founder of the project works on his own project, the probability of failure decreases. Despite the fact that the source of this study is an old source, it can be considered to be an acceptable study in terms of the general concept of projects. Rothaermel and Thursby (2005, p.1078) commented on what Fama (1980) said by saying that the founders of the projects are more committed to developing their projects than any other department that implements the project.

Hackett and Dilts (2004a, p.46) stated that agency theory is considered a suitable option for researchers who study the relationship between managers of incubators and the incubatees. However, they added that agency theory does not address the impact of the business network which has been discussed in the previous research about incubators and incubatees. Moreover, focusing on the managers of incubators and incubatees is neglecting the fact that relationships that are established through the network contribute to the success of the incubators (Hansen et al., 2000; Hackett and Dilts, 2004a, p.46). There is an important point referred to by Hackett and Dilts (2004a, p.46) that incubatees do not work with managers of incubators in a traditional way as superiors and subordinates in commercial businesses, yet they are essentially endeavouring to make a success of their own projects. In addition, a number of researchers such as Phan et al., (2005, p.171) and Alsheikh, (2009, p.42) reported that the essence of agency theory which includes the presence of principal and subordinates

may be not fully applicable in the area of incubators. In addition, there are several types of incubators such as university incubators where there are several relationships to the incubator such as: university administration and incubatees and the incubator managers, that can cause a multilevel agency problem (Phan et al, 2005, p.171).

Therefore, agency theory does not provide the theoretical framework which achieves the objective of this research.

2.14.6 The behavioural theory:

Behavioural learning theory is defined as: "learning as a process by which behaviour is either modified or changed through experience or training" (Dembo, 1994, p.4). Behavioural theory aims to study the impact of a certain environment on the study sample (Skinner, 1976; Hackett and Dilts, 2004a, p.54).

In the field of incubators, behavioural theory can be used to study the impact of the external environment on the incubators in addition to the impact of the incubators on the incubated projects (Hackett and Dilts, 2004a, p.54). In other words, behavioural theory studies external and internal factors for incubators and incubatees (Ghasemizad et al, 2011, p.9279). Through their research, Weinberg et al. (2005) highlighted the great importance of external factors and their impact on incubators. They added that there are organisational internal and external factors that influence the effectiveness of incubators. Incubators through their programmes seek to develop the skills of the incubatees. Entrepreneurial behaviour is considered to be one of the most important personal qualities that distinguish the owners of the incubated projects (Ghasemizad et al, 2011, p.9279). They added that there are studies suggesting there is a relationship between entrepreneurial behaviour and success. Nyangau (2016, p.12) suggests that behavioural theory shows how the decisions taken by managers contribute to the growth of companies in terms of their dependence on a competitive or collaborative pattern and the impact of these options on the growth of companies. He adds that behavioural theory demonstrates the impact of behavioural motivation on how to select the products and services through the study of competitors in the market, which may contribute to an increase in the growth of companies.

Hackett and Dilts, (2004a, p.54) see that there is a difficulty in using behavioural theory in research related to incubators. This is due to three environments (external environment, incubators and incubatees) which may complicate the use of behavioural theory. Furthermore, behaviour theory may provide a narrow perspective for this research. Since the

main focus of the theory is behaviour, and that is one factor that can affect the phenomena under investigation.

2.15 Institutional Theory:

The concept of institution refers to many meanings in our life where the concept can be applied to many institutions such as hospitals, schools, universities, corporations and others (Lammers and Barbour, 2006, p.357; Altayar, 2011, p.53).

Institutional theory attempts to provide different explanations for organisational phenomena (Roberts and Greenwood, 1997, p.346; Al-Somali, 2011, p.90) and how the organising processes such as plans, rules, criteria and routine were transformed into alternatives for social behaviour (Al-Somali, 2011, p.90).

Institutional Theory has been defined by Scott (2008, p.48) as:

"Comprised of regulative, normative and cultural-cognitive elements that together with associated activities and resources, provide stability and meaning to social life."

The next eight subsections will address institutional theory in more detail.

2.15.1 Institutional theory and incubators:

A number of researchers have used institutional theory in incubators research such as: Dimaggio and Powell (1983), Zucker (1987), Hackett and Dilts (2004a, p.47), Phan et al. (2005, p.180), Davidsson et al. (2006, p.1), Gstraunthaler (2010, p.397) and Hjortsø et al. (2015, p.1).

At the beginning, it is useful to provide some perspective on how institutional theory is used in the research of incubators and incubatees. Phan et al. (2005, p.180) presented a perspective on how incubators see institutional theory as a way to accelerate and transform start-ups into institutions. This perspective may be shaped through the concept that institutional theory assumes that organisations monitor the behaviour of competitors and trend toward isomorphism (Dimaggio and Powell, 1983; Zucker, 1987). This perspective made the research that originated from it focused on: "process of becoming institutionalised, and the ... impact of institutions on organisations, especially on organisational structure and processes within the organization" (Kuhns, 1999, p.28).

In the literature review, incubators have been recognized by many researchers as being institutionalised (Greene and Butler, 1996, p.56; Aranha, 2003, p.1; Phan et al., 2005, p.166;

Adi et al., 2017, p.124 Ajie and Cahyadi, 2017, p.464). In general, incubators started as a program which has been developed by a division of the institution (Aranha, 2003, p.1; Adi et al., 2017, p.123). The majority of incubators are connected to institutions such as universities, government agencies, research institutes, communities (Aranha, 2003, p.1). Incubators are an institution that can provide support for new businesses (Greene and Butler, 1996, p.51; Adi et al., 2017, p.124; Ajie and Cahyadi, 2017, p.464). Incubators are considered to be “part of a hierarchical structure, where the decision taking is vertical, and in this context they are part of a whole” (Aranha, 2003, p.1). Moreover, Hackett and Dilts (2004a, p.47) present their vision of how incubators are an institution through two perspectives. First, from an institutional perspective, incubators can play the role of intermediate player between the institution and incubated projects; this would contribute in an increasingly positive and decreasingly negative way. The researcher sees that this role is difficult to play by any individual. However, being an institution can help put this into effect. Second: the incubator itself should be an institution in front of their stakeholders. This would also contribute to the possibility of studying the way in which incubators affect the incubatees through the impact of the organisational structure and processes for incubatees. The researcher sees that the relevant bodies, when they deal with the incubators as institution that may increase the incubator contribution.

In the literature review many researchers mention how institutional theory has been applied in incubator research, such as: Hjortsø et al. (2015, p.1) presented a study on the use of institutional theory to study the prevalence of student incubators in Danish universities that are funded by the government. They found that there was a political pressure that led to the spread of student incubators there. In addition, they found that universities were subjected to change by coercive isomorphism after a period of time. In addition, Davidsson et al. (2006, p.1) have used institutional theory to study the impact of external pressures in changing the idea of the project whilst in the initial stages of the project. Their research shows that the idea of the project has seen a significant change in the case of projects with 1- a large number of external owners 2- high profile customers 3- an incubator physical location. Through research conducted by them, Davidsson et al. (2006, p.1) stated that institutional theory is a useful tool to study start-up projects in incubators. Moreover, Hackett and Dilts (2004a, p.47) who state that researchers have used an institutional perspective to study multiple phenomena of venture capital industries in developed countries and China. Furthermore, Gstraunthaler (2010, p.397) presented research on how institutions are created and how the surrounding environment affects them by conducting interviews with managers of the incubators.

Since most incubators in the world are initiatives established by governments, a number of researchers using institutional theory have said that it is possible for the development of incubators to be clearly influenced by policies, laws, local authorities, universities and governments (Eisenhardt, 1989; Scott, 2005; Corsi and Berardino, 2014, p. 326). Since most non-profit incubators are established by government/private initiatives, societies, and government agencies, it is possible that their systems have a significant impact on incubators, their mechanisms and their systems (Phan et al., 2005; Corsi and Berardino, 2014, p. 326). More precisely, incubators derive their resources through local systems such as: governments, universities and other supporting organisations (Corsi and Berardino, 2014, p. 326). They added that incubators do not build their procedures based on market needs; instead it is the policies of supporting bodies that affect them. The researcher sees that the effect of the policies of supporting bodies of incubators and their systems and procedures may be greater in some countries, especially in developing countries, where governments have a greater role to play. On the other hand, government impact may have a positive aspect on incubators and their development, where regulations and laws developed by governments play strongly in accelerating and developing the economy and entrepreneurship (O'Gorman and Kautonen, 2001; Corsi and Berardino, 2014, p.326). Corsi and Berardino add that incubators therefore become the main tool for governments to achieve that aim. In research conducted by Abetti (2004) in Finland, he said that government agencies, universities, local and regional companies play an important role in the success of new incubators and start-up technical projects. The above conditions contribute to the creation of an excellent environment for the start-up of emerging projects, especially technical projects, created following these incubator initiatives (Corsi and Berardino, 2014, p.326). It can be said that establishing procedures and laws supporting incubators and start-up projects may have a greater impact in developing countries that need clear laws and procedures contributing to the growth of projects. Projects suffer from several obstacles at the beginning as mentioned earlier in this chapter.

Moreover, institutional theory may be appropriate in future research which studies the influence of local, regional and international institutions on incubators and incubatees (Bruton and Ahlstrom, 2003; Hackett and Dilts, 2004a, p.47). Based on the foregoing, this section shows that institutional theory is a suitable theory for many researchers in the literature review studying the phenomena of incubators in many aspects.

2.15.2 Institutions and culture:

From an institutional theory perspective values, norms, beliefs, and assumptions are cultural aspects that influence the world and the way institutions would like it to be (Barley and Tolbert 1997, p.93).

The norms and ontological expectations gradually shape the social interactions of the society. Such interactions are taken for granted ‘facts’ (Barley and Tolbert, 1997, p.94).

Institutional theory examines basic factors of an institution’s life. The theory starts with community behavioural expectations leading through to individual behaviour such as rules, procedures and criteria (Svejvig 2009, p.8; Al-Somali, 2011, p.90).

In addition, Svejvig (2009, p.8) explains that institutions are “human rights, societies, enterprise systems, families, handshakes and belief systems”.

A significant difference between organisations and institutions has been simplified by “using a game analogy: Institutions are the rules of the game, and organisations are the players.” (North, 1990, pp.4-5; Svejvig, 2009, p.8).

Furthermore, the regulation in social behaviours is just repetitive behaviours in specific cases that are either self-policed or policed through external power (Schotter 1981, p.11). These behaviours have been agreed upon by all the members of society (Schotter 1981, p.11). That shows that cultural aspects have an influence on institutions.

2.15.3 Organisational field:

The institutional field is the agencies that surround the institution’s life cycle such as: suppliers, consumers, organisational authorities and organisations that provide similar services (DiMaggio and Powell 1991, p.64).

On another level, the institutional field affects the processes and structure of the organisation through independent factors or contextual factors or circumstances (Scott, 2001, p.136).

The suggestion could be made that the institutional field is not fixed (Hjortsø et al. 2015, p.7) but it is “structured systems of social positions within which struggles or manoeuvres take place over resources, stakes and access.” (Oakes et al., 1998, p.260). It can be also said that the institutional field can be universities, incubators, state institutions, companies, industries and others.

2.15.4 Institutional logics:

‘Institutional logics’ will now be considered to be one of the elements in institutional theory. A number of researchers have defined ‘Institutional logics’. Such as, Friedland and Alford (1991, p.248) have defined them as: “A set of material practices and symbolic constructions

which constitute its organising principles and which are available to organisations and individuals to elaborate.” Similarly, Scott (2001, p.139) define them as, beliefs and relevant practices that dominate the organisational field.

Svejvig (2009, p.8) discusses the idea that in the past, institutional theory concentrated on isomorphism. However, “this focus has changed nowadays and it is no longer so much on isomorphism, whether in society or within the organisational field, but more on the effects/processes of different, often conflicting, ‘Institutional logics’ on individuals and organisations.” Thornton and Ocasio (2008, p.100) state that “Institutional logics shape rational, mindful behaviour, and individual and organisational actors have some hand in shaping and changing institutional logics.” In brief, ‘Institutional logics’ can be helpful to understand how institutions have an effect on each other.

2.15.5 Multiple levels in institutional theory:

Svejvig (2009, p. 12) defines multiple levels in institutional theory as: “Interaction between levels, where macro structures in society are bridged by organisational fields to micro structures in organisations or even down to the individual actor level.”

One of the strong features of institutional theory is its ability to work at multiple levels starting from the society and the organisational field reaching to the individual level. This may contribute in the provision of wider explanations through institutional theory (Scott, 2008, p.85; Svejvig, 2009, pp.11-12).

When there is a top – down (macro level) pressure and it comes from the level of high status individuals within an organisation, that will shape the format of individual processes at that time and thus the institution (Sanad, 2012, p.244). On the opposite side, if the pressure comes from the bottom – top (micro level) as a result of unique beliefs, norms and ethics, this affects the upper level such as organisations, the organisational field and society (Scott, 2008; Sanad, 2012, pp.244-245). Moreover, the next two sections will address institutional pressures in further detail.

2.15.6 Isomorphism: institutional pressures:

Organisations and institutions face many institutional procedures and pressures which result from organisations’ and institutions’ direct link with multiple environments. Since central to institutional theory is the social aspect of institutions, many different concepts have emerged over a period of time. For instance, many researchers (Meyer and Rowan, 1977; Zucker,

1977; Barley and Tolbert, 1997 and Weerakkody et al., 2009) refer to the concept of isomorphism that emerged in the 1970s as a consequence of social actions within institutions. DiMaggio and Powell (1983, p.149) have defined isomorphism as: “A constraining process that forces one unit in a population to resemble other units that face the same set of environmental conditions.”

There are three types of pressures that affect institutional isomorphism. These three types are coercive, normative and mimetic pressures (DiMaggio and Powell, 1991, p.67; Scott 2001, p.52). This has directed researchers to explore those constraints within organisational levels, identifying the three types of institutional pressures in so doing. Many external agencies and factors such as governmental sectors, companies, consultations, business criteria and stakeholders (Wang and Cheung, 2004 cited in Sanad, 2012, pp.246-247) may impose institutional pressure.

Shi et.al. (2008, p.276) claim that organisational practices are more likely to be accepted and adopted by an organisation if those practices are commonly accepted by other organisations within the same field. What is also important is Tolbert and Zucker’s (1994, p.175-190) claim that different institutions from *different sectors* become similar as they face common constraints and also become similar in the way they approach those constraints.

The three types of pressures that effect institutional isomorphism are as follows:

- 1- **Mimetic pressure** has been defined by DiMaggio and Powell (1991, p.69) as a pressure that leads an organisation to copy other organisations to conduct business actions in the same behavioural manner. Two main sources of mimetic pressure have been identified by Haveman (1993, p.593) who distinguishes between (1) an organisation that copies another organisation in the same field and (2) an organisation that takes a level of success of another organisation as a benchmark for its own business plans. With regards to this, Teo et.al (2003. p.22) said: “If enough organisations do things in a certain way such it gives rise to that particular course of action being legitimated or taken for granted throughout a sector, others will follow suit to avoid the embarrassment of being perceived as less innovative or responsive.”
- 2- **Normative pressure** is another type of isomorphic change. This type of pressure impacts on the norms and values of a certain institution. It has been identified and further elaborated by Lai et al., (2006) and Scott (2008, p.50-59) who claim that normative pressure stands for a set of rules and regulations recommended by an external advisory body to be followed for the purpose of development and further improvement of efficiency. It has been argued that these pressures have emerged from

professionalisation (DiMaggio and Powell, 1997, p70). Professionalisation has been defined as a “collective struggle of members of an occupation to define the conditions and methods of their work, to control the production of the producers and to establish a cognitive base and legitimation for their occupational autonomy.” (DiMaggio and Powell, 1997, p70).

- 3- **Coercive pressure**, as an isomorphic consequence has been defined in a similar way by many academics. For instance, DiMaggio and Powell (1997, p.67) define coercive pressures as a set of formal and informal pressures imposed by a certain organisation onto a dependant organisation. These pressures are within the boundaries of the expectations of society where the dependant organisation operates. There are arguments regarding the sources from which coercive pressures may arise, including government authorisation, resources-dominant organisations, high-profile customers, professional regulatory bodies, and parent organisations (DiMaggio and Powell 1991, p.67; Teo et al 2003, p.23; Harcourt et al 2005, p.2118).

The next section will be covering additional isomorphism pressure as mentioned in the literature review.

2.15.7 Competitive pressure:

Competitive pressure is another aspect of isomorphism, a concept introduced by DiMaggio and Powell (1983, p.149). They define it as “a system rationality that emphasises market competition, niche change, and fitness measures”. It is also defined as “the pressure that arises from the threat of losing competitive advantage which forces firms to search for alternatives to their current strategies” (Wang and Cheung 2004, p.44).

Competitive pressure is evident in a company’s process of formulating a contingency plan thus implying alternative ways of reaching certain goals and realising certain business plans. Another practice identified by Scott and Meyer (1991, p.108-142) is that organisations tend to acquire advance systems as an answer to competitive pressures. These systems are often formed to meet initial organisational objectives, such as profit maximisation and attraction of prospective customers.

2.15.8 Rationalised myths:

According to Meyer and Rowan (1977, p.347), rationalised myths serve as an important segment of institutional theory within the construct of institutional life. They further claim that the effectiveness of generated and spread myths by a certain organisation within the

business world can be relational (Meyer and Rowan 1977, p.347). It has also been evident that when certain products, services and public opinions are institutionalised, they may be utilised as powerful myths and maintain different types of organisational pressures in many ways (Svejvig 2009, p.10).

In that regard, Scott (1983, p.14) refers to rationalised myths as commonly accepted forms of acts that have been “widely shared, or have been promulgated by individuals or groups.” As such, these myths have additional dimensions in this research as they reflect on multiple stakeholder groups. Internal stakeholders are those accepted as incubatees. External stakeholders are those that are not in a direct relationship with an incubator organisation. Different views, opinions and actions of each form an important aspect from the institutional theory perspective.

2.16 Thematic summation:

Author's name(s)	Theoretical Perspective	Key theme	Place
Adegbite (2001)	Survey methods	- Through the study, it is found that there is a weakness in the administrative organisation in incubators in Nigeria. - The result was through three elements: 1- interviews with managers of incubators 2- Actual visits to incubator sites 3- Exchange of views.	Nigeria
Akçomak and Taymaz (2004)	Two methods have been applied: 1- Observation for incubated and non-incubated projects. 2- data collections.	One of the main factors that reduces the impact of incubators is the weakness of the mechanisms of supporting and marketing the projects. The study was conducted on incubated and non-incubated projects by making face-to-face interviews.	Turkey
Ferguson and Oloffson, (2004)	Testing two hypotheses.	- The research included two incubators that are located in two different Swedish cities, one of them located on the science park and another one is off-park. The duration of the study is ten years. - They found that firms located on science parks have much higher survival rates than off-park firms.	Sweden
Bøllingtoft and Ulhøi (2005)	This study draws upon the social capital theory.	- The research is based on 6 months of data collected in the first networked incubator in Denmark. -Successful projects in their primary years face several obstacles. - The existence of incubators helps start-up projects by providing administrative support and reducing the	Denmark

		operational costs.	
Svejvig (2009)	Institutional theory was used.	The result shows that the use of institutional theory in the field of enterprise systems research is in the infant stage.	Denmark
Yang et al. (2009)	Descriptive analyses for 247 firms was used.	- Incubated projects invest more efficiently than non-incubated projects. - That is according to the data obtained from Hsinchu Science Industrial Park in Taiwan.	Taiwan
Bruneel et al., (2012)	This study draws upon two methods: 1- qualitative methodology to study the selected incubators; 2- quantitative methodology to study the incubated projects.	The research included seven incubators as well as incubated projects. They found that the owners of the incubated projects from the previous generation have benefited from the services provided by incubators less than the next generation. In addition, there were no clear selection criteria and exit policies in incubators.	The data for was collected from several European BIs'.
Zhu et al., 2014	The theoretical basis of the research is strategic niche management theory	By using the data on the 189 national incubators from 2008 to 2012 in China, the following results were found: - The performance of the managers of incubators is lower than expected. - Investments from private sources have a greater impact than government-generated investments. - The internal network has a greater positive impact on incubators than the external network.	China

2.17 Previous research:

There are many divisions in the reviewed literature in this research. For instance, Akçomak (2011, p.6) argues that it is appropriate to divide the previous literature reviews into two categories. First, the theory of incubators and how they are formed. This literature review attempts to answer several questions, such as incubators' goals and plans and how to manage incubators. (e.g. Allen and McCluskey 1990, pp.60-62; Grimaldi and Grandi 2005, pp.111-112). The second type of study in the literature review, as Akçomak (2011, p.6) mentions, focused on evaluating the performance of incubators, and whether they achieved their objectives of providing economic and technical support to start-up businesses. In achieving their goals this led to the creation of new projects and the creation of new job opportunities

(e.g. Colombo and Delmastro 2002, p.1103; Aerts et al. 2007, p.7; McAdam and McAdam 2008, pp.277-278).

The real academic effort to outline the role of business incubators began in 1984 (Allen, and McCluskey, 1990, pp.62-63). Allen, and McCluskey add that, the initial effort was actually focused upon defining business incubation while working further towards defining policy prescriptions. The later work remained mostly focused upon defining the conceptual frameworks, new venture development, outcome and measures of success.

Hackett and Dilts (2004, p.59) surveyed articles between 1984 to early 2002 and chose 38 articles to review. They divided the review into time periods. They analysed each time period for the following: firstly, the main topics; and secondly for the research questions. From 1984 to 1987 the main topics for research were definitions, taxonomies and policy methods. The research questions were about the definition and description of incubators and the ways of developing incubators. From 1987 to 1990 the studies showed more depth, the main topics were about the frameworks of understanding and the process of choosing a start-up firm. The research questions were about; what were considered to be factors for a successful incubation; how incubators work; and the ways of selecting start-up companies.

From 1990 to 1999, the majority of European incubators were established at a percentage of 70%, and after 2000 only 7% were founded (Aerts et al. 2007 p.259). This indicates that incubator initiatives have been influenced by the weak economic situation (Aerts et al., 2007, p.259). It could also be that there were enough incubators at the time (i.e. prior to 2007). On the other hand, there is a huge increase in the number of new incubators and accelerators opened in Britain since 2012. Such an increase amounted to more than a half of the current incubators and accelerators (Fox, 2014, p.7). In light of the observations made by Aerts et al. and Fox, it can be noted that the need of new incubators may vary from time to time and from one country to another.

The main topics in the period from 1990 to 1999 were about measuring success and the analysis of its levels. The research questions were about measuring the impact of incubators on new ventures' survival rates, job creation rates and economics (Hackett and Dilts 2004, p.59).

It can be noted that views differ from one research study to another and researchers tend to categorise the impact of incubators differently. This section presented some of these different views.

2.18 Conclusion:

This chapter concluded a literature review for the purpose of providing a theoretical background for this research through reviewing the contributions made by the previous researchers in the field of incubators and their impact on SMEs. The literature review demonstrated the importance of the SME sector in the world and Saudi Arabia in particular. This chapter reviewed the history of incubators since their inception, and their types and services they provide to SMEs. The literature review demonstrated that incubators provide various services designed for the projects in their primary stages. Several researchers discussed that SMEs face a lot of obstacles at the beginning and they also discussed the contributions made by incubators in finding solutions for these obstacles by addressing the benefits of incubation for SMEs. Then, four sections discussed the factors that contribute to the success of incubators. After that, incubators in developing countries have been addressed. The literature review demonstrated that there is a lack of research studying incubators in developing countries. Then, this chapter dealt with one of the types of incubators, which is TBIs which are considered to be the focus of attention for this research through highlighting their importance in the countries of the world in general and in Saudi Arabia in particular. Saudi Arabia has in previous years started to open several TBIs in an ambitious plan to reach a great number in the coming years. The literature review reveals that there is a severe scarcity of research in this field in Saudi Arabia.

Then, this chapter discussed in details seven theories that have been used in the incubation research field. One of these theories is the institutional theory. The institutional theory has been discussed in depth within eight sections since this theory has shown more suitability to achieve the aim and objective of this research. Chapter six provides a further information about implementing of the institutional theory.

Through the literature review, the research found the gap that deserves investigation; the researcher aims through answering the research questions mentioned in the first chapter to fill this gap. In the following chapter, the researcher reviews the research methodology, through which he seeks to achieve the aim and objectives of this research.

Chapter 3: Research Methodology

3.1 Introduction:

The aim of this thesis is to investigate and study the effects of technology business incubators on small and medium-sized enterprises in SA. In doing so it will fill the gap in knowledge identified in chapter two. It is necessary to select a suitable research methodology that fits with the research question and objectives mentioned in chapter one. The research philosophy involves the application of significant assumptions intended to guide the researcher to an understanding of the world to build a suitable research structure (Neuman, 2011, p.91; Altayar, 2011, p.76). This chapter will cover the research methodology that will be used in this research. Starting with the research philosophy, followed by the three common research paradigms. Then, the research approaches (quantitative and qualitative), followed by additional material from four types of research methods. Then nine sections address in detail the data collection methods and the data analysis that will be used in this thesis. Finally, the planning of fieldwork for the collection is covered, discussing the pilot study and full study.

3.2 Research philosophy:

Philosophical paradigm is defined as: “A set of assumptions or ways of thinking about some aspects of the world.” Oates (2006, p. 282).

In general, it is said that there are two philosophical fields relevant to methodological issues they are ontology and epistemology: “Different philosophical paradigms have different views about the nature of our world (ontology) and the ways we can acquire knowledge about it (epistemology).” (Oates 2006, p. 282).

In other words, ontology attempts to understand “what is”, while “epistemology” comes to clarify “what it means to know” (Gray, 2014, p.19; Kanamugire and Ndayishimiye, 2016, p.20).

The definition of ontology has, like many other philosophical concepts that have been defined before, caused confusion among many people (Eke, 2012, p.60). Ontology is defined as “a virtual reality shaped by social, political...and gender values; crystallized over time.” (Lincoln and Guba 2000, p.165). Ontology means: “the study or science of the nature of reality” (Eke, 2012, p.60). In ontology there are existing multiple socially structured realities (Mertens, 2007, p.216). Through their view of the critical realist ontology, Perlesz and Lindsay (2003, p.33) said that reality already exists but they believe that it cannot be fully

obtained. Ontology is divided into two sections: objectivism and constructionism, this difference is evident in social science - 'Organisation' and 'culture' (Gray, 2014, p.19; Kanamugire and Ndayishimiye, 2016, p.19). Organisations, viewed as a phenomenon, occur through the interpretations and actions of those who inhabit them (Eke, 2012, p.60).

On the other hand, epistemology is described as “the paradigms of structure is objectivist, meaning that truth exists, and that knowledge of the truth can be discovered empirically.” (Hadley, 2012, p.21). Epistemology is defined as a philosophy that deals with the nature of knowledge and how knowledge can be acquired in reality (Eke, 2012, p.61). It was mentioned by Hornstein (2007, p.146) that epistemology is “taken as trying to account for how beliefs arise, how they relate to each other, and how they relate to the world.”

With regards to researchers, ontology is an understanding of the view of the nature of reality while epistemology is what can be attributed to knowledge that could contribute to the design of research methodology (Darlaston-Jones, 2007, p.25; Eke, 2012, p.66). Ontology and epistemology help identify hypotheses and beliefs that shape a researcher's view of a research problem and how he/she studies and investigates the methods he/she uses to answer research questions (Tilana, 2015, p.61). Epistemology seeks to enable the discovery of knowledge and truth (if such exists), through asking questions, such as: what are the sources of knowledge? is it reliable? what can be known? and how one can know whether something is true or not? (Neuman, 2006, p.95; Tilana, 2015, p.61). These ways of questioning can be aligned with this research objective (see section 1.3).

The use of epistemological theory contributes helping researchers in two main ways as described by Kanamugire and Ndayishimiye (2016, p.20). They explain that the first way, is by helping researchers in designing research and its tools, and this enables the researcher to determine the research strategies, the type of research and where to collect data and how to present them. Second, it contributes to determining suitable or unsuitable design based on the identified objectives (Thorpe and Lowe, 2002, pp.103-105; Kanamugire and Ndayishimiye, 2016, p.20). A number of researchers stated that epistemology has several types such as: positivism, and interpretationism (Bryman, 2016, p.24-27; Kanamugire and Ndayishimiye, 2016, p.20).

A Positivist approach is built on the fact that natural and social worlds are formed and managed within a set of strict laws, and are discovered by science (Kanamugire and Ndayishimiye, 2016, p.21). Moreover, in the positivist tradition researchers view reality as separate and independent from the observer (Guba and Lincoln 1994, p.111; Perlesz and Lindsay, 2003, p.28). They add that a positivist epistemology is objectivist, so positivist

researchers consider what they find is 'true'. Many other researchers believe that an interpretive approach contradicts the positivist approach (Kanamugire and Ndayishimiye, 2016, p.21). Where positivist tends to highlight research results as 'objective' facts (Crotty, 1998, p.6; Kanamugire and Ndayishimiye, 2016, p.21). By contrast, an interpretive approach "looks for culturally derived and historically situated interpretations of the social life-world" (Crotty, 1998, p.67), where there is no one direct link between "us (subjects) and the world (Object)" (Kanamugire and Ndayishimiye, 2016, p.21). They added that what is matters most in interpretivists "is the subject of the social sciences, people, as well as their institutions." On the other hand, paradigms really depend on the philosophical approach of being either ontology or epistemology (Oates, 2006, p.287). Clarity about ontology and epistemology help researchers study the issue and by using different research questions they will be able to better understand (Neuman, 2006, p.95; Tilana, 2015, p.61).

Several researchers describe positivism as 'quantitative research' and interpretivism as 'qualitative research' and that is inaccurate as Oates (2006, p.287) stated. He added that quantitative or qualitative can be used with any type of the three paradigm types: positivist, interpretivist and critical. However, positivist research is predominantly quantitative (see section 3.3.1), whilst qualitative research is more applicable to interpretivist and critical research (see sections 3.3.2 and 3.3.3) (Oates, 2006, p.287).

Epistemology is described as how we obtain knowledge about the world (Skalski, 2009, pp.20-21). In the field of incubators, there are many researchers who have adopted the approach of epistemology in their research such as: Moscovis and Serup (2012, p.18), Douché (2016, p.57) and; Youcefi and Lundgren (2017, p.23). Through the opinions of the participants in this research and through related data, this research seeks to increase knowledge about incubators in SA. Many researchers used hermeneutic with epistemology approach such as: Patterson and Williams (2002, p. 12) and Skalski (2009, p.18). The hermeneutic approach is based on the understanding that has been built through the participation of dialogue, not through what the interpreter reproduced (Schwandt, 2000, p.195; Skalski, 2009, p.20). That is: the researcher and the participant, together build the understanding (Skalski, 2009, p.20). Interviews with participants in the research are considered to be tools of the knowledge industry (Kvale, 1996, p.489; Skalski, 2009, p.20). Skalski (2009, p.20) describes this combination as "the knower and respondent co-create understandings".

Through the foregoing, this research will depend on an interpretive epistemology as it does not see that there is only one theory of knowledge but it is formed through human and social

interactions. Knowledge can be obtained by asking questions and collecting data. In addition, the nature of this research does not seek to prove a theory, but to discover the phenomenon under study.

3.3 Research paradigms:

In information system (IS) research there are three common paradigms that are adopted: the positivist, the interpretivist and the critical (Oates, 2006, p.282; Altayar, 2011, p.76). In the following sections there are descriptions for each of these.

3.3.1 Positivist:

Positivism is the oldest of the three paradigms, and it has been developed in the last 500 years (Oates, 2006, p.283). Neuman (2011, p.95) defined positivism as:

“An organised method for combining deductive logic with precise empirical observations of individual behaviour in order to discover and confirm a set of probabilistic causal laws that can be used to predict general patterns.”

According to Oates (2006, p.283) these methods builds on two characteristics:

1. That the world is not random.
2. Evidence of this can be verified objectively.

In addition, Myers and Avison (2002, p.6) added that reality is impartial, given that it could be described on the basis of several elements that are independent of the researcher and the measurement tools.

The positivist paradigm rests on many assumptions that effect it. First, the natural world as it exists independently from humans; and its physical and social capacity to be empirically investigated and scientifically calculated (Oates, 2006, p.286). Second, positivist researchers act by undertaking observations and measurements to evolve theories about how the world works, with the goal of producing an explanation that represents the truth (Keat and Urry, 1975, p.25; Oates, 2006, p.286). Third, the facts about the world are present and waiting to be discovered (Neuman, 2011, p.96; Altayar, 2011, p.77). Fourth, it is possible to understand humans through monitoring them and by establishing that what we are seeing is the truth (Neuman, 2006, p.82; Altayar, 2011, p.77). Fifth, there is the fact that such research tends toward quantitative analysis, providing researchers with mathematical modelling and measurable statistics (Oates, 2006, p.286; Neuman, 2006, p.82). Sixth, reliance on the study

of natural phenomena through the creation or testing of theories to attain a result that proves or disproves those theories (Oates, 2006, p.286; Saunders et al., 2007, p.103). Seventh, researchers in this school are trying to make realistic generalisations, through establishing general laws, patterns and facts (Oates, 2006, p.286; Neuman, 2006, p.82). Eighth, researchers seek replicable findings for the purpose of verification of their results (Neuman, 2006, p.85; Saunders et al., 2007, p.103). Finally, the positivist paradigm depends on the researcher being neutral so as to ensure personal beliefs and opinions or his behaviour and interests do not influence results (Oates, 2006, p.286; Neuman 2006, p.85).

However, positivism paradigms received criticism from interpretive researchers (Altayar, 2011, p.78). Also, it has been observed that, while the positivist school is more suited to a study of natural phenomena, it is less suitable for the study of the social world, such as of people, groups and organisations, etc. (Orlikowski and Baroudi, 1991, p.12; Oates, 2006, p.288; Denzin and Lincoln, 2005, p.11; Altayar, 2011, p.78). In addition, the concepts suited to the laws of nature cannot be applied to the real world, where people have different views and opinions about the world and they can change with time (Oates, 2006, p.288). Moreover, researchers are independent of their research and what they observe, which is not always desirable (Neuman, 2006, p.13; Altayar, 2011, p.78). Furthermore, positivist school researchers present people as numbers, often failing to link them to their real lives or knowledge (Neuman, 2006, p.82; Altayar, 2011, p.78). Thus in the late 19th century onwards, researchers developed an alternative paradigm, that was more suitable for researching people and their environment; this is the interpretive paradigm (Oates, 2006, p.288), which is discussed below.

3.3.2 Interpretive:

In IS interpretive researchers are interested in understanding the social context of information systems (IS) that are developed and interpreted by people (Oates, 2006, p.292). Neuman (2011, p.102) defines interpretivism as:

“The systematic analysis of socially meaningful action through the direct detailed observation of people in natural settings in order to arrive at understandings and interpretations of how people create and maintain their social worlds.”

Interpretive research differs from positivist research, in that it does not try to prove or disprove hypotheses, but attempts to identify, understand and explain factors that affect certain social realities, whether they are related or not (Oates, 2006, p.292). Also it is a way in

which to understand phenomena through the manner in which people perceive their world by discovering the meanings and values bestowed by those individuals or groups on target events (Oates, 2006, p.292).

The interpretive paradigm has many characteristics that effect its efficacy:

- There is no single view of the truth, what an individual or a group sees as truth or knowledge, another individual or group sees differently (Oates, 2006, p.292).
- Interpretive researchers seek to understand a phenomenon through understanding what it means to people (Myers and Avison, 2002, p.6; Neuman, 2006, p.88). Thus, it confirms the importance of studying people and not the objects (Neuman, 2006, p.91; Saunders et al., 2007, p.106). Whatever truth is, it cannot be accessed only through social structures such as language or understanding or shared meanings (Oates, 2006, p.292).
- Neutrality in researchers is not essential. They may have opinions, culture, beliefs and values that impact on direction of the research (Oates, 2006, pp.292-293). Researchers also investigate phenomena that directly interact with research topics to achieve “common-sense thinking” (Bryman, 2008, pp.15-16). This is a significant source of people's perceptions (Neuman, 2006, p.91).
- Phenomena can be studied in their natural context, not in the laboratory or the virtual world as in positivist experiments (Oates, 2006, p.293). In addition, as Neuman (2006, p.92) emphasises, social content cannot be separated from the natural environment in which they occur.
- Qualitative data can be collected through the words, metaphors or the views of respondents and their manner of expression (Oates, 2006, p.293). Furthermore, an interpretative approach is inductive in its nature, researchers collect abundant data associated with ideas and insights (Altayar, 2011, p.79).
- The interpretative approach, unlike positivism, is based on the fact that there are multiple explanations of what may occur in the research; thus, providing multiple explanations by discussing how to reach the most appropriate conclusion based on the available evidence (Oates, 2006, p.293).
- Knowledge and reality is socially predicated; rooted in the knowledge and experiences of people (Neuman, 2011, p.102; Altayar, 2011, p.78).

- The social world requires a more interrogative method than positivism that is largely limited and best suited to the natural sciences (Saunders et al, 2007, p.106; Altayar, 2011, p.78).

However, there are also limitations associated with interpretive paradigms; in particular, when employing interpretative research methods, it is difficult to generalise findings (Saunders et al., 2007, p.107; Altayar, 2011, p.79). Moreover, the interpretative approach is not concerned with the particular external conditions that lead to a specific understanding and expertise (Orlikowski and Baroudi, 1991, p.18). In addition, the researcher's background of beliefs, values and convictions may affect the research results (Altayar, 2011, p.79). Moreover, an interpretative approach cannot allow for historical change, this means that there is little explanation of how any social occurrence came to be, or how it might be in the future (Orlikowski and Baroudi, 1991, p.18). From the above, it can be seen that the interpretive paradigms can be useful paradigms for this thesis (see section 3.3.4).

3.3.3 Critical:

The application of a critical approach in IS and computing, is concerned with identifying areas of strength, conflicts and contradictions and empowering people to eliminate these as sources of alienation and dominance (Myers and Avison, 2002, p.7; Oates, 2006, p.296). It has been considered that a critical approach is lesser known than interpretative approach (Oates, 2006, p.296). Researchers using an interpretivist paradigm claim that social reality is constructed and re-established by people (Oates, 2006, p.296). However, those pursuing a critical paradigm argue that social reality has properties inclined to dominate both experience and the way in which we see the world (Oates, 2006, p.296).

The critical paradigm has many characteristics that affect the practice of researchers pursuing it, despite the diversity of types and styles:

- Researchers argue regarding the implications of separating people from areas of strength, that constitute communities and organisations (Howcroft and Trauth, 2004, pp.196-197; Oates, 2006, p.297).
- Researchers challenge the status quo (Howcroft and Trauth, 2004, p.197; Oates, 2006, p.297).
- Critical researchers claim it is not adequate to explain and studying the social world, but the role is a revelation of false illusions and myths; thus, it is the role of

researchers to make a difference to communities (Orlikowski and Baroudi, 1991, p.20; Neuman, 2011, p.109). Therefore, ‘transformation’ is the main element in the critical approach (Myers and Klein, 2011, p.24; Altayar, 2011, p.80).

- Researchers emphasise the importance of long-term studies of both an historical and ethnographic nature (Orlikowski and Baroudi, 1991, p.20; Neuman, 2011, p.109).
- Researchers refuse projects aimed at increasing the strength the management control (Howcroft and Trauth, 2004, p.197; Oates, 2006, p.297).
- Researchers doubt the possibility of value free knowledge and objectivity, since projects are formed on the basis of those in power and individuals with vested interests (Howcroft and Trauth, 2004, p.197; Oates, 2006, p.298)
- Researchers in the critical tradition challenge the notion that technical development has its own laws that people and communities should follow (Howcroft and Trauth, 2004, p.197; Oates, 2006, p.297).

3.3.4 Justification of the research paradigms:

When selecting an appropriate research methodology, it is crucial to consider the assumptions and methods that define each, as well as their strengths and weaknesses (Orlikowski and Baroudi, 1991, p.20).

Following a comparison of the three paradigms mentioned above, an interpretative approach was chosen for this research. The reasons for this are discussed here: First the underlying ontological and epistemological assumptions regarding the nature of reality and knowledge. Based on that this research adopts the epistemological philosophy (see section 3.2), epistemology is described as “how we obtain knowledge about the world”. Since this research aims to, investigate and study the effects of technology business incubators on SMEs in SA environment, the experiences and views of individuals and groups in the field of technical incubators are essential if we are to achieve an extension of consciousness and an awareness of the experiences from a human perspective (Burrell and Morgan, 1979, p.253; Altayar, 2011, p.81). In the past twenty years, IS researchers have adopted and accepted the interpretative approach (Oates, 2006, p.304). It provides a way of understanding technological practices and the structures developed by people (Klein and Myers, 1999, p.67; Oates, 2006, p.304). Also, an interpretative approach bestows “an understanding of the context of the information system, and the process whereby the information system influences and is influenced by its context” (Walsham, 1993, pp.4-5; Altayar, 2011, p.81).

The positivist approach does not adequately consider people and their experiences as a phenomenon, holding social reality separate from people and their experiences. In addition to this, research does not seek to test any of the hypotheses. Therefore, the positivist approach is not suitable.

Second, despite the similarity between the interpretive and critical approach, the critical approach seeks to effectively empower and emancipate people. This is different from the main objective of this research, which is to investigate the effect of incubation on SMEs. Moreover, the researcher is not in a position to make a change to the current status of the incubators covered in this research. The researcher lacks sufficient power within the organisations being researched (McLean and Stahl, 2007, pp.9-10). There is not any possibility of including longitudinal and ethnographic research, due to the limitations of resources for the researcher and time limitation. With the researcher in Britain to study, and the subject under investigation being in Saudi Arabia, the requirements that ethnographies demand in terms of time within the domain under investigation (Yin, 2009, p.15) mean that this approach is not practical.

In the following section, after identifying the research paradigm, we will move on to another stage of the study. The selection of a research approach, generally speaking, suggests that there are two major types: quantitative and qualitative, that need to be addressed.

3.4 Quantitative and qualitative research approaches:

In the next sections, there is a description of the research methodology followed in this study. The research methodology determines the approaches for gathering data and directing the researcher to selection of particular instruments for example; interviews, observation or questionnaires (Bryman, 2008, p.31). Research methodology can be described relative to two common approaches; first a quantitative approach and second a qualitative approach (Altayar, 2011, p.82). The opposing nature of quantitative and qualitative approaches, can be benefitted from, as depending on the research aims and questions both can have a role to play (Arnd-Caddigan and Pozzuto, 2006, p.426).

3.4.1 Quantitative approaches:

Initially the quantitative approach was developed to suit research in the natural sciences (Myers and Avison, 2002, p.4; Altayar, 2011, p.82). Quantitative data is mainly based on numbers (Punch, 1998, p.4; Oates, 2006, p.245), generated from the collection of experimental evidence or data (Oates, 2006, p.245). Such data can derive from experiments

or surveys; however, it can also be generated in response to other research strategies (Oates, 2006, p.245). Quantitative approaches are mainly used for quantifying and gathering and analysing data and hypothesis testing and the measurement of variables (Neuman, 2006, p.151; Altayar, 2011, p.82). The aim of data analysis is then to look for patterns to reach conclusions (Oates, 2006, p.245). There are several methods that are followed in the analysis of quantitative data (Oates, 2006, p.245). Methods include: simple analysis, such as using tables and graphs; analysis following a medium level of complexity, involving simple statistical methods; and, lastly more complex analysis (Oates, 2006, pp.245-246). A quantitative approach is essentially used with a positive approach (Neuman, 2006, p.151; Oates, 2006, p.245). However, in some cases the approach may be used by critical and interpretive researchers (Oates, 2006, p.245). As this researcher chooses and justifies an interpretative approach, this will not suit a quantitative approach. In addition, the nature of this research does not rely on numerical data. Further clarification would be in section 3.4.3.

3.4.2 Qualitative approaches:

The qualitative approach developed is based in the social sciences (Myers and Avison, 2002, p.4; Altayar, 2011, p.82). Qualitative data is based primarily on non-numeric data (Punch 1998, p.4; Oates, 2006, p.266), such as words, sounds, images and so on, and is collected from interviews, websites or existing documents (Oates, 2006, p.266). This main evidence or data can be created from case studies, action research and ethnography (Oates, 2006, p.266). Qualitative data is usually associated with an interpretative philosophy, but can also reflect a positivist approach (Oates, 2006, p.266; Altayar, 2011, p.83). Thus, “the word qualitative is not a synonym for interpretive” (Altayar, 2011, p.83). Analysis of qualitative data drawn from audio or visual materials can be related to research objectives (Oates, 2006, p.267). In some cases, qualitative data has been criticised; although this principally occurs when there is a lack of information regarding the method of analysis; i.e. how the results were obtained from the raw data (Oates, 2006, p.267). In a qualitative data study, no clear rules and strictures apply to determine how a task must be done (Oates, 2006, p.267). This is in contrast to quantitative data analysis, which is based on mathematics and statistics, where by qualitative data analysis depends on the skills of the researcher to see patterns in the data (Oates, 2006, p.267). However, qualitative data analysis is linked to “unstructured qualitative methods, such as participant observation studies and in depth interviews” (Henn et al., 2006, p.14). The researcher may have adopted an interpretative approach, and then the qualitative data is integrated with it. Qualitative data collection processes will be used in this research.

3.4.3 Justification for using qualitative approaches:

This research has chosen epistemological philosophy (see section 3.2), and interpretive paradigm (see section 3.3.2). Other research has used qualitative with epistemology such as: Carter and Little (2007, p.3), Skalski (2009, p.18) and Yilmaz (2013, p.315). Qualitative methodology is often linked with an interpretive paradigm (Oates, 2006, p.287). The following section will discuss the reasons leading to the choice of a qualitative methodology. Firstly, the main objective of this research is to study the impact of technology incubators on small and medium-sized enterprises in SA from the perspectives of the participants. Since qualitative research is focused mainly on people in organisations (Hunter, 2004, p.292) it can be used to understand the opinions of all the stakeholders associated with a problem. In addition, qualitative research helps us to understand unexpected aspects and recognise the implications of these (Holt and Oliver, 2002, p.286).

Secondly, qualitative research focuses on the importance of studying phenomena in their natural environment as they occur (Orlikowski and Baroudi, 1991, p.5; Robson, 2011, p.19; Altayar, 2011, pp.83-84). Therefore, the aim of this research will be to study the impact of technology incubators in their natural habitat through interviewing individuals and data collection. Through this approach the researcher will be able to interact directly with the participants to gather more in depth information and thereby build a comprehensive vision of reality. On the other hand, quantitative research does not consider the impact of the environment surrounding the work to be important, and often adopts an artificial environment, unless it is designed for it (Robson, 2011, p.19; Altayar, 2011, p.84). In addition, the adaptation of some tools and techniques to facilitate communication between the researcher and the participants in quantitative research can be considered to be a factor which will affect the quality of the research (Altayar, 2011, p.84).

Thirdly, qualitative research provides an answer for questions such as, "how" and "why", that can help in understanding the study that has been implemented (Creswell, 1998, p.17; Altayar, 2011, p.84). Since this research seeks to answer some questions, for example how technology business incubators affect small and medium-sized enterprises (SMEs) in Saudi Arabia, this method is appropriate.

Finally, applying a qualitative research methodology will help to provide a comprehensive view of the research (Creswell, 1998, p.17; Altayar, 2011, p.84). It is hoped that the results of this study will address some of the issues related to technical incubators and their impact. This may also help decision-makers in developing countries, and particularly in Saudi

Arabia, understand the impact of technology incubators on SMEs. On the basis of this, it is asserted that the qualitative approach is best suited for this research.

However, there are disadvantages when using qualitative approaches:

The first of these is the unrepeatability of qualitative studies. As qualitative research does not mention the details of a standard to be applied to repeat the process it is difficult, or even impossible, to duplicate the results, because what motivates one researcher may not motivate another (Bryman, 2008, p.391). Variance also occurs because such studies typically deal with social phenomena that are changing rapidly. To repeat the process, the need to conduct interviews with the same people at the same time and this is impossible to achieve (Altayar, 2011, p.86).

Second, qualitative research results depend on the relationship between individual studies and the researcher (Bryman, 2008, p.391). Qualitative research is very objective; the researcher decides what is critical and noteworthy, occasionally affecting the research outcomes (Altayar, 2011, p.85).

Third, the difficulty in presenting a systematic process that can be replicated means that it is essential for a qualitative researcher to give as many details of the data collection process as possible to support validity (Bryman, 2008, p.392). This might include an overall explanation of how the researcher went about conducting the research, and the method used for selection of the sample and also how it was analysed (Altayar, 2011, pp.86-87).

The researcher has examined the advantages and disadvantages of using the qualitative approaches mentioned in this section and it is reasonable that the use of qualitative approaches is more suitable for this research. As well as this, using qualitative approaches contributes to achieving the aim and objectives of this research.

3.5 Research methods:

Research methods can be defined as the tools with which data has been collected (Alzahrani, 2011, p.101; Bryman, 2015, p.10). Also, determination of methods has been defined as: “A strategy of inquiry which moves from the underlying philosophical assumptions to research design and data collection.” (Myers and Avison, 2002, p.7)

Where a qualitative approach is justified, it is beneficial to discuss strategies and approaches that are commensurate with those qualitative approaches that suit this research. There are four major categories of methodology in qualitative research, action research, grounded

theory, ethnography and case study (Myers and Avison, 2002, p.7; Hunter, 2004, p.294). Each one of the four is discussed below.

3.5.1 Action research:

The concept of action research is reliance on collaboration between the researcher and a group of stakeholders, helping them to identify a situation so as to develop a solution (Neuman, 2006, p.26; Bryman, 2008, p.382). The first use of action research was in the 1940s by Lewin (Oates, 2006, p.157; Saunders et al, 2007, p.141). Action research is:

“A general term to refer to research methodologies and projects where the researcher(s) tries to directly improve the participating organisation(s) and, at the same time, to generate scientific knowledge.” (Kock, 1997, p.66).

Action research varies from other approaches that do not model theories or knowledge; they are rather focused on knowledge, so as to solve a specific problem (Robson, 2011, p.188). In addition, action research plays a role in bringing change through the application of knowledge gained in other places (Saunders et al., 2007, p.171). However, action research is not associated with much of the research in the field of IS and computing (Oates, 2006, p.155). Moreover, the nature of action research is seeking change in a specific instance, rather than to gain understanding of the phenomena. However, this research is seeking more understanding of the effect of TBIs on SMEs rather than looking at specific instances.

3.5.2 Ethnography:

Oates (2006, p.155) defines ethnography as “a description of peoples or cultures”. Ethnographic research involves studies in cultural, socialisation, and aims to study human behaviour (Punch, 2005, p.150). Ethnographic research involves studying phenomena in the place in which it occurs, so as to provide interpretation of social issues (Harvey and Myers, 2002, p.177; Saunders et al, 2007, p.149). Nevertheless, in ethnographic research, the researcher needs to be in an environment that has been investigated over a long period to adequately study the phenomenon (Harvey and Myers, 2002, p.179; Punch, 2005, p.150; Saunders et al, 2007, p.149); therefore, this approach is not suited to this research.

3.5.3 Grounded theory:

The emergence of grounded theory as described by Glaser and Strauss dates to 1967 (Urquhart et al., 2009, p.358; Oliver, 2011, p.6). Grounded theory aims to build a systematic

theory (Myers and Avison, 2002, p.9; Urquhart et al., 2009, p.357; Oliver, 2011, p.6) based on data that can be collected and analysed (Myers and Avison, 2002, p.9; Urquhart et al., 2009, p.357). In addition, the focus of grounded theory is also on the development of theory, the data being collected and the analysis itself (Myers and Avison, 2002, p.9; Saunders et al., 2007, p.149; Oliver, 2011, p.6). There is also scope for theoretical sampling, involving taking new data from other sources (Oliver, 2011, p.6).

Grounded theory has been defined as “qualitative research methods that uses a systematic set of procedures to develop an inductive derived grounded theory about a phenomenon” (Strauss and Corbin, 1990, p.24). Over the past decade there has been an increased use of grounded theory in the field of IS (Urquhart et al., 2009, p.357). One of the most important strengths associated with grounded theory for IS researchers is the potential to help with the development of new theory regarding the phenomenon under study (Urquhart et al., 2009, p.358). Essentially grounded theory differs from other methods, as it proposes that there will be a constant interaction between data collection and analysis (Urquhart et al., 2009, p.357).

However, grounded theory has been criticised in the field of IS because it provides a relatively low level of knowledge regarding development theory (Urquhart et al., 2009, p.358). In addition, much of the IS research that has used grounded theory has done so simply as a coding method (Urquhart et al., 2009, p.358). Thus it could be argued that grounded theory is not the best approach for this particular research. Firstly, the goal of grounded theory is to build a theory. This particular research seeks to understand the impact of technology incubators on SMEs. Secondly, one of the most important characteristics of grounded theory is that the researcher needs to frequently return to the environment and this cannot be achieved based on the nature of this research, because of the presence of the researcher in a country which is not that being studied.

3.5.4 Case study:

A case study normally focuses on a phenomenon, studying it in depth in its natural habitat (Robson, 2002, p.178; Oates, 2006, p.141; Yin, 2009, p.18). Particularly when boundaries between phenomena are not clear (Robson, 2002, p.178; Yin, 2009, p.18).

Yin (1994, p.13) defined the case study as:

“A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident.”

A case study is focused on a specific case in the context of the life event in which it occurs, and focuses on those factors that influence policy, processes and the relationships that affect them (Oates, 2006, p.142). Moreover, research applied in a case study can be underpinned by positivism, interpretivism or a critical approach (Oates, 2006, p.142).

The case study has many positive attributes such as:

- Case studies concern the issue under study, whether pertaining to an individual, a group, an organisation, a project or a community (Oates, 2006, p.142; Yin, 2009, p.33; Robson, 2011, p.135).
- Case studies seek to answer questions like "how" and "why", so as to assist researchers (Oates, 2006, p.142; Yin, 2009, p.8).
- Case studies are used to collect data on many of the approaches, such as interviews, documents, observations, and questionnaires (Oates, 2006, p.141; Yin, 2009, p.102).
- In a case study the researcher focuses on depth rather than breadth, in order to acquire the largest amount of data targeting the situation under consideration (Oates, 2006, p.142).
- A case study investigates the event under study in a natural situation, not in a laboratory or an artificial environment (Oates, 2006, p.142; Yin, 2009, p.18).
- The case study helps researchers to understand specific situations, problems or issues (Schwandt, 2001, p.23).

The case study method is used in many fields to enhance the knowledge of individuals, groups, institutions, social, political and associated phenomenon (Yin, 2009, p.4). It is a commonly used research method in fields such as sociology, business and education (Yin, 2009, p.4). In these areas and situations, the need for the case study increases in order to understand the intricate social phenomena (Yin, 2009, p.4); as the case study enables the researcher to understand many social situations, whether for individuals or groups (Oates, 2006, p.141; Yin, 2009, p.4). In addition, the case study does not test hypotheses, as in the experimental approach, but is interested in studying a particular case in order to gather knowledge and insight which may be related to other situations (Oates, 2006, p.142). Overall the characteristics of the case study would appear to be more suitable for the purposes of this research, and the following section will explain the reason for this selection.

3.5.5 Justification of the research methods:

Each method of the research has its own particular advantages and disadvantages, and the appropriate methods are chosen depending on these three conditions. Firstly, the type of research questions; secondly the researcher's control over events; and thirdly the focus on the contemporary over historical phenomena (Yin, 2009, p.2).

Firstly, the case study is deemed to be appropriate for answering the "How" and "Why" questions, as the answers to these questions will help the researcher to understand the phenomenon under investigation (Benbasat et al., 1987, p.370; Oates, 2006, p.141; Yin, 2009, p.10). This particular research attempts to answer the questions such as: What are the effects of technology business incubators on small and medium-sized enterprises (SMEs) in the SA environment? In addition, the case study is suitable for answering "What" questions, for example: What are the obstacles facing SMEs when they attempt to join technology incubators?

Secondly, since the nature of this research is exploratory regarding the investigation of the impact of technology incubators on SMEs in SA environment, the case study is deemed to be appropriate when there is little or no control over the phenomenon under study (Yin, 2009, p.13).

Thirdly, the case study is considered adequate for the study of certain contemporary phenomenon (Benbasat et al., 1987, p.372; Oates, 2006, p.142 and Yin, 2009, p.11); since the incubators technique is a relatively recent phenomenon, especially in the developing country environment.

Fourthly, the case study stresses the need to study the phenomenon under investigation within a real-life context (Oates, 2006, p.142; Yin, 2009, p.11). Thus in this research the objectives are to provide a comparison between incubated technology businesses and non-incubated technology businesses in Saudi Arabia in its natural context.

Finally, the case study is deemed suitable for the study of the phenomenon when there is an inadequate level of research presented in the field (Benbasat et al., 1987, p.370). As has been mentioned in the literature review (section 2.11 and 2.11.4) there have been few studies regarding TBIs in developing countries and SA.

3.6 Data collection methods:

There are four main types in qualitative research for collect data: 1- Interviewing; 2- Observing; 3- Collecting and examining; and 4- Feeling (Yin, 2011, p.130). Each one of

these four has advantages. There are also disadvantages (Yin, 2011, p.131). In the following section there will be an explanation of which method is best-related to the nature of this research.

3.6.1 Interviews:

The interview is one of the data generation methods (Oates, 2006, p.186). The interview is a kind of dialogue between the parties, a party seeks to gather information from the other party, as this conversation is being planned by one of the parties (the researcher) and not by chance (Oates, 2006, p.186). Using interviews can contribute to collecting accurate reliable data to answer the objectives and research questions (Saunders et al, 2007, p.310). There are three types of interviews: structured, semi-structured or unstructured interviews (Oates, 2006, p.187; Saunders et al, 2007, p.311). On other hand, Yin (2011, pp.132-133) argues that there are just two type: structured interviews and “qualitative interviews” as “qualitative interviewing has become sufficiently diverse that, under different circumstances, it may include any one of the variants in some combination” (Yin, 2011, p.133).

In structured interviews: all the questions are always prepared in advance, and are asked to the participants in the same way and with the same tone of voice (Oates, 2006, pp.187-188; Saunders et al, 2007, p.312; Yin, 2011, p.133). Interaction with the participants should be limited and restricted to reading the questions so that there is no indication bias by draws for any answer (Oates, 2006, pp.187-188; Saunders et al, 2007, p.312). In semi-structured interviews; questions and topics are prepared in advance, but the interviewer may vary the order of the questions from one participant to another according to the nature of the dialogue (Oates, 2006, p.188; Saunders et al, 2007, p.312). In addition, there is the possibility of asking new questions, generating the need for them through interviews (Oates, 2006, p.188; Saunders et al, 2007, p.312). There is space for participants who might have additional information or further details on the subject of the dialogue (Oates, 2006, p.188). Unstructured interviews, begin with starting the dialogue on the subject and then give participants the opportunity to talk freely about events, behaviour and beliefs related to the subject matter (Oates, 2006, p.188; Saunders et al, 2007, p.312). During the interviews the participants are not interrupted (Oates, 2006, p.188). No questions have been prepared in advance (Saunders et al, 2007, p.312). Semi-structured interviews and unstructured interviews both give the opportunity for the participants in the interviews to speak freely about what is going on in their minds, where the main objective is discovery and not replicability (Oates, 2006, p.188).

Oates (2006, p.198) listed several advantages and disadvantages of the interviews, as follows: the advantages are:

- Appropriate in dealing with topics that need to be in-depth or detailed.
- Does not need special equipment, just skills possessed by many researchers.
- Flexible, researcher controls any corresponding delay in asking questions according to the flow of dialogue.
- Some participants prefer interview because they speak directly to the researcher without the need to fill the questionnaire.
- Gives an opportunity for participants to talk about their ideas related to the dialogue.

The disadvantages are:

- Consumes a long time to conduct interviews.
- Need some social skills to ensure it is not stressful for the researcher and participants.
- Because of it being time consuming, they are generally not suitable for topics that need generalisations about the population.

In this research the semi-structured interview has been chosen as the data generation method, for the reasons which follow. Since this research adopted the case study, the interviews are frequently used with the case study (Oates, 2006, p.187). Second, the nature of this research is concerned with the discovery of the phenomenon under investigation, semi-structured interviews are suitable when the main purpose is discovery (Oates, 2006, p.188). Finally, semi-structured interviews give participants the opportunity to express their views freely (Oates, 2006, p.188). This can help the researcher to cover the phenomenon under investigation in depth (Oates, 2006, p.188; Yin, 2011, p.133). The methods used in recording interviews are: written notes; audio recording and recording video (Oates, 2006, p.190). Most researchers use voice recording with written notes (Oates, 2006, p.190). In this research audio recording in addition to written notes are the following recording methods. Audio recording gives the researcher the ability to analyse all dialogue accurately without the likelihood of forgetting some of it. The written notes cover the limitations in the audio recording as the

audio recording only records sound. Written notes help the researcher cover non-verbal communication during the interviews. That leads to more precise analysis.

3.6.2 Selection of the case studies:

The research aims to study a phenomenon among certain parties, which is the spread of incubators that being both incubated SMEs and non-incubated SMEs. The selection process for participants in this research had focused on many factors in order to achieve the objectives of this research:

- The selected category should cover several cities in Saudi Arabia whether incubators, incubatees or non-incubatees.
- The category of selected incubators should cover the majority of the available incubators in Saudi Arabia, which consists of governmental incubators, commercial incubators, not-for-profit incubators and corporate incubators.
- The category should include incubator managers, incubated SMEs and non-incubated SMEs and graduate incubated businesses.
- Within the category of incubated SMEs non-incubated SMEs, the projects should have similar characteristics in terms of activities and duration. This will enable a comparison between incubated SME technology projects and non-incubated SME technology projects. Thus answering the second question of the research questions set (see section 1.4).
- The category should include small-sized and medium-sized enterprises.
- The category should include men and women.

The researcher seeks to apply all factors that have been mentioned in this section when the participants have been selected. A precise selection of the participants was applied on this research, whether they are; an incubator manager, an owner of an incubated technology SME or an owner of a non-incubated technology SME. Section 3.6.3 (case study protocol) demonstrates the ways protocols have been applied in this research.

Accordingly, nineteen participants have been interviewed in this research. At the beginning of data collection, the number proposed for the interview was nine candidates. In this

research the processes used by the researcher for the data analysis methodology require the analysis of the interviews directly after the completion of each interview (see section 3.7.5). Thus the researcher found that he had not reached the required data saturation level with nine candidates. Therefore, the number of interviews was raised to nineteen participants, making sure that there is data saturation for data collection in this research. Data saturation can be described as a case in which the researcher decides that any new data collected will not have something new or major themes to be obtained from the new interviews (Corbin and Strauss, 2008, p.143; Altayar, 2011, p.104). In addition, another element that determines when the researcher should stop the collection of data is when he sees that the data collected, had achieved the aims, objectives and questions of the research (Altayar, 2011, p.104). The two previous points have been taken into consideration in this research (see the section regarding the steps of data analysis 3.7.5).

3.6.2.1 Research samples:

The goal of sampling is to obtain the sample which generates valuable data that will address the research problem (Oates, 2006; Sanad, 2012, p.97). A sample is a built-up which helps the researcher to meet the objectives and questions of the research (Robson 2011, p.275).

Section 3.6.2 '*Selection of the case studies*' identified the general factors that would meet the objectives of this research. Therefore, the participants in this research were divided into four segments: managers of incubators, the owners of incubated technology projects, the owners of non-incubated technology projects and the owners of incubated technology projects who graduated from the incubator. This resulted in a total number of nineteen participants. The research design shows that this group of participants with this division are the most appropriate set of people who can be interviewed because they are related to the phenomenon under study. In addition, these segments are the target segments besides people who work in the field of incubators directly in Saudi Arabia.

Hermeneutics is used as a data analysis tool⁹, and is discussed extensively in section 3.7.3.

Table 3.1 presents the sample that registered for this research. It provides a detailed description of the participants such as the category to which they belong (a manager of an incubator / an owner of an incubated or non-incubated technology project). Also, it provides information on the type of the activity carried out by the owner of technology project, the time of the interview. In addition, the sample covered several cities in Saudi Arabia.

⁹ See section 3.7.5

Moreover, table 3.2 presents a summary of the documents collected that relate to TBIs and governments strategy. This table includes all important reports that contributed to the findings of this research. It is worth noting that these reports are drawn from bodies such as the Saudi Arabia Bureau of Statistics, which provides information on the environment and population in Saudi Arabia. However, some government agencies have only one report related to the nature of this research in which case this report was referred to.

Number	Code	Short code	Incubator manager - Incubated - Not Incubated - Graduated	Date of Interview
1	Participant D1	Government incubator	Incubator manager	17-4-2013
2	Participant D2	Government incubator	Incubator manager	10-5-2013
3	Participant D3	Private sector incubator	Incubator manager	24-12-2013
4	Participant D4	Private sector incubator (not for profit) For female	Incubator manager	24-12-2013
5	Participant D5	Private sector accelerate	Incubator manager	2-1-2014
6	Participant N1	Online application platform services	Incubated technological SME	11-5-2013
7	Participant N2	Educational application platform	Incubated technological SME	23-12-2013
8	Participant N3	Mobile application software design / Training	Incubated technological SME	23-12-2013
9	Participant N4	Online platform	Incubated technological SME	23-12-2013
10	Participant N5	Technology business intelligence tools	Incubated technological SME	23-12-2013
11	Participant N6	Online application platform services	Incubated technological SME	2-1-2014
12	Participant N7	IT solutions	Incubated technological SME	28-1-2014
13	Participant N8	Online digital marketing	Incubated technological SME	28-1-2014
14	Participant P1	IT solutions / Mobile application software design	Non incubated technological SME	3-5-2013
15	Participant P2	IT solutions company	Non incubated technological SME	22-12-2013
16	Participant P3	Online digital marketing	Non incubated technological SME	1-1-2014
17	Participant P4	Educational application platform	Non incubated technological SME	2-1-2014
18	Participant P5	IT solutions	Non incubated technological SME	21-1-2014
19	Participant E1	Social network	Graduated incubated SME	23-12-2013

Table 3.1 Recruited sample

Number	Documents
1	Saudi Arabia's Vision for 2030
2	The National Transition Program (the five-year plan of SA)
3	The ninth development plan report of Minister of Economy and Planning (MEP)
4	Many reports [10+] for the Ministry of Saudi Labour, to gathering background employment information.
5	Statistical report number 14, a report of the Ministry of Civil Service
6	Report of the working party on the accession of the kingdom of Saudi Arabia to the world trade organization
7	The second quarter of 2017 report for the General Organisation for Social Insurance in SA
8	Several [10+] reports from Saudi Arabia Bureau of Statistics to gathering background information about Saudi Arabia in general. In addition, general information about citizens and workers in Saudi Arabia including information such as: age, gender, employment status, population distribution in Saudi Arabia, etc.
9	Various [15+] decisions issued by the Council of Ministers of SA
10	Several [20+] statements from the Saudi Press Agency (SPA)
11	King Fahd University of Petroleum and Minerals (KFUPM), COOP Program Guidelines.
12	A joint statement on unemployment data and information in SA issued by the General Statistics Department and Ministry of Labour in SA
13	The Saudi Arabian Monetary Agency (SAMA), to gather background information about SADAD Payment System (SADAD).
14	Report by the Digital Research Company for the Ministry of Trade and Investment and the General Authority for Small and Medium Enterprises.
15	SA technology incubators procedures and regulations [15+] documents.
16	SA technology incubators conditions and criteria for the selection of incubatee [10+] documents.
17	Websites of SA technology incubators, for two types of additional information about the incubators. 1- Some documents that are available in websites for the public. 2- Information about the incubator in general such as: the date of establishment and what is the agency to which the incubator are linked to and the goals and vision of the incubator, etc.

18	The first and the second annual report of Saudi Business Incubators Network (SBIN)
19	A large number [30+] of reports that have been published in the local SA newspapers that are relevant to the topic
20	Many [10+] SA Credit Bank reports
21	General information document from: Oqal group: http://www.oqal.org
22	General information document from: Endeavor Saudi Arabia: https://endeavor.org/location/saudi-arabia/

Table 3.2 Collected documents

3.6.3 Case study protocol:

A case study is a study of events in their natural context (Yin, 2009, p.97). It is useful for a case study to have a protocol. Yin (2009, p.83) defined case study protocol as:

“A major way of increasing the *credibility* of case study research intended to guide the investigator in carrying out the data collection from a single case.”

In addition, what applies in one single case also applies in multiple cases. The case study protocol is a document providing important details about the case study and describing the methods employed to ensure it works. Typically, a case study protocol not only introduces tools, but also contains procedures and rules that must be followed (Yin, 2009, p.97). The importance of the protocol lies in two things: first, to keep the researcher on the path of the case study (Yin 2009, p.81). Second, to prepare the researcher for the obstacles that may be encountered, and the steps needed before the beginning of the case study (Yin, 2009, pp.81-82). According to Yin (2009, p.81), in general, a case study protocol should have four sections:

- A summary of the case study, including the objectives of the research and the case study materials;
- Field actions, including credentials, location, language, etc.;
- Case study questions, a list of questions that the researcher can keep in mind during the data collection process; and
- A guide to a case study report, including a summary, data type and bibliographical information.

To meet these requirements a case study protocol has been applied in this research, based on Howley (2007), following most of the requirements mentioned by Yin (2009, p.81). In this research, the case study protocol has been edited based on the nature of this research. For more information, see tables of the case study in appendix B.

The research applies interviews as prime methods in collecting data (see section 3.6.1). Semi-structured interview has been chosen and justified. This gives the researcher two main advantages, first, there are pre-prepared and strict questions to ensure that all participants in the research have been asked all the important questions for this research. Second, the field of open questions appears to the researcher during the interview, which may contribute to an increased understanding of the phenomenon under study. The question for this research has been developed from the literature review by identifying the gap that the researcher seeks to address. Previous research by Abdul Khalid (2012, pp.216-230) was also part of the process. In her PhD about Malaysian ICT Incubators related to the topic under investigation. In addition, previous experiences of the researcher of SMEs environment of Saudi Arabia were relevant. A list of all the pre-prepared questions have been presented in appendix B.

3.7 Data analysis:

The following sections review the approach of data analysis method and justification for the chosen method. In addition, to discussing the ‘hermeneutic circle’. This is followed by an explanation for the technique used in data analysis processes for this research.

3.7.1 The data analysis method:

The techniques which have been used in this research for data analysis are hermeneutic in nature. Hermeneutics originated from the study and interpretation of religious texts (Webb and Pollard, 2006, p.32). Hermeneutics have been defined as:

“The study of interpretation, especially the process of coming to understand a text. Hermeneutics emerged as a concern with interpreting ancient religious texts and has evolved to address the general problem of how we give meaning to what is unfamiliar and alien” (Boland, 1991, p.429).

Hermeneutics can be used in two ways, firstly as a philosophical approach to help understand human interpretation; and secondly as a model for data analysis to understand the data which has been collected (Bleicher, 1980, p.1; Myers and Avison, 2002, p.10). Hermeneutical interpretation techniques have existed since ancient times, but the need has increased due to a

massive expansion of textual resources on the internet and within organisations (Boland et al., 2010, p.2).

In the field of IS the use of hermeneutics has attracted many researchers (Boland, 1991; Lee, 1994; Myers, 1994; Cole and Avison, 2007; Boland et al., 2010 and Lee and Dennis, 2012). The text and its meaning in the field of IS is always of concern, and interpretation and reinterpretation of the text is deemed essential (Boland et al., 2010, p.2). In addition, many researchers in the field of IS have used hermeneutics as a model for the analysis of data (Boland, 1991, p.439; Lee, 1994, p.143; Cole and Avison, 2007, p.821; Altayar, 2011, p.106). Lee, (1994, p.149) and has provided more depth than what the text could potentially include. Thus: “Many hermeneutic scholars have extended their conception of text to include not just the documentary artefacts that human subjects create, but also their individual actions, group behaviours, and even social institutions, all of which, as text analogues, have meanings that can be read and interpreted” (Lee, 1994, p.149).

Hermeneutics has two main objectives: to ensure the accuracy of interpretation and the detection of intentions presented in the text (Lacity and Janson, 1994, p.149). Hermeneutics is based on what it called the 'hermeneutic circle', whereby the research aims to study 'a small part' of the knowledge, and then look at the 'whole' in order to understand it (Myers, 1994, p.58; Lukaitis and Cybulski, 2004, p.62) where the small parts comprise the whole (Myers, 1994, p.58; Lukaitis and Cybulski, 2004, p.62). Understanding is achieved when there is consistency between the whole and all of the small parts and vice versa (Myers, 1994, p.58; Lukaitis and Cybulski, 2004, p.62). Thus “this hermeneutic process continues until the apparent absurdities, contradictions and oppositions in the organisation no longer appear strange, but make sense” (Myers, 1994b, p.191). For more details, see section 3.7.2 the 'hermeneutic circle'.

Lukaitis and Cybulski (2004, p.63) argued that understanding came through the frequent application of an instrument to data, until this instrument became redundant, and then an understanding had been achieved and this instrument was not sought.

In this research the technique that will be followed is that developed by Patterson and Williams (2002, p.45) see section 3.7.5. This technique uses the 'hermeneutic circle' through several steps that will contribute to more systematic application for the 'hermeneutic circle'.

3.7.2 The ‘hermeneutic circle’:

The ‘hermeneutic circle’ is a metaphor used to transfer many aspects of hermeneutic research (Mittelstadt, 2013, p.150). In general, the ‘hermeneutic circle’ can be referred to as an interrelationship between the part and the whole (Patterson and Williams 2002, p.26). Many researchers state that phenomena are made of different parts, when such parts are formed to create a whole, it gives us a better understanding of the phenomenon (Gadamer 1976, p.117; Patterson and Williams 2002, p.26; Myers 2004, p.107; Mittelstadt, 2013, p.150). At the same time, they add that our understanding of the whole is based on understanding the parts. ‘Hermeneutic circle’ is considered an essential part of human understanding (Mittelstadt, 2013, p.150). Mittelstadt, depends on what Kinsella (2006, p.5) has mentioned that every interpretation has been based on other interpretations. In hermeneutic research, the completion of one dialogue does not mean the end but leads to its integration. This integration in hermeneutic analysis creates a specific temporary understanding. Moreover, beside the new experiences and the emergence of new understanding, a hermeneutic circle is formed (Mittelstadt, 2013, p.150).

Boland et al., (2010, p.5) present a vision on the ‘hermeneutic circle’ in which it is the tacking back and forth between details and whole to bring together two different realms during the process of interpretation. They add that the two realms are: the textual realm and another parallel realm which is the social realm. The textual realm is an interpretative circle that tacks back and forth between the details of a particular word with the whole literary structure. On the other hand, the social realm is seen through an interpretative circle that tacks back and forth between the details of a particular action with the environment in which it is located. Gadamer (1989, p.xx) and others described this interpretation process as the 'hermeneutic circle'. The neglect of one concept is not only impossible but absurd as described by Gadamer (1989, p.397). A number of researchers said that it is not possible to escape from previous concepts, we must involve and integrate them in order to use them as a basis for a new understanding (Heidegger, 1962, p.195; Gadamer 1989, p.397).

The term 'hermeneutic circle' is a description of the process of understanding and interpreting the movement between ‘data’ and ‘whole’ evolving “understanding of the phenomenon”, each of them gives meaning to the other to reach a circular and repeated understanding (Ajjawi and Higgs, 2007, pp.622-623). Based on the above, they add that researchers must be prepared for the questions that emerge from the study of the phenomenon by allowing the text to speak in order to find the answer. The text produced by the researcher through the data

collected from the participants in the study results in an understanding through the exchange that took place between the researcher and the text of the research.

In the area of human behavior, Gadamer (1989) did not provide evidence to help study human behavior (Johansson et al., 2015, p.4). Many researchers have used multiple models to help them achieve the goals for their studies. For example, Johansson et al. (2015, p.4) have used a model developed by Geanellos (2005). This model is summarised in several steps which are as follows: 1- Read and reread all interviews for getting a general sense. 2- Divide the entire text into 'meaning units' for the purpose of reducing the thousands of words to hundreds of meanings. 3- Common meanings should be collected in 'sub-themes' where the 'sub-themes' is called a word or meaning derived from the text. 4- Common 'sub-themes' are grouped into topics. 5- Finally, the focus should be on the simple parts, 'sub-themes', theme and whole text in order to obtain the 'meta-theme' (Johansson et al., 2015, p.4). Nevertheless, many other researchers such as Altayar (2011, p.106) have used other models for 'hermeneutic circle' like the one developed by Patterson and Williams (2002, p.45).

In this research the technique that will be followed, is to use the version of the 'hermeneutic circle' that was developed by Patterson and Williams (2002, p.45) see section 3.7.5. This technique uses the 'hermeneutic circle' using nine steps that will contribute in giving a more systematic application for the 'hermeneutic circle'. The researcher prefers the model developed by Patterson and Williams (2002, p.45). Despite the similarity of these models, the steps and procedures that are needed to be followed by the researcher are clear. For the researcher, this model is more comprehensive and it provides the steps of data analysis step-by-step in the use of the 'hermeneutic circle'. Moreover, it does not rely solely on the researcher, however there is a review by other parties in order to provide further audit in the analysis (see section 3.7.5 point numbers: 3 and 6).

3.7.3 Sampling in hermeneutics:

In research, participants are selected based on being experts or related to the phenomenon under study (Cooper et al., 2009, p.775). The number of participants in the sampling varies depending on several factors such as: size of the population and type of research, and any desire to reach the point of saturation (in which new participants are interviewed, so that there is no additional information to be presented by interviewing them) (Cooper et al., 2009, p. 774). A number of researchers suggest that there should be no specific figure expected for the size of the sample (Smith and Eatough, 2006, p.56; Hadfield et al., 2009, p.757). They emphasize that the importance lies in “the detailed examination of convergences and

divergences within a small sample size” (Smith and Eatough, 2006, pp.56-57; Hadfield et al., 2009, p.757).

In qualitative research, the determining of the sufficient number of samples in research is based on the judgment and estimation of the researcher (Gagne and Walters, 2010, pp.2-3). They argue that twelve participants may be sufficient to access important information for the study, while five participants may be adequate enough to reach the saturation. However, other researchers discuss that fifteen participants are the minimum number that can be accepted in a qualitative research (Bertaux, 1981 cited in Guest et al., 2006, p.61). However, the size of the sample is not a major concern in the qualitative research (Altayar, 2011, p.95). In the methodology used in the analysis of this research, the size of the sample in hermeneutics is usually small (Jardine 1992, p.60; Thirsk et al., 2014, p.3). Since hermeneutics, by its nature, deals with the parts to understand the whole, individual cases are often helpful to understand the subject under study (Jardine 1992, p.60; Thirsk et al., 2014, p.3). A number of researchers mentioned that the size of a sample should be sufficient to reach the saturation in their research when using applied hermeneutics as an analysis tool. In research by Guest et al. (2006, pp. 59-60) for studying the determining of sufficient sample size, they found that they had reached saturation through twelve participants and they had accessed the elements and metathemes through the first six participants. In research by Gagne and Walters (2010, pp.2-3), the proposed number for the sample was to be between six to ten participants in order to study online teachers from a number of American states. Gagne and Walters, through using hermeneutics as an analysis tool, depended on eleven participants to reach a suitable sample. The research conducted by Mok and Chiu (2004, p.477) was based on ten hospital nurses and ten patients using qualitative data and hermeneutics as an analysis tool. Thompson (1997, p.422) stated that he used hermeneutics in the analysis of interviews for seven participants. This qualitative method coincided with hermeneutics as an analysis tool to analyze the data of eleven participants (Johansson et al., 2015, p.1). Ajjawi and Higgs (2007, p.611) presented a paper to researchers and PhD students who use or intend on use hermeneutics, in a twelve participant research. Charalambous (2014, p.1) used hermeneutics to study fifteen participants in his research. While Hadfield et al. (2009, p.757), was satisfied with five participants in his research, explaining that the size of the small sample reflects their priority in dealing copiously with the data provided by participants. Some researchers such as Cooper et al. (2009, p.775) explain that they used small sized samples because they do not seek to generalise the findings.

The researcher observes that former researchers relied on saturation to determine the sufficient and appropriate size of samples in their research. Guest et al. (2006, pp. 59-60) confirmed that saturation became a “gold standard” in determining the size of sample. Moreover, it can be said that based on what has been mentioned in previous research that the size of samples used in research based on hermeneutics as a tool for data analysis, sample size is often small, and thus the researcher agrees with what was mentioned by Jardine (1992, p.60) and Thirsk et al. (2014, p.3).

This research is based on interviews as a data collection method. These interviews are considered to be a prime source (see section 3.6.1). Many researchers mentioned the duration of the interviews they took. In qualitative data, interviews ranged from 35 to 70 minutes (Johansson et al., 2015, p.4). Mok and Chiu (2004, p.477) mentioned that the duration of their interviews ranged from one to two hours. While the average of the duration of interviews per session was one hour (Gagne and Walters, 2010, p.3). In Hadfield et al. (2009, p.757) research, the duration of the dialogue lasted from 40 minutes to 1:15 minutes. Through the previous research, the researcher observes that the average duration of direct interviews is around one hour. The researcher observes also that the sample was as small in many other research exercises such as the research conducted by Hadfield et al. (2009, p.757) in which the number of participants was only five. The average duration of interviews remained the same. The suggestion could be made here that if the duration of interviews is short, the researcher may need to increase the number of participants in the study in order to get enough information to access the saturation.

This research adopts qualitative approaches (see section 3.4.1) and hermeneutics as the data analysis method (see section 3.7.1) using a model developed by Patterson and Williams (2002, p.45) (see section 3.7.5) for contribution in the application of hermeneutics in this research in a more systematic and professional way. Prior to conducting the full study (see section 3.8.2.2), a pilot study was implemented (see section 3.8.2.1); this would contribute to the realisation of the size of the initial sample needed by the research. The field research started with a plan for interviewing nine participants, the research depended on analysing these interviews immediately after completing them. After that, it is found that the research did not reach the saturation. After the size of the sample reached nineteen participants in this research, it is found that the last participants did not provide any additional information that might contribute to understanding the phenomenon under study for this research. The interviews lasted from 60 minutes to 90 minutes for each interview. All these interviews were recorded with prior approval by the participants. In addition, the researcher was writing notes

during the interview, this helped to crystallize the analysis better, relying also on the consent of the participants to take notes within the interview. Section 3.7.5 provides the steps that have been taken in the analysis of the sample in this research.

Based on the points mentioned in this section, the researcher sees that the size of the sample used was sufficient to reach the required saturation in order to achieve the objectives and the goals of this research. One of the elements that gives the researcher an indication that acquiring new data has reached its limits, is that the data that was obtained achieved the goals and objectives of the research (Altayar, 2011, p.104). In addition, the sample size in this research was much more than the sample size in the research mentioned in this section which used a similar methodology to this research. Also, the duration of interviews was more than the average mentioned earlier in this section. This increase in the duration of the interviews would contribute in enriching the data obtained from the participants in this research. In addition, the nature of the research played a role in determining the size of sample as Cooper et al., (2009, p.774) have mentioned. Therefore, this research sought to determine the size of sample to fit the nature of the phenomenon under study. Also, this research does not seek to generalise the findings, but attempts to provide an explanation of the phenomenon under study.

3.7.4 Rationale for the selection of hermeneutics as a data analysis model:

Firstly, the adoption of the hermeneutic approach in the areas of socio-technical and organisational contexts is considered to be the most suitable (Webb and Pollard, 2006, p.39). Since this particular research combines technical incubators and organisations in order to investigate the impact of technology incubators on these organisations. In addition, hermeneutics has been used as a data analysis model in various IS research (Boland 1985, p.193; Boland 1991, p.439; Lee 1994, p.143; Metha 2005, p.77; Cole and Avison 2007, p.821; Altayar, 2011, p.106).

Secondly, hermeneutics is considered to be suitable because it seeks to understand the phenomenon by understanding the whole through its various parts. In this particular research, it could be argued that the whole is related to 'the phenomenon' and therefore the parts which are intended are 'technical incubators and organisations' with all the factors and procedures which influence it. By understanding these parts, a better understanding can be gained for the whole and this could help the researcher to increase the understanding of this phenomenon under investigation and help achieve the objectives of this research. Increasing knowledge would give a better understanding of the theoretic framework, therefore it would contribute to

an increased understanding in the so-called 'hermeneutic circle' (Eriksson and Kovalainen, 2008, p.35; Lennermo and Lindberg, 2016, p.20). Since, 'hermeneutic circle' is an important fundamental process of hermeneutic analysis (see section 3.7.2 The '*hermeneutic circle*'), it provides a better understanding of the complexity of the whole through understanding the parts and their connection (Derakhshani and Hart, 2010, p.2).

Thirdly, hermeneutics is based on the understanding of the text. Thus this research is applying a qualitative methodology, and the primary source is text. Whereas the organisation can be seen as "text analogue", that could be understood in order to understand the text itself (Myers, 1994, p.58; Lee, 1994, p.149). This research also includes interviews of employees within particular organisations which can be considered to be "text" and as a rich source of information (Myers, 1994, p.58; Webb and Pollard, 2006, p.31). In addition, the documentations are another text source (Lee, 1994, p.149; Webb and Pollard, 2006, p.31). As the organisation and employee interviews and documents are considered to be "text", this can help the researcher to understand these parts in order to reach a greater understanding of the phenomenon under investigation as the 'whole'. Qualitative analysis can be divided into two procedures categories; deductive and inductive (Derakhshani and Hart, 2010, p.2). In this research, using hermeneutics can help sort the passages of research interviews (see section 3.6.1 '*Interviews*') into categories (deductive and inductive). Moreover, the categorised quotes can be introduced as evidence. The previous technique was also applied by Derakhshani and Hart (2010, p.2). These divisions of the categorised categories can provide further understanding of the parts mentioned in the second point.

Fourthly, the hermeneutic approach is considered to be a suitable method to interpret the findings context, through connecting the empirical data with the theoretical framework (Lennermo and Lindberg, 2016, p.20). This research will apply hermeneutic techniques to place the findings of this research in relation to the theoretical framework.

Finally, through our understanding of the 'organisation as text', in addition to the stakeholders and perspectives, the goal of a more comprehensive understanding of the whole and the relationship between the organisation and new information technology can be determined (Myers, 1994, p.58). Since technology incubators can be considered to be a new approach in developing countries, and especially in SA this will also increase the knowledge of the phenomenon under study.

3.7.5 Data analysis processes:

This research applies a technique developed by Patterson and Williams (2002, p.45) for supporting data analysis processes. The procedures followed will be stated in reference to additional comments made by the researcher:

1. The interviews are to be recorded:

Before the interviews the researcher requested permission from the participants to record the interviews by explaining to them the importance of recording the interview as regards the type and method of analysis that the researcher wished to apply, and all of them agreed. Therefore, all the interviews were recorded.

2. “Ideally the person who conducted the interview is also the person who does the analysis” (Patterson and Williams, 2002, p.46):

The researcher who conducted the interviews, is also the one that does the analysis.

3. “The data analysis should proof each transcript while listening to the original tape” (Patterson and Williams, 2002, p.46):

The researcher who conducts the interviews, is the one that revised the transcripts with the original tape as the transcript were prepared word by word. In addition, the revision of the transcripts was done by Dr. Ahmed Alsanad, using the tape.

Furthermore, the interviews were conducted in Arabic because it is the native language in Saudi Arabia. Some of the interviews were translated by the researcher, and the translated texts were revised by Dr. Ahmed Alsanad, because of his expertise in both languages (he obtained a Master’s and a PhD in the UK in the technology field).

The advantages in preparing the transcripts word by word and also translating word by word were to increase credibility and reduce mistakes, or lack of understanding due to absence of complete sentences.

The disadvantages of preparing the transcript word by word and also the English translation word by word is that it took a long time for the researcher, and that necessitated a delay in the timetable for research.

4. Developing numbering and indexing can refer to any text easily:

All the interviews were divided into tables. To separate the words of the researcher and the Participant’s words. In addition, all the tables were numbered.

5. Identifying and selecting the meaning of each unit within the transcript.

The researcher selects the meaningful unit, as Patterson and Williams (2002, p.47) explain it as “Meaning units are typically nor words or phrases, but groups of sentences”

In this method of analysis there are no rules or algorithms that can be applied to select the meaning unit (Patterson and Williams, 2002, p.47). It needs a deep reading of the text. Also, Patterson and Williams (2002, p.47) recommend occasionally a repetition of reading the interviews, as it forms one of the hermeneutic circles of analysis. The researcher conducted all these steps in the interviews.

6. For the next step the researcher begins to understand the nature of units of meaning, forming them into groups according to their thematic labels. Research was done to complete this step twice. The first time, the unit was grouped according to a logical perspective. After this, the pilot study was revised by Dr. Ben Fairweather the researcher's supervisor, and as a consequence of his comments the thematic labels were revised to focus more on the research questions. The second time, the analysis was re-organised to see if the research questions were answered. According to Patterson and Williams (2002, p.48) coding can be done manually, and the researcher did this (see coding section 3.7.6).
7. "Don't limit interpretation simply to identify themes. Seeing, understanding, and explaining the interrelationships among themes is one of the key features of hermeneutic analysis" (Patterson and Williams, 2002, p.48). In addition, they suggest preparing a visual aid that will be useful to organise the label themes. This was done by the researcher, by using flash cards, printed table for the label themes and using some technics for mind mapping.
8. "Writing a discussion of the interpretation that incorporates the empirical evidence that serves as the warrants or justification for the interpretation is the next step" (Patterson and Williams, 2002, p.48).

The researcher conducted this step in two ways. The first was providing introductions after every question of this research to allow the reader to move smoothly to the next step. This next one, involved the discussion for every subsection and provided the reader with in depth discussion and interpretation.

9. The analysis of the single interviews began upon completion of each, rather than waiting to complete all interviews, as this assisted in improving the outcomes of subsequent interviews.

The researcher began by transcribing the interview and then analysing it. The first interview was reviewed by Dr. Ben Fairweather, the research supervisor, who gave his feedback on it to help the researcher improve subsequent interviews.

Moreover, during the data analysis phase, the researcher put an emphasis on the reliability and veridicality of the obtained data through several steps including:

- All interviews were recorded by voice with the consent of the participants, as well as notes taken by the researcher during each interview¹⁰. Then, each interview was transcribed immediately after it ended and was reviewed by the researcher. This interview was then given as an audio file, and the transcript file was given as word document to a person with academic and technical experience from the same country of the people who were interviewed; so that he mastered not only the language of the participants but he is also familiar with the culture of the country¹¹. In this way, the researcher sought to enhance the reliability of the data obtained.
- This research used a technique developed by Patterson and Williams (2002, p.45), and this technique was used in analysis process by a number of researchers such as Altayar (2011, p.110). It reinforces that the methodology used covers many aspects of the reliability and veridicality of the data that has been obtained. The steps applied in the analysis of this research have been explained in three sections that provide a comprehensive detailing of all stages of the analysis. These sections include this section in addition to the next two sections.
- During the stages of the field research, the research's supervisor followed up on this stage and presented his comments in the first interview¹². In addition, the research's supervisor during the analysis and coding stage presented his opinion on the crystallization of the thematic labels for this research. This follow-up by the supervising team has had an impact on maintaining the conduct of the field research so that the obtained data achieves the reliability and veridicality that suit this research.
- The researcher in the analysis chapter (chapter five) in this research pointed to some minor discrepancies in small parts in the opinions of two participants. In addition, the researcher presented an analysis of these discrepancies and how the researcher analyzed them.
- The researcher was taking the pilot study stage seriously to examine the methodology that has been chosen in this thesis to test the analysis and coding. The result of the

¹⁰ See point number one in this section.

¹¹ See point number three in this section.

¹² See point number nine in this section.

pilot study stage has shown that the methodology that has been chosen is working to achieve the aim and objectives of this research. The researcher gained a number of lessons from applying the pilot study and these lessons have been taken into consideration while doing the full study¹³. In the full study stage, the researcher applied all the steps of the analysis and coding for this research for the second time. The repetition of this process gave the researcher more proficiency in data collection and analysis skills. In addition, after the completion of pilot study, a meeting was held with the supervisory team of this research, which presented its views and proposals for the development of the next stage at that time, which was the full study stage.

These steps achieved by the researcher and the continuous follow-up by the supervisory team of this research both contributed to the enhancement of the reliability and veridicality of this research.

3.7.6 The coding:

Coding can be considered to be one of the outputs that emerge from the process of data analysis. In qualitative research, researchers through the process of data analysis aim to summarise, reduce and organise data through coding, which would contribute in determining themes and re-showing them via tables, figures, diagrams and other methods of showing data (Creswell 2007, p.148; Cooper 2010, p.16). Section 3.7.5 dealt with the stages of data analysis of this research, and in coding process that was done, the researcher followed the approach developed by Patterson and Williams (2002, p.45) in data analysis and coding. Also, the researcher divided some of the steps addressed by Patterson and William; instead of being in one stage, the researcher divided them into two steps to reach more depth to access the coding.

Coding stages:

1. All interviews were recorded by voice, and immediately all interviews were transcribed using Microsoft Word Software.
2. Coding stage began with the beginning of the first interviews and continued until the completion of the entire interviews.
3. Coding was done manually where the research under study, is in an Arabic-speaking environment, and all interviews were conducted in Arabic (the mother language of the participants), the researcher did not find a program that supports

¹³ See section 3.8.2.1 Pilot study.

the analysis process in Arabic. Moreover, the translation of all interviews into English would take a very long time and a great effort by the researcher whereas the time allotted for this research was not enough to do that. Also, the translation of all interviews would require experiences in translation which is not within the researcher's specialty, and in Appendix C, a set of transcripts of the samples of participants' interviews has been included in both Arabic and English. Patterson and Williams (2002, p.48) state that coding can be done manually. Therefore, the primary resulting codes were in Arabic and then codes were translated into English like any content in this research as the source of the basic information was in Arabic.

4. The researcher is the one who conducted the interviews, and he is also the one who conducted the analysis and coding. Typically, the interviewer is the same person who analyses (Patterson and Williams, 2002, p.46).
5. Each interview was classified by name and number that differ from the other.
6. The researcher has applied indexing and classification methods for each interview alone, based on some of what the researcher learned from the experiences that he found in the literature and on what Patterson and Williams (2002, p.45) have mentioned. There has been a specific approach to the research by the researcher which enables him to return to the information or any interview quickly.
7. All interviews were transcribed and divided into tables, with the aim of separating and distinguishing the participant's words from the researcher's words, in addition to using a specific colour for the participant's words that differs from the colour using for the researcher's words.
8. The interviews were heard promptly, and since the researcher is also the interviewer, he was also the one who transcribed the interviews, thus enabling the researcher to have widespread perception of the interviews.
9. After hearing and reading each interview separately, the researcher identified what is called 'meaning unit.' They are a set of sentences. It was previously mentioned that no rule or algorithm could be applied to get a 'meaning unit,' but it requires a deep and repeated reading of the interviews. This was done by the researcher, and he also heard the audio interview during the stages of the repetitions of reading to reveal what the participant emphasises in his words. Many of the 'meaning units' have appeared to the researcher where the researcher

categorised and divided this 'meaning unit' into two sections: a section that has a relationship with the phenomenon under study and a section that has no relation to this research (was excluded). Patterson and Williams (2002, p.47) mentioned that not all 'meaning units' will be relevant to the research under study. Where repeated reading with repeated hearing in addition to the process of determining 'meaning unit' is one stage of 'hermeneutic circles' of analysis as Patterson and Williams (2002, p.47) mentioned.

10. The next stage is a stage that comes after the researcher (data analyst) has a more comprehensive perception about the 'meaning unit,' so he has a vision on how the 'meaning unit' can be grouped under 'thematic labels.' There is a difference between 'meaning unit' and 'thematic labels' in which a 'meaning unit' is a real sentence and phrases that are actually mentioned by participants. Thus it is 'hard data' while 'thematic labels' is a representation of the researcher's analysis of what the 'meaning unit' can reveal about the phenomenon under study (Patterson and Williams, 2002, p.47). The researcher sees that this step is critical in the hermeneutic methodology because it transfers the individual meanings 'meaning unit' as (parts) to the comprehensive meaning which is (Whole). Analysis and coding in this way enhance the use of hermeneutic in several aspects of the research. Patterson and Williams (2002, p.47) stated that the researcher might find that different participants may use a different language to describe the same theme. They added that a 'meaning unit' can be encoded in more than one 'thematic labels.'
11. The next stage requires that interpretations are not restricted only to access to 'thematic labels' but also for understanding and discovering the reciprocal relations between themes. The researcher used flash cards and printed tables and other as a visual aid to get organised and put 'meaning unit' under any 'thematic labels.' This step has repeatedly been performed by the researcher. When a suitable organised copy of 'meaning unit' and 'thematic labels' was obtained, the researcher re-read the interviews again as one of the processes of the hermeneutic technique.
12. The previous steps were done in two stages: the first one was from the simple analysis and coding of the pilot study, the samples of 'meaning unit,' 'thematic labels' and supporting tables were presented to the supervisors of this research as one of the phases of the pilot study. Section 3.8.2.1 dealt with some lessons that

the researcher has learned from the application of the pilot study. Then, the second stage was broader and more comprehensive in the full study stage.

13. The researcher added a new additional step to the steps that have been mentioned by Patterson and Williams (2002, p.45). It is when the 'thematic labels' were extracted in the coding, the researcher divided them into three sections related to the three questions of this research. This additional method contributes to the further linking between the findings of this research (in coding format) and research questions. This method can contribute to further organisation for this research in addition to the achievement of the basic research objective which is in answering the research questions (section 1.4) through the outputs of the research. The researcher sees this additional step contributes to the strengthening of the methodology of the 'hermeneutic circles' that are reinforced in this research. That is through making a comprehensive analytical circle starting from the research questions, going through the literature, methodologies, field study and analysis of the data to come back to link these outputs to the initial stage which is the questions posed in this research.

The figures 3.1, 3.2 and 3.3 shows the final code resulting from the analysis of this research. The researcher finds that the first question was associated with ten 'thematic labels' that had been illustrated in figures 3.1. The second question was associated with twenty-three 'thematic labels.' That been illustrated in figures 3.3. Finally, the third question was associated with five 'thematic labels.' that been illustrated in figures 3.1. So, the total of 'thematic labels' in this research is thirty-eight. This would contribute to enhancing the depth obtained by the researcher in analysing this research. The next diagrams also show the correlation of 'thematic labels' to the research questions through the division shown in this section. The previous diagram also shows the correlation of 'thematic labels' to the research questions by the division shown in this section. The researcher provides a linking comprehensive method between the coding resulting from the methodology chapter and he provides the findings of this research in the next chapter (fourth chapter) to be serialised for the reader.

3.7.6.1 Convergence of themes:

This section discusses the convergence of themes around the labels that have been identified in section 3.7.6 *'The coding'*.

This research is based on a set of methodological steps that have been applied in previous research¹⁴, and were chosen as the methodology for this research. This research uses a technique by Patterson and Williams (2002, p.45)¹⁵ which provides a clear and arranged mechanism that will assist in the analysis of data as well achieve the thematic labels which were referred to in this research as "code". It is based on interpretivist meanings to ensure that it represents the information provided by the participants.

Section 3.7.1 (The data analysis method) discussed this technique with an explanation of the steps and what the researcher did for each step. This is followed by section 3.7.6 'The coding', which provides a detailed explanation of the Patterson and Williams technique with the addition of the researcher dividing some steps from one step to two steps. In order to avoid repetition of the steps in the two preceding sections, the point number will be referred to in section 3.7.6 'The coding' rather than rewritten it in detail.

This section describes the application of the mechanism that was applied in this research and what was done to reach the thematic labels to be a model for the procedures applied to the rest of the thirty-eight labels. This research employed a manual analysis technique because the interviews were in the mother tongue of the participants, namely Arabic (see point 3).

One of the most important features of the Patterson and Williams technique in the analysis is that the researcher begins directly with the analysis process after the completion of the interview. Since this research uses a semi-structured interview¹⁶, this gave the researcher an opportunity in the following interviews to focus on the aspects related to the nature of the research, while retaining the basic questions that were referred to in Appendix B. The researcher, as conducted the interview, also transcribed it and also who analyzed it (see point 4).

The steps after transcribing the interviews down to the end of the analysis are as follows:

- The researcher transcribed the interview / interviews and then read it for the first time. He then to read the research repeatedly and he listened to the recorded interview during the reading as a part of 'hermeneutic circles'¹⁷. In the next stage, the focus is placed on the so-called 'meaning unit', (see point 9). It is a collection of sentences related to the phenomenon in general. Since there is no rule or algorithm to reach the 'meaning unit', the researcher in his quest to recognize the 'meaning unit' depended on

¹⁴ See section 3.7.1 The data analysis method.

¹⁵ See section 3.7.5 Data analysis processes.

¹⁶ See section 3.6.1 Interviews.

¹⁷ See section 3.7.2.

two elements: 1 – Through his experience and knowledge of the phenomenon under study and his knowledge about the Saudi environment (the home country of the researcher). 2 – Through his reading and learning about the phenomenon, (see the literature review, chapter two). The researcher defined the 'meaning unit' in the transcript specifically printed on these sentences, whether one line or several lines representing a certain meaning arranged by the phenomenon. The researcher moved all 'meaning unit' from the transcript to separate pages of the interview. This was divided into two parts: 1- the part which has a direct relationship with the aim and objectives of this research 2 - the part which has no direct relationship with the focus of this research. The 'meaning unit' related to the nature of this research was translated to an independent paper summarizing that interview. These were done several times as a part of the 'hermeneutic circle'.

- 1- An example of the 'meaning unit' mentioned by Participant N1 which is directly related to the aim and objectives of this research is: " They want to support the project, but they want to support the company and work that creates jobs. This had drawn my attention because you do not just support the project, but you support the economy as well."
- 2- An example of the 'meaning unit' which is not related directly to the focus of this research is: "I started programming in 2006 when I wrote the first line." Although at first glance it may be related to the technology field; since this sentence means that the owner of the project has an interest in technology and he was talking about his beginning, the researcher found that this sentence does not answer the research questions directly or indirectly, so it was excluded.

- After the completion of all interviews and analyzing the 'meaning unit' for all participants in this research, the researcher reread all these as a part of the 'hermeneutic circle' to reach the comprehensive understanding of 'meaning unit'.
- The next stage is the sorting of the similar 'meaning unit' mentioned by participants to separate groups which all show one concept. For example, about 'eco-system' participants said:
 - Participant D5: "If I comment about incubators in Saudi Arabia, I suggest to make a collaboration or eco-system, we had KPIs that will serve all of us rather than individualized."

- Participant D3 "nothing is clear about eco-system."
- Participant N8:"The technology project must serve the community first, and it must become as a part of their uses, whether a communication, work, information, commodity or shopping. The second thing is the development for the benefit of the community in addition to develop the brand in contrast with what happened to the site cars (Haraj)."
- Participant E1: "You want to build an eco-system, so you should think that every failure strengthens the eco-system in the country; every failure will increase knowledge"
- Participant P4: "The eco-system is still weak."
- Participant N1: " 200 persons attended the conference, including designers, programmers and others. They sat together to work for three days and their thinking was completely transformed. There is a type of magic in these events which is very exciting and surprising."
- Participant D4: "The positive is that we create an eco-system based on our current needs."
- After the process of sorting the similar 'meaning unit' mentioned by the participants to separate groups, the researcher has a broader understanding of the 'meaning unit'. The researcher re-sorted and arranged these groups by giving one label to each group, called 'thematic labels'. 'Thematic labels' differ from the 'meaning unit'; 'thematic labels' are the analysis by the researcher about what may be represented by the 'meaning unit' together with the phenomenon under study (see point number 10 in the previous section) by referring to it through an analyzed sentence by the researcher.

To implement the steps in this research practically: the 'meaning unit' which was mentioned by the participants in the previous bullet, appears to revolve around the eco-system in Saudi Arabia. Hence, a 'thematic label' was chosen that expresses the meaning in a clear and direct way with the lowest number of words without prejudice to the meaning. So, it becomes: The Saudi 'ecosystem'.

- It should be noted that what is mentioned in this section are some examples of the 'meaning unit' because this section does not elaborate on all thirty-eight codes. Therefore, Appendix D was added which details all 'thematic labels' in this

research. The research provides two examples of the 'meaning unit' for each one of the thirty-eight 'thematic labels'.

- The above process was applied to all the 'meaning units' that were gathered and divided under similar groups and named as 'thematic labels'. During the step of naming the 'thematic labels', two issues has been considered: 1 - 'Thematic label' should explain the words of the participants in the research; 2 – 'Thematic label' is linked to the aim and objectives of this research. This stage is considered as one of the stages in the analysis process, which used flash cards and printed tables as a visual aid, which contributed significantly to the analysis process (see point 11). According to the importance of this step, it has been applied, reviewed and modified twice. The first time was during the analysis of the pilot study and the second time was during the analysis of the full-study, which benefited from the lessons learned when being applied in the pilot study. At the stage of analyzing the full-study, the supervisor of this research contributed his views on this division of the 'meaning units' and the 'thematic labels' (see point 12).
- During the process of sorting out the groups of the 'thematic labels', taking into account what was mentioned by Patterson and Williams (2002, p.47) that some participants may use different language to describe a single theme, it is possible that some of the 'meaning units' can be added to more than one 'thematic label'. In this research, it was found that this point was not repeated significantly in this research.
- After completing the process of sorting the 'meaning units' and collecting them in groups of one 'thematic label', the researcher re-read the participants' interviews as a part of the analysis stages in hermeneutic.
- All the previous sections are the steps of the process of finding the 'thematic labels' detailed by Patterson and Williams (2002, p.45), but the researcher added an additional step (see point 13) which will be explained next.
- The 'thematic labels', which emerged from the output of the analysis of this research were divided into three groups which are the three research questions¹⁸. So, the 'thematic labels' were analyzed in order to contribute to answer any question of research. This was done through dividing the 'thematic labels', which emerged from the output of the analysis of this research into three groups which

¹⁸ See section: 1.4 Research questions.

relate to three research questions. So, the 'thematic labels' were analyzed in order to contribute to answer any questions of this research. This is done through dividing the 'thematic labels', which emerged from the output of the analysis of this research into three groups which are the three research questions. So, the 'thematic labels' were analyzed in order to contribute to answer any question of research questions. All main 'meaning units' that formed the 'thematic labels' are the words of the participants that answered the research questions. This process and the linkage from the beginning to end, and then the reverse phase from the end to the beginning is one of the methodologies of 'hermeneutic circles' applied by the researcher in this research. This provides a more comprehensive analysis of this research.

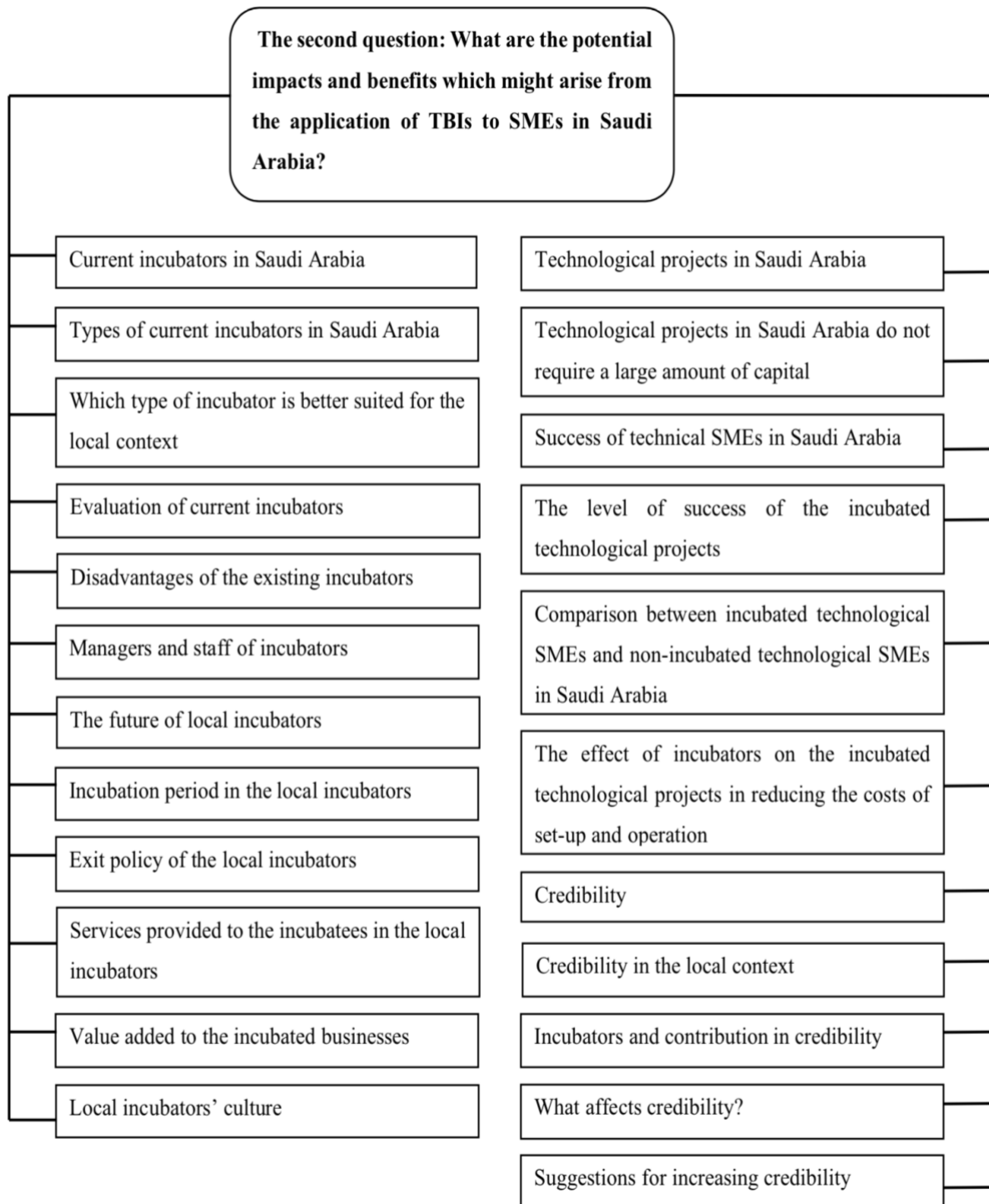
- After dividing 'thematic labels' on the research questions, the researcher re-read the sorting and linking and he rearranged a few of the 'thematic labels'.

Moreover, the researcher adds further points during the code, analysis process and during the final writing of the findings. Such as dividing the answers into separate tables during the analysis process, which for example answer a specific question such as provided services. These tables were subsequently used in the findings chapter as in Table 4.5.

The outputs of these steps are presented in figures 3.1, 3.2 and 3.3.



Figures 3.1 illustrated 'thematic labels' that are associated with the first question.



Figures 3.2 illustrated 'thematic labels' that are associated with the second question.

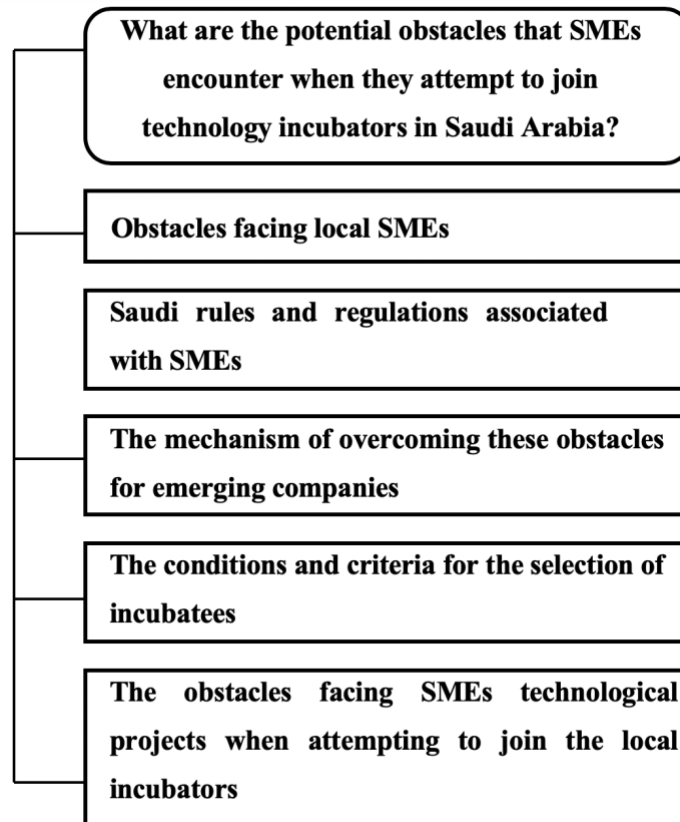


Figure 3.3 illustrates 'thematic labels' that are associated with the third question.

3.8 The planning of fieldwork for the collection of data:

The main objective of this research is to study the impact of TBIs on technology SMEs in Saudi Arabia (see section 1.3). In order to achieve this objective, it is imperative that there should be data that has been collected from the country of the case study which in this research is Saudi Arabia. The collection of data from many stakeholders (see appendix B), enables the researcher to understand and analyse the phenomenon in depth which is the subject of the study here.

3.8.1 Ethical Considerations:

This research involves collecting data from both human beings and organisations. The researcher has committed to human research ethics before starting the pilot study and the full-study. That was achieved through:

1. Approval was obtained from the University via the Faculty Research Ethics Committee.

2. A letter approved by the supervisor at the university shows that the goal of data collection is for scientific reasons only. This letter was intended to help the researcher to get the consent of the participants and the organisations.
3. A consent letter in Arabic and English submitted to the candidates at the beginning of the participation request. This letter included introducing the researcher and the University, in addition to the title and objectives of the research. The letter also included an explanation of the rights of the participant in the research, such as that the participation in this research is voluntary and that the participant has the right to terminate this interview at any time and none of the above will be used if he or she does not want to do so (Appendix A presents a copy of the consent letter presented to the participants). The participant and the researcher both signed this letter before starting the interview as an indication of acknowledgment and agreement.
4. The researcher also sought to frame this research according to the code of the Social Research Association (SRA) as a guide throughout. This code is generally divided into four broad lines (SRA, 2011, pp.13-43) which are:

This research also applied the case study protocol (see section 3.6.3), which will maintain the application of the ethical considerations discussed in this section. The existence of the case study protocol contributes to the application of these concepts in all cases.

3.8.2 The implementation of the fieldwork for the collection of data:

The data had been collected in two stages, the first stage is relevant to the pilot study and the following section explains the pilot study in detail. The second stage is the collection of data for the whole research.

3.8.2.1 Pilot study:

The aim of the preparation of the pilot study is to refine data collection methods and many researchers give advice on how to implement it (Yin, 2003, p.74; Robson, 2011, p.405).

In this research, a pilot study had been applied. At the beginning, data was collected from four participants. The pilot participants' sample has covered: two incubators' managers, one incubatee, and one non-incubated business owner. The reason for choosing this classification is to cover the potential participants of this thesis fieldwork. Collected data was fully analysed through implementing the data analysis methodology (see section 3.7.5). The

supervision team has been following the pilot study process step-by-step including the reading of the transcript of the first interview¹⁹.

From the implementation of the pilot study, the researcher learnt a number of lessons:

- There is potential in Saudi Arabia for expansion in the field of incubators.
- The importance of conducting research about local incubators, appeared through the participants' comments.
- There is a lack of awareness regarding the work of incubators among owners of projects.
- There is a positive impact for the incubators on an incubated project.
- The implementation of the pilot study took longer than originally planned. The researcher tried to avoid this matter as much as possible in the full study.
- The researcher noticed that there is a need to add many additional questions to the essential research questions. Thus, he added a number of additional questions resulting from the analysis of the pilot study.
- The researcher noticed the importance of the local 'ecosystem'. Thus, he added many questions about the local 'ecosystem'.

3.8.2.2 Full study:

A full study was conducted once the collection of data and the analysis of the pilot study had been completed. During the full study, questions that had resulted from the pilot study were added and some remarks were avoided. Since this research depends upon interviews as a methodology for the collection of data (see section 3.6.1), the interview arrangements had been schedule in sufficient time for both parties; the researcher and the participant. All interviews were conducted in places selected by the participant, so that interviews could be conducted in a suitable environment for him or her. Before the interview, the researcher gave a consent form to the participant. This form explained the objective of the research and gave information about the researcher and the university in which he studies. In addition, the form explained the options of the participant in this research. Consent was obtained from participants for recording the interview and to take written notes during the interview, by asking them to sign a consent form. 100% of the participants agreed to recording the

¹⁹ Appendix B provides details of one of the pilot study participants.

interview and taking written notes, and a copy of all the recordings will be submitted to the university with the thesis copy.

The interview starts with posing general questions about the participant such as age, educational level and other information about him or her. Then, he or she is asked about his/her role and the tasks involved. These will vary depending on whether the participant is the manager of an incubator, or owner of an incubated or non- incubated project. Appendix B shows the questions that are posed to participants. This research used the methodology of semi-structured questions, which gave the researcher the chance to pose additional questions through a dialogue that was not predetermined. It also gave the participant a chance to express his or her opinions on several aspects of the research. The section 3.6.3 '*case study protocol*' provides further details. Also, appendix C shows examples of transcribed interviews with the participants in English and Arabic versions. At the conclusion of each interview, the researcher asked the Participant if he wanted to add additional information or give any comments. Two of the participants added good comments at the end of the interviews. Then, the researcher concluded the interview by thanking the participant for taking part in this research.

3.9 Conclusion:

The aim of this chapter was to review the IS research methodology and justify the methodology chosen to generate the findings to answer the research question given in chapter one. The chapter started by describing the research philosophy and the use of ontology and epistemology in the research. Then, the three most common paradigms: the positivist, the interpretivist and the critical have been addressed. Followed by the justification for the chosen paradigm for this research. Then the differences between the quantitative and qualitative research approaches were explained and a justification was given for using a qualitative approach in this study. The chapter went on to describe the four general types of research method and justify the use of the case study method and the interview method for data collection for this study. The next three sections discussed the data collection. These sections cover several topics such as: interviews as data generation methods, selection of the case studies and the case study protocol that have been applied in this research. Followed by six sections addressing the analysis processes. These sections include topics such as: hermeneutic as data analysis method for this research. In addition, the data analysis processes that have been applied in this research. Then, the coding that includes an explanation for the stages that the research has followed, with three figures illustrated the final code resulting

from the analysis of this research. Finally, the chapter addresses the planning of fieldwork for the collection of data for the pilot and full study.

The next chapter presents the findings of the study conducted in SA.

Chapter 4: Research Findings

4.1 Introduction:

Having described the methodology used in this study in Chapter Three and the gap in the knowledge in Chapter Two, this chapter will examine the findings of the study conducted in Saudi Arabia.

This Chapter (Four) covers the results of the field research through the opinions of the participants in this study (who are individuals related to the nature of this study) coupled with a part of the researcher's analysis of their opinions. Chapter Five will then move this on to synthesising those results with the literature (chapter 2). This structure of division is applicable to other PhD theses such as; Pattison (1995, p.81), Torrance (2012, pp.ix-x) and Atamna, 2013, p.viii).

The study sample consisted of nineteen participants (see sections 3.6.2 and 3.6.3), divided into four categories: 1- Managers of incubators (i.e. governmental incubators; semi-governmental incubators; commercial incubators; non-profit incubators); 2- Owners of incubated projects; 3- Owners of projects that have graduated from the incubator; 4- Owners of projects that have not been incubated.

This chapter presents the opinions of the participants in this study directly. The codes employed concerning the participants in the interviews are as follows:

Participant D: manager of the incubator.

Participant P: owner of a project that is not incubated.

Participant N: owner of an incubated project.

Participant E: owner of a graduate business from an incubator.

To highlight the results of this research further, the researcher mentioned the opinions of the participants directly; the sentences, with their source material are referred to as 'participant' are thus direct sentence as mentioned by one of the participants in the research. The researcher translated the participant's opinion. These sentences are the words of the participant literally (word by word), including sometimes (pauses) or moving from one sentence to another and so on. For more transparency and to make the research more useful for researchers in the same field, the researcher has chosen four categories of participants as mentioned earlier, and he referred to each category of them with a different code after the word 'participant'. This extra coding aims to make the reader able to recognize that this

opinion was from a particular type of participant. Is he/she the owner of an incubated technical project? Or the manager of the incubator, for example.

The purpose of this discussion is to investigate the phenomenon being studied from some viewpoints. The findings of the full study have been compiled from three sources: 1- Through the semi-structured interviews discussed in detail in the Case Study Protocol, (which formed a brief overview of the individuals participating in the sample with their details: see Appendix B); 2- Through a number of documents collected from the organisations involved; 3- Through documents and websites relevant to the research study.

This research aims: 1- To investigate and study the effects of Technology Business Incubators on small and medium enterprises (SMEs) in a developing country; 2- To establish the impact and benefits of Technology Business Incubators by conducting a comparison between SMEs on-and-off incubation; 3- To identify the obstacles facing SMEs when they attempt to join technology incubators. Each of these issues will be fully discussed in the following section, based on the analysis of the full study.

This current research (as noted in chapter three section 3.7) applies the hermeneutic method for data analysis and follows the techniques developed by Patterson and Williams (2002, p.45) for data analysis procedures. Moreover, the next section (4.1.1) provides further details for the use of hermeneutic methodology for analysis. In section number 3.8.2.1, there was a discussion of the pilot study conducted prior to undertaking the full study, including: 1- the changes made concerning the questions; 2- the lessons learnt; 3- the obstacles encountered by the investigator between the phases of the pilot study and the full study.

In coding section 3.7.6, it was pointed out that the division of this chapter was based on the results of the coding and the division of 'thematic labels' and linked to the three research questions. That took place through dividing the 'thematic labels' into three groups, which were derived from the analysis of this research mentioned in chapter three, these three groups were divided based on the relationship of each 'thematic label' with one of the three research questions (see section 1.4). This would contribute to facilitating the findings of this research in answering the research questions. Section 4.5 summarised the main key findings of the findings of this research.

4.1.1 The use of hermeneutic methodology for analysis:

This research applied hermeneutic methodology as a data analysis method (see section 3.7.1), through implementing the procedure developed by Patterson and Williams (2002, p.45)²⁰. This was via nine steps explained in detail in section 3.7.5, to analyse the data that had been collected (see section 3.6). Since chapter three dealt extensively with the methodologies used in the analysis of this research, it is possible to refer to the sections that were referred to in this section if necessary.

This section will discuss one important element in the hermeneutic methodology: the 'hermeneutic circle' (see section 3.7.2), which can be summarised as tacking back and forth between the details in order to understand the whole through understanding the parts. Thus, many sections of this research rely on this method (i.e. 'hermeneutic circle') to contribute to the understanding and analysis of the phenomenon under study. The researcher sought through the deep research to tack back and forth between the details to connect many parts as small parts (as some participants' opinions independently) to understand the whole. For example, in section 4.2.7.1 (Implications leading incubators to contribute to starting new projects), the finding of this research revealed contrasting opinions between participant D2 and participant D4. By using 'hermeneutic circle' the researcher managed to reconcile between the two opinions, going deeply to understand these separate parts (the participants' opinions) individually, through reading participants interviews repetitiously as mentioned in section 3.7.5 (point number five). Then researcher then went one step further to understand this contrast, by following-up the regulations and procedures issued in Saudi Arabia that can provide additional understanding of the whole and how there is no conflict between the opinions of participants D2 and D4, as the nature of the activity and the size of the project is the reason that each of the participants sees that issue from his perspective and the needs of incubatees.

In addition, in many cases the part has been connected to full section or sections to understand the whole. These sections are the findings of the eighty-three 'thematic labels' in which the method of access to them mentioned in detail in the coding section (see section 3.7.6). For example, in section 4.4.1.1 (*'Coercive pressure arising from the Saudi rules and regulations associated with SMEs'*), by using the 'hermeneutic circle' the finding shows that the solution that participant P2 follows, is inconsistent with Saudi government initiatives,

²⁰ This procedure been applied also from other researcher such as (Altayar, 2011, p.106).

mentioned in the section on the National Plan (see section 4.2.1) and section on encouraging freelance work (see section 4.2.2).

Furthermore, by implementing the 'hermeneutic circle' to reach a wider understanding of the phenomena under investigation, section 4.3.2.4 (*Comparison between the incubated and non-incubated technological SMEs in Saudi Arabia aligning with isomorphism and competitive pressure*) connects four sections together: section 4.3.2.4 to sections 4.3.2.3, 4.3.2.5 and 4.3.2.2.1 to address the main point in the section.

To reach these results in the use of 'hermeneutic circle' the researcher is continuing to follow the technique mentioned in section 3.7.5 (data analysis process), as the 'hermeneutic circle' is one of the processes. The objective of the 'hermeneutic circle' is to contribute to the understanding of the whole (phenomena under investigation) that is formed of the parts (Gadamer 1976, p.117).

In the findings chapter the use of the 'hermeneutic circle' appeared in many sections and there were indications of using the 'hermeneutic circle' within appropriate sections.

4.2 The first question: In what way might TBIs affect SMEs in the Saudi Arabia environment?

In these following sections, the answer to the first of the research questions will be discussed from a number of aspects. The first part of the case study in this research concerns Saudi Arabia in general and includes (1) technological incubators; (2) owners of incubated technological projects and (3) owners of non-incubated technological projects. Firstly, under the subsection of 'Normative pressure arising from the Saudi national plan', there is a discussion of the Saudi national steps to support Saudi technological projects, including current and future visions. Secondly, there is a discussion concerning national initiatives and those aspects associated with SMEs, including encouragement of freelancers; supporting financing funds available in Saudi Arabia; employment in Saudi Arabia; the contribution of the Saudi government in solving the issue of unemployment and supporting SME projects. There is considerable financial support, in order to encourage self-employment. Thirdly, there is an examination of the Saudi 'ecosystem' and its effects, including: Saudi geography; the effect of the 'ecosystem' on the local SMEs; the effect of the incubators on local SMEs.

The second section addresses the first research question through an examination of incubators in Saudi Arabia in general, along with an investigation into awareness of their existence. This

is followed by a discussion of the contribution of the incubators towards Saudi local development.

Examples of the questions asked during the interviews with the participants are: ²¹

Questions for the incubators managers:

- Do you think that current incubators in Saudi Arabia contribute to local development as a development tool?
- Is there an ‘ecosystem’ in Saudi Arabia? And what is its impact on SMEs?
- What percentage of people are aware of incubators in Saudi Arabia? ²²
- Does being incubated help new business start-ups? If Yes: How? If No: Why?

Questions for the incubatee and non-incubated:

- Do you think that current incubators in Saudi Arabia contribute to local development as a development tool?
- Is there an ‘ecosystem’ in Saudi Arabia? And what is its impact on SMEs?
- What percentage of people are aware of incubators in Saudi Arabia?
- Do you know about the incubators initiative? (for non-incubated)
- How did you come to find out about incubators? (for the incubatee)
- Does being incubated help new business start-ups? If Yes: How? If No: Why? (for the incubatee)

These questions are some examples of the questions prepared for the interviews. Also, based on that, the method of interview is semi-structured. Other questions were asked during the interviews and some information was acquired.

In the following subtitles, the first of the research questions will be addressed.

²¹ All the questions are translated from Arabic, as all the interviews were conducted in Arabic given that this is the participants’ native language.

²² The objective is to explore the opinion of the participants of this research. This question takes into account the research limitations given that there are no studies illustrating the percentage of awareness of incubators, as mentioned in Section: 4.2.6.1. This applies to all other similar questions.

4.2.1 Normative pressure arising from the Saudi national plan:

This is a governmental initiative set up following a decision by the Saudi Council of Ministers in 2002. The plan aims to localise essential and strategic technology. This is focussed on future development in the Kingdom of Saudi Arabia, including an information technology programme (KACST, 2016). The plan also aims to: "establish a knowledge-based economy and community through a national system for science, technology and innovation that is globally competitive", thereby achieving the strategic objective of ensuring the Kingdom will be one of the leading countries in the fields of science, technology and innovation by the year 2025 (KACST, 2016).

Participant D2 notes that a considerable budget estimated at around 80 billion Saudi Riyals (approximately \$21 billion US dollars) has been allocated for the national plan for science and technology. In addition, participants D1 and D2 both state that the Bader incubators programme for technology has originated from the National Plan for Science, Technology and Innovation.

4.2.2 Coercive pressure arising from freelance working:

One of the most widespread issues in the Kingdom of Saudi Arabia is that of unemployment. This motivated the launch of a specialised programme in 2011 under the name of 'Hafiz', which aims to support young job seekers. In 2012, this programme supported 1.658.201 job seekers (Alriyadh, 2013). However, by 2014, the Saudi population had reached 20,702,536 (CDSI, 2016) and thus adding to the need to create more freelance work.

Participant D1 states that there are a large percentage of young people in Saudi Arabia, to which participant D2 adds that the government is being pressurised to find ways of employing these young people. Saudi Arabia has recently paid significant attention to SMEs including the setting up of a number of initiatives to support such enterprises. These initiatives include the Saudi Credit Bank, which offers loans to SMEs in return for a very low rate of interest (i.e. 1%). This initiative thus encourages Saudi citizens to set up new commercial projects, rather than applying for government jobs. At the same time, this aims to increase the contribution of the private sector towards domestic income.

Participant D2 states that the King of the Kingdom of Saudi Arabia has agreed to support the Saudi Credit Bank with 36 billion Saudi Riyals (9.6 billion US Dollars approximately) to be

spent on small enterprises. The Finance Minister notes that the Credit Bank has given support of up to 4 billion Riyals to SMEs (Aleqtisadiah, 2012).

Among these initiatives, incubators in Saudi Arabia have been supported thus providing and creating new job opportunities for young people. Participants D1, D2, D4 and D5 state that these incubators contribute to resolving the issue of unemployment. Participant D2 states that incubators are both focussed on, and measured by, the number of jobs created by each project accepted for support.

The researcher asked managers of incubators who were interviewed whether they conducted studies to show the number of jobs created by incubators. All answers did not specify specific numbers but indicated that they measured this effect in one way or another. The researcher concludes such measurements are not accurate since they are not viable nor are they, apparently, declared figures. The researcher observes that the existence of such figures in a clear, declared and precise manner would contribute to the development of such initiatives (which are incubators and programs supporting SMEs). Four parties may benefit from such figures and studies. First, government or companies increasing support or increasing the number of incubators. Second, the managers of the incubators or relevant parties that see this effect, as it will contribute to more fruitful work for working people or people who interested in building this sector. Third, the owners of projects who seek to develop their projects either through incubation or consulting incubators. Fourth, researchers who work in the field of researching incubators, whether locally or globally. These figures may be an important catalyst for all four parties. This current research highlights vital areas for academic research in general.

Owners of incubated projects are among those cited as examples of the support provided to the incubated projects. Participant N7 views the reasons for choosing self-employment over employment as follows: (1) Increased opportunities; (2) Increased opportunities for self-development; (3) Wider and brighter prospects; (4) Increased income. Participant N8 states that he has resigned from his post due to his job being bureaucratic and unable to satisfy his ambitions. Participant N6 states that he has chosen to work freelance because he believes that work should not simply be a duty, but in an area of personal interest. Participant P5 states that he is still working in a government job until his project is able to give positive results, describing his current employment alongside his freelance work as a 'transitional period'. The researcher sees that the choice of participant P5 when he did not leave his work until his project had achieved positive results is an understandable human matter; not everyone who

opens a project has the spirit of adventure. On the other hand, participant N3 states that he began working on his project immediately after graduation from university, due to the fact that there is more autonomy and increased income in working for himself rather than being a government employee. He also adds that in his first business project he earned more than he would have done in six months as an employee. Participant N3's experience when he obtained rapid financial profit through his first project. This may not be a typical experience for everyone who opens a project, this experience cannot be generalized. However, the researcher sees that if enterprises have been studied and supported correctly, they may reach levels of profitability. The selection of such enterprises is one of the factors that incubators are seeking in the selection of incubated projects (see section 4.4.2 '*Normative pressure arising from the conditions and criteria for the selection of incubate*'). Participant N2 states that he did not begin his career with a government job, as he wished to invest his time more effectively in projects he felt passionate about, as well as the fact that they led to business opportunities. Participant N5 states that he began working on his business from home while he was in intermediate school through the provision of design services. Participant P2 states:

“My own vision, in essence, is that self-employment is the right path for investing my capabilities and that, whatever job I take, I will not be able to invest my energy and capabilities. I also think that any job destroys potential and self-capabilities.”

Through the above opinions of the participants in the research, the researcher sees that there are also a number of factors that influence greater demand for freelance services in Saudi Arabia:

(1) Educational outcomes: In Saudi Arabia, graduates are not qualified to undertake freelance employment. Participant D2 states that:

“A young man graduating (for example) with a degree in computer science does not know the basics of establishing a business, and after graduation, he turns out to be a burden on the system, because he wants to be employed by the government.”

Participant P4 is of the opinion that the education system is ineffective and leads to poor educational outcomes. This has a considerable impact on those who claim to be capable of implementing a project (or transforming an idea into a project), of whom there are a considerable number.

(2) Society's view of freelance work: there is a commonly-held viewpoint in Saudi society that government posts offer increased privileges. Participant N6 states that there is a

conviction in Saudi Arabia that employed work is more stable than freelance work. Participant E1 adds that there is little encouragement to become a business person, with attention focussed instead on finishing higher education and acquiring an excellent governmental post. Participant D5 adds that this is due to the fact that many prefer to work in companies with high rates of job security (e.g. petrochemical companies), while participant P2 feels that young people prefer to work in a large company, due to the social standing it affords (i.e. he states: “I would work in Sabic or Aramco²³ or any company with a large amount of capital”). A further factor is practical aspects, including the fact that large companies are rated highly by banks, thus facilitating the ability to receive loans. There are also other aspects that are important for a CV.

(3) The influence of immediate family: a number of interviewees state that their family had an important influence on their selection of freelance employment. Participant P5 states that he was encouraged to become a freelance businessman due to the fact that family members (e.g. his father, uncles and close friends) are already working on a freelance basis. He adds that family has an influence on his private business. Participant P2 comments that his family has an opposite opinion from that generally held by his society, i.e. that anyone working in government will be evaluated less than those who are self-employed.

When participant D4 was questioned about the trend of female graduates towards freelance businesses, or towards the governmental sector, she replied:

“A freelance business is now better. There are more jobs but the percentage of self-employed females has increased. For example, from among one hundred female graduate students, 90-95% have previously preferred governmental jobs. With only around 5% being creative students or who have had either the experience of running their own business, or a high level of business culture in their family. This has been true in the past. However, the percentage currently ranges between 40 and 50%, particularly with the advent of Instagram, which leads to significant support for young women when they attempt to go into business at very little cost, enabling them to establish if there will be demand for a product.”

The finding of this research shows that there are a number of initiatives to support freelance workers. Also, showed a three factors can influence the out come of these initiatives.

²³ Saudi Petroleum companies considered to be among the largest business globally.

4.2.2.1 Financial support in Saudi Arabia aligning with normative pressure:

As noted above, the Saudi Government has supported SMEs through a number of initiatives, including financial support, which is vital to all SMEs and therefore will be discussed in this study. At present, there are 12 supporting financing bodies in Saudi Arabia, including governmental, semi-governmental, private sector and charitable bodies (SBIN, 2014), the majority of which are newly established. The majority of those interviewed concentrated on the most senior agency for financing projects, for example the Saudi Credit and Saving Bank. Participants P2, P3, N2, N3, N5, P5, N6, N7, N8 and E1 state that the owners of technological projects tend not to be aware of the availability of supporting finance in Saudi Arabia, while at the same time insufficient information is available concerning the funds available. Participant N4 states that he has not applied for finance, due to the bureaucracy involved and because he feels the procedures would hamper his project.

Participant N7 states that he intends to sue Saudi Credit and Saving Bank, due to the fact that his financing was delayed by one year, which caused him setbacks in his project and a loss of four million SR (more than one million US Dollars). He comments that the problem with the Saudi Credit and Saving Bank is that it is managed with a governmental outlook that is not conducive to the needs of projects. He cites an example of a plan he had prepared and presented, which included a colour printer. Once his project had been implemented, the colour printer was found to be unnecessary, but the Saudi Credit and Saving Bank insisted that it should still be provided. When participant N7 was asked whether the procedures followed by the Saudi Credit and Saving Bank had changed significantly from those previously in force, he agreed that they had²⁴, but still stated that he would still not run the risk with any future project and get a new loan from the Saudi Credit and Saving Bank.

Participant N8 states that he did not take a loan from the Saudi Credit and Saving Bank, due to the complexity of their conditions (see the discussion below in the analysis). Both participant P2 and participant N7 consider it to be a drawback that the Saudi Credit and Saving Bank does not have different criteria which it can use to evaluate different types of project and the ways in which it deals with them. Nor can it differentiate between technological and traditional projects. When participant P4 was asked whether he had encountered any difficulties in obtaining finance for his technological project in the year 2010, he answered:

²⁴ The mechanism of the Saudi Credit and Saving Bank currently (effective from 2013) differs from 2009, when Participant N7 received his financing.

“Yes, generally speaking, there are many agencies that operate in another world, by which I mean the Saudi Credit and Saving Bank and the Bader incubator. They speak a different language. But the situation was much better in the Waed incubator.”

When participant P4 was asked if there were difficulties in obtaining finance in Saudi Arabia, he answered that the situation is very difficult in the field of IT, due to the fact that IT projects are viewed as high risk by nature. Participants N1, N2, N3, and N5 never took out a loan, as they see it as a responsibility and a risk at the beginning of the project. Nevertheless, it was established that they had decided to join the incubators, as in Saudi Arabia this does not require any fees. However, participant D4 had spoken about the duration of financing, which she remembered as lasting for five years. She felt that reassured that financing is not a burden for the owner of the project (as would be the case for a shorter length of financing). She also stated that if the duration of the loan is, for example, for one year, this will lead to the project failure, as (from her previous experience in the field of banking) no project recoups its capital within one year.

Through the above, the researcher sees that there is a gap in awareness between programs that provide financial support for incubated projects and technical projects in Saudi Arabia. As mentioned at the beginning of this section, 12 programs provide financial support for projects, and we find that the participants in the research addressed only three supporting bodies (Saudi Credit and Saving Bank, Waed and Deem Almanahil). The participants in the research were focusing on the Saudi Credit and Saving Bank²⁵. This may have two justifications; firstly, the primary financial support by the government is focused on Saudi Credit and Saving Bank. Secondly, due to the Saudi Credit and Saving Bank being the oldest means of financial support since it was founded in 1971 in Saudi Arabia (SDB, 2017).

4.2.3 Understanding the implications for employment in Saudi Arabia:

Employment is one of the most critical aspects that countries are seeking to develop through their projects. Employment is mostly divided into two groups: the first group is employed

²⁵ There is a significant point here that on the date of 31-10-2016, a decision has been issued by the Council of Ministers which states to change the name of Saudi Credit and Saving Bank to Social Development Bank (SPA, 2016). In this research, the researcher will refer to the Social Development Bank by the name of the Saudi Credit and Savings Bank. This is for the reason that when the interviews were conducted with the participants in this research, the decision to change its name had not been undertaken yet. However, the researcher sees that it is important to mention this change for future research.

citizens of the country, and the second group is employed foreign workers. Saudi Arabia is one of those countries which contains the two groups.

Participant E1 states that there is an issue with the employment process. Employees only stay in post for a short while, before moving to a larger company. He adds that this does not help in establishing emerging companies. Participant N2 is of the opinion that the building of a team is among the most important aspects of small technological projects. He has also experienced the above issue. Participants D5, P2, N1 and N8 confirm that one of the most important obstacles facing small projects is the recruiting of skilled personnel. Participants N1 and N8 add that the problem is also to find skilled employees who will work in small projects and with the level of salary that the small companies can afford to pay.

The researcher sees that the regulations and rules that allow new systems for the ownership of enterprises (see section 4.4.1.1 '*Coercive pressure arising from the Saudi rules and regulations associated with SMEs*') would contribute to supporting employment if such regulations and laws were simplified.

One solution to the scarcity of the required skills is the recruitment of employees from outside Saudi Arabia. Participant P1 notes that the rules and regulations do not support small technological projects, due to the fact that they make no differentiation between technological and non-technological projects. He also adds that this is relevant to projects (as was in the case of his current project) located outside the capital city (or within the largest cities) as Saudi citizens generally have no desire to work in small cities. However, participant N6 states that if the project is incubated in an incubator affiliated with a reputable agency, this assists in both employment and headhunting. When he was asked about whether the reasons for this are financial he replied that he believed it was more to do with job security.

4.2.4 The Saudi 'ecosystem' associated with isomorphism and competitive pressure:

The existence of the 'ecosystem' is considered to be an element enhancing the implementation of the National Plan for Science, Technology and Innovation. There needs to be a large number of agencies playing a role in the configuration of this system, leading to an environment that supports SMEs. Participant D2 is of the opinion that it is not important to have an independent organisation to achieve a knowledge-based economy, as it can be found within the surroundings of universities. Hence there is no need for the government to set up large projects such as Sabic and Aramco but the development technique should instead be followed. For example, participant P2 states that he became acquainted with his business partner while at university.

Participant P4 states that the Saudi Government needs to distinguish itself from investors who wish to retrieve capital invested in a project, as the focus of the government is to build an 'ecosystem'. He adds that an investor is apprehensive of any potential project failure, but that the government should not fear any failure of technological projects, as any such failure will lead to an improvement of the 'ecosystem', thus ensuring greater potential for success for any future projects. This is the participant's general view and it may not always be true. Participant P4 views the current 'ecosystem' as weak, leading to a need to strengthen it through governmental or semi-governmental tools, due to the fact that these minimise the risks around projects. Participant N8 notes that there is no clear economic diversity for projects at present, and participant D4 states that it is a weakness for countries to have their entire economy depending upon major projects.

Participant D4 is of the opinion that there is currently no 'ecosystem' in Saudi Arabia. She also feels that there are both negative and positive aspects to the existence of an 'ecosystem'. Negative impacts include the fact that there is no clear legal system able to serve small and medium-sized projects (or the agencies serving the owners of the projects) in aspects of entrepreneurship. While negative impacts include the absence of the legal system, positive impacts include the fact that an 'ecosystem' can be created based upon current requirements. Participant D3 states that, in general, there is no clear 'ecosystem'.

When participant D5 (the manager of an incubator) was questioned about what might be suitable for the Saudi environment he replied:

“We have two choices: either imitate China or imitate Silicon Valley. We are going to create something of our own. Of course, in the end we have to follow some direction... Dharan technical valley, and others are copying it word by word. However, this system may be good for industrialisation, but where is entrepreneurship? That is where Brad Field the author of *'Start-up Communities'* (2012) said 'no'. What we are doing is very top-down, what we need is bottom-up, which means it starts from individuals.”

When participant P4 was questioned about the effect of the incubators on the 'ecosystem', he said that, in future, there will be a potential for the 'ecosystem' to improve, at which time the incubators will become more useful. When participant E1 was asked about the effect of the incubators on the domestic economy, he replied that the incubators do make a contribution, however they lack support in Saudi Arabia. More integration is needed, since it is not enough to have technological incubators if the industry for them is lacking. He also adds that Saudi

Arabia is one of the largest Arabian markets in terms of information consumption, and that there are global figures achieved by Saudi Arabia (for further information see below). However, Saudi Arabia does not have an industry that benefits from technological incubators. Hence this should be a government trend, rather than relying on individuals for building the 'ecosystem'.

Through the participants' opinions, the researcher observes that there is an agreement on two points; the first one is that the ecosystem in Saudi Arabia is not conducive to growth. The second one is that the ecosystem should not be part of significant government initiatives, and it should be formed not as a top-down approach, but as a bottom-up approach. Participants D4 and D5 (incubator managers) mentioned two points that may be somewhat interrelated. Participant D5 mentioned the experience of Dhahran Techno Valley, in which they copied an external experience which did not succeed. However, Participant D4 said that the unsupportive ecosystem might be positive in that a new ecosystem should be built according to what suits the environment in Saudi Arabia.

Many events and technological conferences are organised in Saudi Arabia reflecting on the local 'ecosystem'. When Participant N1 was asked for his evaluation of the events of the small, or path-finding, projects in Saudi Arabia, he said that he had attended the Start-up Weekend which had taken place twice in Riyadh. He gave it a high score of approximately 9 out of 10, noting that those who attend the conference are transformed:

“200 persons attended the conference, including designers, programmers and others. They sat together to work for three days and their thinking was completely transformed. There is a type of magic in these events which is very exciting and surprising.”

When Participant N2 was asked to give his evaluation of the events and technological conferences held in the Saudi Arabia, he replied:

“They are very useful. The thing that left the greatest impression on me is that there are people who are early adapters for any idea. Such events and technological conferences provide you with communication and connection which minimises the large distances covered since the commencement of the work.”

In addition, when Participant N5 was asked about his evaluation of these events, he answered: "I talk about Riyadh Geeks, (one of the technological events in Saudi Arabia), I gave it 9.8 out of 10." Participant N4 states that he was aware of incubators through one of these conferences, adding that they are very effective, with plenty of information and good

relations with young people interested in technology. Participant D4 says that the current trend in Saudi Arabia for small projects has become a general culture: "this is an outstanding trend". She further describes the current situation in the following terms: "I think that the environment in Saudi Arabia is a very motivating environment for business and very convenient".

Participant P2 confirms that when he started his project, over 10 years previously, society did not differentiate in its outlook towards an owner of a technological pioneering project and an owner of a workshop, but that now the situation has completely changed. The researcher through the above sees that these seminars and conferences have a significant positive impact on the community of technical projects owners in Saudi Arabia. The researcher will seek to add the impact of seminars and technical conferences on technical projects in the recommendations of this research for the relevant parties (section 7.3).

4.2.5 The geography of Saudi Arabia associated with institutional theory:

Saudi Arabia covers an area of two million square kilometres (The World Factbook, 2018) (i.e. approximately eight times the area of the United Kingdom). It is a sprawling country with (according to the 2014 census) a population of 30,770,375 (CDSI, 2016). The average population density in SA is around 14 per square kilometre (The World Bank, 2016), compared to the average population density in the UK which is around 371 people per square kilometre (ONS, 2012).

Participants D1 and D2 state that their incubator is a national programme. They also mentioned that, due to the vast area of Saudi Arabia, incubators cannot be established in all major cities, but a virtual incubator is offered for all. Participant N8 notes that the performance of the incubator in the capital is outstanding, but that the remainder of the regions do not benefit from these services. By contrast, Participant N7 is of the view that the fact that his location is in a region away from the capital city has not affected the services he has received. [It is notable that the project of Participant N7 is located in the city where Participant N8 lives]. This contrast between the two opinions of Participants N1 and N8 may raise some questions. For example, 1. Is the difference in the nature of the project considered to be an effective factor? 2. Do personal expectations of what incubators provide impact on a project owners' vision regarding what the incubator should provide?

Participant N7 notes that, when it comes to the effect of geographical expansion within Saudi Arabia, the existence of projects within cities affects the awareness of the incubators and their influence. However, there are 50% more incubators in the capital city than in the remainder.

Participant P5 confirms that awareness of incubators in the capital city is increasing more rapidly than in the rest of the regions. He attributes this to two aspects: (1) The large number of conferences and symposiums held in the capital city; (2) The existence of many more private, public or university incubators in the capital city rather than in the rest of the country. Awareness of incubators will be discussed more broadly in section 4.2.6.1.

However, the non-proliferation of incubators into all cities at the present time (in addition to the geographical issues) is attributed to the relatively recent implementation of incubators in Saudi Arabia. Participant P2 states that a further aspect of the geographical effect on technological projects is that they previously suffered from issues with marketing. These issues improved when they moved their project to the capital city. As noted in section 4.2.3 (*'Understanding the implications for employment in Saudi Arabia'*) geography also has an influence on the employment process.

4.2.6 Incubators and Saudi Arabia:

Globally, incubators are a development tool for SMEs. As incubators in Saudi Arabia have been set up relatively recently and therefore are in their preliminary stages (as discussed in detail in the literature review), Saudi incubators will now be examined in detail below.

4.2.6.1 Understanding the implications of awareness of Saudi incubators:

Despite the fact that the first incubator was established in 2008, the concept is considered a new one for Saudi society. Participant E1 is the owner of one of the first incubated projects in 2008, who has now graduated from the incubator. He stated that there was no awareness of the concept when he first joined. Most of the participants in this study (including managers of incubators, owners of incubated technological projects or owners of projects that are not incubated) agreed that, even now, awareness of incubators is weak. A number of participants (e.g. participants N3 and E1) state that awareness is increasing annually, particularly during the past year (i.e. 2013). Many of the owners of incubated projects state that conditions for joining have improved during the previous year, due to high demand (for more details see the section concerning the selection process below). Participant E1 believes that an increase in awareness of incubators has been due to symposiums and conferences organised by the incubators for people interested in technological projects (the influence of symposiums and conferences has been discussed previously in section 4.2.4 The Saudi 'ecosystem' associated with isomorphism and competitive pressure). Participants N3 and E1 stated that the awareness of incubators is increasing annually and that may be true (although there is no

study proving that). But the increasing demand on incubators may be one of the indicators of future growth', which makes many incubators in Saudi Arabia increase their requirements for acceptance in incubation programs (see section 4.4.2 '*Normative pressure arising from the conditions and criteria for the selection of incubate*').

Participants D1 and D2 (who are both managers of incubators) believe that the approximate percentage of awareness of incubators in Saudi Arabia is 5%. All managers of incubators interviewed in this study (i.e. participants D1, D2, D3, D4 and D5) were asked if they had conducted studies in the incubators to measure awareness, with all replying in the negative. Participant D1 commented: "no, it is not like what you are doing and in order to conduct a preliminary survey when we are in a new place we ask those who are around, how many people know about incubators and this gives us a trend" (For details see Table number 4.1 below which shows all those interviewed and their views on the percentage of awareness of incubators in the Saudi community). Participant D2 added: "some of the governmental officials are happy about the existence of incubators, but they do not know how and what they do, including some of those in-charge of them [incubators]". When participant D4 was asked about knowledge of the work of incubators, she replied that even some of the staff who are working in the incubators do not have any real understanding of their function.

The researcher observes that despite the knowledge of incubator managers who were interviewed, there is a lack of awareness of incubators. Studies into this phenomenon have not been conducted by any incubators. This research seeks to highlight the importance of this point.

Moreover, participant P3 notes that there is a difference between general knowledge and actual knowledge of the nature of the work of the incubator, of which the latter makes up only a small percentage. Participant N2 (the owner of incubated projects) states that he is frequently questioned about incubators by many of the owners of technological projects who have had experience of running businesses and projects. These owners do not understand the role of incubators. In contrast, participant N5 has the opposite experience, believing that 70% of the owners of projects have some knowledge of incubators, as the participants meet them in conferences and symposiums organised by the Bader incubator. The views of participant N5 may be focussed on the owners of projects based in the capital city and who attend these symposiums and conferences.

However, the awareness of the role of incubators is not only limited to officials or lay people, but also the owners of technological businesses. When participant P2 was questioned about this subject, he replied: "I only know about Bader, [one of the incubators in Saudi Arabia,

which was the first incubator to be established] and I expect to know 30% about the incubators and what they are doing or what Bader offers". However, it is possible that the percentage may be less than this, as when participant P2 was asked about the supporting finance, he was unable to differentiate between supporting financing funds and incubators.

On the other hand, 70% of owners of projects that are not incubated (e.g. participant P4) state that their awareness of incubators is very recent. Participant N7 is of the opinion that the reason behind such lack of knowledge about incubators is that they are not publicised. The lack of publicity attributable to incubators being a new concept. Participant P5 feels that the geographical location of a project plays a role in the extent of the population's understanding of incubators (for further information see section 4.2.5 *'The geography of Saudi Arabia associated with institutional theory'*). Participant E1 is of the view that the issue is inherent in the scarcity of knowledge about incubators among members of society, rather than resulting from the incubators themselves, and that the issue results from the fact that the local 'ecosystem' in Saudi Arabia which is not a complete system. Table 4.1 illustrate all the participants' opinions in the research regarding the awareness of incubators in Saudi Arabia.

Participant	Percentage of people aware of incubators in Saudi Arabia
Participant D1	Around 5%
Participant D2	Very weak, around 5%
Participant D3	Medium
Participant D4	Few, in the past it was 10%, and now it is 30% – 40%
Participant D5	Weak, less than 15%
Participant P1	30%
Participant P2	Very weak, less than 10% owners but in IT more than 70% project
Participant P3	50 – 60%
Participant P4	Good, it is more than 60%
Participant P5	Less than 10% but for IT project owners 30% It differs from one area to another in Riyadh for example, it is around 40 – 50%
Participant N1	Few
Participant N2	10%
Participant N3	It was 10% And now 60%
Participant N4	Very few Less than 12% up to 15%
Participant N5	70%
Participant N6	Medium
Participant N7	It is not visible because it is new

	40% in Alqassim (Saudi region) and 60 – 70% in Riyadh (Saudi capital)
Participant N8	50%
Participant E1	Weak

Table 4.1 views about the percentage of awareness of incubators in the Saudi community

4.2.7 Implications leading incubators to contribute to local Saudi development:

As discussed in the literature review, incubators on an international level have an intangible effect on development. This is discussed by a number of participants in the current study in relation to the local context in Saudi Arabia. Participants D1, D2, D3, D4, D5, P2, P3, P5, N3, N6, N7 and E1 note that incubators play a significant contribution in local development. When asked if the incubators contribute as one of the tools of local development, participants D1 replied:

“Of course, but they have a positive effect since they contribute to the success of the projects, thereby, the percentage of successful small businesses will increase, and the percentage of failed projects will diminish.” (For more, see section 4.3.2.2.1 – *‘Understanding the level of the success of incubated technological projects’*)

Participant N7 states that:

“Incubators contribute to the development of the domestic economy. Especially when there are more young people who are apprehensive about starting projects. However incubators link them [young people] with backup [support], since incubators are encouraging them to invest.”

Participant D4 notes that at the present time incubators make a significant contribution and their effect will increase in the future. She also adds she believes the services provided will diminish in the future, despite an increase in the effect of the incubators. She feels the services will be more focused.

Participant D3 notes the effect of incubators through the building of several integrated small businesses. The incubator does not render its services to a single business, but instead provides its services to many businesses. One of an incubator’s roles is to provide integration between companies who deliver their services while being aware of other incubated businesses. Participant N3 (the owner of one of the incubated businesses) confirms that the principle of the provision of services is similar to an internal market within the incubator. That is one incubatee will provide a service against another service to another incubatee.

When participant D2 was asked about the percentage of this contribution, he remarked:

“There are no studies that measure this effect because in developed countries there are separate taxation and budgets systems for the states, but in Saudi Arabia such systems do not exist to help you measure this effect. Therefore, we are measuring the effect of the incubators with several components, such as measuring the number of projects in a certain area and so on.”

In contrast to the previous opinions, participant D5 (the manager of one of the incubators) notes that the effect of incubators on the domestic economy is encouraging and that, as they are still in their early stages, it is unfair to measure their effect at the present time. However, participant P4 does not believe that, in their current form, incubators are able to contribute to domestic development and adds that there is potential for future improvement of the ‘ecosystem’, enabling incubators to become more useful. Participant N8 points out that, generally speaking, incubators contribute to the process of domestic development, but the majority of projects do not contribute to the domestic economy. Participant N5 explains the previous point by pointing out that if the market value of the economic effect is calculated, it can be seen that, at the present time, it is possible for a real estate office to contribute more to the economy than start-ups (i.e. businesses inside the incubator). He adds that these are still emerging projects, able to make little contribution at present, but that, in the long run, they will make significant contributions. In the future, he expected incubators to make a similar contribution to similar SMEs currently in the United States of America.

The researcher sees that the perception of the contribution of incubators in development in Saudi Arabia is a combination of previous views. Some initiatives (here we mean incubators) have an effect which is divided into two parts: a direct effect and a long-term effect. First, the direct effect is their contribution to supporting incubated projects (see the next section) in which they contribute to the support and growth of incubated projects. Second, there is the long-term effect which is the effect of incubators on the ecosystem through its contribution to several aspects. This research dealt with one of these aspects which is the symposiums and conferences held by incubators and the significant impact that emerged in the results of this research regarding the impact of seminars and conferences on the owners of small and medium-sized projects in Saudi Arabia (see section 4.2.4 *The Saudi ‘ecosystem’ associated with isomorphism and competitive pressure*). Therefore, the researcher observes that through the previous interpretation, hermeneutic analysis allows us to understand some of the opposing opinions that the participants in the research have touched on; some participants may measure the effect as a direct effect, and some of them measure it as a long-term effect.

4.2.7.1 Implications leading incubators to contribute to starting new projects:

One of the most critical characteristics of incubators is that they contribute to the establishment of new projects as discussed in the literature chapter. The services provided by the incubators contribute to establishing new projects (such as those discussed in the literature review). When participant D2 was asked about whether the incubator contributes to the start-up of new projects for the local context, he replied:

“Yes of course, and this context (i.e. the incubators) is suitable for Saudi Arabia. For example, in the USA, the title of the company can be the address of your house, but in Saudi Arabia you need to have a commercial address. Therefore, you need money to rent an office, which is expensive for emerging companies, in addition to their other costs (such as the set-up of an office, etc.). However, in the incubators, all these costs are not paid by the emerging companies, they are provided free of charge by the incubators.”

By contrast, participant D4 mentioned that there are many female project owners working from home and using social media networks such as, for example, Instagram to market their business. It is worth mentioning that Instagram has been used by both males and females to promote their businesses.

Hermeneutic analysis allows reconciliation of the contrasting opinions of participants D2 and D4, since what was referred to by participant D2 is the business which requires the extraction of certain types of licenses from government bodies as the kind of work needed. In Saudi Arabia, the government bodies that grant licenses require that you should have a definite commercial place to obtain records (see section 4.4.1 *‘Coercive pressure arising from the obstacles facing local SMEs’*). In section 4.4.1 there was a discussion about the obstacles facing local projects including permits. Participant D4 spoke about the projects that are still in the initial stages or do not require specific licenses to practice them. Through the researcher’s follow-up of the regulations and procedures issued in Saudi Arabia (the subject of study), an initiative was issued on 17-4-2016 by the Ministry of Commerce in Saudi Arabia under the name "Maroof" which is an Arabic word meaning "known" (MCI, 2016). This initiative provides services that enable the owners of online projects to register their data and business data on "Maroof" to obtain an identification by the Ministry of Commerce that means this project is known to the Ministry of Commerce. This service provided by the Ministry of Commerce in Saudi Arabia is free of charge and fully electronic. Thus there is no

conflict between the opinions of participants D2 and D4, the difference in their words is revealed to be governed by the nature of the activity and the size of the project.

Participant D1 supports this opinion that Saudis prefer to work in an office rather than from home. The provision of the office by the incubator is one of the main reasons that had motivated participant N1 to apply for incubation. The section on the office had been discussed in section 4.3.1.7 '*Understanding the implications of the services provided to the incubatees in the local incubators*'. Participant D4 says that the objective of their incubator is to start up profitable commercial projects. When participant D4 was asked if the incubators contribute to the start-up of projects, she said that they do, adding: "we notice our benefit at the beginning of the projects." Participant D4 states that they definitely contribute through the environment of the incubators and the integration between projects. Participant D5 also confirms that the incubators contribute to the start-up of projects and that they have considerable beneficial effect.

The incubatees who had been interviewed were asked firstly whether the incubators had contributed to the start-up of their projects, or if their project had started before incubation. Secondly they were asked whether the incubators had contributed in the start-up of new projects. The incubatees' replies are set out below:

Participant N4 states that the incubators contributed 75% to the start-up of his projects, as: "Because the incubator is with you, there will be commitment, and also compulsory follow up, because you have a mentor and a monthly plan that creates this commitment." Participant N6 states that incubators have contributed to the start-up of his project. He adds that this has not been through the financial support but through the reputation of the incubator. Participant E1 states that he started his project before joining the incubator, but the incubator had helped him 60% with the start-up of his project. Participant N3 states that the incubator made a considerable contribution at the beginning of his project because he was not able to rent an office or to recruit staff at the beginning due to having only a small amount of capital (for more information, see section 4.3.2.1.1 '*Understanding the status of technological projects in Saudi Arabia which do not require a large amount of capital*'). Participant N2 reports that the incubation helped him to start his project in terms of an organisation, office and the services provided. He states that incubation contributed 50-60% to the start-up of his project.

When the interviewees who are non-incubated project owners were asked whether incubators and services provided without cost contribute to the start-up of new projects, their replies were as follows:

Both participants P4 and P3 are of the opinion that they did help in the start-up of new projects. Participant P5 states that they contribute between 55-60%. Participant P2 also confirms that they contribute in increasing the number of projects.

4.3 The second question: What are the potential impacts and benefits which might arise from the application of TBIs to SMEs in Saudi Arabia?

In order to address the second of the research questions, the answer has been divided into two sections: The first section addresses the issue of how to establish the impacts and benefits of Technology Business Incubators. The second section is comprised of a comparison between the incubated and non-incubated SMEs.

4.3.1 The first section:

Prior to discussing the impact of technology incubators, it is beneficial to examine the current status of incubators in Saudi Arabia and their types first. This will support a discussion of the most suitable types of incubators for the local context from the point of view of the participants in the research. This then enables an evaluation of the current incubators, doing so a number of years after the set-up of the first incubator in Saudi Arabia, and from the perspective of the research participants. This is undertaken under a number of subsections: (1) The evaluation of current incubators; (2) The defects of the current incubators; (3) Managers and staff of incubators.

This is then followed by a discussion of the future of local incubators, and a discussion of incubators from the inside comprising: (1) The duration of incubation in the local incubators, in order to establish how many projects are sited within the incubator; (2) Whether the duration differs from one incubator to another; and (3) Exit policies in the local incubators, including the policies of each incubator for exit (or graduation) from the incubator.

Because incubators are service initiatives (i.e. they provide services to their customers) a discussion will take place concerning the services provided by incubators in Saudi Arabia; their effects on, and benefits for, the owners of the incubated technological SMEs. This will be followed by a discussion of the culture of local incubators and the culture enhanced by incubators (i.e. if this is made up of cooperation or competition between the incubatees, and whether the implementation of work was undertaken through best practice or the most expedient route).

Sample questions to ask the participants, to answer the research's second question (part one) were:

Questions for incubators managers:

- What kind of incubation does your incubator offer?
- What are the services provided by your incubator?
- Does your incubator add value to start-up companies? If the answer is Yes: How? If the answer is No: Why?
- What are the main disadvantages of current incubators?
- What is your evaluation of current incubators in general?
- What is the time-period for incubation in your own local incubators? What is your exit policy?

Questions for the incubatee and non-incubated:

- What do incubators offer to your business? (for the incubatee)
- What is the added value that you have gained from being incubated? (for the incubatee)
- What disadvantage are there in being incubated? (for the incubatee)
- In your company what are the services that you have limited access to? (Legal services - Finance - management support - training - space etc.) (for non-incubated)
- In your company, to achieve success, do you take the the most expedient way or using best practice? (for non-incubated).
- What is your evaluation of current incubators?

These questions are just examples of those prepared for the interviews. Also, as the interview methods are semi-structured other questions were asked during the interviews to provide information.

Further details are covered in the following subsections.

4.3.1.1 Current incubators in Saudi Arabia aligning with competitive pressure:

As pointed out by participant D2, the first incubator in Saudi Arabia was established in 2008, and it is therefore a relatively recent initiative. However, Saudi Arabia has recently witnessed a considerable expansion in the set-up of incubators. The current research therefore aims to evaluate the effect of current incubators on the Saudi context (for more information on the evaluation of current incubators please see section 4.3.1.3). Participant D2 is of the opinion that the concept of incubation is not yet mature, as it is in the United States of America. He

attributes this to a number of impeding factors. Two of these (i.e. obstruction and Saudi law) are discussed below.

Participant D4 states that the objective of their incubator is to establish profit-making projects for business owners. Participant D2 adds that it is not only the potential profitability of projects that is important when selecting incubatees, but also their potential to create employment. Participant D5 further adds that they seek to not only create jobs, but to create quality jobs for the diversified economy.

4.3.1.2 Comprehending the types of current incubators in Saudi Arabia:

As noted by participants D1, D2, D3, D4 and D5, there are three types of incubators in Saudi Arabia:

- Incubator
- Virtual incubator
- Accelerator

Technological incubators vary in Saudi Arabia between the following: governmental; semi-governmental; commercial incubators; charitable (see Table 4.2 for incubators in Saudi Arabia).

Incubator name	Affiliate client	Type	Type	Type	Incubation period	Tar-geted clients
Information Technology and Communications Incubator	King Abdulaziz City for Science and Technology (KACST)	Governmental	Incubator	Technological	6 months – 3 years	Male and female
Riyadh Center for Incubators	King Saud University	Governmental	Incubator	Mixed	6 months	Male and female
Unlimited Thinking Entrepreneurship Center	Private Sector	Commercial	Accelerator	Mixed	2 years	Male and female
The Riyadh Center for SME Development	Ministry of Commerce Riyadh Chamber of Commerce and Industry	Commercial	-	Technological	1 year	Male
Business Support and Development Center	Princess Nora bint Abdurrahman University	Semi-governmental	Incubator	Mixed	6 months – 3 years	Female
Makeen: Saudi Businesses Incubator Organisation	Ministry of Social Affairs	Charitable	Incubator	Mixed	2 years	Female
Information Technology and Communications Incubator - In Al-Qassim	King Abdulaziz City for Science and Technology	Governmental	Incubator	Technological	6 months – 3 years	Male and female
Businesses Incubator (My project)	Women Committee in Al-Qassim region	Semi-governmental	Incubator	Mixed	One and a half years	Female
Information Technology and Communications Incubator - Alkhobar	King Abdulaziz City for Science and Technology	Governmental	Incubator	Technological	6 months – 3 years	Male and female
Prince Sultan bin Abdulaziz Fund for Women Development	Ministry of Social Affairs	Charitable	Incubator	Mixed	2 years	Female
King Abdullah Incubator for Science and Technology	King Abdullah University for Science and Technology	Commercial	Incubator	Technological	2 years	Male and female
Badir Incubator for Information Technology and Communications - in Jeddah	King Abdulaziz city for Information Technology and Communications partnered with Chamber of Commerce in Jeddah	Governmental	Incubator	Technological	1 - 3 years	Male and female
Taibah University Technology Incubators in Madina	King Abdulaziz city for Information Technology and Communications collaborated with Taibah University in Madina	Governmental	Incubator	Mixed	6 months - 3 years	Male and female
Business Incubators and Technology Center in Royal Commission for Yanbu	Royal Commission for Jubail and Yanbu	Governmental	Incubator	Technological	4 years	Male and female

Badir Program for Technology Incubators In Baha	King Abdulaziz city for Information Technology and Communications collaborated with Baha University	Governmental	Incubator	Mixed	3 years	Male and female
Badir + Oasis 500	Badir Program for Technological Incubators	Governmental	Accelerator	Technological	3 months	Male and female
Qutof	Qutof Arriyadah Company	Commercial	Accelerator	Technological	3 months	Male and female
Waed Centre	Aramco Company	Semi-governmental	Accelerator	Technological	6 months	Male and female
Endeavor Saudi Arabia	Global Endeavor	Commercial	Accelerator	Mixed	1 years	Male and female
Deem Almanahel Princess Madawi bint Musa'ad Fund for Women Development	Saud bin Fahad Charitable Foundation	Charitable	Incubator	Mixed	6 months - 4 years	Female
Business Accelerator Program	Umm Al-Qura University	Governmental	Accelerator	Technological	3 months	Male and female

Table 4.2 incubators in Saudi Arabia (SBIN, 2014) with edit

4.3.1.2.1 Analysing which type of incubator best fits the local context:

Participants D1 and D2 believe that the traditional incubator (having a real organisation and providing all services to those who are incubated) is the most suitable at the present time. Participant D1 is of the opinion that Saudis prefer working outside the home, something that is confirmed by participant N1, who feels that the provision of an office is one of the reasons for joining an incubator (the provision of an office by the incubators is discussed in section 4.3.1.7). However, participant D2 puts forward a view that, at present, confidence in incubators is weak, particularly among young people, who have no understanding of their role. Therefore, it will be necessary for incubators to continue to exist in the real world for at least a number of years.

When participant D5 asked about the most appropriate types of incubators for the domestic rather than overseas context, (a manager of an incubator) put forward the view that:

“Incubators are good for research and development for the long term, while large investments and accelerators are beneficial for a high risk validation period. Therefore, in general, I prefer business accelerators, as I feel they are more beneficial than business incubators, which follow a slow paced process.”

Participant P4 is of the opinion that accelerators may have a tangible effect that can prove more effective than incubators, this may be because accelerators are more practical. Participant N2 adds that if given an option of joining an incubator or an accelerator, accelerators are preferable, due to the fact that:

“Accelerators, by their nature, exercise pressure on you until you accomplish your task, because they may either have paid money to you as a partnership or you have paid money to them so that you can remain with them for several months to benefit from their services. But when it comes to incubators, I do not know that there are incubators that offer partnerships or receive money.” [He means that all the government incubators in Saudi Arabia provide their services free of charge].

Participant N2 states that preferences between incubators and accelerators differ, as this depends largely on the circumstances of the owner of the project and the suitability of the incubator or accelerator for the individual, his project and circumstances. He also adds that he came across a business accelerator to begin with, but he was unable to join because he was required to work on a full time basis for three months. This was impossible for him, due to the fact that he was working in the morning, and he now works on his project on a part time basis. However, he adds if you are working as a group of 3 or 4, then members of the group do not need to work on a full time basis, and therefore an incubator is suitable. Participant D5 confirms this:

“If you open an accelerator, no one will join you, because we have a risk-averse culture. We have an example from one of the technological companies in Saudi Arabia who organised a competition in 2010 for mobile applications, and for which they said the first three winners would receive seed funding and membership of full time accelerator programmes for three months. Many people applied to this competition, but the three winners said that they would not quit their jobs and join the accelerator for three months, and that they felt they may, or may not, establish a business at a later date. This is what always happens, and when you open this accelerator, the matter will be highly complicated and difficult.”

Participant D2 also adds that “a proper model for incubators should be implemented and there have been incubators that have emerged before Bader incubator, but they have not been successful”. He indicates that the success of Bader incubator is due to the fact that: “they have designed a model of incubation which is suitable for the situation of Saudi Arabia and

the situation of our young people”. When asked whether they had designed an international model, etc., he replied that:

“We have studied the actions taken by countries through two ways: the first is through an international external team of consultants who have designed a model based on the best international practices for us, and another team of consultants who have also designed a model for us. There were some things that needed to be seen in the real world, so my colleagues and I travelled to many countries, with some staying in one place for a month to learn. When a member of the team returns, he says we do this point in this way and while abroad they are doing it that way: so how can we change it or solve it? We used to change the model of the work over the year to fit in with the Saudi real world. Some incubators have failed because they have imported a ready-made model. However, we did not, which made the programme successful.”

Participant D5 stresses the importance of the selection of a suitable model at a suitable time: “business accelerators are more effective than incubators, but it has to be created within the right framework and the right time”.

Participant P4 states that he had a complete model in mind and that he has previously offered this to one of the incubators from which he received financing. In summary, he sees a confusion between the individual who originates an idea and knowledge, and the individual capable of implementing it. He cites as an example the fact that the originator of a technological idea does not necessarily need programming skills to implement it. Hence, it is possible for an incubator to design an industrial ‘ecosystem’ for its own use, then work with a group of programmers to implement the idea, until the final product is obtained. The focus will then change to a group of marketers. He confirms that many good ideas and products have failed due to failure in the implementation stage. The researcher sees what was mentioned by participant P4 may be the ideal model for incubators, and the question remains: is it possible to provide all these skills and collect them in one place? This is especially in start-up environments such as Saudi Arabia.

From the observations of the investigator, the incubator views this matter in a different light. For example, participant N4 is the owner of an incubated project with a group of partners, each with experience in different fields. Also, participant N4 notes that they are a group of partners and since they are not dedicated to the project they work on a part time basis only. Incubators do not prohibit stakeholders of technological projects from having many partners, and some prefer it.

When it comes to services provided for medium-sized projects, both participant P2 and P4 state that the reason they have not tried to join an incubator is that incubators only provide their services to small-sized projects and not to existing projects that intend to develop their businesses further. Participant E1 (one of those graduated from the incubator) notes: "the incubators are at a certain stage where they cease to provide services from which the incubatee is benefiting" and that it is the 'Death vale' stage from which some small and medium-sized companies are suffering. It is worth mentioning that there is a business accelerator called Endeavor- SA (which is a part of the Endeavor International Organisation) which provides services to medium-sized projects. However, Endeavor – SA is the only initiative in Saudi Arabia that provides its services to a maximum of 10 projects per year, which is a very small number when compared with the number of medium-sized projects in Saudi Arabia. Participant D4 (a manager of one of the incubators) confirms that: "it is quite rare to find that there are incubators that support the continuity of existing projects, and the majority provide support for the start of the project".

The researcher sees that participants are likely to prefer one type over another based on their own experiences. An example of this is comments made by participant D5 about their experience in the competition²⁶ and that accelerators were not appropriate. At the time of the interview (2014), participant D5 was running one of the accelerators in Saudi Arabia although he stated that the competition was in 2010. The researcher sees that a discrepancy may arise. This discrepancy is between what was mentioned by participant D5 regarding accelerators including his experience in the competition in 2010 compared to the fact that he has an executive function on one of the accelerators. This accelerator was established in 2011, but he started work there in the middle of 2013. This may be an illustration of how the business environment and attitudes of project owners may be different now in Saudi Arabia.

The researcher sees that through the findings of this research, based on the opinions of the participants, it is useful for SA to have all types of incubators to suit all the needs of project owners.

4.3.1.3 Evaluating the current incubators from an institutional theory approach:

All participants in this current research were of the opinion that no evaluation of the current status of incubators has been undertaken in a methodological and studied manner, despite the fact that it has (1) been a number of years since the set-up of the first incubator in Saudi

²⁶ The competition mention by Participant D5, explained in section 4.3.1.2.1.

Arabia; (2) incubators have increased in number and cultural importance; (3) along with government moves to double the number of incubators within the next two years (i.e. to 80 incubators in the year 2025). Participant D2 (a manager of the first incubator in Saudi Arabia) stated: "there is definitely a need for these studies".

This is supported by participant N1, (who is currently being incubated): "definitely, they are useful for businesses and for the incubators to develop and improve themselves". Participant P2 adds that these studies will enrich the domestic content concerning the effect of the incubators and that the market is in need of such studies. Participant D1 adds that: "this field of research (concerning incubators) is new in Saudi Arabia, and is full of challenges and has a significant economic effect". The importance of this research for the Saudi content is clear, and therefore this point is discussed in detail in section 7.2 concerning the importance of this study.

When it comes to the current status of the incubators, the participants of the study were asked to evaluate domestic incubators. Participant N4 stated that the Bader incubator in which he is incubated has many advantages. Participant N7 felt that both the Bader incubator and a further incubator are adapted to the Saudi environment, but that the remainder are not suitable, for two reasons: (1) They are a direct copy of the incubators overseas, and are therefore unsuitable for the domestic environment; (2) The consultations and the staff are of a lower standard than expected, so they are not beneficial (for further details of the evaluation of the managers and staff of the incubators see Section 4.3.1.3.2 '*Managers and staff of incubators associated with isomorphism and competitive pressure*'). He describes his own experience as being that the incubator provided him with more than he needs.

Participant N6 (who is incubated in another incubator) is very satisfied with the performance of the incubator. However, one of the graduates from an incubator (participant E1) feels that his requirements when choosing to join had only been satisfied to some extent. Participant P3 expresses surprise that the Bader incubator does not charge fees to its clients (all current governmental incubators in Saudi Arabia do not charge any fees), justifying this by stating that fees should be charged to ensure the self-financing of the incubators and this matter may motivate owners of projects to join the incubator, since they are governmental incubators.

However, due to his project being located outside the capital city, participant N8 evaluates his experience in relation to the shortage of services provided to him by the incubator, however he does view the performance of the incubator in the capital city as outstanding (the geographical effect on the incubators is discussed in section number 4.2.5: '*The geography of Saudi Arabia associated with institutional theory*'). Participant N2 does not feel that the

incubator has satisfied all his requirements, or his reasons for joining. Participant N4 is of the opinion that some incubators inhabit a different world from that of the owners of technological projects with different aspirations. He comments on the evaluation of the incubators and the current initiatives that:

“We can say that the initiatives (whether incubators or other initiatives) lack a strategic vision. From my own experience of other countries, when it comes to the marketing issues of entrepreneurial work, we chose a group of activities which pioneered and adapted the environment with full governmental approval. For example, if I want to have successful experiences in electronic commerce in Saudi Arabia, I have to provide everything for them and to provide full support for all types of start-up projects. This is a beautiful thing, but it is not feasible, because it supports Saudi products only. Therefore, you guide it in the wrong direction, and at the end any foreign competitor can defeat the domestic competitor because he is financially and technologically stronger. In addition to the incorrect directing of the start-ups towards the local markets, there is no vision for any specific activity. There are small countries (such as New Zealand and Finland) that have chosen certain fields to concentrate on, and have supported them.”

Participant D4 confirms the importance of the existence of more specialised incubators. However, all the incubatees participating in this study (participants N1, N2, N3, N4, N5, N6, N7, N8, and E1) confirmed that they had advised their friends to join the incubator. In addition, some of those participating in this study who are not incubatees (e.g. participant P1 and participant P2) have advised their colleagues to join the incubator. A number of incubatees (e.g. participant N2 and N5) confirmed that they did not feel there were any disadvantages in the incubation process.

Participant D5 (a manager of one of the incubators) makes an important point regarding the need for a national standard for measuring the performance of incubators, including their own deliverables and that of their projects (such as creating jobs, etc.) "in order that the supporting agencies in the country know whom they are supporting".

It is worth mentioning that not all incubators in Saudi Arabia provide a good service. For example, participant D3 (a manager of one of the commercial accelerators) stated that none of the projects incubated by his organisation had achieved any success, or even reached the point of breaking even, despite the fact that they had been operating for eighteen months before the interview. The most important reasons for this phenomena will be discussed in

Section 4.3.1.3.2, below: ‘*Managers and staff of incubators associated with isomorphism and competitive pressure*’.

Through the findings of this research based on the views of the participants, it is apparent to the researcher that all participants, agree on the importance of evaluation of local incubators. This includes the managers of incubators and the owners of incubated and non-incubated projects. There is no study that evaluates them. This research aspires to contribute to the filling of this gap. It does so through exploring the opinions of the participants in the evaluation of local incubators. This opens the way for further future studies on the evaluation of local incubators²⁷.

For further, on the evaluation of current incubators, see table 4.3 on the evaluation made by the incubatees in respect of the services rendered to them by the incubators. Also, see table 4.4 on the evaluation made by the incubatees about the performance of managers and staff of the incubators.

Participant	Evaluate the services that the incubator provide them for you in terms of the performance of the incubator: (Unsatisfactory - good - excellent)					
	Administrative services	Marketing services (which Include guidance and counselling)	Financial services	legal services	productivity services [Improve your product by experts and specialists]	guidance and counselling
Participant N1	Pilot	Pilot	Pilot	Pilot	Pilot	Pilot
Participant N2	Unsatisfactory	Good	Good	Excellent	Not existing	Unsatisfactory
Participant N3	They provide them with creativity	We have not taken advantage of them yet	Very satisfactory	Very satisfactory	Excellent	good
Participant N4	Good	Unsatisfactory	Good	Excellent	Not existing	Excellent
Participant N5	We did not use them	We did not use them	Yes	Excellent	The question was not posed	We did not use them
Participant N6	Medium	Excellent	Good	The question was not posed	Excellent	Excellent
Participant N7	Excellent	I did not use them	Excellent	They were annoying sometimes	Excellent	Wonderful
Participant N8	I did not use them	I did not use them	I did not use them	I did not use them	I did not use them	I did not use them

²⁷ It is worth mentioning that the evaluation of incubators is not one of the leading aspects of this research since there are numerous research and methodologies that aim to evaluate the performance of incubators such as Vanderstraeten and Matthyssens (2010) and Bergek and Normman (2008).

Participant E1	Good	Unsatisfactory	Unsatisfactory	Good	Good	Good
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Table 4.3 SA incubators performance

The following section will focus on the defects of the existing SA incubators.

4.3.1.3.1 Disadvantages of current incubators associated with isomorphism and competitive pressure:

The participants were questioned concerning the defects of the existing incubators. The participants who felt there were defects in the performance of the existing incubators will now be discussed. Participant E1 (who is a graduate of an incubator) states that: "one of the disadvantages of the incubation is that the owner of the project depends largely on the incubator". He adds that this dependence can be avoided through the acceleration of the duration of the incubation process. Participant N2 agrees that: "the duration of incubation is too long." (The issue of duration is discussed in Section 4.3.1.5 concerning the types of incubators most suitable within the local context). Participant N3 feels that there are fewer disadvantages to incubation. However, he says there is a misleading impression that the project is not self-financing. (This point has been discussed in more detail in the section 4.3.2.5 credibility). Participant N6 (who is incubated in an incubator owned by the Aramco company, which, according to Forbes is the largest oil company in the world) states: "since the incubator is new and I am the first incubatee, this has led to a delay and ambiguity at the beginning, in addition it has made some decisions complicated".

When participant D4 (a manageress for one of the incubators) was questioned about the defects of the existing incubators, she highlighted the important concept known as 'negative incubation'. She further states that:

"Some incubators incubate people regardless of the services that the incubatee actually needs. The reason for this is that these incubators may either want to increase their numbers, or wish to provide services and help, but the incubatee is not aware that the services they provide are not beneficial."

She adds that the incubator should be specialised in certain category, enabling them to provide services at a suitable level. Thus allowing grouping of individuals into different categories and specialisations which will prove more harmful than beneficial. She also says that the solution to this issue is for the incubator to send business owners from different levels in their field to alternative incubators, in order for their clients to gain greater benefit.

Participant D3 notes that the existing incubators focus only on projects that generate considerable profit and do not accept any other projects. However participant D3 adds, the issue of profit should not be the sole criteria, as some projects have significant potential for the provision of services. He also adds that projects that do not focus on profits need to be considered for incubation, particularly as there are many non-profit projects in the field of technology, such as open source programmes providing programmes appropriate for the local environment.

In addition, a number of participants have stated that managers and staff can be included as part of the defect of existing incubators, as discussed in the following section.

4.3.1.3.2 Managers and staff of incubators associated with isomorphism and competitive pressure:

Managers and staff play an important role in incubators, as previously discussed in the literature review. Participant D2 notes that within the local context:

“Most, if not all, of those who are in charge of our incubators are governmental officials or university professors. But governmental officials or university professors should not be in charge of an incubator if they have no experience of business (the law in Saudi Arabia prohibits governmental officials and university professors from practicing business activities). Therefore, they cannot interact with the projects as traders, but instead they interact on a routine basis... The matter is not only related to the managers of incubators, but the staff should also have a business background, so that they have experience of all the stages through which the owner of the project has passed.”

However, what was mentioned by Participant D2 stating that ‘most if not all’ incubators’ managers come from government jobs or they are already university professors is not a generalisation that needs to be accepted. This may be entirely true in government or university incubators whereas the commercial or non-profit incubators in Saudi Arabia differ. Through the results of this research in which five incubators managers participated, three of them are not from an academic environment or government employees. Three of them had previously run projects before they worked in the incubator as managers, and the remaining two had experience from working in the field of guidance for project owners before taking over the management of their incubators. The researcher agrees with participant D2 that incubator staff should have a background in business. Participant E1 confirms that it is

important for the staff of the incubators to have experience in the field, and that they should also have at least acquired a basic understanding of mentorship. He adds that this may be sufficient for the owners of a project at the stage of setting up. However, as the project grows, the owners will require mentorship with real 'hands-on' experience from those who have owned and run a business. He adds that incubators should seek assistance from outside experts, including those currently owning a company or running a business. This point is significant. In section 4.3.1.2.1 (*'Analysing which type of incubator best fits the local context'*) there was a discussion which contained two opinions from two owners of non-incubated projects; their reason for not joining incubators is that incubators do not provide services for medium-sized projects. Participant E1 is one of the graduates of an incubator; he reached a stage where his project was no longer small and he needed the services provided for medium-sized projects. Such services were mentioned by participants P2 and P4. A real possibility is that consultants with a great deal of business experience in the business field are the essential service that can be provided by incubators. In section 4.3.1.7 (*'Understanding the implications of the services provided to the incubatees in the local incubators'*) the issue of whether local incubators were assisted by highly experienced mentors is addressed. This finding has, rather, come about by analysing some participants' opinions and the services provided through the use of hermeneutic analysis methodologies mentioned in section 3.7. Participant N7 confirms that incubatees do not gain any benefit when their own level of the knowledge is greater than that of the staff of the incubator. When asked about the lowest benefit that an incubatee can experience, participant D5 (a manager of an incubator) replied: "connect them with a bad mentor". Participant N2 states that the staff whom he deals with are not specialists and do not have any technical skills, even though the incubator is a technological incubator. He adds that when it is pointed out to the individual in charge of a project that a certain aspect needs to be completed in specific stages of the project within a specific time, the mentors does not know whether this requires two months or two days. He adds that his own experience was that staff did not follow up, or offer any constructive criticism. Participant P2 (an owner of a project that is not incubated) states that, despite gaining an initial agreement to join the incubator, he did not join. He also notes that when he contacted the staff during 2010-2011, he found that most were governmental officials, adding: "no comment!" (i.e. that if the staff had previously worked in government without having any practical experience of open projects, they may not have the applied knowledge needed by project owners).

Participant N2 confirms that the incubator with which he is working has emerged as an initiative from King Abdulaziz City for Science and Technology. He says issues are caused by the fact that the majority of the staff originate from KACST and that this leads to significant issues existing with the administration. Participant D3 is the manager of a business incubator with no previous experience in the field of incubators and project management. He confessed that he did not have any previous experience in the field of incubators or project management. This may be a reason for the failure of this incubator. The performance of this incubator has been discussed in section 4.3.1.3: ‘*Evaluating the current incubators from an institutional theory approach*’).

On the other hand, participants D1, D2, and D5 have been on training courses from multiple international agencies on the management of incubators. Participants D2 and D4 have previous experience in the management of personal commercial projects. Participant D2 has experience in the setting up of business projects in Saudi Arabia and the USA.

The incubatees who participated in this study evaluated the performance of the manager and staff of the incubators as follows:

Participants N3, N4, N5, N6, N7, N8 and E1 view the performance of the manager or the staff as either excellent or good. However, participant N2 says that the performance of the manager and the staff is unsatisfactory.

Table 4.4 displays an evaluation of the performance of both managers and staff of the incubators by the incubatees participating in this study.

Participant	Evaluate the services that the incubator provides them for you in terms of the performance: (Unsatisfactory - good -excellent)	
	The performance of the incubator director	The performance of the incubator employees
Participant N1	Pilot study	Pilot study
Participant N2	The previous director and the recent one are unsatisfactory	Unsatisfactory
Participant N3	Two directors and both of them are excellent	Excellent
Participant N4	I have no information but the important thing is the performance not the person	Excellent
Participant N5	The first one is excellent, The second one I do not know	Good
Participant N6	Unsatisfactory	Good

Participant N7	The first one is excellent and the second is wonderful and he is heading in the right direction	Professionals
Participant N8	Fine	I do not know
Participant E1	The first one is good but the second is unsatisfactory	Good

Table 4.4 performance of managers and staff of the incubators

4.3.1.4 The future of local incubators from an institutional theory perspective:

Having dealt with the local incubators, their evaluation, and the most suitable type of incubators for the local context, the future of the local incubators can now be discussed. Participant D2 stated, “Saudi Arabia needs, in the future, all types of incubators”, and he also sees a necessity for the contribution of the private sector: “In order for a company to achieve success such as that of Saudi Telecom Company (STC), it should follow the internal or external principle of the incubators”. He cites a local experience: “Mobily [an Arab Telecommunication company operating in Saudi Arabia] gives the first person who introduces a new idea an amount of 100,000 Saudi Riyals (equivalent to \$26,000 US dollars), and they offer him a job”.

However, he adds, this amount is not enough to develop such a project. He cites international experiences, saying that:

“In Samsung, if a person introduces an idea, they give him a small amount of money and introduce him into an innovation centre, and they make the project grow bigger in this centre. This is also applicable in Google, 3M, and GE. “

He also mentioned the absence of many of the other types of incubators which do not exist in Saudi Arabia along with related services, such as prototyping centres.

Participant D1 calls for cooperation between the public and private sectors, which he calls “public-private partnership”. He said that in future, Saudi Arabia needs to establish more incubators, and he justifies this by saying that “this will minimise the potential for project failure”. Participant D2 stated, “We are in a time that needs a multitude of incubators in order to form a culture”.

According to participant D4, full incubation is the most suitable type of incubation for Saudi Arabia at both the present time and for the future. She justifies this claim by suggesting that “some projects need more services than others, so you should not make your acceptance as an incubator for one particular type. You must [as incubators] provide all the services, and the incubatee can then select the services which are needed”.

Participant D3 claims that commercial incubators are the most suitable, and the reason for this is that there is more freedom in commercial incubators than in governmental or university incubators. He also said that the owner of a project would feel more secure in commercial incubators than in governmental incubators as there is a partnership between incubatee and the incubator. Furthermore, when participants D1, D2, D3, D4, and D5, who are managers of incubators, were asked whether they support the idea of opening more incubators in Saudi Arabia, they all answered in the affirmative. In addition, participants D3, D4, and D5 emphasised the importance of organising the types of incubators that will be opened in the future. On the other hand, participant D5 agreed with participant D2 that Saudi Arabia will also need an innovation centre.

4.3.1.5 Normative pressure arising during the incubation period in local incubators:

The duration of incubation varies from one incubator to another and in accordance with the type of incubator, whether a complete incubator or a business accelerator type. Participants N2 and E1 mentioned that the duration of incubation is too long (duration was discussed above in Section 4.3.1.2.1 in terms of which are the most suitable types of incubators for the local context). Participant D1 said that in his incubator, the shortest duration of incubation is three months (and occurs in cases where the incubatee joins but never actually takes their place in the incubator), whereas the longest duration of incubation is three years.

Participant D4 said that the duration is linked with the termination of the service provided to the incubatee and that the shortest duration of incubation ranges from six months to one year while the longest duration is five years and is associated with the termination of the period of payment of the loan granted to the incubatee. When asked about the reason for this duration, she answered:

“The concept of incubators is to produce projects that work rather than persons, and if pressure is exercised on the businesswoman to pay the instalments of the loan within a short period of time, this will render her project a failure.”

Participant D5, a manager of one of the business accelerators, stated, “The duration of incubation is three months, and after those three months, they decide whether the project is fruitful or not” and added that the policy of exiting the project follows in accordance with the progress that has been made. When participant D5 was asked about the maximum duration of the incubated project, he said, “I do not expect that anyone can spend more than nine months”. The duration of incubation is thus connected with the exit policy of the project, and the following section will discuss this in relation to the local incubators.

During interviews, the researcher observes that although all the managers of incubators gave specific dates for the incubation period, it is apparent to the researcher that they are not accurate dates. Some of them indicated that they have flexibility in this field. The following section discusses the situations that require projects to leave the local incubation programs.

4.3.1.6 Normative pressure arising from the exit policy for local incubators:

The policies of incubators differ in dealing with the discharge of incubated projects. Through the findings of this research, in general, an incubated project exits the incubator in one of the following four ways:

- 1- It has reached a phase of success that makes the project able to continue outside the incubator. Participant D2 mentioned a method of evaluating whether projects are able to exit the incubator: they are evaluated by *Bader Riyal* (the name of the incubator) with the idea that all the services provided by the incubator to the incubatee are evaluated as equivalent to Saudi riyals in the market. If the incubatee generates a higher income from the services provided and is able to sustain the business, then, at the end of the six months, an exit strategy and plan for what should be done after exiting the incubator is developed.
- 2- The project has reached a phase in which it will not achieve success in the future. In this case, participant D2 stated, “We tell him why he failed and work with him hand in hand”. Participant D1 also commented, “We do not see these people as failures. We will organise a party for them to congratulate them on entering the field, and we invite them to think about another project and present it to us but explain that we cannot continue with the same project”. Participant D5 mentioned that struggling projects may be given additional months, and that even after that, the doors continue to remain open for other projects.
- 3- The project has repaid the funding, which was obtained from the incubator, as mentioned by participant D4.
- 4- In the case of business accelerators, incubation periods tend to be short in general (ranging from three to nine months), and during this time, there will be extensive training courses between the incubator and the owner of the project, as mentioned by participant D5.

Through questioning the participants of the study, it was found that local incubators do not maintain strict policies on fixed dates for the exit of incubatees. If there is success, the incubators do not mind extending the deadline. Participant D5 confirmed, “Usually we outline some exceptions which are written in the contract, but we are very flexible”.

Participant N7, who was one of the incubatees in a virtual incubator between the end of 2008 and the date of the interview at the beginning of 2014, said, “The incubator mentioned to me that they will organise a graduation ceremony for me, but I was busy”. He added that there was some ambiguity in terms of the exit policy. It may be worth mentioning here that participant N7 was incubated in a virtual incubator. This may be one of the factors making it less expensive in terms of office availability inside the incubator. Also, it is possible the incubator may have viewed the project owned by participant N7 as in the graduation stage and thus not consuming the resources of the incubator. Giving the incubator the opportunity to wait for several projects’ graduation ceremonies to be celebrated simultaneously. The researcher sees that these measures of delayed graduation may result from the fact that these projects are one of the first projects to graduate from the incubator; the incubators want to graduate a set of projects together at a single ceremony in order to have an impact in defining incubators and publicising its role as an incubator in particular.

Participant N5 said that the incubator had implemented a policy of liquidating the projects whose owners were registered in the office but who did not come to the office. He said that before this policy, there had been several projects waiting to join the incubator, and this decision accelerated the joining process. Participant E1 said that he waited for a long time as an incubatee where the law of the incubator is three years and that he also stayed incubated for an additional one and a half years beyond the agreed upon time period. It may be worth noting that participant E1 was one of first incubatees in the incubator, and at the beginning, the existing rush to join the incubator had not yet begun. In addition, this may result from the specific life cycle of a given project and decreased dependence on the incubator and its services, as participants E1 and D4 confirmed.

Participant D3, a manager of one of the business incubators, said, “The exit policy as shown is not fixed, and we have a strategic aim to be flexible in the work”. Participant E1, who is one of the graduates from the incubator, describes the actual process of exit from the incubator as simple and “excellent”, stating that if additional time is needed, the incubator will allow it.

Through this section and the previous section (4.3.1.5), it appears to the researcher that there are exit policies developed by incubators as policies registered in contracts. However,

incubators do not strictly comply with them. This issue may have (from the researcher's point of view) two effects: the first one is a negative effect; the incubator cannot determine the proportion of occupancy of incubatees, so it cannot plan to accept new projects on specific and clear dates to the public. That is because it does not know with accuracy the exit date of a particular project. This is contrary to accelerators programs, where in contrast the annual date when the accelerator accepts new projects into its program is common knowledge. This is because it has a specific program with fixed dates and programs prepared in advance. This is understandable (from the researcher's point of view) as the nature of the work of incubators differs from the nature of the accelerators. Here we can see the reasons why there was a split of opinions in section (4.3.1.2.1 '*Analysing which type of incubator best fits the local context*'). The second one is a positive effect; incubators through (some) flexibility in their exit policy may have a positive impact in supporting projects that may need more time than others in the incubation program. This may be due to the difference in types of projects and their nature inside incubators.

4.3.1.7 Understanding the implications of the services provided to the incubatees in the local incubators:

Incubators in general comprise services which are provided to the incubatees, and these may differ from one incubator to another. Through the findings of this research, it appears that in terms of the types of services provided to the incubatees, participants D1, D2, D3, D4, D5, N1, N2, N3, N4, N5, N6, N7, N8, and E1 mentioned the following:

- **Business planning:** Participants D1, D2, D3, and D4 said that this was the most important service provided by the incubator. Participant D2 stated that “all those who came to the incubator lack planning experience because they have not studied planning”. Participant N1 stressed the importance of this service to him personally because he did not study planning. Participant D1 referred to access to expert advice as an aspect of business planning, and he stressed the importance of this by pointing out that “the programme of Bader incubator for technology is one of the initiatives of King Abdulaziz City for Science and Technology, which is a research centre in the Kingdom of Saudi Arabia which embraces hundreds of Saudi scientists and professors” and that all this expertise is available to the incubatees as a benefit in his project.

Participant D1 added:

“The project owner recruits two or three scientists specialised in this field to give advice and guidelines to the project owner, allowing potential years of exhaustion to be reduced to one or two hours”.

When asked whether they had done business planning before the beginning of the project, all the incubated and non-incubated project owners who participated in the study answered that they had done business planning in a simplified manner at the beginning of the project, but after the project reached maturity, they were able to do better business planning.

Participant D4, a manager of an incubator, commented on the importance of business planning:

“Sometimes [the incubatees] increase their costs based on their previous experience, such as costs for furniture and decorations are higher than the costs of the goods that she buys, then we give her other options, such as partnerships with less costs, because we are partners”.

- Administrative and managing consultations: Participant E1 stated that this was the most important service as the incubator is contracted with a global consultations company to study and provide advice for his projects.
- Legal consultations: Participant N1 said that this was the most important service for him.
- Financial consultations.
- Marketing consultations.
- A full-service office (including office tables, computers, internet, etc.) open 24/7: Some incubatees, including participants N3, N5, and N8, cited the importance of the provision of an office. Participant N3 said, “The office has taken off a significant burden from me”. On the other hand, participants N3, N4, and N7 said that these services were less important than the services provided to them by the incubator.

- Conference room: Participant N7 mentioned that since his company's headquarters are located outside the capital city, he uses the incubator's conference room when he comes to the capital city for work.
- Office and secretarial services.
- Training courses inside and outside Saudi Arabia: Participant N4 said this was the most important service rendered to him by the incubator, and participant N7 agreed.
- Networking: Participant N2 said that the most important advantage provided to him by the incubator was a connection with agencies that are relevant to his projects and can provide various benefits.
- Orientation and guidance: Participant N4 said that this was the second most-important service that the incubator had provided to him. On the other hand, participant N8 claimed that there was weak communication with his mentor about his projects. However, he observed this may have been due to the fact that at the time of the interview he was a virtual incubatee working with that incubator in a city with no headquarters.
- Help in obtaining financing: Participants N5 and N7 mentioned the importance of this. However, participant N6 said that the funding was provided to him by the accelerator within which he was incubated.
- Logistics support: Participant N6 stated that he is linked with an incubator that is affiliated with a high-calibre agency. The agency asked for a letter from him to help them obtain health insurance on his behalf from health companies. The reason for this, also mentioned by participant N3, was that some insurance companies only agree to provide insurance coverage to companies with 35 employees or more.

On the other hand, participant N3 said that he did not use any recommendation letters from the incubator. When asked the reason for this, he said, "It's just been absent from my mind". Participant N5 mentioned that he had received other types of logistics support in terms of providing an expeditor to be in charge of opening a commercial project in Saudi Arabia to practise business activity there. However, this process requires obtaining various permits from many agencies, all of which require the

personal attendance of the project owner or his authorised representative. With the exception of the Ministry of Commerce on a partial basis, obtaining these permits can take days. This service was discussed in details in Credibility section number 4.3.2.5.

- Monthly salary: This was only available in Waed incubator. This is an option within the incubator which offers this particular path for students, it is a business accelerator with a special path for university students who perform the coop²⁸. So, this model was designed for university students who have a coop in a semester (for three months). When a student has a business idea, they say to him, “Please come to us and work on your project, and we will provide you with all the necessary services” as participant D5 states.

It is worth mentioning that all the services mentioned above were provided to the incubatees free of charge, with the exception of the office service in Waed incubator managed by participant D5, who explained that they charge 250 SR for one desk per month (about \$93 US dollars). The reason for this was that they want to reduce the number of people enrolling and then failing to take up their place. Participant D5 added:

“The amount we charge for each office is very little compared with leasing an office, and with regard to students, we do not charge any fee for the office”.

It worth mentioning that in the Waed incubator, students in the Cooperative Program are exempted from paying office fees. Since it does not make sense to provide a salary for the student enrolled in the incubator and at the same time make him/her pay a fee. The goal of the monthly salary is that if students go to train in other companies during the three-month period (during the Cooperative Program), incubators pay a monthly salary for them. The researcher sees that it is a definite strategy by Waed incubator to be a catalyst for students who are business minded. By joining the incubator, they can share similar skills and knowledge with their colleagues who work in other companies.

The two incubators managed by participants D4 and D5 provide a compulsory prequalification and training programme prior to incubation where various information is provided on the projects’ management including administrative and financial aspects. Participant D4 mentioned that her specific pre-qualification and training programme has been

²⁸ “The Cooperative Program is a structured educational strategy, integrating the theoretical knowledge learned in the classrooms and laboratories with real world experiences” (KFUPM, 2010, p.3)

accredited by Credit Bank. This qualifies the incubatee to apply for financing without joining the training programme and which Credit Bank offers to any person applying for financing and considers a prerequisite to obtaining the financing.

When participant P2, who is not incubated, was asked about the effect of the services provided by the incubators if applied to his project, he said, “These services overcome many obstacles that face me”.

Based on these opinions, it makes to say that the relative importance of each service may differ from one incubatee to another in accordance with the requirements of a given project and the phase which the project has reached. Participant D2 said that it is not possible to determine a minimum service that should be provided by an incubator because requirements differ from one project to another. Participant E1 agreed that the importance of services differs in accordance with the phase of the project; at the beginning, the importance of strategic orientation is most apparent, followed by how to develop the project, etc. Participant D4, a manager of an incubator, added, “We notice our biggest benefits at the beginning of the projects”.

This following table (Table 4.5) presents the findings of evaluating the services that the incubator provides through the opinions of the participants in this research.

Participant	Evaluate the following services that the incubator provide them in terms of Its importance for you (not useful - useful - very useful)						
	Administrative services	Marketing services (which Include guidance and counselling)	Financial services	legal services	productivity services (Improve your product by experts and specialists)	Traing services	Free space (private office for the project)
Participant N1	Pilot	Pilot	Pilot	Pilot	Pilot	Pilot	Pilot
Participant N2	I did not benefit from them	I did not benefit from them	Useful	Very useful	I did not benefit from them and I do not know if they are exiting or not	Very useful	Very useful
Participant N3	Very useful	Very useful	I did not benefit from them but they are useful	Very useful	Very useful	Very useful	Very useful
Participant	Useful	Useful	Very useful	Very useful	Not useful	Very useful	Excellent

Participant N4							
Participant N5	We did not use them	No for now and yes for the future	We will need them after launch	Very useful	We did not need them	No	Very useful
Participant N6	Medium	Very useful	We have not faced them until now	Very useful	Very useful	Medium	Very useful
Participant N7	Very useful	We will try them	They provided courses and accountant services, but I did not use the financial consultation	I did not use them	Useful	Useful	I did not use them
Participant N8	I did not use them	Very useful	I did not use them	I did not use them	I did not use them	I did not use them	I did not use them
Participant E1	Very useful	Very useful	Useful	Very useful	Useful	Very useful	Very useful

Table 4.5 evaluate the services that the incubator provides

4.3.1.7.1 Comprehending the value added to the incubated businesses:

The services mentioned in the previous section constitute values added to the incubated businesses resulting from the process of incubation. In this section, the topic of other added values will be addressed.

- From an idea to business: Participant E1 said that the most important added value was the configuration of his project from one idea and adapting it to an existing business that will continue into the future. This was mentioned as the most important aspect by all the managers of the incubators who were interviewed regarding the importance of the business plan in supporting the project. Participant D2 confirmed the importance of preparing the project on a commercial basis to help the project and its management to continue despite market fluctuations. Participant E1 said that networking and the introduction of the project and project staff to relevant agencies constituted an important added value for technological projects. Participant N3 said that “the added value is the significant growth of the project due to services provided”. Participant D4 stated that in her incubator, the most important added value for the incubated projects was the increase in profit. Participant N2 said the interrelationships between the incubatees inside the incubator constituted the most important value gained by the incubatees.
- Business evaluation: among the added values, the evaluation of the projects submitted to the incubator, Participants D1 and D2 mentioned that the acceptance of the project in the

incubator gives evidence that the project has some indication of success. Participant D2 said:

“If the project is established without this evaluation, the project suffers a loss, and in the incubator, they stop the commencement of the project so that it will not be merged into a project that does not have indications of success”.

However, this principle may not be true because there are always global projects that did not always show signs of success and yet were strongly successful.

- The business owner skills: Participant D2, a manager of an incubator, added that among the values that the incubator adds is measurement of the qualities of the owner of the project.
- Credibility: is considered one of the most important value added features for projects, and all those who were interviewed, including managers of incubators, owners of incubated projects, and owners of non-incubated projects, stressed the importance of credibility and its effect on the projects in Saudi Arabia. Due to the importance of credibility, this topic will be discussed separately in section 4.3.2.5.

4.3.1.8 Understanding the local incubators culture:

The working environment is one of the factors that may affect projects, especially SMEs. This section reviews the findings of the participants' opinions in this research regarding the environment of local incubators. This is done through asking the incubatees of the local incubators the following two questions:

- 1- What kind of culture does the incubator encourage between projects: cooperation or competition?
- 2- What kind of culture does the incubator encourage: the implementation of work through the most expedient route or through best practice?

Moreover, to draw a comparison between the incubated and non-incubated SMEs, the owners of the non-incubated projects who were interviewed were asked the same questions. In terms of the working environment in their businesses. Table 4.6 shows the answers of the incubatees, and Table 4.7 shows the answers of the non-incubatees.

Participant	What is the culture that the incubator enhances: is it the culture of cooperation or the culture of competition between the projects?	What is the culture that the incubator enhances is the implementation of work through the most expedient route or through the best possible means?
Participant N1	The interaction between the incubated persons is minimal	The principles of the company have the power to issue the decisions
Participant N2	Cooperation is very rare	Better
Participant N3	If the projects are different, they are cooperative projects. if they are similar, they are competitive projects.	Better
Participant N4	Cooperative	Better
Participant N5	Cooperative	Better
Participant N6	Cooperative	Better
Participant N7	Cooperative	The best ways and balancing between the best ways and the shortest ways
Participant N8	Cooperative	The best thing is to balance between the best and the shortest ways
Participant E1	Cooperative	Better

Table 4.6 - What is the culture that the incubator enhances.

Participant	What is the culture that the company enhances is the implementation of work through the shortest possible means or through the best possible means?
Participant P1	Better
Participant P2	The most shortest and best ways
Participant P3	Better
Participant P4	Shorter
Participant P5	The most shortest and best ways

Table 4.7 what is the culture that the company enhances.

Furthermore, participant N7 said

“When I came to know that there are technological incubators, I decided to join them immediately because it would allow me to meet with technological experts, and this environment motivates me to do more work”.

Participant N7 added that he would like to advise youths who do not have a background in this area because the environment can provide that.

4.3.2 The second section from the second research question:

The second section will address the second part from the second research question. This will be done through a comparison between incubated and non-incubated technological SMEs in Saudi Arabia (see section 4.3). It will be beneficial to first establish the situation concerning technological projects in Saudi Arabia, followed by:

1. A discussion of whether or not technological projects in Saudi Arabia require a large amount of capital. This was mentioned by a number of participants in the research in relation to their experiences, and the effect of the incubators on such experiences;
2. A discussion of the factors contributing to the success of technological projects in Saudi Arabia; and
3. A discussion of the percentage of successfully incubated technological projects. Then comparing incubated and non-incubated technological SMEs in Saudi Arabia. This is done in order to: firstly, examine the effects and benefits incubators have provided to the incubated technological projects; and secondly to compare them to the non-incubated technological projects from the point of view of incubator managers and owners of incubated and non-incubated projects participating in the study. The comparison extends to the three subsequent subsections, as discussed below:

The first subsection is: The long-term business effect of technological incubators in reducing set-up and operational costs. This includes whether there is a real tangible effect in reducing the set-up and operational costs. The opinions of the owners of the non-incubated projects will also be established in this section.

The second subsection is: The percentage of successful incubated technological projects and its meaning for their future strategy. This section will examine the effect of the incubators on the percentage of projects that have proved to be a success.

The third subsection is: Credibility. This forms an expanded section examining the effect incubators have on the credibility of technological SMEs. The subsection looks at the effect of incubators in increasing the credibility of incubated technological projects, and compares this to the obstacles in relation to credibility experienced by the owners of non- incubated projects.

Some of the questions that participants have been asked in an attempt to answer the research second question (part two) are:

Questions for managers of incubators:

- Does being incubated help new businesses start up? If Yes: How? If No: Why?
- Does being incubated help start-up businesses reduce operating costs? If Yes: How? If No: Why?
- Do you have incubatees that have succeeded in their businesses?
- Do your incubators have incubatees that have failed in their businesses?
- Has your incubator conducted any studies related to survival rates for your incubated companies?

Questions for the incubatee and non-incubated:

- Before starting your business what kind of preparation did you undertake?
- Since you have started your business, has there been any progress?
- Did being incubated helped you to start your business? (For incubated projects).
- Has your business being incubated helped you reduce operating costs? (For incubated projects).

These questions are just examples of the questions that been prepared for the interviews. Additional questions were asked due to the semi-structured format. More information is being presented under the following subtitles.

4.3.2.1 Technical projects in Saudi Arabia associated with institutional theory:

This section reviews the views of the participants on the situations of technology projects in SA. Participants D2, N1, P1, and P2 mentioned that there has been significant activity for technological projects in Saudi Arabia in recent years, which participant P2 described by saying, “There was a boom in Saudi Arabia, a technological boom, everyone wanted to install systems and work through computers and to shift from paperwork to those systems”. An example from this boom is participant N7’s project, which began in the year 2007 with a capital of 125,000 Saudi Riyals (about \$33,000 US dollars) but grew to two and a half million SR (\$666,000 US dollars) in the year 2014.

When participant P4 was asked whether there were obstacles in obtaining financing in Saudi Arabia, he replied, “It is very difficult to obtain financing in the field of IT.” The reason, he says, is because IT is considered high-risk. Participants P3 and P4 added that there is apprehension on the part of investors about supporting technological projects. Participant P4 explained, “IT projects cannot be measured in the same way as factories”.

Participant N5, who is currently a university student, said that he started to work on very small technological projects, such as designing internet websites, from home when he was an intermediate school student. He also said that he wanted to establish his own business before he knew about the concept of a start-up.

Regarding the beginning phase of his project, participant P2 said: “It was a transitional phase in the Arabic context where people used to depend on foreign companies, and some Arabic experiences were successful”.

In addition, when participant N2 was asked about the factors that affect the success of technological projects in Saudi Arabia, he replied:

“The non-awareness of the method of the project start-up is a factor. The current awareness involves imitation of mega projects with the same experience, the same action plan, and the same equipment”.

Therefore, among the conditions and criteria for selection of incubatees by an incubator is that the project should not be a repetition and should bring a new idea in order to create diversification in the projects in Saudi Arabia. Participant P5 also confirmed that a reason for not joining an incubator could be because the project does not have a new idea.

Through the findings of this research, the researcher sees that technology projects in SA has a vastly improved business environment. This is achieved through two aspects: first, significant government support for technology projects to support the Saudi government's programs in

national transformation programs (see section. 4.2.1). Second, through increasing awareness of the importance of technology projects. Young people have an existing and increasing interest in the establishment of technology projects (see section 4.2.6.1 and 4.4.2).

4.3.2.1.1 Understanding the status of technological projects in Saudi Arabia which do not require a large amount of capital:

Financing for projects plays a critical role in the life of projects, and section 4.2.2.1 discussed financial support in SA. Through the findings of this research, the researcher observes that some participants stated that their technology projects did not require large capital. Participant D2 said that the first incubator which he started as a national project was an ICT incubator. He started there because it was a business that required the least capital. Participant N1 said the reason for electing to work in the field of technology and the internet specifically was because the expenses are very low at the beginning, and participant P2 shared this opinion. Participant N8 said that at the beginning of his project, there was only access to a small amount of funding (80,000 SR or about \$21,000 US dollars). Participant P5 also said that his project was begun with only a small amount of capital (about 15,000 SR from each partner, for a total amount of 30,000 SR or \$8,000 US dollars). He added that they did not need financing because their project did not require a large amount of capital, and they simply began with their personal savings. Participant N3 said that his project had access to only 20,000 SR (about \$5,300 US dollars) at the beginning.

Participant D2 (a manager of one of the incubators) mentioned the incubators' effect in reducing the need for large capital by saying: "Small businesses, especially in the field of technology, need every riyal". He stressed the importance of the incubator in saving for projects; although it is not the case that incubated projects do not have expenses. In fact, their expenses tend to be lower thanks to the free services provided by the incubator services which non-incubated projects also need but must pay for. Participant N3 said that the capital he had was insufficient, and he was not able to afford an office or even employees. However, thanks to the growth of his project in the incubator, he is now able to employ ten staff members.

The researcher sees that not all projects need large capital (whether incubated or not). This may be related to the nature of the project. In contrast, participant P4 mentioned that in the year 2010, he went to Credit Bank to apply for a loan, but they offered only 300,000 SR (around \$80,000 US dollars), and his project required a greater amount of funding than this. He then went to Waed incubator and their financing fund programme rather than incubation.

Regarding funding for incubated business, participant N7 received a loan in the amount of one million SR (around \$266,000 US dollars) from Credit Bank in the year 2009. However, he stated that he suffered from the procedures of Credit Bank, and this may be what participant P4 meant when he described this bank by saying, “They are in another world.” Participant N7 also said, “Credit Bank is managed by a governmental mentality, and that is far from the spirit of the projects”. The obstacles in obtaining funding mentioned by participants P4 and N7 may be one of the factors that would have reinforced the idea that technology SMEs in SA do not need large capital and they are seeking to finance their projects through their own sources.

4.3.2.2 Implications arising from the success of technical SMEs in Saudi Arabia:

The most important global objective of incubators is to enhance the projects’ chances of success. This also applies locally, as discussed in sections 4.3.1.7. Participants who were managers of incubators, owners of incubated projects, and owners of non-incubated projects were asked what factors contributed to the success of technological SMEs in Saudi Arabia. Participant D1 mention the following factors: 1- support and guidance, and 2- linking with the market and experiences. Participant D2 confirmed the importance of planning as one of the factors for successful projects. Participant D4 said that 1- the personality of the project owner or manager should entail the necessary skills to manage the project, and 2- the idea may not necessarily be unique, but it should be profitable.

The owners of the technology projects mentioned the following factors. Participant N4 added three factors: 1- the idea of the project, 2- the action plan, and 3- commitment to the plan. Participant P4 suggested 1- access to financial support, 2- access to talent, and 3- a ready-made ‘ecosystem’. In addition, participant P5 mentioned 1- the relative benefit that distinguishes the project from other projects, 2- a business network. 3- the legal and procedural position of the company should be regular. Participant P5 adds a point that the success of a company’s gaining a big contract does not mean that they will continue to gain new contracts for the company.

Participant P3 said that relationships play a significant role in the success of projects. He added that these relationships play a specific role in Saudi Arabian culture. He also said that some governmental IT companies in Saudi Arabia are managed by their colleagues who studied with them, and without these relationships, their projects would not succeed. He explains, “IT managers award most of their projects to companies that they know”. Participants P1 and P2 claimed that they suffer from the awarding of projects despite the

good quality of their products and its competition with other products. This point about awarding projects was discussed extensively in section 4.3.2.5 about credibility.

Participant E1 listed the following as factors that help: 1- the environment, 2- logistics services, 3- the availability of financial support, and 4- the formation of a team or group of co-founders. Participant N2 added four points to this list: 1- making sure that your product is in demand on the market, 2- not building products completely but testing the market first with a prototype, 3- formation of the team, and 4- a network, which he describes as:

“very important, and it greatly accelerates the launching of the project. I started my project from zero, and I was not supposed to build them at all.”

Participant N5 listed two factors: 1- the importance of the team itself, and 2- making sure that there is a market for your product. Participant P2 added 1- the idea of the project, 2- the team, and 3- support and guidance. Participant N7 said that some of the owners of technological projects do not have the necessary background in the administrative and financial matters essential to managing the project. He also added that this problem can be solved by incubators through training, and this was confirmed by incubatee participant N6, who said:

“The training which is provided by the incubator at the beginning makes the person understand how the market works.

What was mentioned by participant N7 is also confirmed through the findings of this research by participant P4 who is the owner of a non-incubated project when he said:

“They are learning from their mistakes, and every time you work on a project, the probability of success will increase when you shift to the next project.”

Participant P2 confirmed the importance of the consultant to the project in reducing the percentage of errors. This consequently increases the life expectancy of the project. This participant, also an owner of a project which is not incubated, added that incubators provide consultants to help in the success of the projects and reduce the percentage of error.

Through the findings of this research, a real possibility is that some factors are repeatedly mentioned by a group of the participants in this research, and that may contribute to the success of technology projects in SA. The importance of the project idea was reiterated as one of the most critical factors contributing to the success of projects. This was followed equally by support, guidance, and team configuration. Then, came networking which was repeated several times. This is followed by a group of factors that are repeated once or twice.

4.3.2.2.1 Understanding the level of the success of incubated technological projects:

The goal of incubator programs in the world is to contribute to the success of incubated

projects. In this research, the researcher sought to explore the level of success of incubated projects in SA.

At the beginning, the managers of incubators were questioned about the level of success of the technological projects they had incubated, with the following results:

Participant D1 stated that they measured the success of projects in their incubator in two ways: (1) the profit generated: (2) the market value of the company. Participant D1 added that the percentage of success is approximately 65% of the projects that have been incubated. Moreover, participant D2 was asked about the percentage of the projects that were not successful, he replied: “about 20%”, thus indicating a high level of success. When participant D4 was asked whether she had incubated projects that have established successful business activities, she answered: “yes, of course.” When she was further questioned about the percentage of the projects that were successful she replied:

“Up to now, the projects have only completed one year. So I cannot say that some projects were not successful, as all projects pass through the set-up phase. Nevertheless, there are three projects that have been successful from the eight projects incubated at the present time.” (i.e. at the time of the interview).

When participant D5 was asked about the percentage of technological projects he had incubated, he replied: “at the present time, there are seven projects.” (i.e. at the time of the interview, and the life expectancy of the incubator was seven months). In addition, participant D5 divided the percentage of the success for projects as follows: (1) one project was in the zero phase; (2) three projects had a percentage range between 1-10%; (3) two projects had a percentage range between 11-50%; (4) only one project had 100% growth.

However, there are a number of incubators that did not display any success with an incubatee, as in the example of the incubator managed by participant D3 (This point has been discussed in section 4.3.1.3, concerning *evaluating the current incubators from an institutional theory approach*).

Furthermore, when the incubatees who participated in this research were questioned about the percentage of success for their projects the results were as follows:

Participant N4 states that over the past year his percentage of growth is 40% (i.e. during the incubation phase), while prior to incubation, growth had almost ceased. Participant N7 notes that growth increased after incubation, multiplying more than fourfold during its incubation phase. He also adds that he has implemented a large number of projects, something he would not have been able to achieve if he had not been an incubatee. Participant N8 states that the percentage before incubation was 40%, increasing after incubation to 120% growth. In

addition, the incubator had helped him to successfully obtain a large number of contracts. Participant N6 states that there was a significant increase in growth after incubation. He also adds that incubation was the reason for the percentage increase for this project. Participant E1 states that his project has passed through multiple phases of growth: they began with two employees and have now increased to twenty employees at peak periods. He also adds that at the peak phase, in 2011, they achieved 1000% growth representing a percentage greater than the project's capability and resources: "it is great progress, and very fast progress, it was difficult to deal with such growth in a proper manner because it needed more resources." Participant E1's project was an SMS programme for communication. He explains its growth as follows:

"There was a trend for SMS in Saudi Arabia. The surrounding circumstances also ensured that there was an easy access to the service, which was one affecting factories. However, there is no doubt that the Bader incubator was very useful for this growth (i.e. the incubator in which he is incubated). They also gave a number of consultations that were helpful in achieving this growth."

However, when it comes to the phase after incubation, participant E1 confesses that it has been less than before. He justifies this reduction in growth as follows:

"as you know, transformations take place rapidly in technology. If you observe Blackberry (which is one of the largest companies) or Nokia, all of them are suffering from reduction of revenue and some have even been put up for sale. This is a general trend in technology."

Participant E1 states that currently (i.e. at the time of the interview) they have six employees, and also outsource.

Participant N5 states that incubation has contributed to the growth of his project. Participant N3 states that their project began in the incubator and experienced 100% growth during the incubation phase. He also adds that if he had not been an incubatee, he would not have been able to reach this phase, due to a lack of capital to assist him in setting up the project.

A further aspect arises for some of the incubated projects. Participant N1 notes that:

"During the past years (i.e. before 2013/2014), we have been voted as being the most rapidly emerging company in terms of growth in the field of the Internet in Saudi Arabia. We have also been voted onto the Arab Net conference."

Participant D5 states that a training project he had incubated had delivered training courses for more than 4000 students within a very short period of time (i.e. seven months). Participant E1 notes that he has won a prize in an international competition.

However, not all incubated projects have been successful. Participant N2 states that he has passed through two phases of incubation: (1) during the two years before he resigned from his job to focus on his project; (2) after dedicating himself to the project for four months. He feels that the incubation was only relatively effective in assisting the process of growth. In the case of participant N2, the researcher sees that incubation may not be the only factor affecting the growth of his project or not. But the determination of the project owner to achieve a successful project is an essential factor to take into account. He resigned from his job (he was in suitable job as he mentioned) to devote himself to the success of his project as the project had no full-time employees. He said that “I supervise on a large part of the development, commercial development and marketing, because I’m alone in the project.” He also said that he has a part-time employee who contributes to the technical development process as well as a part-time employee who assists in the marketing process. In general, the project of participant N2 is very personally dependent on him.

In addition, the managers of the incubators note that there are a number of projects that have not been successful. Participant D1 notes that 35% of projects that have been incubated have not experienced any success. Participant D2 also states that 20% of his projects did not experience any success. When asked whether he had any projects that had not been successful, he replied:

“yes, we give them a chance for a few more months. If they still do not achieve any results, we tell them that the doors are always open and that they are able to call on a part time virtual incubator.”

Participant D2 comments that incubators also contribute in other aspects to minimise the risk of failure. When participant D2 was asked about the percentage success rate of incubatees, he replied:

“This is an unfair measurement, because when you look at success, it is a relative success, and when you look at a project that has failed, many see it as failure when I consider it to be a success. If a project fails at a late stage, then a non incubatee would have continued to spend money and expend effort while his project was dying, due to the fact that he understood this too late. However, in the incubator, we stop them at an early stage. Many projects have been stopped after six months, which means that there are no significant financial losses within the incubator.”

When it comes to the number of graduates and the percentage of retention of projects after graduation, the situation is as follows:

Participant D1 (who was the first manager of an incubator in Saudi Arabia in 2008) states

that six projects graduated from the incubator at the time of the interview, and there is 100% retention of projects. The first project (that of participant D1) had graduated from the incubator eighteen months previously (i.e. at the time of the interview). He had previously pointed out that incubators in Saudi Arabia have only recently been established, with the majority having been established over the past two years. When participant D4 was asked whether they measured the percentage of the survival rates of the projects they had incubated. She replied: “no, no: the age of the incubator and the age of the projects is short.” When participant D5 was asked whether they measured the percentage of the survival rates of the projects they had incubated he replied that they would do in future, but that the incubator had only been in existence for seven months at the time of the interview.

These percentages, stated by the participants, may not be sufficient to measure the effect of incubation. However, they may prove an important indicator of the average life cycle of a project. In this particular case the business had been incubated for three and a half years, with the project having graduated from the incubator for eighteen months and been running for a total of five years. In section 4.3.1.3 (*‘Evaluating the current incubators from an institutional theory approach’*), the findings of this research were that there is no evaluation of the status of incubators based on a study of local incubators in SA. The results of this research in this section also show that there is no study evaluating the level of success of incubated projects. All the opinions of the managers did not mention any study conclusively, but they just mentioned approximate figures. This research sought to gain an understanding of what data was available.

4.3.2.3 Understanding of the effect of the incubators on the incubated technological projects to reduce the costs of set-up and operation:

There is an effect of the services provided by the incubators in minimising the costs of set-up or operation. This was mentioned by all the incubator managers and incubatees who were asked, with the exception of participant N8 (participant N8’s opinion is included in section 4.3.2.3 and later in this section). As mentioned in Section 4.3.1.7, the services provided to the incubatee by the governmental incubators in Saudi Arabia are provided free of charge, and this provides savings for the project owners.

Participant D2 gave details regarding the contribution of the incubator in minimising costs, and divided them into two categories: 1- in terms of the value of the services provided, and 2- in terms of facilities such as those that allow him/her to work directly in the incubator, effective immediately, without the need to lease a locale or wait for any permits to be issued.

He described this as a time-consuming process. Participant D2 was asked whether they had measured the percentage of costs minimised for emerging projects by the incubators in Saudi Arabia. He answered that these cannot be measured because they differ from one project to another and because the needs for the services provided by the incubator are also different.

Participant D4 confirmed that in her incubator, requirements were different from one project to another, but on average it ranged between 25 and 30 percent and in some cases reached 50 percent. Moreover, participant D3, a manager of an incubator, added, “Incubators have a great effect on cutting down expenses, ranging from 70 to 80 percent”. From the researcher's point of view, what was mentioned by participant D3 may mean the effect of incubators reducing costs in general; not the effect of the incubator managed by him (see the performance of participant D3's incubator in section 4.3.1.3 ‘*Evaluating the current incubators from an institutional theory approach*’). Participant D5, who is a manager of an incubator, stated:

“Incubators have an effect on cutting down set-up and operational costs because there is no need for you to waste your time on matters which are not of high priority for the project”.

Also, when asked if studies have been conducted regarding whether his incubator has contributed to reducing expenses, he replied, “They have not conducted any studies because that is very clear to us”. A question may be raised here: can what has an apparent effect for a particular incubator be extended to the rest of the local incubators. In the opinion of the researcher; if each incubator has studied the findings of their work, this can help decision-makers to know the impact of initiatives that are adopted in the local context. Also, the existence of such data is not only useful to decision-makers, but it is also beneficial for researchers whether academics or other incubators.

To enrich this research, the researcher sought to ask owners of incubated projects in this study about the effect of the incubators on reducing set-up and operational costs. The incubatees replied as follows:

Participant N1, an incubatee in an incubator, said, “Being an incubatee has reduced expenses”. He explained the practical side of reducing expenses:

“It is not only financial savings, but it helps you to be fully dedicated to the project, because you will not be worried by the burden of invoices, maintenance, the breaking down of air-conditioners or anything else. This is not only a reduction of expenses but

a reduction in all aspects of effort and time that would be spent on following up these things”.

Participant N1 cited another privilege: “Being an incubatee gives you some sort of confidence when you talk with an investor”, and this not only leads to a reduction of expenses but there is also a benefit of increasing investment in the project. He further explained, “The investment that we need has decreased, and now no money is spent on rent, but it is spent on the salaries and the expenses of the company”.

Two points mentioned by participant N1 in the process of reducing costs can be considered to be essential points. What incubators do in reducing costs can be described as follows. First, incubators reduce tangible costs which are effectively reducing costs of renting an office for example and other costs. Second, incubators reduce intangible costs. This includes, for example, that the focus of the project owners is on their basic tasks in the project itself and not engaging in secondary works such as maintenance. This saves their time, so therefore they spend their time on their primary work; this produces more time for them, so they do not need to employ other people for certain tasks. What was mentioned by participant N1 can be linked with section 4.3.2.1.1 (*Understanding the status of technological projects in Saudi Arabia which do not require a large amount of capital*), the participant here adds more explanation on how the technological incubated projects do not need large capital.

Participant N4 said, “The effect is 40 percent of my project, this helped me to concentrate on additional things”. Participant N7 said, “Yes, I have saved about 15 percent of the training and consultation costs, and this is measured in accordance with the capital which is two and a half million Saudi riyals (about \$600,000 US dollars)”.

Participant N6 said that it had reduced expenses by 50 percent. Participant N3 said that although he cannot state a precise percentage for expense reduction, at the beginning, the effect of reducing expenses was very important. Participant E1 said, “Yes, it has reduced expenses, and it helped throughout the phases of the project to save from 40 to 50 percent of the expenses”.

Participant N2 said, “Yes, it made a great contribution since it forms 60-70 percent”. Participant N5 said that it reached 10-15 percent, and he commented that this was due to services that could have been dispensed by the office if they were not provided by the incubator, and they would not have leased the office. However, when participant N5 was asked about the effect of the services provided on his project, he said that it ranged from 80-90 percent.

On the other hand, participant N8 said, “the incubators have never made any contributions because I did not receive any services, but it was supposed to contribute”. This participant mentioned that the reason was due to the fact that his business was not headquartered in the capital city. In another context, when participant N8 was asked how being incubated contributed to the continuity of his project, he replied ‘yes’ with 30 percent. Also, participant N8 mentioned in section 4.3.2.3 that the ratio of incubator’s contribution to the growth of his project is around 80%. Therefore, the researcher sees that there are some contradictions in the comments of the participant. Using a hermeneutics approach can assist in understanding these contradictions emerging within the opinion. That contradiction being that he should receive all the services of the incubator, while the services provided to incubatees differ from one project to another as discussed in section 4.3.1.7.

When participants in the study who are owners of non-incubated projects were asked about the effect of the services provided by the incubator free of charge and whether they contribute in reducing set-up and operational costs, participant P4 said, “Of course, they contribute with an average ranging from 30-50 percent”. Participant P3 said that the incubators were “making great contributions in reducing expenses”. Participant P5 commented, “Yes, of course, the reduction in expenses will be more than 60 percent”. Participant P2 said, “Yes, there is a great reduction, and the percentage will be significant within the first three years about 80 percent then it will diminish to 60 percent”.

The effect of the free services provided by the incubators on reducing set-up and operational expenses has been noted through the opinions of the owners of non-incubated projects. This may result from the experience of running projects and the measurement of the effect of these services on their business.

In the findings of this research and through the opinions of the managers of the incubators, the owners of the incubated and non-incubated projects, it has been shown that the local incubators undoubtedly contribute in reducing the costs of establishment and operating technological projects in SA. Also from the findings of this research, the researcher sees that the importance of intangible services is not inferior to tangible services provided by incubators. These two points can be considered to be one of the findings resulting from this research.

4.3.2.4 Comparison between the incubated and non-incubated technological SMEs in Saudi Arabia aligning with isomorphism and competitive pressure:

The second research question addresses the effect of incubators on technological projects in Saudi Arabia by drawing a comparison between incubated and non-incubated projects. To answer this question, a number of sections have been mentioned, including this one, in which the effect of the incubators will be discussed in terms of the services provided to the incubatees by asking the owners of the incubated and non-incubated projects about the effect the incubators have on their projects.

Participant N4 said that his project passed through two stages before and after incubation. He added that there was no growth before incubation, but after incubation, the rate of growth had risen to 40 percent during the previous year, significant progress was achieved with sales that exceeded one million riyals (around \$266,000 US dollars), and the revenues were lucrative. When asked whether incubation had helped them in the process of growth, he answered, "Being an incubatee has helped me to continue my projects at 75 percent". He explains how by saying: "It helped a lot, the consultations helped us, the reputation of the project has increased, the financial studies, legal and marketing consultations have helped us a great deal". Participant N7, who had work experience in his project prior to incubation as well as after joining the incubator, said that his project, after incubation, quadrupled. He also said that incubation had helped him to continue his project at 20 percent, and when asked how he calculated this percentage, he said this was based on capital because his project was expensive (\$666,000 US dollars). The other reason was that he did not use all of the incubator's services since he was a virtual incubatee. He also added that incubation saved 15 percent for his project in terms of training and consultations. He said that sometimes the owners of technological projects do not have any background in management, and financial aspects and the incubators solved this problem. He said that incubators have implemented many projects, which he is unable to continue but that they have helped him nonetheless.

Participant N8 said that the incubator was offered to him during a party in honour of self-made youth where he was one of the winners; they invited him to join the incubator, and he agreed. When asked about the percentage of growth of his project, he stated that before incubation, its growth was 40 percent, but after incubation this had tripled to reach 120 percent. He also said that incubation helped him to conclude many contracts because the incubator improved the reputation of his project and increased confidence in it. Through the use of hermeneutic circles, the researcher observes that participant N8 stated in the previous section (4.2.5) that the performance of incubators varies between the capital and other cities

(as his project is incubated in a city which is not the capital). He justified this with the reason he gave in section 4.3.1.3 that he did not receive all services from the incubator.

Here, the researcher raises a question about what was mentioned by participant N8, that the incubators contributed to the growth of his project by 80 percent during the incubation stage comparing to the stage before; as a project owner in the capital, how much will this have increased, or not increased, his project's growth rate? Or some of the owners of the projects may be looking for services that may not be effective for the growth of their project, but they expect more from incubators. It should be noted that section 4.2.5 discussed that participant N7 (an incubatee who lives in the same city as participant N8 that does not have an incubator) did not notice a lack of services provided to his project.

Participant N6 said that before joining the incubator, he had been experiencing significant obstacles that stopped his project from working. After he joined the incubator, there was a significant increase in the growth of the project. When asked about the value of the services provided to him by the incubator, he answered, "That is very high value". He also explained:

"If I had asked for a loan from the bank or entered a partnership, and they paid me double the amount [which I received from the business accelerator upon entering into partnership with them], I could not have done what I have done in the incubator".

He described the services and their effects as "useful beyond imagination" and added that being an incubatee contributed in reducing set-up and operational costs by up to 50 percent.

Participant E1, who had work experience in his project over three phases (before incubation, during incubation, and after graduation from the incubator) said:

"The incubator has a significant impact on the process of growth, and the effect of its services on my project was significant, about 60 percent, and the incubator has reduced the set-up and operational expenses by 40-50 percent".

He added that incubators had also helped him at the beginning of his project. The researcher sees that the experience of participant E1 was worth considering; he is a project owner and his project has passed through three critical stages in the life cycle of projects. In section 4.3.2.2.1, he mentioned that the maximum growth of his project was during the incubation phase. It is worth mentioning here that participant E1 stated that getting out of the incubator is not the only reason for the lack of growth, and on the other side, incubation is not the only factor in increasing growth. The researcher sees that such experiments for technological

projects in SA deserve to be studied more extensively to measure the stages that projects pass through in SA.

Participant N3 said that he started his project with incubation immediately and that incubators contributed to the growth of the project by 100 percent. He explained:

“If I were to establish an office outside the incubator, I would not have reached the level which I have reached now, and it would have been much slower than the rate I have reached with incubation”.

He added that at the beginning, he started with only a small amount of capital (about 20,000 riyals or \$5,300 US dollars), and he was not able to have employees or to establish an office, the provision of the office lifted a great burden in addition to the consultations. He said that the value of this service was “very, very high”, and “without such a service, I would not have reached this level of success within such a short period of time and with this degree of simplicity.” He also mentioned the intangible services provided by the incubators, such as being able to benefit from the experiences of previous incubatees in terms of the obstacles they faced, helping new projects to avoid those the same obstacles.

The researcher sees what was mentioned by participant N3 that the incubator contributes to the growth of the project by 100 percent as an issue that needs to be considered and analysed to calculate the growth rate entirely associated with the incubator. The participant gave the reasons why this would be the full percentage which is that the weakness of the capital owned by the participant was not sufficient (without an incubator) to start a project. But the services provided to him by the incubator free of charge including the office and services (see section 4.3.1.7) made it possible to spend the amount available to him on the core of his project. It worth mentioning that section 4.3.2.1.1 (*‘Understanding the status of technological projects in Saudi Arabia which do not require a large amount of capital’*) discussed this principle. This raises the theoretical question that if the owner of a non-incubated project with the same concept and lack of capital was to start a project, would it be successful? How would it compare to participant N3 who was in those circumstances but the owner of an incubated project. The researcher has an answer to the previous question that is based on what is mentioned in the data of this research and its findings. The answer is the success of a non-incubated project with the same problems in raising sufficient capital and with the same concept of the project would find it difficult to be successful.

Participant N5 said that incubation helped a great deal in the process of growth, and the effect of these services on his project ranged from 80-90 percent. He added that incubation helped

him to reduce set-up and operational costs and to start his project with a percentage ranging from 50-60 percent.

Participant N1, said that incubation helped a great deal in the process of increasing growth, compared with the period before the incubation.

Participant N2 said that incubation had helped him to start his project, saying:

“The set-up of an office and supporting organisation in addition to the support given by the name ‘Bader’ [the name of the incubator] in terms of credibility has helped me. I have gone to many places to enter into partnerships for the project, and this matter helped me a lot.”

Further details on credibility will be discussed extensively in section 4.3.2.5.

Participant N2 also added that incubation had greatly contributed to reducing set-up and operational costs at a percentage ranging from 60-70 percent. Participant N4 said that incubators provided locations and excellent working environments for emerging projects. However, in terms of non-incubated projects, 90 percent could close down within three months. The researcher sees that the statement mentioned by participant N4 that 90% of non-incubated projects may expire within three months expresses the opinion of the participant, and is not based on a study of the life of the projects. However, by using hermeneutic analysis, the finding of this research in sections such as 4.3.1.4, 4.3.2.2.1 and this section is that several of the participants can support his general opinion.

In terms of non-incubated technological projects, when the participating owners of existing projects were asked about the effect of free services provided by the incubators, several insightful answers were given. Participant P4 said that these services would definitely play a role in starting new projects, and when asked whether they would help to reduce set-up and operational costs, he replied, “Of course, at an average of 30-50 percent.” In addition, participant P5 said that if these services were provided free of charge, they would form 55-60 percent of the project and would reduce set-up and operational costs by more than 60 percent. Participant P3 said that the services provided by the incubators were very useful for the owners of technological projects and would contribute to a significant reduction in set-up and operational costs. In participant P1’s words, if the services provided by the incubators were free, “these services would solve many of the problems that I have.”

Furthermore, participant P2 said that getting started in emerging technological projects can be difficult, and the birth of the project is also difficult and needs consultation from an expert. He explained:

“The nature of start-up projects is that somebody has a small amount of money, and if they want to establish a successful company, they need somebody who has experience in the methods which are least expensive and most useful, not only right or wrong. There are correct paths, but what are the best paths? So, the first phase needs a consultant in the same field”.

When participant P2 was asked about the effect of the services provided by the incubators on the project in reducing set-up and operational costs, he answered:

“It is 80 percent during the first three years, and then it decreases to 60 percent. The important thing is the real value in terms of reducing the errors of the project where they form 60 percent of the life-cycle of the project”.

The researcher notes the opinions of participant P2, who although he is the owner of a non-incubated project, has views regarding a number of findings in this research. By using the hermeneutic techniques and cycles within that technique it is noted that not only participant P2 but also participants D4 and E1 feel that the benefits of incubation are higher in the early years.

The researcher observes that some of the owners of non-incubated projects who were interviewed once they became aware of the services provided to the incubatees, said that they would look deeply into the matter of incubators and consider joining one. However, some of the participants who be mentioned in Section 4.3.1.2.1 said that one of the defects of the incubators was that they do not provide services to medium-sized projects .There are owners of existing projects which have passed their beginning stages, such as those mentioned by participants P2 and P4, who are owners of non-incubated projects. This was also confirmed by participant E1, the owner of the project which had graduated from an incubator. Participant P5 stated that he had excellent knowledge of incubators and the reason he had not joined was that the conditions of the incubators did not apply to his project.

This chapter has presented a form of comparison between SA SMEs which have been incubated and SA non-incubated SMEs. Section 4.3.2.3 looks at the effect of incubators on the costs of set-up and operation of incubated technological projects. It will preview the findings on how TBIs help reduce the expense of starting and running an SME and compare

these expenses with non-incubated SMEs. Section 4.3.2.5 present in more detail the effect of TBIs in SA on increasing the credibility of incubated technology SMEs when compared with non-incubated technology SMEs. In addition, Section 4.3.2.2.1 discusses the level of success of incubated technology SMEs in SA and how TBIs' support of incubatees helps achieve their success.

The findings of this research covers what is mentioned in this section and the sections that have been referred to. It becomes apparent that by comparing incubated and non-incubated projects, that incubators contribute significantly to the growth of incubated projects. This, by nature, does not apply to all incubators but the incubators that provide an appropriate level of services to their incubatees. See section 4.3.1.3 (*'Evaluating the current incubators from an institutional theory approach'*) which discussed the concept that not all incubators in SA provide the same level of service. This finding is highlighted in this research. By comparison and research, it is clear from the findings of this research that local incubators contribute to the success of local incubated technological projects when compared to non-incubated projects.

4.3.2.5 Credibility:

SMEs need in the beginning of their business stages help in launching and continuation of their project. Some projects may experience obstacles that limit growth and it may lead to closure of the project see section 4.4.3. One of these obstacles is credibility, and in the following section we will tackle many topics on credibility in small and medium-sized projects.

4.3.2.5.1 Credibility in the local context aligning with institutional theory:

During the interviews conducted with owners of the incubated and non-incubated projects and also managers of incubators, this research finding referred to the topic of credibility as one of the most important factors that has an effect on the life cycle of projects. It is found that some of the projects which are not incubated such as that of participant P1 found it difficult to market their product to SMEs as SMEs would not give their full support to the product. Participant P1, also states that:

“it is difficult to compete with the major companies that have products ranging from ten or twenty years in the market while our products have only been available in the market for three years. Then organisations say to you ‘we can only deal with you

when your product has been available in the market for a period ranging from ten to fifteen years to ensure the effectiveness of the product.”

Participant P2 states that in order to make an attempt to solve these obstacles:

“in order to get the clients, we were forced to accept projects from governmental authorities with low profits or projects that suffered from losses. We did say so that we could say ‘we have x client’ in order to break the confidence barrier because you cannot compete with major companies”.

Participant P2 adds by saying that there is a lack of confidence in SMEs from governmental sectors and in contrast there is a confidence within the sector regarding major companies. Even though they are foreign companies offering the same product. Participant P5 thinks that governmental authorities do not trust SMEs.

What was mentioned by participants P1 and P2 (the owners of non-incubated projects) regarding their suffering from weak trust in SMEs did not come from the experience of working in the market for a limited period. Instead it came from long years, in fact more than a decade’s experience in the case of participant P2. Through the researcher’s observation, the majority of non-incubated projects participating in this research have the conviction that local government bodies do not trust SMEs enough.

On other hand, participant D2 who is a manager of an incubator stresses that the incubator gives more credibility to those who are incubated and that credibility is one of the most important services rendered by the incubator. Participant D1 (a manager of an incubator) adds that the incubator gives participants a letter of introduction indicating that they are incubated and giving the contact number for the project supervisor. The project supervisor goes with him/her to meet with clients to obtain the first contracts whereas it is difficult to obtain the first contract without this. Also, participant D1 refers to “access to the market”. Participant E1 (one of those who graduated from the incubator) confirms this a matter he encountered during his experience of incubation. He also says regarding letters of introduction that they support your situation and they are among the things that he benefited from within the incubator, he also mentions that coordination with some agencies through using incubator contacts. This facilitated business by for example giving access to certain companies. Participant E1 describes the people who ask him about his experience of incubators. He gave an example of one of those who asked him about his experience with incubators:

“I have money and investors but I only need to establish governmental contacts and I would like the incubator to introduce me to institutions that could purchase from me”.

This statement by participant E1 also confirms what was mentioned by participants P1 and P2 that the owners of non-incubated projects have these obstacles to entry into the market especially the obstacles regarding government bodies or organisations.

When the participant N6 was asked about the reason for joining the incubator he said:

“if you ask me why I joined Waed [name of the incubators] I will say to you the incubator is 99% credibility and 1% funding. The reason is that most major companies say to you that ok we love your idea but who are you? You are a small company. And this one of the major things in Saudi Arabia is that nobody gives the small companies any chance and you have to be a major company. And some of them say, I will give a lifeline, I will give you something that I am depending upon so If you disappear after six months what shall I do. And some of them say no I cannot sign a deal with a small company”.

Participant N6 mentions his experience with companies before incubation, and his experience after incubation. This will be mentioned it in the following section.

On the local context, the findings of this research show clearly that local technology SMEs suffer from weakness in credibility with both organisations and government bodies. The following sections discuss this obstacle and offer solutions for it.

4.3.2.5.2 Understanding the contribution of incubators to credibility:

In the previous section some obstacles that face SMEs have been mentioned in the topic of credibility between SMEs and others entities.

This section reviews many of the actual experiences of participants in this research when they were asked about the effect of incubators on their projects or the reasons that made them join an incubator. The experience of participant N6 before incubation was mentioned and the reason that motivated him to join incubation was credibility. Participant N6 also mentions that after joining the incubator, he did not suffer as he was suffering in the past, instead he signed multiple contracts with major companies when they discovered that he was an incubatee in Waed Incubator. Waed is also a partner with participant N6 through their funding and incubation. Waed is one of the initiatives of Aramco the largest oil Saudi Company.

Next this section will cover the experiences of some of the incubated businesses regarding the effect of incubators on their business credibility. Participant N8 mentions that incubation greatly assisted him in gaining reputation and confidence in his project. It has also helped us to secure large contracts. Participant N5 adds that an incubator facilitated the process of

securing governmental contracts. Participant N5 also mentions that it is different going to a certain company as an individual compared to as an incubatee and this situation suits him very well. Participant N2 was asked about the most important added value of incubation? He answered that it is credibility. Participant N2 stated that credibility gained from incubation had helped a great deal in signing partnerships with many companies.

Participant N7 added another point which is that when he presents himself he is doing so as an incubated, and this gives him a competitive advantage. As such the incubator gives him high credibility. Participant N7 was asked about the effect of this competitive advantage he answered by saying that “I have implemented many projects it is possible would not be operating if I had not been incubated”. Participant N5 describes the incubator support as “back-up that can be relied upon”. Participant N3 mentions that incubation provides him with more credibility, when organisations know that you are incubated with a large company. Participant N3 adds that this has helped him to sign more contracts because there is a lack of confidence in small projects. Since the project is incubated and listed under a large organisation this gives it more credibility. Participant N1 mentions another point when he was asked about the effect of incubation on the continuity of his project he said that incubation gives more confidence when you approach an investor, as the investor knows that you are incubated. In addition, Participant D4 (she is a manager for one of the incubators for women) mentioned what happened at an exhibition for small projects. Her organisation attended as an incubator with some of the projects incubated with her incubator. Some of the owners of projects which were not incubated wanted to have a space in the location that was specified for her incubator. This was because they felt that the incubator had a great effect on the credibility of incubated projects as they noted it had an impact on the behaviour of people who attended the exhibition. Participant N4 mentioned that the second reason for joining the incubator is that the name of the incubator supports his project and that the added value of incubation is credibility.

However, some incubatees mention that there may be a negative impact resulting from been incubated. Participant E1 (a graduate from an incubator) explains that if you stay in the incubator for a long time this gives an indication that the business is not yet ready for the market. Investors will ask when they will be leaving the incubator and indicate that they need to leave the incubator. Participant E1 add:

“because they think that you still need time in the incubator because you still do not have a strong and trusted business which makes incubation a double- edged sword.”

Participant N3 mentioned that sometimes incubation helps a business and sometimes it does not. It doesn't increase the credibility when there is a suggestion that when a business is incubated it means that the company does not have great potential to be an independent company. Participant N3 comments by saying that very few people think in this way. Through what was mentioned by the previous participant, there are a few who think in that way. Looking through, the data revealed a link to the findings of this research which showed that there is a lack of awareness of the initiatives of incubators in SA (see section 4.2.6.1) which may be one of the reasons behind this negative view.

One of the important finding of this research, is that it clearly appears that there is an effect of the local incubators in increasing credibility for local incubated technological projects.

Having said that, a few participants mention some negative aspects of being incubated. Due the important of this finding, the researcher hopes action will be taken by the local incubators. Such action could avoid any negative aspects that can affect their role in increasing the credibility with agencies relevant to technological incubated projects. This may contribute to increasing the positive effect of incubators in the community, which leads to an increase in the number of start-ups who join incubators. Thus quality projects serve the orientation of SA in its National Plan for Science and Technology (see section 4.2.1).

4.3.2.5.3 Comprehending what affects credibility:

In the previous three sections the credibility had been discussed from many aspects, and in this section there will be a discussion about what affects the credibility, in particular what makes it increase and what makes it decrease.

All the incubatees who had been interviewed participant N1, N2, N3, N4, N5, N6, N7, N8, E1 mentioned that having been an incubated project increases the credibility of the incubated business for many agencies including investors and governmental authorities. They said that their entering into a relationship with the incubated projects and affected credibility directly by various ratios. They said that they were faced with many obstacles to overcome such as the signing of contracts with governmental or non-governmental authorities. In addition, participant N6 mentioned that he had noticed a great difference before and after incubation. This refers to many factors, cited by participant D2 (incubator manager). He says:

“I was project reviewer in USA and Italy. In those countries when you establish a project the matter is so easy because you are the one to carry out due diligence in obtaining background on the potential incubatee but in Saudi Arabia this does not exist”.

Participant D2 gave an example to explain his previous quote, about a case that had taken place within the incubator. He says:

“Someone came to us [in the incubator] that we knew had passed through several stages and multiple partners and had left them. We do not know whether he had deceived them or whether there were other reasons for leaving them. Where are his businesses? and where are the contracts that he had signed?”

He goes on to say “his existence in the incubator gives credibility to other persons that due diligence had already been done”.

What was referred to by participant D2 here is that if the person he mentioned above is allowed to join the incubator, this will give a general impression that the due diligence has been done regarding that person.

That is joining the incubator contributes in increasing the credibility of the projects selected by the incubator. All the incubator managers in this study mention (participant D1, participant D2, participant D3, participant D4 and participant D5) that they apply policies to select the incubated businesses carefully (see section 4.4.2). It is worth mentioning that each incubator has different policies regarding the selection process and the admission of the incubated project. The policies may differ but they agree that they seek painstakingly to select the best candidate. In addition, participants D2 and D5 mention the incubated project that has been selected, giving an indication that this project has more factors for success compared to other projects. Furthermore, the name of the organisation or the company which the incubator is sponsored by increases its credibility. This is more marked if it is famous and known to sectors of society and has a strong legal character. Participant N5 said that most ordinary people do not know about Bader (name of the incubator) but when you say that I am in King Abdulaziz city for science and technology (KACST) here the credibility increases. When the participant N8 was asked about the reason for joining the incubator he answered that being incubated in Bader under the umbrella of KACST served the interests of the company and it increased his credibility. Also, participant N6 confirms that when he joined the incubator and became a partner with Waed incubator, Waed incubator was one of the initiatives of Aramco Company and Aramco Company has a very good reputation in Saudi Arabia. Participant N6 mentions that this has increased his credibility where in the past he suffered from rejection from major companies unwilling to sign contracts with him since his project was still small at that time as they stated. On other hand, something contrary to this has been noticed when this matter has been discussed this matter with a commercial incubator managed by participant D3. It was noticed that a big name for the incubator was

absent which had a negative effect on progress. Moreover, participant P3 mentioned another aspect that may have an effect on credibility, which is the relationships between the companies' owners and the IT managers in other sectors. Participant P3 adds that the relationships play a significant role to the extent of effecting whether the company becomes a successful company. He also states: "I know business owners who have IT companies because their colleagues were studying IT at university with them and now they have become IT managers in governmental authorities."

On the other hand, the participant E1 mentioned that incubation may have a negative impact on credibility. Participant E1 mentioned that length of the incubation period may give a negative picture [in his case the period of his incubation in the incubator was about four years] (see section 4.3.1.6 '*Normative pressure arising from the exit policy for local incubators*'). When participant E1 was asked for a solution from his point of view, he replied: change the incubator name to accelerator or alternatively the business incubator is to become a part of the business which means partnership between him and the incubator. It is worth mentioning that Waed incubator applies the principle of partnership with incubated projects. Also, as regards the change of the incubator name, it is useful to see section 4.3.1.2 '*Comprehending the types of current incubators in Saudi Arabia*' since there are many types of incubators including the traditional incubator and the accelerator and the virtual incubators. It is possible that the business owner may try to join the incubator that suits his requirements more. It worth mentioning that the incubators initiative in Saudi Arabia only started relatively recently as has previously been mentioned in section 2.10.4 '*The Saudi incubators*'. Moreover, participant E1 was one of the first group incubated with the first incubator. Since his project is one of the first incubated projects, it may be that a negative view of the length of the incubation period is due to the low awareness in the local environment toward the role of incubators.

In addition, participant N3 mentions that he regards incubation as giving an indication that the project does not have great potential to be an independent business. This may result from the lack of awareness of incubators and their role, as has been mentioned in section 4.2.6.1 '*Understanding the implications of awareness of Saudi incubators*' in which it is argued that awareness of incubators is weak in Saudi Arabia.

Through the findings of this research, it has been shown to the researcher that the name and reputation of the incubator is one of the most influential factors in increasing credibility sought by the incubatees, shown by the findings of this research. A question has been highlighted here to the researcher about commercial incubators that do not have a huge name

and an excellent reputation: What will be their destiny? Will they be affected in a way indicated by participant D3's experience? In this case his incubator did not have a name as well-known as the commercial incubator Waed. Waed was sponsored by Aramco Oil Company.

4.3.2.5.4 Suggestions for increasing credibility along with institutional theory:

As has previously been referred to SMEs suffer from lack of credibility. However, some participants suggested some proposals that may contribute to increased credibility for SMEs. Participant P1 states, a need for more governmental support compared to current support provided for SMEs. Participant P1 added that governmental should adopt products from SMEs in a case there is a product that provides the same services. Participant P1's thoughts on this were:

“now there is support for technology incubators, and there is [financial] support for technical projects, but technical projects still face difficulty in marketing their products, as nothing had been done!”

Using hermeneutics cycle, the researcher sees that what was mentioned by participant P1 could be considered to be a significant point in building a local ecosystem (see section 4.2.4). Without marketing outlets which are opened for technology projects (whether incubated or not), local SMEs will face greater difficulties in survival, growth and competition.

Participant P2 stated that the lack of confidence in SMEs from the governmental sector hinders the SMEs. However, participant P2 comments by saying that:

“if you take the place of the decision maker in the governmental sector, then I do not blame him but I do blame the situation of the market. The situation in Saudi Arabia is that price is more important than quality then it is natural that the major company that has marketing capability will offer less quality and cheap price. But the company that desires to prove itself [he means SMEs] tries to offer a high quality product but it fails to gain confidence due to the fact that the market offers low quality products so the governmental sectors resort to the major companies to protect itself.”

The researcher believes that what was mentioned by Participant P2 may not be entirely generalised. In that there is some truth in his thoughts and many will think about the price first. However, there are many government bodies and organisations that are interested in quality in the first place and then the price comes synchronously with it.

Participant P2 mentions a solution for this problem from his own point of view that there should be black list of companies to protect the successful companies, governmental sectors

and IT managers. Furthermore, participant P2 proposes that there should be a classification for companies and projects because not all companies compete on all projects. Thus in order to submit bids for large governmental projects your company should be a major company. Contrariwise the major companies should not be allowed to submit on small governments bids to give the SMEs a chance to compete in a regulated market. Participant D2 comments that in Saudi Arabia it is difficult to practice due diligence regarding companies. This is because there are no regulations that force disclosure of income in Saudi Arabia such as taxation systems. The researcher believes that after the establishment of the Small and Medium Enterprises General Authority in SA at the end of (2016), the proposal by participant P2 can be implemented in putting a classification for local SMEs through the Small and Medium Enterprises General Authority.

4.4 The third question: What are the potential obstacles that SMEs encounter when they attempt to join technology incubators in Saudi Arabia?

Prior to answering the third research questions, it was beneficial first, to establish the following from the point of view of the participants in the study: (1) the obstacles facing local SMEs; and (2) the mechanism for emerging companies to successfully overcome such obstacles.

This is followed by a discussion of: (1) Saudi rules and regulations associated with SMEs, and whether they create obstacles for the SMEs; (2) the vision of the owners of technology projects; and (3) whether existing laws are considered to be obstacles to joining an incubator. Prior to discussing the obstacles in the way of projects wishing to join an incubator, it is beneficial to first establish: (1) the conditions and criteria of the selection of incubatees in the local incubators; and (2) the vision of the owners of the technology projects in Saudi Arabia concerning these conditions, both for projects that have been incubated and those that have not.

Examples for the questions asked:

Questions for managers:

- How do your incubators select incubatees?
- What are the obstacles faced by start-up businesses in general?
- What are the obstacles faced by start-up businesses that have been incubated?
- Are there obstacles for start-up businesses when they are trying to join incubators?

Questions for the incubatee:

- Did you face any obstacles when you attempted to join a technology incubator?

For more details, see the sections below.

4.4.1 Coercive pressure arising from the obstacles facing local SMEs:

The participants in the study (including managers of incubators, owners of incubated projects, and projects that are not incubated) mentioned that local emerging companies face obstacles starting from preparation for set-up to the progress of the project, including:

- E-Payment gateway: this is considered to be the most important obstacle for emerging companies, as mentioned by participants D1, D2, D5, P5, N1, N2, N3, N2, N4, N5, N6 and E1. Participants D2 and N4 note the non-existence of the e-payment gateway in Saudi Arabia, with the service limited to the SADAD²⁹, which provides its services to major companies and levies high fees on emerging companies. Participant N4 states that:

“the problem is that the second party [he means SADAD] takes from me a percentage that affects the profit. This forms an additional cost and if I charge the customer this cost, I will not be able to compete in the market as the price will be too high in comparison to existing prices.”

Participant D1 wishes to know if it is possible to have E-commerce without the e-payment gateway, as (for a number of reasons) local use of a Visa card for purchasing is not gaining in popularity. Participant N1 explains:

“There is no sense of protection locally when using a Visa card as there is in the USA. In the USA if there is payment transaction you have not implemented, you can notify the company that you have not implemented that process and they will deactivate it and follow it up.”

On the other hand, he feels that the issue concerning Visa cards is not a problem “because electronic payment represents only 30%” (i.e. of their transactions). The researcher sees that the ratio mentioned by the participant N1 here is inaccurate at

²⁹ “SADAD Payment System (SADAD) was established by the Saudi Arabian Monetary Agency (SAMA) to be the national Electronic Bill Presentment and Payment (EBPP) service provider for the Kingdom of Saudi Arabia (KSA)” (SASO, 2016).

present (2017), but these figures may have been true while conducting the interview (2014). For further discussion on this point, see section 5.4.1.

- Finding employees with sufficient skills and with the desire to work in small business (for more information, see section 4.2.3).

- The multiple agencies responsible for submission of permits, as noted by participants D1, D2, P1, N5, N6 and E1. The incubator facilitates this aspect by providing services to the incubatees through an agency that acts on their behalf to obtain the required permits. Participants N5 and N6 both state that the incubator assisted them in this matter. In addition, participant D2 states that the incubator provides facilities to enable the incubatee to start work on their projects immediately they are accepted. Participant E1 notes that, when it comes to innovative ideas, there is no classification for such ideas, and responsibility for projects then falls between two governmental agencies. Participant P1 explained that he suffered from this also and that he was the first owner, and his license is No. 1 from a government agency. Participant D4 (the manager of one of the incubators for women) describes licenses as the greatest obstacle. That may be due to the current social status of women in Saudi Arabia as one of the reasons behind such difficulties. However, a number of governmental agencies in Saudi Arabia have established a section for women in order to facilitate the procedures immediately. On the other hand, the male owners of projects also mention similar difficulties in obtaining licenses. The researcher sees that in the year 2017, there is a tendency from some government bodies to issue permits electronically. Especially the Saudi Ministry of Commerce, which has provided excellent electronic services to allow the process to be completed on-line. So, there is no need to visit the Ministry of Commerce as the fees are paid electronically, and the commercial license is sent to the beneficiary by mail. On the other hand, the researcher agrees that to obtain permits for engaging business, it is not enough to apply for a permit from one party, but one needs to visit many government bodies and obtain independent permit from each of them. This would be one of the obstacles facing the owners of SMEs especially those who are working on their first project. The knowledge of the requirements for obtaining all permits may require an independent office on behalf of the project owner to obtain all these permits. It should be noted that some incubators provide this service for its incubatees.
- Poor financing in the field of IT, as noted by participants D2, P4 and N4. However, participant D1 disagrees, considering financing the least important service provided by the incubator. Participant D1 added that, this is borne out by the fact that the financing section was only established one year previously (i.e. four years after the opening of the incubator) while, if it had been an obstacle, the incubator would have

opened the financing section at the time of its set-up or within the first year.

The researcher does not agree with what was mentioned by participant D1 that funding is the lesser service provided by incubators. In the process of refining understandings reached tentatively through this research, a link was found to an analysis of what participant D1 said in section 4.3.2.1.1 '*Understanding the status of technological projects in Saudi Arabia which do not require a large amount of capital*'. In that section the experiences of owners of such projects were mentioned and that they usually do not require a large amount of capital; this may be the reason behind what was mentioned by participant D1. Alternatively, there is the suggestion that technological incubated projects at the initial stage were not in need of funding and when these projects grew and reached later stages in the business cycle, they needed funding after four years. (This is also the average time spent before graduation of projects in SA, see section 4.3.1.4, which discussed the duration of incubation in Saudi incubators). This point divides into three subsections within this section of research. The motivation behind this is to provide a concept of the method of analysis by the hermeneutic circle.

- Intellectual property: Participant D2, N4 states that it takes many years to establish intellectual property rights in Saudi Arabia.
- Lack of confidence in emerging companies. This point has been discussed extensively in section 4.3.2.5 concerning credibility.
- Internal delivery and postal addresses: Participants P5, N1 and N2 note that transportation or local postal services incur considerable costs for emerging companies, in addition to the lack of a postal box for each household. This is due to the fact that postal deliveries in Saudi Arabia differ from those in the West, as there is no postal delivery to each home. Thus it is necessary to have a postal box within the postal company. Private postal companies (such FedEx, etc.) deliver postal services to homes, but this incurs considerable cost.
- The business owner or partners work as a government employee (this has been discussed in section 4.4.2, concerning the conditions and standards of the selection of the incubatees).

- Investment in IT projects: Participants P3, P4, N3 and N8 are of the opinion that there is a lack of investment in technological projects in Saudi Arabia. Therefore, participants N1 and E1 mention that there needs to be facilities for foreign companies to enter the Saudi market for investment. On the contrary, participant P1 perceives that, the existence of international companies harms local emerging companies.
- Marketing: as noted by participants P1, N3, N5 and N6. Participant D1, states that: “the selling of the first contract is a big problem, it is a source of misgivings.” Participants N7 and N8 note that incubators have helped them to obtain contracts for projects.
- Experience in business management: the owners of both incubated and non-incubated projects state that they had not studied how to establish a commercial project. Participants P2 and P4 add that they have learnt from their mistakes in their projects. Participant P2 notes that incubators contribute to reducing errors in projects. Participant N7 states that incubators address this lack of experience through the courses offered. In addition, participant N3 adds that the incubator contributes indirectly through the incubation environment, and that he has personally benefited from the experiences of his incubated colleagues in not committing the same mistakes. Participant N6 confirms that:

“The biggest mistake that I had committed as an engineer was that I focused on the development and the product to be engineered, but neglected marketing, believing that it would sell itself. Later, I came to understand that marketing is an important component of business. This is what I have learned both by experience and also with the incubator through the consultant management. At the same time, they save you time through orientation”.

This illustrates an important point in the field of projects. While it is very difficult to say that a person who did not study the means of starting a project, should not start a project, it is beneficial for the owners of the projects to learn appropriately before starting their project. Thus they can start a project that avoids obvious obstacles. Concurrently, support for projects should have various initiatives in training to establish projects. Also, it should not be exclusively for incubators and their incubatees, but also be open for the owners of existing projects.

- Commitment: a number of participants (including participants D3, P3, N2 and N4) note the importance of the owners' commitment for the success of their projects.
- Saudi rules and regulations associated with SMEs: given their importance these will be discussed separately in the following section.

Finally, when participant D5 (a manager of one of the incubators) was asked about obstacles facing incubated projects in particular, he replied: "I do not think that all of them are the same thing." From the replies of some incubatees, it can be seen that there were obstacles for the projects in general and that incubators contributed to overcoming such obstacles.

4.4.1.1 Coercive pressure arising from the Saudi rules and regulations associated with SMEs:

Saudi rules and regulations are considered among the most important subjects mentioned by the majority of the participants in the study. Participants D1, D2, D4, P1, P4, N1, N6, N5, N6 and E1 state that Saudi rules and regulations are hindering SMEs on a number of levels. Participant D2 states that rules and regulations in Saudi Arabia are "hindering small businesses and entrepreneurs and hindering the set-up of the incubators." Many obstructions facing emerging companies have been discussed extensively in section 4.4.3, including the fact that the majority result from rules that prohibit or impede the SMEs. Due to the importance of this point, it has been placed in a separate section and not included with other general obstructions. Participants N1, E1, N5, N4 and N2 note that the rules and regulations required by SMEs require things that are unavailable (e.g. mechanisms and contracts of partnerships suitable for emerging companies). Participant N1 explains that these include options of stocks or preferred stocks. He adds that these two benefits can hamper a project from being more flexible and appropriate both for the company and the staff recruited, and also in attracting investors. Participant P5 stresses the importance of the legal status of the company and its partners, and ensuring that it is legal, so that no problems occur. However, participant D2 feels that it is not the right time for the concept of incubators in Saudi Arabia: "because Saudi rules and regulations are not supportive". He cites an example where:

“The laws do not have venture capital or appropriate rules for intellectual property...To enter the field and support the local incubators, companies need such rules and regulations to protect them.”

Participant N1 stresses the importance of venture capital. However, participant P1 points out other aspects, such as that: “the rules and regulations do not differentiate between technological corporations and other businesses.” He cites as an example that:

“They compare technological projects with grocery stores, based upon the area of the shop. They give you the number of visa permits to recruit workers (i.e. from outside Saudi Arabia) and this is wrong.”

Participant P2 confirms the point concerning recruitment permits. He adds that they have a branch in Egypt, so that he does not need to recruit, but can outsource instead, while keeping the headquarters of his company in Egypt simplifies matters.

The researcher thinks that what was mentioned by participant P2 cannot be considered a solution suited to Saudi Arabia's aspirations in building technological projects. It is a temporary individual solution; since without the presence of these skilled workers in SA, the Saudi citizen will not benefit from their interaction with colleagues and career development. He will become like a person who imports bread ready every day. Also, by using hermeneutics cycle, this solution is contrary to the direction of the Saudi government in the national plan (see section 4.2.1) and support for freelance work (see section 4.2.2).

When it comes to the point concerning the differences between technological and other projects in terms of governmental procedures, participant P4 states:

“One of the things that made me love the field of IT is my relationship with government, in that laws and procedures are few, and your contact with bureaucrats is limited. This enables us to focus on the work instead of focusing on the procedural aspect. I see friends who are working in other fields spending 50-60% of their time on governmental procedures: this kills creativity and kills the spirit”.

Participant P1 remarks on the effect of these rules and regulations: “I know other projects that have not been successful due to bureaucracy in governmental transactions.” Participants D2 and D5 state that change in Saudi Arabia is slow when it comes to rules and regulations.

Participant N1 states that:

“many people register their companies in Dubai or Cayman Islands... In order for foreign companies to enter the market, they should enter with laws that are customary,

at least.”

Participant N3 says that it took six months at the start of the project to finalise the procedures. Participants D4 and E1 state that there are new activities and ideas for projects that do not have a suitable permit. Participant D4 notes that there are a number of solutions for this issue: “we look for similar licenses to provide this service in a legal manner. I do not mean tampering with laws, I mean to think broadly in order to find a solution.” Participant P2 adds to comments on the difficulties of procedures for project owners by saying that:

“those who are talking (about the difficulties) of the procedures are focussing on some of the more straightforward challenges that face the owner of a project. As an owner, you will face many challenges.”

On the other hand, participant P2 states that legal and procedural obstacles existed in the past, but they are now simpler. Participant P2 confirms that the procedures have passed through a number of changes within the last 12 years of the life cycle of their project.

Not all participants in this research said that the local regulations and laws are an obstacle to SMEs. On the contrary both participant D5 and N8 see that the rules and regulations do not hamper SMEs in Saudi Arabia.

The findings of this research show that the vast majority of participants in this research stated that at the time of interviews, the local systems were not supportive to SMEs. This would be contrary to the Saudi government intentions in its national plans in the development of technological projects (see section 4.2.1). The researcher agrees with what was mentioned by participant P2 that there is a slight change in the facilitation procedure for SMEs. However, the changes that occurred were moving at a slow pace as participants D2 and D5 mentioned. The researcher sees that in 2017, (coinciding with the establishment of the Small and Medium Enterprises General Authority) there is a serious sense that the rate of change needs to be quickened.

4.4.1.2 Understanding the mechanism of overcoming these obstacles of emerging companies:

Participant D2 sees that: “there is no instant solution, and matters need to take their natural course in Saudi Arabia. Laws are now changing, but slowly.” When asked about the speed of change in laws and procedures in Saudi Arabia, participant D4 confirms that they are slow. Many participants in this study see that facilities need to be provided along with solutions for the problems discussed in section 4.4.3, in addition to:

- Support for emerging projects: linking projects to markets through entering into agreements with both international and local companies to cooperate with the emerging companies, as confirmed by participant D4. Participant P1 states that: “governmental sectors should be forced to support Saudi products when they are available”. The Saudi government has created the precedent of forcing the governmental sectors to travel on Saudi Arabian Airlines whenever possible, also, this principle has been applied to students on scholarships throughout the world to support Saudi airlines.

Providing support and guidance to incubated projects, as discussed in section 4.3.1.7: services provided to incubatees in the local incubator, and the effect of this support on the incubated projects.

The researcher sees that it is useful to have future studies competent in the study of the obstacles facing SMEs and that these studies should be new and renewed because each stage has its obstacles and difficulties.

4.4.2 Normative pressure arising from the conditions and criteria for the selection of incubatee:

The selection process is vital for the success of both the individual incubation process and the success of the incubators: the more accurate the selection, the greater the chance of producing successful companies. There are a number of different types of incubators in relation to the mechanism and the conditions for selecting incubatees in Saudi Arabia. The conditions noted by the managers of incubators (i.e. participants D1, D2, D3, D4 and D5) will be discussed first:

- Participants D1, D2 and D3 note that the idea of the project should be unique and innovative. The managers of all five incubators are of the opinion that it should not be traditional and or a repeat project. In contrast, participant D4 states that it is not important if it is a repeat, but it must be convenient. This may result from the differences between the incubators and their objectives. The incubator managed by participant D4 is one set up to be non profit-making, which may result from their own ideals. However, (as previously mentioned) the objective is to create profitable businesses, rather than the quality projects they prefer.
- All the managers of incubators mentioned the importance of the qualities of the project owner and the effectiveness of its teamwork to ensure that they are resilient

and possess the qualities necessary for the success of the project. Participant D1 also adds that they need to be open to learn: “to benefit from the expertise of the consultants in the incubator. What is the benefit of joining the incubators if it is only to gain an office? This is not appropriate”. When asked whether willingness to learn is an essential condition for joining an incubator he replied: “it is not compulsory, but they should attend at least two consulting sessions from between nine or ten sessions per year.” Participant D5 states that: “Team dynamics is the most important criterion and the first characteristic.”

- As noted by participants D1, D2, D3, D4 and D5, the project should have the ability to increase employment. This aspect was focused upon by participant N1:

“They want to support the project, but they want to support the company and work that creates jobs. This had drawn my attention because you do not just support the project, but you support the economy as well.”

When it comes to the mechanism for the selection of incubatees, participant D4 states:

“It is important, and we compare (i.e. between the incubatees) because if I have two good projects, and one has employed three or four female Saudis and the second one does not employ anyone, I prefer the project that provides more jobs.”

Through the previous point, the findings of this research show a significant point which is that local incubators have a real quest to contribute to solving the problem of unemployment in SA. Through their incubated projects, the local incubators contribute in supporting freelance work and decreasing reliance on government jobs. Section 4.2.2 ‘*Coercive pressure arising from freelance working*’ discussed how many incubator managers feel that incubators contribute to solving unemployment problems. When managers were asked whether they had a study showing figures for this effect, the answer was that they measured in other ways which were not numerical or statistical. However, relating to a previous section on the findings of this research, a number of participants (such as manager of incubators participants D1, D2, D3, D4, D5 and incubated participant N1 and N3) state that there is an important role for incubators in creating jobs. Through this insight into incubators’ conditions, it is possible to say that the findings of this research may contribute to highlighting this effect.

- All managers of incubators note that their own success in financial terms results from individual projects achieving financial success.

This condition can be linked to the findings that are shown in this research in section 4.3.2.2.1 (*'Understanding the level of the success of incubated technological projects'*). Incubators are seeking to accept projects that have indicators of success. This is because incubators' services are focussed on projects that can achieve success but need support.

- The project needs to conform to the objectives of the National Plan for Science, Technology and Innovation (as mentioned by participant D2).

The researcher observes that despite the importance of this point, it is not mentioned by any of the incubator managers who were interviewed. Its importance lies in the fact that the majority of the efforts of local initiatives should be in line with the overall strategy of the country (see section 4.2.1 *'Normative pressure arising from the Saudi national plan'*). The researcher recognises that through the previous conditions, it is possible that incubator managers are compatible with the objectives of the national plan in one way or another. However, that is not written or announced. Furthermore, using hermeneutic analysis the researcher in section 5.4.2 noted the conditions and criteria for the selection of incubatees in the local incubator's website. This did not also state any link with the National Plan for science in any way, despite the incubator being managed by participant D2.

- Full dedication to the project. Participants D3 and D4 note that dedication to the project is an essential condition and the owner of the project should not be accepted unless they can demonstrate that they are fully dedicated. When participant N6 (the incubatee in the incubator managed by participant D5) asked whether the incubator stipulates dedication to the project, he stated that he thinks that it is not a written condition. However, they prefer evidence of dedication to the project if they are providing finance. On the other hand, the incubator managed by participants D1 and D2 does not require full dedication to the project. Participants N2 and N4 note that they were not fully dedicated to the project when they began, but worked at it on a part time basis.

The requirement of full-time dedication for the project may be a hindrance to employees (either government employee or private sector) and this may be an

obstacle to joining an incubator as mentioned in section 4.4.3 (*'The isomorphism and competitive pressure arising from the obstacles facing SME technological projects when attempting to join the local incubators'*). On the other hand, some incubators do not require full-time dedication for the project as stated by the incubator managers participants D1 and D2. This result supports the outcome of this research mentioned in section 4.3.1.2.1 (*'Analysing which type of incubator best fits the local context'*) refining understandings already tentatively reached for the importance of the presence of all types of incubators in SA.

- To be Saudi national, as noted by participant D4. The researcher did not hear other managers mention this aspect, however it may exist as an unwritten rule.
- The incubated project should not be a repeat (in the same incubator), as mentioned by participants D1 and D2. However, participant D1 notes that they are thinking of accepting similar projects and they will take action when the situation arises to ensure no-one mentors two similar projects. Participant N7 supports this decision taken by the incubator.
- The applicant should attend a short course on project management, as participant D4 and D5 stated.

The incubatees were also asked their opinions concerning the conditions of the incubators when selecting incubates: Participant N4 describes them as being of medium difficulty. Participant N7 states that the early procedures in the process were easy. Participant N8 believes that the process is easy and well facilitated, while the incubator had also attracted him through awards made to self-made young people, of which he was one of the winners. He also adds that their electronic portal is easy and well facilitated. Participant N6 describes the incubator in which he is incubated as offering compulsory courses concerning feasibility studies, the course lasting one week with eight hours study each day. Participant N6, in another context, states that this is very useful. He adds that the selection process of the incubatees is stringent, as: "from 1000 students, they select two only because they want the projects to be 100% successful." Participant E1 states that the selection process of the incubatees is of medium difficulty: "we have attempted more difficult things, such as nomination for a prize where the questions and tests were more difficult than the questions of the incubator." Participant N5 states: "you can consider that our incubator has not taken a

long time, while other incubators take a long time.” Participant N5 also describes the process of the selection as being of medium difficulty. The findings of this research show that the owners of incubated projects see that incubator’s conditions, in general, tend to be moderate in difficulty.

4.4.3 The isomorphism and competitive pressure arising from the obstacles facing SME technological projects when attempting to join the local incubators:

There are two obstacles that face companies trying to join an incubator: firstly, there are governmental rules and regulations and secondly, there are the rules and regulations of the incubator. This section presents the findings of this research in studying the obstacles facing the local SMEs when trying to join incubators:

- Participants D1 and D2 therefore view the greatest obstacle from Saudi rules and regulations to be that no governmental official can open a business activity in his own name. This is a considerable problem in Saudi Arabia, one that has led to the emergence of what is known as a ‘silent partner’, i.e. (as noted by participant D2), an individual opens a business activity in the name of one of his family members (such as wife/son/daughter, etc.) with the official papers registered in their names while he undertakes the running of the business. Participant D2 was asked if this implied that there were companies who applied to join but had, in the end, chosen not to join. He replied: “yes, I have found companies that do not meet the specifications.” When asked whether he assisted them in overcoming such obstacles, he replied that there are some obstacles that cannot be resolved, such as being a government employee. The researcher sees what was mentioned by participant D2 that some employees of government open businesses with the names of their relatives, this might enable them to obtain commercial permits, but he did not think that this would enable them to join incubators. Section 4.4.2 discussed the conditions for joining incubators and one of the conditions that has been stressed by all incubator managers is the characteristics and qualities of the owner of the project. The researcher sees that it is difficult for local incubators to accept projects with registration details in a different name since the named owner of the project is not the same as the registered name. Also, two managers of incubators mentioned that within the conditions, the owner of the project should be dedicated full-time, this is not applicable to a government employee even if they bring registration in another name.

- Duration of registration: Participant D1 states that one of the obstacles companies face when attempting to join the incubators is that the registration of the project takes a long time, and therefore they attempt to resolve this issue by telling the owner of the project not to immediately leave paid employment. They then suggest to apply for six months' leave to enable them to test their project. This solution was undertaken by participant N1, who is currently an incubatee. On the contrary, when participant N3 was asked about whether he had faced obstacles when joining the incubator, he replied: "no, I was very surprised by the rapid answer to the request. We were given our place within less than two weeks". The researcher discusses here what was mentioned by participant N3 that the duration of the waiting-time for the incubation was only two weeks. Participant D1, the manager of the incubator, mentioned that the process of joining the incubator might take six months as in the case of participant N3; he is an incubatee in the participant D1's incubator. The research now seeks through the views of the participants in this research to answer why the duration of incubation is different. Participants N3, N4, N5 and N7 state that there has been an increased number of applications to incubators during the previous year relative to previous periods, and therefore the level of selection of the incubatees has increased. However, participant N6 holds the opposite point of view, stating that they are experiencing difficulties at the present time and he expects the situation to improve in future. He justifies this by explaining that he was one of the first applicants to an incubator that was in the process of being established. Participant D5 (who is the manager of the incubator in which participant N6 is incubated) expects that the requests to join the incubator will increase tenfold in the year following the interview.

On the other hand, the findings of this research show that what was presented in section 4.3.1.6 (*'Normative pressure arising from the exit policy for local incubators'*) about the weakness of clarity of exit policies may make the accepting dates in incubators unclear and undeclared. Also, the existence of relatively strict policies in the process of the exit of projects from incubators will contribute to reducing the duration length of waiting to join the incubators.

- There are also personal qualities, such as: being able to take the risk of resigning from a job so as to be fully dedicated to the project, or the leadership qualities of the owner of the project and their circumstances, and the nature of their project. For example, an individual may be enthusiastic and meet some of the conditions, but then

these conditions do not apply to them or their project. This is confirmed by participant D4 who, when she was asked whether obstacles exist for emerging projects when attempting to join the incubators, replied:

“I see that there are too many incubators and the method of applying to them is easy and fast, and can be done by telephone or over the Internet. Registration is simple, but difficulties arise once an individual becomes a beneficiary, or if there is no clear idea of the proposed project or it is not logical, or if there are no licenses with which to implement the business.”

Section 4.2.2 (*‘Coercive pressure arising from freelance working’*) dealt with some personal qualities of the owners of projects:

- Participant D3 (the manager of a commercial incubator) states that they request that some small projects have their project headquarters inside the incubator, as:

“Some emerging projects need development and to find new ideas. For ease of communication, we tell them to set up an office in the incubator. If they refuse, saying that already have an office and their own management, then we tell them that we want them to work where there is easy communication between us. But sometimes there is still a refusal”.

The researcher does not agree with what was mentioned by participant D3, who is the manager of an incubator. In that when the project does not exist in the incubator's headquarters, this may be a reason to justify refusing a place for the project in the incubator's programs. Virtual incubation, (see section 4.3.1.2) would still be an option as it gives project owners a place as incubates while they are not physically present in the incubator. For example, participants N7 and N8 who are incubatees in virtual incubators and their projects have achieved evident success (see section. 4.3.2.2.1).

- The conditions and criteria for the selection of incubatee: Participant D2 states that: “we have strict criteria and that, not any project can join.” When participant P1 was asked about his reason for not joining the incubator, he said: “I have read the conditions of the incubator at the beginning and they were ideal for the feasibility study and establishing the idea of the project.” However, he describes it in another context as having “impossible conditions, such as that the idea should be new and had not been already presented.” He comments: “all of our ideas have been presented” (he means the activity of his project). Participant P5 confirms that he has an excellent

knowledge of the incubator and that he did not join because the idea of his project is traditional and was a repeat for the incubator. When participant N2 was asked about whether he had faced any obstacles when joining the incubator, he answered: “yes, I have faced obstacles, such as the incubator not understanding the idea”. When he was asked about how he overcame these obstacles, he replied:

“I needed more than one session and I submitted an application to join the incubator, but it was rejected. They said that this idea exists already. I was able to submit another application with a different idea and there was no similar project.”

Furthermore, when participant N2 was asked about whether this situation was common or simply relevant to his project, he replied: “the rejection is an exception, I do not think that this is dominant as much as the issue of a lack of understanding of an idea.” On the other hand, participant D5 (the manager of one of the incubators) states that one third of the ideas submitted to them are repeated ideas, with the majority being interested in real estate or a site for selling cars similar to auto trader. It is worth mentioning here that the findings of this research in section 4.4.2 (*‘Normative pressure arising from the conditions and criteria for the selection of incubate’*) showed that the conditions of incubators, in general, are moderate in difficulty.

- Lack of clarity about the services provided by the incubators: when participant N2 was asked whether he decided to join an incubator as soon as he had heard about them, he replied that he had not:

“The services provided were not clear, including how I would benefit, or the obligations that would be imposed on me when joining the incubator. What I had read about the incubators (such as the forms available abroad) also ensured that it was unclear. Therefore, this model was not clear to us, but, after some research, I understood the type of project accepted and what is expected from them”

This confirms the experience of participant P2 (who is the owner of a project which is not incubated) who remarked that he had an experience of signing a contract with an incubator in 2011. Although their attitude to his project was positive, he discovered that the services provided were not suitable for his enterprise, as it was not a small or emerging company.

On the other hand, there are a number of incubated projects that had not faced any obstacles when joining. Participant N1 says that he did not face any obstacles when he joined the incubator, explaining: “it is the fact that that they do not want to just support the project but they want to support the company, this was the thing that attracted my attention.” Participant E1 says that he did not face any obstacles, but has faced difficulties due to the required studies. He adds that he has overcome such obstacles by implementing what is required. Participant N8 states that there are conditions for joining, which he views as fair. Moreover, participant N4 states that he did not face any obstacles when he joined. Participant N7 views the procedures as easy and facilitated. Participant N8 says that he did not face any difficulties and that the procedures are easy.

Finally, when participant D2 was asked about the obstacles facing emerging companies when they wish to join an incubator, he replied: “It is assumed there should not be any obstacles. We are helping them, even when we reject their project: we enter with them into the process.” The researcher sees that the concept described by participant D2 is a beautiful concept in trying to overcome the obstacles that face projects when trying to join incubators.

4.5 Conclusion:

This chapter formed a discussion of the actions undertaken in the full study to answer the three research questions: (1) to study the effect of the incubators in the local context through government initiatives and plans to support local SMEs; (2) to evaluate the current incubators and study their effect on SME technology projects in Saudi Arabia. This was followed by conducting a comparative study between the incubated and non-incubated technology projects, in order to measure the effect of the incubators on local projects. This was then followed by (3) a study of the obstacles facing technology projects in Saudi Arabia and the obstacles they face in attempting to join the incubators. This investigation was undertaken from the point of view of the participants in the research, including: (1) managers of incubators; (2) owners of incubated technology projects; (3) owners of non-incubated technology projects; (4) owners of projects that have graduated from the incubator.

The findings of this research showed many key findings, the most prominent are:

1. There is a clear and financially supported government strategy for the implementation of the National Plan for Science and Technology through several initiatives. In the field of this research, it is clear that the Saudi government has been paying attention to the initiatives of incubators and supporting local SMEs.

2. There is a lack of awareness with the general public regarding the role played by local incubators and the services they provide. This is not consistent with the strategy of the country in its programs for national transformation of a society based on technology.
3. Incubators are contributing to the beginning of such a transformation. They have an effect on local development and starting new SMEs.
4. The findings of this research present a study for the current status of local incubators including the evaluation of their current level and the most prominent disadvantages. This includes several sections that studied the services provided by incubators and defined the incubator types that suit the local context now and in the future. Also, it includes a review of the incubation period in the local incubators as well as exit policies. Also, all incubator managers mentioned, that there is no research or study conducted which covers these aspects despite mentioning the importance of such research.
5. In the field of incubated projects, the findings of this research showed clearly that the majority of the local incubated projects have a high level of growth, and that incubators have a clear and prominent effect in contributing to this growth. The findings also showed that the local incubators contribute to the reduction of establishment and operating costs in a clear manner for incubated projects. This will contribute to enhancing the growth levels of incubated projects.
6. Through the comparison conducted in this research between the incubated and non-incubated technological projects, the findings of this research, through a number of sections, showed that incubated projects have levels of growth which are clearly greater than non-incubated projects. This effect is more pronounced in small enterprises than medium-sized enterprises.
7. The findings of this research show clearly that local SMEs suffer from a problem in credibility. The findings of this research showed that incubators contribute significantly to increasing the credibility of incubated projects. Also, if a project before incubation was suffering from weak credibility as viewed by many parties, then after joining an incubator, this contributed to increasing credibility and the likelihood of gaining contracts.
8. The results of this research showed that there are 13 types of obstacles facing the local SMEs. The most prominent obstacles are the local laws and regulations, and these

laws and regulations are not supportive of the government's strategy in supporting local technological projects.

9. The findings of this research showed the conditions and regulations applied by the local incubators in the process of selecting the incubators.
10. The findings of this research showed the obstacles faced by the local projects when trying to join incubators. The findings showed that these obstacles are divided by the researcher into two sections: first, obstacles resulted by local regulations and laws. Second, obstacles resulting from the policies and regulations of incubators themselves. Through the findings of this research, the researcher hopes that these findings go some way to fill the knowledge gap mentioned in section 1.2. Having presented the data gathered in this chapter, the analysis of the data is presented in the next chapter below.

The next chapter is the analysis chapter, which provides another view for analysis of the findings of this research.

Chapter 5: Analysis

5.1 Introduction:

Chapter Four presented the findings of this research, through using the research methodologies discussed in Chapter Three. The hermeneutic methodology was selected (see sections 3.7) to analyse the collected data of this research (see sections 3.6).

This chapter (Five) presents a deeper view of the findings of this research, which appeared in Chapter Four, in two ways. First, the previous chapter in each section discusses all the opinions of the participants individually, while this chapter takes the results of the section as a whole and discusses it further. Second, the researcher synthesises the findings with the literature review (see Chapter Two). This has been done in order to provide a deeper level of data analysis based on the same methodologies discussed in chapter three (see section 3.7.5), in addition to adopting the same approach in the analysis by using the 'hermeneutic circle' mentioned in section 4.1.1.

The data and information to be analysed in this chapter can be divided into two parts. The first part, is the findings of this research discussed in Chapter Four through the data and information that discussed the mechanism of data collection in section 3.6, based on the field work which was conducted with participants from Saudi Arabia. These participants came from different sectors, including government, private sector and charitable organisations. All the participants in this research are stakeholders (see Section 3.6.3 on case study protocol), being either incubator managers, owners of incubated businesses or owners of non-incubated businesses. The aim of the second part, through the literature review that was discussed extensively in chapter two is to look into the experiences of other countries in the field of incubators and compare those experiences with the findings of this research about Saudi Arabian experience.

An example of the use of hermeneutic methodology in the analysis of this chapter is found within section 5.2.4 (*The Saudi 'ecosystem' associated with isomorphism and competitive pressure*) in which there was a comparison between the findings of this research in Chapter Four (section 4.2.4 *The Saudi 'ecosystem' associated with isomorphism and competitive pressure*) and Chapter Two with regard to the literature review and previous research related to this point, by using the 'hermeneutic circle'. This technique depends on tacking back and forth between different details (see section 3.7.2). The findings of the analysis of section 5.2.4 showed two important points. The first one is that SA has similar phenomena to those

mentioned in the literature review. This is regarding the orientation of many countries in the world to support SMEs, however the support of the SA government came later than other countries because there was a focus on the oil industry. Second, the findings of section 5.2.4 showed that in the literature review, SMEs face difficulties in the process of financing, while the findings of this research showed that there is great financial support for SMEs in SA. This finding can be considered to be contrary to what is stated in the literature review.

This Chapter (Five) and also Chapter Four depend on the findings of the coding in section 3.7.6, which showed that there are thirty-eight 'thematic labels', divided into three groups, each of which was associated with one of the three research questions (see section 1.4). The same titles and sections were used in Chapter Four which presented the findings adopted in this chapter. This was done in order to maintain consistency and help the reader refer to the same section of the findings chapter more easily in order to review the participants' opinions and thus add another dimension to the analysis. For example, in Chapter Four, there is section 4.2.2, entitled '*Coercive pressure arising from freelance working*' as well as section 5.2.2, entitled '*Coercive pressure arising from freelance working*' with a difference in the content which is explained by the difference between Chapters Four and Five in section 4.1.

5.2 To investigate and study the effects of technology business incubators on small and medium-sized enterprises (SME) in a developing country.

5.2.1 Normative pressure arising from the Saudi national plan:

In many countries, there are government initiatives and plans to support SME projects. Saudi Arabia launched the National Plan for Science and Technology and Innovation, with the aim of supporting and localising technological projects, in order for these projects to be on a par with those in developed countries (KACST, 2016). Saudi Arabia allocated a huge budget for the plan, which amounted to 80 billion SAR (more than 21 billion USD), as mentioned by participant D2. The Minister of Economy and Planning (MEP) in his ninth development plan report stated, that the cost of the first five-year plan was 7.9 billion SAR (MEP, 2016, p.370). The National Plan aimed to develop the economy into a knowledge-based economy (Khorsheed et al., 2012, p.1). The first incubator, which was one of the initiatives of the National Plan for Science and Technology, as mentioned by participants D1 and D2, appeared in Saudi Arabia in 2008 (Khorsheed et al., 2012, p.1). The Bader group incubators were established as a national initiative to cover Saudi cities under the umbrella of the King

Abdulaziz City for Science and Technology (Khorsheed et al., 2012, p.1). When interviewed, all the incubator managers, participants D1, D2, D3, D4, D5, whether from governmental, commercial or charitable incubators said that the general objective of establishing incubators was to support small projects and entrepreneurship projects in Saudi Arabia.

On an international level, it was mentioned in the literature review (see section 2.5) that there are many governments that put a lot of resources into the set-up and operation of incubators. The Small Business Innovation Research (SBIR) is considered to be one of the most famous initiatives, and began in the USA in 1982 (Wessner, 2008, p.16; Ratinho et al., 2010, p.7). The SBIR initiative aims to encourage technological innovation in small projects by filling the gap between knowledge production and marketing. This is done by developing links between universities and the public and private sectors, and this is often achieved through the set-up of new companies (Wessner, 2008, p.16).

The governments of developed and developing countries play an important role in preparing the laws, rules and regulations governing SMEs, and also an important role in developing initiatives to support them (Scaramuzzi, 2002, p.3). One of these mechanisms, which has supported SMEs for more than two decades, is incubators (Scaramuzzi, 2002, p.3). In developing countries, most governments have sought to use many programmes to support SMEs (Scaramuzzi, 2002, p.9). Some of these countries have achieved the objective of supporting SMEs through the use of incubators. Among the countries which have presented models for supporting the spirit of the entrepreneurial initiative are China and Brazil (Scaramuzzi, 2002, p.13). Kim and Jung (2010, p.1) also mention that, through changes made by decision makers in South Korea to encourage progress in the field of knowledge and technology, there was significant support provided to incubators to support small projects.

It makes to say that the endeavour of Saudi Arabia to transform its economy from an oil-based economy into a knowledge-based economy is an important initiative with regards to the diversification of sources of income, which is a positive and important step forward. One of the findings of this research presented in Chapter 4 shows a clear Saudi Government strategy for the implementation of the National Plan for Science and Technology. This is achieved through several financially supported initiatives. Moreover, the finding shows that the Saudi Government has clearly paid attention to the initiatives of incubators in supporting local SMEs. These initiatives to support SME projects is considered to be one of the elements of the National Plan for Science, Technology and Innovation through the use of technology incubators. Although the set-up of the first incubator in Saudi Arabia may have been

relatively late, compared with other countries, at the same time, it was the catalyst for other incubators to be rapidly established throughout Saudi Arabia. SBIN (2014) stated in the '*1st Annual Guide to the Saudi Small Business Incubator Network*' that there were 23 incubators in Saudi Arabia at the time, and most of them were established over the previous three years. The plan is for the number of incubators to increase to 80 by the year 2025. By using the hermeneutic methodology for analysis, the findings of this research are aligning with what was mentioned in the literature review on two levels: First, the direction of international governments in supporting technology and innovation initiatives. Second, as mentioned in the literature review that in SA, these initiatives such as incubators have been implemented.

5.2.2 Coercive pressure arising from freelance working:

Unemployment is a problem suffered by most countries in the world, and Saudi Arabia is no exception. In 2014, the Saudi population had increased to 20,702,536 (CDSI, 2016). In 2011, Saudi Arabia launched a programme to support job seekers for one year under the name "Hafiz", meaning incentive. In 2012, the number of beneficiaries of the program was more than 1.6 million (Al Riyadh, 2013a). Meanwhile, the director of the Human Resources Fund (HadaF), who is responsible for the Hafiz programme, mentioned in a news report published in December 2012 that the number of people registered in the programme was 1.4 million (Okaz, 2012). The General Statistics Department and Ministry of Labour in Saudi Arabia issued a joint statement on unemployment data and information in Saudi Arabia, stating that unemployment in Saudi Arabia stood at 11.7% in 2014, or the equivalent of 651,000 people (Alriyadh, 2015). However, it was mentioned on the website of the General Statistics Department in Saudi Arabia that unemployment in 2015 stood at 11.5% (CDSI, 2016). By December 2014, there were 1,222,116 civil servants, according to the latest statistics from the Ministry of Civil Service (MCS, 2014). According to a report published by the Ministry of Saudi Labour, by the end of 2013 the number of people working in the private sector was 9.7 million, including 1.47 million Saudi men and women, which was an increase of 332,200 employees, compared to 2012 (Alyaum, 2014). That is to say that the percentage of Saudi employees in the private sector is about 15%. In a recent report in the second quarter of 2017 from the General Organisation for Social Insurance in SA, the number of employees in the private sector in Saudi Arabia, whether Saudis or foreigners, reached 9.98 million (Okaz, 2017). According to the report, the percentage of Saudis working in the private sector increased to 1.67 million in the previous year, to reach 17% of the total number of private sector employees. On the other hand, the vast majority of private sector workers are foreign

nationals as, based on the same report, the proportion has decreased to 8.31 million. Hertog (2010, p.28) mentioned that in 2002 the percentage of Saudi employees in the private sector was about 10%, and the percentage of people employed by SMEs was just 2%. According to a Central Department of Statistics and Information report on the Saudi labour force in 2015, the number of Saudis aged over 15 was 5,591,563 (CDSI, 2015). The previous figures show, the employment situation in Saudi Arabia from different aspects.

The Saudi Government believes that the private sector plays an important role in the creation of jobs (Ramady, 2013, p.1) and participant D1 agrees with this sentiment. It is shown from the previous figures that the percentage of Saudis working in the private sector is low. This is due to the fact that in the private sector, for each job created for a Saudi national, there are more than six jobs created for foreign nationals (Hertog, 2010, p.32). The Saudi Government is keen on implementing rules and regulations that force employers in the private sector to employ a proportionate number of Saudis compared to the total number of employees in a company. This system is called "Nitaqat", which is a quota system (Ramady 2013, p.1). This system is used for colour coding companies, based on the number of Saudi employees (Ramady, 2013, p.1). Participant P1 said that he has suffered because of this system, because the Ministry of Labour does not differentiate between technological business and other business, since the measurement of the number of Saudis required for employment is the same for all types of business. He also added that there are some jobs or specialisations, where Saudis do not accept working for low salaries. Also, owners of SMEs are not able to pay high salaries to Saudis or help those living in another city with moving costs, thus making it difficult to meet the required ratio.

However, are the efforts by the Saudi Government to impose rules and regulations sufficient to confront the unemployment crisis?

At the beginning, in accordance with the Nitaqat programme, it was mentioned that 20% of companies are far from achieving the objectives of the Saudi system. Secondly, Hertog (2010, p.31) mentioned that the results of both surveys and the labour market suggest that the majority of young people prefer to work in the public sector rather than the private sector. The reasons for this are as follows: there is job security, better benefits, higher salaries and finally, the work in the public sector is less demanding (Hertog 2010, p.31). By using hermeneutics, the findings of this research have shown evidence to the contrary. In that many of the project owners who were interviewed, prefer to be self-employed rather than work in the public sector. Also, it has been found that some of the project owners mentioned that the benefits stated in Hertog's report are not always true. For example, participant N3 mentioned

that his income from being self-employed is much bigger than if he was an employee. Regarding the fact that government work is less demanding, participant N8 commented that work in the public sector is more bureaucratic and that he had resigned from his government job to be self-employed. However, participants P5, N2 and N4 said that they are still working in the public sector until their project is independent and does not require any extra financial support. Thirdly, in the findings chapter, it was stated that there are other factors that affect the self-employed in Saudi Arabia, and these are summarised as follows: 1- Educational outputs do not support self-employment and how to start a new business; 2- The perception of self-employment is not positive; there is a common perception in Saudi society that there are more benefits working in the public sector, as mentioned by Hertog (2010, p.31). However, some participants, including participants N6, N7, N8 and P2, objected to this overwhelming perception and; 3- The effect of the surrounding family in selecting work in either the government or in self-employment³⁰. The third point in this section, was addressed by using hermeneutics cycle, to discuss what has been mentioned by Hertog (2010, p.31). Content in the cycle included some of the participants' opinion and other sections from the findings of this research which together provided a joint view. Section 4.4.3 mentioned that personal qualities, play a role enabling project owners to take the risk of leaving a public-sector job to become self-employed. Thus, all the managers of incubators in section 4.4.2 state that the qualities of the project owner are one of the most important criterion, when they select an incubatee. From the above it can be said that not all people have the qualities of an entrepreneur.

On the other hand, there are efforts being made in Saudi Arabia to encourage freelance work, including:

- 1- Supporting SME projects financially (this point will be discussed in section 5.2.2.1 '*Supporting funds in Saudi Arabia*').
- 2- Set-up of incubators. All incubator managers who were interviewed, stated that among the objectives of the incubators is the creation of projects that contribute to the creation of jobs for Saudis.
- 3- To encourage a culture of freelance work. There are many government and non-government initiatives which encourage the culture of freelance work, including

³⁰ For more information on these points, please see section 4.2.2 '*Coercive pressure arising from freelance working*', which discussed the opinions of the participants regarding freelance work in Saudi Arabia and why they have chosen freelance work in Saudi Arabia.

programmes launched by the Saudi Credit Bank, as well as the Saudi Centennial Fund initiative, to spread the culture of freelance work. In addition, many programmes provided by incubators disseminate the culture of freelance work.

- 4- Symposia and conferences organised by stakeholders. This point was discussed in the findings, whereby it was found that it had a significant effect on project owners or those who are interested in establishing technological businesses (for more information see section 4.2.4).

Based on the above, it is clear from the figures mentioned that the Saudi Government needs to support the concept of self-employment. This is what Saudi Arabia has attempted to do over the past few years, although it may be too early to pass judgement on the initiatives developed by the government. In order to give an overview of the current situation in Saudi Arabia, the researcher tried to look at current figures on the subject of encouraging freelance workers, at the beginning by looking at the figures available. However, the researcher encountered two hurdles: the first was the lack of such official figures and statistics, and secondly, published figures from other sources were not always accurate. You will not find any statistics about initiatives promoting freelance work on official websites. For example, despite the importance of the Hafez programme, no official statistics on the number of beneficiaries of the program can be found on the programme's official website: www.hafiz.gov.sa. The figures were taken from a press statement, which claimed that the number of registered employment seekers in the programme was 1,658,201 in 2012, while another statement suggested that there were 1.4 million for the same year. However, the Saudi Bureau of Statistics reported that the unemployment rate for 2012 was about 12.1%, a figure that does not agree with the number of job seekers registered in the Hafez program. A joint statement from the Saudi Arabian General Statistics department and the Ministry of Labour claimed that the number of unemployed in 2014 was 651,000 the equivalent of 11.8% (Alriyadh, 2015). Moreover, the statement added that the number of employment seekers enrolled in the Hafez programme does not reflect in any way the unemployment statistics and is not an indicator of unemployment (Alriyadh, 2015).

During the past few years, it is clear that Saudi Arabia has put more emphasis on supporting the self-employed, rather than government workers. Saudi Arabia has introduced new legislation to support employment in the private sector; for example, the Nitaqat programme. This programme may be influential in both the set-up of new projects and continuation according to what was said by participant P1. In contrast, there are opinions about the current

regulation in Saudi Arabia, which suggest that it does not serve SMEs. These opinions have been discussed extensively in section 4.4.1.1. It may be too early to make a judgement on all the government initiatives in general, but through the participants' viewpoints, it has been found that despite the existence of these initiatives, there is little awareness regarding the funds available to support SMEs (see section 4.2.2.1) or of incubators (see section 4.2.6.1). According to the findings, it has been noted that seminars and conferences have had a significant impact on increasing awareness and knowledge of incubators or support funds for entrepreneurs.

5.2.2.1 Support funds in Saudi Arabia aligning with normative pressure:

Within the last few years, Saudi Arabia has put more emphasis on supporting SMEs in multiple ways. Financial support is considered to be one of the most significant ways in which Saudi Arabia has supported SMEs. It has done so supporting the Credit Bank Fund, which is considered to be an essential source of financing for SME projects in Saudi Arabia. The Credit Bank's capital now totals 36 billion SR (about 9.6 billion US dollars) (SCB, 2012).

The fourth article of the law regarding the Credit Bank stipulates that the objective of the bank is:

"To grant interest free loans to small and emerging set-ups and to the citizens who have occupations and that is to encourage them to practice businesses and professions by themselves and for their own account" (SCB, 2015).

In the same article, the law also stipulates that the Credit Bank should "play the role of the coordinator for supporting small and emerging businesses" (SCB, 2015).

At the present time, there are 12 governmental, non-profit and commercial authorities that provide financial support to SMEs in Saudi Arabia (SBIN, 2014). Most of these authorities have been established within the last 4 years. The Waed Company³¹ is one of the supporting authorities, which stated in 2013 that it aims to support 250 set-ups to the tune of one billion SR (266 million US dollars) (Alyaum, 2013). In 2014, Waed Company said that they had paid 165 million SR, as a direct support to 32 projects (Alyaum, 2014). With this substantial financial support in mind, participants were asked about the awareness that the owners of technology projects have regarding support funds. Within this research, participants P2, P3, N2, N3, N5, N6, N7, N8 and E1, were asked about their awareness of financial support. The

³¹ One of the subsidiaries of Aramco Oil Company.

results supported the view that the percentage of awareness was very low. Moreover, some of the participants mentioned that those project owners that were aware of the financial support on offer, had an overriding impression of the Saudi Credit Bank (being the largest and oldest support fund) which was unfavourable. It was felt that, the bank's bureaucracy causes problems for project owners, and the owners of technology projects in particular.

To give an example, participant N7 described his experience with the Saudi Credit Bank, saying that he suffered a lot from the procedures and it delayed his project. Participant P4 received a loan for his project from the Waed Company, and he commented that the Credit Bank lives in another world, which is far removed from the spirit and requirements of small businesses. More information on the opinions of the participants regarding support funds in Saudi Arabia can be found in the findings chapter, section 4.2.2.1.

There are initiatives to support SMEs around the world. The World Bank Group has supported SMEs for the past thirty years through many initiatives, paying out more than 8.8 billion US dollars (Scaramuzzi, 2002, p.9). There is also the PHARE programme, which provides financial support to projects in their primary stages in the European Union, including countries in Central and Eastern Europe (Scaramuzzi, 2002, p.10). There is also the TACIS programme, which provides financial support to SMEs in the former Soviet Union, where it has played a pivotal and important role for SMEs (Scaramuzzi, 2002, p.10). In China in 1999, the investment industry was established through venture capital (VC) by the Chinese government to support the technological innovation of SME projects. This program has played an important role (Scaramuzzi, 2002, p.19).

With regards to developing countries, Brazil has many programmes that aim to support SMEs financially, including CONTEC (Bndespar's Capitalization Program for Technology Enterprises) and also FINEE (Investment Fund for New Enterprises) (Scaramuzzi, 2002, pp.13-14). Brazil has also launched an initiative through the Ministry of Science and Technology to support SME projects called the PACTI Program (Scaramuzzi, 2002, p.14). In Taiwan, the government aims to establish a second and third science park in the middle and the south of Taiwan, aimed at supporting new high-tech industries (Yang et al., 2009, p.9). In the GCC countries (Gulf Cooperation Council) Hertog (2010, pp.35-36) mentioned that Saudi Arabia is considered to be one of the largest GCC countries that supports SME projects. The other GCC countries also have programmes that support SMEs. In Bahrain, there is the 'Tamkeen' programme, which provides financial support to emerging projects (Hertog, 2010, p.33). Also in Kuwait, the Kuwait Small Projects Development Company was established in 1996, which provides support to SMEs (Hertog, 2010, p.33). In 2008, a special

programme was launched in Oman for young people, under the name ‘Sharakah’, which provides financial support to emerging projects.

From the research findings and literature review, it makes to say that that Saudi Arabia supports SMEs significantly, especially over the last few years. This is in line with many countries in the world, which have placed more emphasis on supporting SMEs. The large amount of spending on SMEs was mentioned in this section. It was mentioned in the literature review that Saudi Arabia is considered to be one of the largest supporters, in terms of the amount of spending on SMEs, amongst GCC countries. This may be due to the fact that the Saudi population is more than double that of the population of the rest of the GCC countries put together.

On the other hand, a report submitted to the Investment Commission in Saudi Arabia in 2002 (Otsuki, 2002, p.5) suggested that the largest obstacle for SMEs in Saudi Arabia is a lack of financing. However, that is more than a decade ago.

Through the findings of the research mentioned in this section, and what has been covered in the literature review, it is reasonable to suggest that a lack of financial support is no longer the biggest problem. The hermeneutic technique used in this research suggests that the problem is not related to a lack of financial support, but to the poor awareness of the availability of support funds in Saudi Arabia among the owners of emerging projects or those who wish to establish a project., Three important points regarding the lack of awareness emerged from the results of this research by using the hermeneutic circle. Firstly, this may be due, initially, to the relatively recent introduction of many of the financial support funds in Saudi Arabia. Secondly, it may be due to the negative impression of many of those who were interviewed regarding the oldest and most important funds to support companies in Saudi Arabia. This negative impression led some of those interviewed in this research to think about whether or not to seek financial support. Financial support may be one of the important factors that SMEs need for development and growth. In future research, when successful SMEs can be engaged and be part of a sampling group, it may be useful to look at financing funds and some of the organisations supporting them. Thirdly, in some organisations, funding procedures are not consistent with the spirit of entrepreneurship or with the speed required by the owners of the business. Business owners may have to wait for more than six months or even a year to receive financing. However, when participant N7 was asked about his experience and whether he had noticed any change in the procedures for giving financial support now, compared with the procedures in 2009, he replied that there was a big change. It is worth mentioning here that the change in the procedures in Saudi Arabia has been slow in

general, as mentioned by some research participants including participants D2 and D4. This may not be suitable or acceptable to the generation of young people, who are owners of SME projects.

5.2.3 Understanding the implications for employment in Saudi Arabia:

Recruitment may not be so crucial at the beginning stages of a business, where their business depends upon their founders. Yet, at the first stages of growth, the issue of employment and recruitment for SMEs starts to be one of the obstacles that face these emerging companies face. As employment is considered one of the most important issues for the project owners.

Through the findings in section number 4.2.3 which discussed the results, participant N2 mentions that the formation of a working team is one of the most important issues for technological projects. The results show that many of the project owners who had taken part in the research had suffered from the issue of employment difficulties in one way or another. Participants D5, P1, P2, N1, N2 and N8 mention that the recruitment of competent staff to work for SMEs is one of the most important obstacles. Participants P1, N1 and N8 add that, in the case of finding qualified people, it is difficult to find those who agree to work for salaries that SMEs can pay at the beginning of their projects. Participant E1 adds that the problem does not end there. He agrees with all the aforementioned and says that staff may work with you for a short period of time and then transfer to a bigger company. Participant P1 says that the current rules and regulations do not support owners of technological projects who are hoping to recruit Saudis in technological SMEs where such current rules and regulations do not differentiate between a technological company and any other activity that does not require people with certain experience and skills.

In a recent study conducted for more than 4500 UK SMEs with high rates of growth in addition to growth indicators, it was found that the obstacles facing SMEs are divided into six categories, of which the first two are recruitment and skill shortages (Lee, 2014, p.183).

From what has been stated above, we find that the findings of the research are consistent with what was mentioned in the literature review, that the issue of recruitment is one of the most important obstacles facing SMEs, whether inside or outside of Saudi Arabia. Participants mentioned the issues of difficulties they face in finding employees with suitable competencies for employment and also to retain staff. The government had created a program for the additional support of wages through the Human Resources Development Fund which

aims to localise jobs for Saudis, enabling set-ups with platinum scope³² to register 20% of its Saudi employees and 15% of the staff in companies in the green scope³². So, the government pays a parallel salary to the employee that is equal to half of the salary paid to them by the set-up, provided that the maximum salary paid is 4000 SR, (1066 US Dollars) for the platinum scope, and 3000 SR (800 US Dollars) for the green scope. Support continues for four years for the platinum scope and three years for the green scope, provided that the support diminishes on an annual basis. This system is considered to be a system that supports SMEs' operations. However, it may not be sufficient as the support provided is equal to 15% for smaller companies. This means for very small set-ups, which in accordance with the classification of the Ministry of Labour employ less than ten employees, they will not benefit from such a program with the exception of only one employee. In this case, companies seek assistance from staff working outside Saudi Arabia (as it difficult for SMEs to obtain a permit from Ministry of Labour to recruit staff from abroad to work in Saudi Arabia). This is the case for many participants, including participants N2 and E1. If a business requires more than one employee, they may open a company in a neighbouring country to avoid all these obstacles as was the experience of participant P2. However, all these solutions are not consistent with the program of job localisation in Saudi Arabia.

5.2.4 The Saudi 'ecosystem' associated with isomorphism and competitive pressure:

Environments can be one of the motivating elements for the set-up of a certain industry, whether conventional, technological or a knowledge-based industry. Through reviewing the opinions of many of the participants, who had participated in the research (section 4.2.4), many of them mentioned the 'ecosystem' for SMEs and they said that there is no 'ecosystem' that supports SMEs in Saudi Arabia or that the 'ecosystem' is weak. Participants D2 and D4 say that Saudi Arabia depends upon the mega-projects' technique. Participant D5 adds that the method followed in Saudi Arabia is a very top-down method while what Saudi Arabia needs is a bottom-up method. Participants D2 and D5 say the system needs to start from an individual basis in Saudi Arabia. Participant P4 says that Saudi Arabia has to consider the matter in a different manner since the building of the 'ecosystem' requires Saudi Arabia to build the system. The failure of a certain project should not be viewed as a failure but as a

³² Category set by the Ministry of Labour to divide enterprises into categories according to ratio of the number of Saudi workers

building of the Saudi 'ecosystem'. So, each project learns from the mistakes of the previous project which enhances the chances of its success and the continuity of the project.

However, in recent years, there has been a public culture recognising SME businesses in Saudi Arabia, as mentioned by participant D4. Participant P2 also confirms that the situation has changed very much from before, when he started his project ten years ago. There is greater social awareness of the SME projects.

Through the findings, a real possibility is that the conferences and symposiums organised by concerned authorities have a great and remarkable effect on participants who are owners of technological projects. Participant N1 describes one of these events by saying, "200 persons come to you including designers, programmers and others. They work for three days, then their thinking changes very much ... there is a type of magic in these events which is very exciting." Participant N4 says that they are very effective with a quantity of information and good relationships with youths interested in technology.

In the literature review, a number of governments have greatly increased their efforts to create environments that are more appropriate for new projects. Initiatives and mechanisms aim to assist projects through the provision of necessary support, so the projects' life cycle will continue (Özdemir and Şehitoğlu 2013, pp.282-283). However, in Saudi Arabia the problem started at the beginning of the 1970s, at the time of the Saudi oil boom great attention was paid to the petrochemical and manufacturing industries (Sadi and Henderson 2011, p.405). These huge industries in Saudi Arabia received great attention. This led to a neglect of the SME ecosystem. (Ramady, 2005; Sadi and Henderson 2011, p.405). Government also neglected SMEs, in terms of incentives, leading to the flourishing of such manufacturing industries. With regard to financing, the commercial banks regarded SMEs as high-risk borrowers (Shalaby, 2004; Sadi and Henderson 2011, p.405).

When talking about the 'ecosystem' for SMEs, it is useful to remark upon the importance of the environments that enhance SMEs. As mentioned from the findings, that the 'ecosystem' in Saudi Arabia is weak or non-existent, since Saudi Arabia was and still depends upon the technique of mega projects and this is consistent with what is mentioned in the literature review. This has also led to a weakening of the support from many aspects for SMEs in the past, as mentioned in the findings, which is also confirmed by the literature review.

On the other hand, it was stated in the literature review that there are obstacles facing SMEs, in terms of financing opportunities, since government had neglected the financial support provided to SMEs which affects finding a suitable environment for a boom of SMEs. However, through the findings of this research and section 5.2.2.1, it is evident that the

results and analysis do not agree with what is mentioned in the literature review because Saudi Arabia, during the last few years, has paid more attention to SMEs in a number of aspects, including by providing financial support to projects with a very low interest rate (just 1%) and launching several initiatives including incubators. All these initiatives aim to create the 'ecosystem' that is meant to contribute to the development of the SME industry. It could be argued that the impact of these initiatives cannot yet be measured as they were only set up a short time ago. However, failing to evaluate the current initiatives may lead to the continuation of initiatives that do not achieve the objectives for which such initiatives had been created.

From the other side, the social awareness of the plans and initiatives of the government and the dissemination of the culture of freelance business would contribute to building a local 'ecosystem'. When participant D4 was asked about whether there is a local 'ecosystem', she answered, "No," but this has a negative and a positive aspect. The negative aspect is the absence of the supporting 'ecosystem' and the positive aspect is that we can currently create a local 'ecosystem' based on the current and future SME requirements. As was mentioned in the literature review for this research, the nature of the Saudi environment is different. It may be feasible to build a local 'ecosystem' based on the Saudi environment to serve the local SMEs. The researcher sees that it may not be possible to import an 'ecosystem' from a country; for example, Saudi Government cannot import the Silicon Valley and its designs, buildings and initiatives and expect success. However, it is possible to adopt successful experiences and initiatives that are compatible with the local environment.

5.2.5 The geography of Saudi Arabia associated with institutional theory:

In this section, the geography of Saudi Arabia will be discussed, in terms of the effect of the geography on incubators and SMEs. To start with, Saudi Arabia has a vast area which is eight times the area of the United Kingdom. However, the average population density in Saudi Arabia is around 14 per km² (The World Bank, 2016), as compared to around 371 people in the UK per km² (ONS, 2012). This may be due to the fact that the population in Britain is more than double the population of Saudi Arabia. However, it does not explain the significant difference in density between both countries. SA has eight times the area of the United Kingdom but population density in the United Kingdom is 20 times greater than SA. Saudi Arabia has a vast area and a relatively small population. In comparing this to other countries, and looking at the area and the recent experience of incubators, the distribution of incubators in Saudi Arabia is fewer. This has an effect on how incubators operate. Participants D1 and

D2 mentioned that their incubator is a national program and, due to the vast area of Saudi Arabia, incubators cannot be established in all major cities but they provide virtual incubators for all cities. There are other commercial or universal incubators that only exist in one city. There are contrasting opinions on the lack of incubators in some cities. In this situation the project owner will be forced to be an incubatee in a virtual incubator, as was discussed in section 4.2.5 in the findings chapter. Some participants mentioned some points that are related to the Saudi geography, briefly including the following; 1 - awareness of incubators differs from one city to another city; 2 - most conferences are held in major cities compared to the rest of the cities; 3 - the vast geographical area affects the ability of SMEs in marketing their products; 4 - the effect of the vast area on employment, in terms of the distribution of competencies. In the case of rare competencies, in general, some people with those skills refuse to work in small or medium-sized cities³³.

It makes to say that, during 2013-2014 specifically, the spread of incubators doubled, compare to programs supporting SMEs in previous years. Therefore, the findings show that some participants mentioned that conferences are concentrated in the capital city or major cities but it is noticed that even medium-sized cities have started to organise conferences related to supporting SME projects. Participant N8 mentioned that because his project is not located in the capital city, this made him lose a number of activities that are organised in the capital city. For example, Al-Qassim University (which is the region that participant N8 lived in) organised two conferences on entrepreneurship and small projects during the year 2013 and 2015. These conferences may also contribute to increasing the awareness about incubators in small and medium-sized cities, in comparison with the capital or major cities. Many participants mentioned that awareness differs from one city to another but, as regards the geographical area, it may affect marketing. This is maybe due to the fact that the Saudi ministries are headquartered in the capital city, in addition to major companies. However, the Saudi capital city is near to the middle of the Saudi area which makes it relatively easily accessible from various cities of Saudi Arabia.

5.2.6 Incubators and Saudi Arabia:

Saudi incubators are considered to be one of the initiatives that has been created over the few past years, whereas the Bader technology incubator is the first Saudi incubator (Khorsheed et al., 2012, p.1). It was established in 2008, as mentioned by participants D1 and D2 (Al

³³ For more information, see section (4.2.5) in the findings' chapter.

mubartaki et al., 2010, p.6). During the last few years, incubators have grown in Saudi Arabia. It is reasonable to suggest that the beginning of Saudi Arabia is late in comparison with the rest of the world and this may be due to several factors, such as Saudi Arabia, at the beginning of its set-up as a country, had relied upon mega projects, as was mentioned in section 5.2.4 (The Saudi 'ecosystem' associated with isomorphism and competitive pressure). In addition, society tends to rely upon government for most of the service aspects.

5.2.6.1 Understanding the implications of awareness of Saudi incubators:

Awareness of any new event for any society is considered to be one of the elements that it may be useful to study if it is related to a certain research topic. In this section, the awareness of Saudi incubators will be discussed by SME project owners. Among those who first talked about the importance of the awareness of incubators in Saudi Arabia is Dr. Nabil Shalaby, in 2003, at a conference about science and technology parks (Shalaby, 2003, p.1). He mentioned that one of the objectives of the research paper is to increase the awareness of incubators and their effect on the economy. It is worth mentioning that this conference was held five years ahead of the beginning of the first Saudi incubator in 2008.

One of the findings of this research revealed the awareness of the public as regards the roles played by local incubators and the services they provide. Managers of incubators, and owners of incubated and non-incubated projects were interviewed in this research, the majority replied that awareness of incubators is weak (see section 4.2.6.1 Understanding the implications of awareness of Saudi incubators).

In respect of the efforts of incubators in measuring the percentage of incubator awareness in Saudi society, all the incubator managers who were interviewed in this research were asked about this. Participants D1, D2, D3, D4 and D5, were asked whether their incubators have measured the percentage of awareness of incubators in Saudi Arabia; they all replied that they do not have any study that investigates the percentage of awareness of Saudi incubators. Participant D1 said, "No, but we are conducting an initial survey: when we are in a new place, we ask those who are around about how many persons know about incubators? This gives us an indicator." It may be feasible for incubators to conduct studies which measure the awareness of Saudi incubators. For example, if the percentage of awareness of incubators in the capital city is greater than any other city as was mentioned in this research, it is feasible that the programs of incubators could be directed towards highlighting its activities in the cities in which awareness is weak. Participant E1 said that he is among the first of those who joined the incubator in 2008. At that time, there was no awareness of incubators while a

number of participants mentioned that awareness of incubators has increased over the past years, including participants D4, N3 and E1. However, some participants mentioned that awareness may be affected, based upon two perspectives. Firstly, participants P5 and N7 mentioned that awareness of incubators may differ from one city to another (this effect was discussed in section 5.2.5, The geography of Saudi Arabia associated with institutional theory); secondly, the awareness of incubators differs from one type of project to another. Participants P2, P5 and N5 mentioned that the awareness of technological project owners may be greater than others. This may be due to two factors; firstly, the technological knowledge of project owners will be greater amongst this group and thus it will be easier to research and to follow up what is new. In the past, the spread of information was slow now, amongst the technologically knowledgeable, the spread of information on the internet is faster. Secondly, technological project owners may have more gatherings compared to other professions. This was confirmed by participants N5 and E1 when they mentioned that the increase of awareness of incubators is due to the conferences and symposiums organised by incubators for project owners³⁴. The suggestion could be made that these two points are related to the awareness of incubators as are the size of cities and the type of the business. These factors are inter-related. It is mentioned that the difference in awareness resulting from the difference between cities is referred to by the fact that the overwhelming majority of conferences and symposiums are in the major cities. In addition, the increasing awareness of incubators amongst technology projects owners may be due to these conferences and symposiums. Therefore, these conferences and symposiums are important and can be convened quite significantly in several regions of Saudi Arabia, especially the medium-sized areas and cities and not to concentrate on organising such symposiums in the major cities only. However, it was noticed over the two past years that there are initiatives from some universities in the medium-sized cities to organise forums concerned with entrepreneurship and SMEs. Universities include Al-Qasim University, Umm Al Gura University and Najran University. Table 4.1 contains all the opinions of participants in the research regarding the awareness of incubators in Saudi Arabia.

Through the interviews conducted in this research, it was found that awareness of incubators is not only regarding technological SME owners. There are several organisations whose awareness of incubators may affect the incubators. Participant D2 mentions that there are

³⁴ For more information, see the effect of symposiums and conferences in section 5.2.4 The Saudi ‘ecosystem’ associated with isomorphism and competitive pressure.

some governmental officials who are happy for the existence of incubators in Saudi Arabia without having knowledge of how and what incubators do. Participant D2 adds that some governmental officials are responsible for some incubators projects. Moreover, there is a difference between those who know incubators in general or have real knowledge of the nature of the work of incubators and what the projects provide, as mentioned by participant P3. In addition, there is a weak awareness on the part of the project owners, who have had the experience of opening existing commercial businesses. Participant N2 says that many of the owners of technology projects do not have any knowledge of incubators or the nature of the work of incubators. This is what is confirmed by this research. When participant P1 was interviewed and asked about incubators, he replied that he only knows the Bader incubator [the first Saudi incubator] and that he knows 30% of the works carried out by Bader incubators. However, through the interview, it was clear that the percentage may be less because he did not differentiate between the incubator and supporting funds. On the other hand, participant N5 said that the percentage increases significantly for technology project owners who attend conferences and symposiums. This may be a justification for those who attend conferences and symposiums that talk about incubators or SMEs over the past years, which may contribute to increasing awareness.

It may be natural that, at the beginning of anything that is new, the awareness of that phenomenon will be weak. Participant N7 mentions that the reason for the lack of awareness of incubators is that they are a new phenomenon in society but the problem is that the awareness will continue to be weak. In this case, it is not expected to achieve the desired objectives. During the previous years, it was noticed that there was an increase in the percentage of awareness of incubators as mentioned in this section.

This brings the researcher to understandings already tentatively reached within this section and section 4.2.6.1. Two points can be added from those understandings. The researcher, through his follow-up over previous years regarding Saudi society and the project owners, sees that there is also increasing awareness of incubators in a gradual manner. However, the question remains, did these incubators increase awareness of their role in Saudi society during the nine years from the opening of the first Saudi technology incubator? From the results of the research, it is clear that awareness is still weak (up to the date of conducting interviews in 2013 – 2014). The researcher notices that the number of current incubators is not the problem, as there are eleven incubators and technological accelerators and ten mixed

incubators³⁵ (accepting technology projects) (SBIN, 2014). This is what was confirmed by participant D4, (a manager of an incubator), who mentioned that the number of incubators is large at this time.

5.2.7 Implications leading incubators to contribute to local Saudi development:

In the literature review, the effects of incubators on the global environment has been discussed through research in a number of developing and developed countries. In the findings chapter, section 4.2.7, participants mentioned their vision, where the majority of them mentioned that current incubators contribute in one way or another to the local economy. For example, participants D1 and D2 explain the effect of incubators in contributing to local development by saying that incubators contribute to making SME projects a success in Saudi Arabia; therefore, the percentage of successful projects will increase and the percentage of failed projects will decrease. However, the remaining percentage of participants see that it is too early to judge the experience of incubators in Saudi Arabia. Section number 4.2.7 in the findings chapter explores more of the opinions of participants in the research. In particular, regarding the contribution of incubators to Saudi Arabian development. Participant D2 argues that it is not possible, with the current status of Saudi Arabia, to measure the effect of incubators and their contribution to the local economy, due to the lack of rules and regulations in Saudi Arabia. These rules and regulations force companies into tax disclosure and to show the income of projects and the revenues achieved by those projects. Participant D2 adds that, in their incubator, they try to measure the effect of the incubator's contribution through the number of emerging projects in a certain area. In another context, he also mentioned that they measure that effect through the percentage of employment for each project. In their incubator, they value the importance of projects that employ greater numbers for their contribution in solving the problem of unemployment in Saudi Arabia. Therefore, the ability of the project to employ staff is one of the most important elements in joining their incubator. Using hermeneutics indicates that participant D2's opinion is not necessarily true. A contrary opinion, is that in Saudi Arabia, there is a governmental authority named The Department of Zakat and Income Tax (DZIT) which is responsible for taking Zakat from companies operating in Saudi Arabia and that DZIT has full access to tax and income information, in accordance with this Saudi law article:

³⁵ Others incubators such as industrial or medical or engineering incubators are not being computed here.

“Article (58) (1) of the Implementing Regulations requires all persons, natural or corporate, to provide DZIT with the basic information specified in Article (61) of the Income Tax Law, with regard to construction, service and delivery contracts, and their amendments that they may conclude with any person from the private sector. Article (58) (4) of the said regulations states that this requirement applies to contracts of all types and nature and with resident or non-resident parties, with exception of contracts of a value less than one hundred thousand riyals.”

Some participants in this research said that there is circumvention of many rules and regulations in Saudi Arabia. Especially as the tax law of DZIT is not strict in Saudi Arabia as the tax law in many western countries. It is worth mentioning that all companies should submit a DZIT certificate to the governmental sector.

It may be early to judge the effect of incubators in the Saudi local economy since the first incubator started in 2008 and the culture of the incubator has only appeared on the scene after the year 2011. However, it is possible to evaluate the previous incubators experiment to understand the effect, and that evaluation may give indications that can benefit incubators in the future. Through the findings of this research and through the opinions of the participants, it makes to say that there is a positive trend in Saudi Arabia in terms of the effect on the local economy through local SMEs. From what is mentioned above, it can be said that incubators may make a contribution to the local economy in Saudi Arabia and that this is consistent with many of the international experiences of incubators such as: Yang et al. (2009), Kim and Jung (2010), Marques et al. (2010) and Schwartz and Hornyk (2010).

5.2.7.1 Implications leading incubators to contribute to starting new projects:

For most incubators that are concerned with small or macro projects, the contribution of the incubator in starting new projects is considered to be one of the most important objectives. In the Saudi context, the findings show a positive impact for SA incubators contributing to new start-up companies. All incubator managers interviewed were asked whether incubators in Saudi Arabia contribute in starting new projects. All the answers were that incubators clearly contribute to starting new projects. Participant D2 explains that contribution by saying that incubators are more suitable for the local contexts than any other contexts. In the USA, for example, you can start your project from your home and the address of your company will be your home address. In Saudi Arabia however, there should be a commercial address to obtain a work permit (this point will be addressed in the recommendations section 7.3). Participant

D2 adds that when the project is beginning, you need to rent a facility, furnish it and pay multiple invoices. Definitely, this is costly for emerging projects. Participant N3 confirmed that, by saying that at the beginning of his project he did not have sufficient money to start his project. He said that the incubator had a very significant effect in starting his project. Participant N7 said that many youths are apprehensive about entering into projects but incubators provide them with suitable support for investment³⁶.

On the international side, (McAdam and McAdam, 2008, p.1) it is mentioned in the literature of University Science Park Incubator (USI), that incubators are considered to be effective tools for supporting emerging projects. In addition, this recognition is based upon the fact that incubators provide joint services, such as the office, office services and other services (McAdam and McAdam, 2008, p.1).

From the results of this research, a real possibility is that incubators in Saudi Arabia may contribute to starting new projects and this is pointed out within the literature review (see sections 2.7). It can also be said that the contribution of Saudi incubators in starting new projects is an important part of the effect of local incubators.

On the other side, the most important aspect that distinguishes technological projects from other projects is that they can be started at home but they cannot transfer to business unless they go to the next phase. This gives a chance to those who have technological ideas to test their projects, firstly by creating a prototype, or proof of concept stage. This may contribute to the process of selecting the project for incubation, noting that many local incubators have programs for developing their ideas.

5.3 To establish the impact and benefits of technology business incubators by conducting a comparison between SMEs on-and-off incubation:

In the findings chapter, the participants' answers for the second research question were divided into two. The first section is about incubators in Saudi Arabia, including the current status, types of incubators, rendered services and the systems relevant to incubators. The second section is about technology projects in Saudi Arabia, whether incubated or non-incubated, and to compare the effect of incubators upon them. In order to have compatibility between the chapter on the findings and the analysis chapter, the same division of the findings will remain because it is suitable for the research.

³⁶ See section 4.2.7.1 for more opinions and the incubated and non-incubated Participants on the effect of the incubators on the beginning of the projects.

5.3.1 The first section:

5.3.1.1 Current incubators in Saudi Arabia aligning with competitive pressure:

Incubation is considered to be a new initiative in Saudi Arabia. Despite its recent start, it has witnessed an expansion by opening several incubators in Saudi Arabia. The Saudi Government has paid special attention to supporting initiatives. There are eleven technology incubators (or incubators that accept technology projects) and technology accelerators, and also ten mixed incubators (that accept technology projects) in Saudi Arabia (SBIN, 2014). When the researcher asked five incubator managers who had been interviewed in this research about the objective of their incubator, they answered that their incubator pays attention to supporting emerging technology business or pre-starting projects, to be a successful business. There are other specialised incubators in Saudi Arabia such as industrial, educational or medical incubators. For more details about the twenty-one incubators which are mentioned above, see table 4.2.

5.3.1.2 Comprehending the types of current incubators in Saudi Arabia:

In Saudi Arabia, there are three methods of incubation as mentioned by participants D1, D2, D3, D4 and D5, which are:

- 1- Full incubator, 2- virtual incubator, 3- accelerator.

These incubators refer to four types of organisation, which are governmental, semi-governmental, commercial and charitable organisation. Saudi incubators are compatible with the types of incubators in developed and developing countries mentioned in the literature review. The first annual directory that included members of the Saudi network for business incubators was prepared by SBIN, (2014), adds a fifth type, which is bodies that created by a royal decree.

Governmental incubators are one of the four types of organisation. This is the case whether independent incubators such as Bader technology incubator or incubators that have been established by universities as they are both ultimately dependent on state funding. This is the case whether they work through collaboration with Bader such as the Al-Qassem University incubator, or independent incubators, such as the business accelerator in al Um al Gurra University. Incubators which exist in private universities are considered as commercial incubators, such as the King Abdullah Incubator for Science and Technology. It is worth mentioning that the government provides free university education to all Saudis. However, there are private universities where the student has to pay tuition fees. Moreover, commercial

incubators are incubators that are created by the private sector. Incubators classified as semi-governmental are incubators that are affiliated to semi-governmental bodies such as chambers of commerce.

5.3.1.2.1 Analysing which type of incubator best fits the local context:

During the research, participants, including incubator managers, incubatees and non-incubatees, were asked about their vision for the best model that suits Saudi society at the present time.

In the findings' chapter, section 4.3.1.2.1, participants extensively gave different opinions. Some of them were supportive of conventional incubators and others were supportive of business accelerators. There is no opinion that supports virtual incubators. From the previous answers, the participants that support conventional incubators justify their support by saying that, at present, incubators are still in the emerging stage. Therefore, incubators are really needed as an organisation that has an effect. Other participants add that conventional incubators are important because they do not require a full-time basis for acceptance into the incubator. This is contrary to business accelerators that depend on extensive work in the project for several months, according to reports from business accelerators (the period is usually from 3-6 months). There are supporters for business accelerators who feel they are the most suitable alternative for Saudi Arabia at the present time.

They justify this by saying that business accelerators offer greater benefits and they are more practical while incubators are slow. They see the business accelerator entering with you into a business partnership and then exerting pressure for more achievement. On the other side, participant D5 says that we have a risk-averse culture in Saudi Arabia. He mentioned, for example, the competition organised by one of the Saudi telecommunication companies. In this competition, three projects won and they refused to come to the business accelerator.

Moreover, participants discussed an important point with regard to the age of the project. For medium-sized projects or small projects in the after-growth stage, they face an obstacle which is called "Death Valley". Heshmati (2013, p.13) states that SMEs in Korea enter the Death Valley before they reach the 5-year mark. In addition, Kang et al. (2008, p.445) discovered that the age and size of the SME plays a crucial role in terms of survival and performance of the business.

Based on what was mentioned previously from research, participants' opinions, and several articles in the literature review which discussed best practices for incubators, such best practice is highly important for incubators. Both participants D2 and D5, (they are both

incubator managers), have confirmed the importance of the selection of a suitable model for incubators that is appropriate for Saudi Arabia and its youth. It has been discussed in the literature review that importing a successful model of incubators from a country and applying it in another country is not necessarily the means to success in the new country. Participant D2 confirmed that there are incubators that started before Bader but they did not succeed because they imported models of international incubators and applied them as they were, without any modification. When participant D2 was asked about their mechanism in designing the model of their incubator, he replied that they have studied what was done by developed countries in two ways; the first way is that they assigned an international consulting team to design the best model of incubator and another team to set the best methods of work. The second way was through a working team. Participant D2 and his colleagues in the incubator visited many countries during one month to see how some business in incubators work in reality. Participant D2 adds that the team discussed the international experiences that are different from their incubators and how they can make it suitable for Saudi society and so on. From the point of view of the researcher, based upon a number of experiences in the literature review and through meeting several incubator managers in Saudi Arabia and owners of incubated and non-incubated projects, he sees that the designing of a local model, benefiting from international models and experience, may be an important step in the beginning stages of incubators in Saudi Arabia. This confirms the failure of some of the previous experiences of incubators in Saudi Arabia. However, this does not mean that there had never been any benefit from the successful experiences abroad, but it is possible to merge such experiences in a method suitable to the basic principles of the incubator itself. This is what has been done by Bader (2014) by signing a cooperation agreement with the business accelerator, Oasis500, to launch a business accelerator in the Bader incubator. It may be suitable to select Oasis500, not because they have presented a successful model only, but because its headquarters are in Jordan, as there are several cultural and linguistic similarities between Jordan and Saudi Arabia.

In respect of the most suitable types of incubation in the Saudi context (traditional incubator, business accelerator or virtual incubator), the existence of traditional incubators at this stage in Saudi Arabia may be useful. The traditional incubator's supporting programs, directed towards youth have the following advantages: firstly, they do not need to be full-time to join the incubator, so that it will be motivational for the youths to start projects. They can stay in

their jobs and try to start a commercial project³⁷, like participant N2, who started his project in the incubator and, after one year, resigned from his job to work on his project on a full-time basis. Also, participant N4 is not working on a full-time basis in his project at the present time because he is working in a team, of which all its members are working part-time on the project. Secondly, the duration of traditional incubators is longer than the period of business accelerators. This may give youths a greater chance in the success of their projects, especially as the vast majority of those organising incubators have never started business work. So, this can enable them to learn and benefit from the program. Thirdly, traditional incubators may be suitable for students who have ideas during the period of their study but cannot leave their studies and work on a full-time basis for three months to start their projects. Fourthly, the existence of traditional incubators may help increase awareness about incubators, as discussed in Section 5.2.6.1.

With regard to business accelerators, there is a recent tendency in developed countries towards business accelerators, especially in the technical field that looks to the age of speed and prefers accelerators which give the project owners a fast jump within a short period of time. This is what has been mentioned by participants in the research who preferred the business accelerator model. In addition to that, participants have added a point that the nature of accelerators is limited by the short time which is three months. So, they put pressure on incubatees for accomplishment and work.

However, virtual incubators are rarely used in Saudi Arabia. Participant N8 mentioned that his experience with virtual incubation was not successful³⁸. It is useful that this type of method of incubation should be widespread, due to the following benefits: 1-they cost less than traditional incubation. Accordingly, the cost of offices and related services that are given to incubatees will be reduced. 2-You can provide your services to a greater number of incubatees. 3-The option of virtual incubation may be suitable for Saudi Arabia due to its low population density, especially in cities and villages that do not have incubators or are not near any incubator. 4-There are types of technical projects that do not require work in one place; the incubation of a project virtually and giving the team work tools remotely may contribute to the construction of more projects.

³⁷ Previously has been discussed the preference of many of the Saudi society members for work in governmental jobs rather than working in private businesses in section 5.2.2.

³⁸ See section 5.3.1.3, Evaluating the current incubators from an institutional theory approach.

The researcher sees that it may be useful that there are three types of incubation in Saudi Arabia. Firstly, that each method of incubation is suitable for a group of technical project owners in Saudi Arabia. Each type has particular advantages which justify the suitability of this type over other types. Secondly, the culture of incubators is still new to Saudi society³⁹; the presence of incubators as an actual organisation, its activities and its programs enhances awareness. Thirdly, this variation in methods of incubation may encourage the youth to start new projects in a way that suits them. Fourthly, the experience of incubators is still at the beginning, so it is useful to see all methods of incubation in Saudi Society and, after a period, evaluate all methods and determine the most suitable method for the local context.

As discussed in the findings chapter, Section 4.3.1.2.1 regarding the opinions of participants in the research, there is a difference of opinion between those who prefer one type over another and give their reasons and others who mention that the other type is better and also give their reasons. From the analysis of these reasons using hermeneutic, as cited by the research participants, this matter was due to two issues: the first issue is the personal preferences of the project owner who sees that one model is better than another model, based on the nature of his/her personal life. The second is that, they will perceive types through what they see as the most suitable for their project (since some projects are semi-ready they immediately need an investor to transfer them to the next stage). This could also be a project that is still in the stages of an idea and needs a period in the incubator to build and develop his/her idea and project.

5.3.1.3 Evaluating the current incubators from an institutional theory approach:

It is useful for all businesses and initiatives that seek growth and development to evaluate their performance over a period of time. Therefore, many methodologies have emerged in the field of administration that aim to develop businesses, based upon evaluation. Several years have elapsed since the set-up of the first governmental incubator in Saudi Arabia (2008), and the commencement of the initiative of incubators. They have increased to twenty-one technological and mixed incubators⁴⁰, and five industrial, medical and educational incubators (SBIN, 2014). There has been a rapid proliferation of incubators in Saudi Arabia over the few past years, within the context of the ambitions of Saudi Arabia to reach eighty incubators by the year 2025. This direction from the Saudi Government is considered an important

³⁹ See section 5.2.6.1 Understanding the implications of awareness of Saudi incubators, for more information.

⁴⁰ See section 4.3.1.2

benchmark for supporting SMEs in Saudi Arabia, to achieve the objective of diversification of Saudi Arabia's income.

Yet, there was no methodological or research evaluation for these incubators in Saudi Arabia. When the incubator managers were interviewed they were asked about whether there are any methodological studies that evaluate the current status of incubators in Saudi Arabia, all of them gave a negative answer. A number of those participating in the research have commented in section 4.3.1.3 on the importance of conducting evaluations for the work of incubators. Such evaluations are useful and they will enhance the work of the local incubators as well as the work of project owners. Participant D1 mentions that the field of research on incubators is a new field in Saudi Arabia and it is a field that is new and replete with challenges and has a significant economic effect. The suggestion could be made that the lack of methodological studies over the previous period of time is a point that needs to be considered, since the opinions of the participants recognise the importance of conducting methodological studies. Despite this, no studies have ever been conducted to evaluate the current status of incubators. A finding of this research contributes to establishing the impact and benefits of the current SA TBIs, through twelve points in section 4.3.

As regards the performance of Saudi incubators, the vast majority of the answers of the participants in section 4.3.1.3, on their own incubator performance, were positive answers with the exception of two participants who were not satisfied with the performance of the incubator⁴¹. The first one of these participants is participant N8 who said that his experience was not a good experience, due to a lack of services that the incubator provided for him and also, that he was living in a city without headquarters for the incubator. When participant N8 was asked about his evaluation of services provided by the incubator, he mentioned that he did not use any service from the six basic services that had been discussed in the research. However, participant N8 mentions that the performance of the incubator in the capital city is outstanding. It is worth mentioning that participant N7 lives in the same city as participant N8 and both were incubated by the same incubator. Both participant N7, N8 claimed that the performance of the incubator was excellent. The second one is participant N2 who mentioned that the incubator did not achieve the objective for which he joined the incubator, although he evaluated three out of six basic services as good and excellent. When participant N2 was asked about the service that encouraged him to join the incubator, he replied that it was not

⁴¹ For the opinions of the incubatees they participating in this research see table 4.3 about evaluating the current incubators.

the service but the desire for achievement. His impression was that if he joined the incubator, that there would be a clear time-line and they would help him in its execution. Using hermeneutics, for this point, it is reasonable to suggest that participant N2 had selected a type of incubation which was not suitable for him and he justified his selection by saying that the incubator encouraged him to join an incubator. He did not join the business accelerator as, during that time, he was not able to work on a full-time basis on his project. Such full-time work on a project being a condition of joining a business accelerator. To have better access to the opinions of all incubatees on the six basic services that had been discussed in the questions, see table 4.3.

However, regarding, the variation between opinions. Some of them believe that incubators have positive features but they do not think that the conditions of the incubator are suitable for them. Nevertheless, others have a negative view of incubators in that they perceive existing incubators in Saudi Arabia as being unsupportive of project owners. Lastly, some of the participants stated that their projects are not small and that the incubator in which they are incubated does not provide them with services that are suitable for their needs at this stage.

On the other hand, not all incubators in Saudi Arabia provide a good performance. When participant D3 was asked about the performance of the projects incubated by them after one year and a half from their beginning, he replied that they do not have any projects that have been a success. It is worth mentioning that the incubator managed by participant D3 is a commercial accelerator. In contrast, there are commercial incubators in Saudi Arabia that deliver a distinguished performance, such as the business accelerator managed by participant D5. The researcher observes that the difference between the two incubators is that the first incubator is owned by a small-sized company, while the second incubator is owned by a giant company with a presence in Saudi Arabia and world-wide, which is the Aramco oil company. Therefore, one of the reasons that leads to poor performance between the two incubators may be that the company that owns the incubator may not have suitable resources to support these projects from several aspects (see section of credibility 5.3.2.5) including the effect of the name of the incubator on the incubated projects. Moreover, for measuring and evaluating the incubators through their effect on the incubatees, all participants who are incubated project owners and two owners of non-incubated projects were asked about their experience and whether they advised their colleagues to join the technological incubators. Participants N1, N2, N3, N4, N5, N6, N7, N8, E1, P1, and P2 said that they advised their colleagues to join an incubator.

From the opinions of the participants on the performance of current incubators, it can be generally said that the performance in Saudi Arabia for projects which are in their primary stage or for small projects is very good. This evaluation differs anyhow from one incubator to another. Since the scope of this research is investigating the effect of technology incubators on SMEs in Saudi Arabia in general, and not the performance of a certain incubator, the evaluation shall be conducted in general. The experience of incubation in Saudi Arabia is still in its primary stages and has not become fully mature, as confirmed by participant D2 (Khorsheed et al., 2012, p.2). After more than seven years, since the set-up of the first incubator, the evaluation of the current status is considered to be a useful and important matter. In doing so incubators can achieve the goals for which they were established. Future incubators can benefit from the positive aspects of incubators and avoid the current mistakes within the plan set by Saudi Arabia, aiming to expand the field of incubators. It makes to say that the performance of Saudi incubators in comparison with its neighbouring countries of the GCC countries (that have a similar culture, in addition to a similarity in the number of years since the beginning of incubators) is very good. This is based on an attempt made by the researcher to compare the figures available on incubators in the GCC countries. The data available in the literature review on Gulf countries is rare data and there are several simple research studies, the most recent of which was published in 2012 and it does not provide accurate figures. For example, Al-Mubarak and Busler (2012, p.154) mention that the number of incubators in Saudi Arabia at that time was two incubators only and this was not true, as the findings of this research reveal (see section 4.3.1.2). However, the performance of Saudi incubators did not reach the level of some developing countries that have long experience in the field of incubators as mentioned in the literature review. For instance, it is more than thirty years since the launch of incubators in Brazil.

On the other hand, there is a scarcity of incubators that provide services to medium-sized projects. At the present time, there is only one business accelerator that provides services for medium-sized projects. This accelerator receives only ten projects in a year which is low percentage in comparison with the number of medium-sized businesses in Saudi Arabia. There are some incubators that mention that they provide services for the owners of medium-sized projects in Saudi Arabia but they are not satisfactory. For example, participant P2 (owner of a non-incubated project) said that he went to the incubator and signed a contract with them but he did not complete because he did not find suitable services. It is worth mentioning that he went to the incubator in the year 2010. Moreover, there should be planning for a certain stage after incubation. For example, if the project is to be expanded,

then what should be done and what are the appropriate methods for that? So, it requires constant support; this is what was confirmed by participant E1 who is a graduate of the incubator.

On the other hand, regarding the evaluation of the services that are provided by some of the current incubators, participants E1 and P2 said that the services are suitable for projects that are in the primary stages. Participant D4 said that the effect of services provided for projects is in their primary stages. This is because the services provided are suitable for that stage of growth. If services are suitable for the next stage, the project will continue. This supports the opinion that there is a need to provide services that are suitable for medium-sized projects in Saudi Arabia.

On the other hand, the researcher proposes, by virtue of his access to the status of SMEs in Saudi Arabia and based on the opinions of those participating in this research, that each incubator should have a centre for supporting non-incubated businesses. This is, to provide support for the owners of non-incubated businesses, by providing them with a consultation for one hour or more, as necessary, with one of the incubators' consultants for free or a small fee that an SME can afford.

The two following sections are considered as part of the evaluation of the current incubators; the first section, the defects of the current incubators and the second, on the evaluation of incubator managers and staff.

5.3.1.3.1 Disadvantages of current incubators associated with isomorphism and competitive pressure:

In the section 4.3.1.3.1, the points of view of the incubatees about incubators have been discussed. Defects of the current Saudi incubators are summarised as follows:

- 1- The project owners are increasingly dependent upon incubators, as participant E1 stated. This matter is about the relationship between the incubated project owner and the incubator itself. The reliance of the project owner on the incubator may weaken the ability of the project to work after graduation. On the other hand, it may be useful that incubators provide services in a manner that does not encourage the project owner to depend completely upon the incubator.
- 2- Some participants see that the incubation period for traditional incubators is long (reaching 3-4 years) in comparison with their own projects that do not require a period of three years' incubation. Some of them think that they should stay in the incubator for three years and there is a misconception regarding the incubation period.

The truth is that the incubator incubates the projects until they are able to be independent after graduation. This is not related to any specific time-period but depends on whether the project is ready to depend on itself after one or two years. It makes to think that the incubator has a role to play, by preparing the projects to depend upon themselves, and to shorten the incubation period, to give new projects the chance to join the incubator.

- 3- Incubation may give a negative impression sometimes, in that the incubated project will not depend upon itself and this is due to several factors; one of them is the lack of awareness of incubators and their work and the role that incubators play in the life cycle of projects⁴².
- 4- The weakness of virtual incubation, as discussed in section 5.3.1.2.1.
- 5- The weakness of support for medium-sized businesses, as discussed in section 5.3.1.2.1.
- 6- The weakness of follow-up on the progress of incubated businesses, since there are specialized projects and most of the incubators employ mentors with general knowledge. For more information, see the following section that discusses the managers and staff of incubators.
- 7- Managers and staff of incubators, as will be discussed in the following section.

Through the opinions of the participants, it is shown that the defects of the current incubators in Saudi Arabia are not significant. The defects can be divided into two. The first division is personal defects or defects depending upon the project's needs. The second division is general defects of Saudi incubators in general, such as the points 4 and 5 (above). The suggestion could be made that the remarks and special defects can be avoided through communication with incubators themselves, to reach a joint solution between the project owner and the incubator. As regards the general defects, they require greater effort and collaboration with the parties concerned. For more information, see Section 5.2.4. The Saudi 'ecosystem' discusses the effect of these parties on Saudi incubators in general. It is noticed that not all these defects are irreparable, to reach better performance within the context of the effect of incubators which will be discussed in the interlinked section, in Section 5.2.2.

⁴² For more information, see section 5.2.6.1 Understanding the implications of awareness of Saudi incubators, and the section of creditability 5.3.2.5.

The literature review chapter 2, section 2.9 discussed incubators' disadvantages, mentioned in the literature. From the findings of this research, related to SA incubators' disadvantages, and what is mentioned in the literature review the researcher notes that the defects are different in nature. That can be due to the difference in nature of different 'ecosystems' (see section 5.2.4).

5.3.1.3.2 Managers and staff of incubators associated with isomorphism and competitive pressure:

A number of researchers, such as Zhu et al. (2014)⁴³ who were reviewed in the literature review discuss the importance of the manager and staff of the incubator. The incubator manager can be described as the person responsible for managing the activities of the incubator (Hackett and Dilts, 2004b, p.49; Zhu et al., 2014, p.3).

In the findings chapter, section number 4.3.1.3.2 the opinions of the participants in the research were discussed, including incubatees' and non-incubatees' opinions on the importance of managers and staff of incubators. That was followed by the evaluation of the incubated project owners on the performance of managers and staff of the incubator. A number of participants, such as participants D2, P2, N2, N7 and E1 have tackled an important point, which is that most managers and staff of current incubators lack suitable experience that the incubatee needs. This may be a lack of commercial experience, where it was mentioned that most managers and staff come from governmental work and have never practiced business themselves. For the staff there is a lack of technological experience that is a requirement of incubatees for their projects. Participant N2 wonders how incubator staff cannot be technical specialists whilst the incubator is a technological incubator. It makes to say that commercial and technical expertise is important for managers and staff of incubators so that they will be able to contribute to the success of incubated business. It is useful to have two types of staff in the technological incubators; the first being those staff with commercial experience who know how to start and manage a project, and the second type being those staff with technological experience, since the incubator is a technological incubator.

In a related aspect, the incubator managers who were interviewed were asked about their commercial expertise for establishing commercial businesses or the management of incubators. Participants D1, D2 and D5 have received courses and training from various international agencies on the management of incubators. In addition, participants D2 and D4

⁴³ For more information, see the literature review chapter two.

have previous experience in the management of personal commercial projects in which they worked by themselves; Participant D2 mentioned that he has experience in opening projects in Saudi Arabia and the USA. On the other hand, participant D3 mentioned that he has no previous experience in the management of incubators or projects. This contributes to the poor performance of the incubator which he is managing, as discussed in section 5.3.1.3.

Previous research mentioned that cooperation between the incubatees and incubator managers may contribute to further growth and survival for the incubated business (Scillitoe and Chakrabarti, 2010, p.156; Zhu et al. 2014, p.3). The manager of the incubator offers support to incubatees using the resources of the incubator (Hackett and Dilts, 2004b, p.50; Zhu et al. 2014, pp.5-6). However, the performance of the incubator does not only depend on the performance of the incubator manager but also on the performance of the incubated businesses (Zhu et al. 2014, p.12).

The findings of this research showed that a number of participants mentioned the lack of technological and managerial expertise amongst many incubator managers and staff to manage TBIs and provide suitable support for technical. In the literature review a number of researches (see paragraph 2.8.2) mentioned the importance of the role played by managers and staff for the growth of incubated businesses and for the incubator itself. The research results confirmed that one of the incubators that had been established for one and half years (at the time of interview), did not have any successful incubated businesses. Through using the hermeneutic cycle, it was found that this may be due to the fact that the incubator manager states that he does not have any prior experience in incubator management or starting or running a business.

From this, it can be said that the results of this research indicate that staff and incubator managers play an important role in the success of incubators, which is consistent with the literature review, on the importance of the managers and staff of incubators. These are pre-requisites for an effective and successful incubator.

It is worth mentioning that the Bader incubator provides training courses for staff, inside and outside Saudi Arabia. In addition, the Saudi Business Incubator Network (SBIN) provides training courses inside Saudi Arabia for the parties concerned, including the managers and staff of Saudi incubators who are able to attend these training courses in the field of incubators. It is worth mentioning that the SBIN is a governmental authority, emerging from KACST.

This analysis covers the opinions of five participants who are incubatees in one of the incubators. This has been managed by two different managers, and analysis clearly indicates

that the performance of the previous manager was better than the performance of the current manager. The former's performance was judged to be "excellent" by more participants than the latter's manager performance.

On the other hand, the researcher notices the absence of consultants for successful projects owners within Saudi incubators. This is compared to international incubators who have a team of consultants with varied and successful business experience. Regardless of the knowledge that an employee of the incubator has, the level of his/her knowledge will not compare with the level of successful project owners. These owners can explain the gist of their experience and also guide others as to the obstacles that may be encountered, by virtue of their past experiences. This in turn may contribute to the success of incubated projects in a greater manner, in addition to the fact that those consultants may contribute in offering an important network for the incubatees.

5.3.1.4 The future of local incubators from an institutional theory perspective:

Saudi incubators and their types have been discussed in the previous sections together with what would be the most suitable incubators for the local context. This was followed by an evaluation of the existing incubators. This section will discuss the future of the Saudi Incubators.

In section 5.3.1.4. incubator managers discussed their view of the future of Saudi incubators. Among the questions that had been posed to them was the following: do you support the opening of more incubators in Saudi Arabia? They all answered yes. Participants D3, D4 and D5 were focusing on the importance of organisations for the types of incubators that will be opened in the future. When the managers of incubators were asked about the most suitable types for Saudi Arabia in the future, their answers varied and are summarised by participants D1 and D2 who see that it is important that incubators should cooperate with the private sector through partnerships, while participant D2 says that we need all types of incubators. Participant D3 thinks that the commercial incubators are the most suitable incubators for the Saudi future while participant D4 sees the traditional incubators as the most suitable types. However, participant D5 thinks that we need an innovation centre in the future⁴⁴.

Through the previous opinions of the participants, it makes to think that many of them view the topic from a certain angle. The researcher views the importance of the existence of all types of incubators in the future due to the four reasons that have been cited in section

⁴⁴ To view the opinions of the managers of incubators on a broad basis, see section 5.3.1.4

5.3.1.2.1. Saudi Arabia is planning to expand in the field of technology incubators to reach 80 technology incubators by the year 2025 (Alriyadh, 2013b; SBIN, 2013). The researcher sees that this future orientation is important and useful taking into consideration the construction of incubators that are consistent with the requirements of Saudi technological SMEs. Participant D2 says: “we are in a time where we need an abundance to form the culture”, which is an important point in building a successful SME industry in Saudi Arabia. The SMEs’ culture, free enterprise and entrepreneurship are points and demands for most of the developed and developing countries as mentioned in the literature review.

5.3.1.5 Normative pressure arising during the incubation period in local incubators:

Managers of incubators, who participated in the research, have discussed the incubation period in their incubators in section 4.3.1.5. The following table presents a summary on the incubation period in each incubator.

Participant	Type of incubator	Shortest duration	Longest duration
Participant D1	Full incubation	Three months	4 years
Participant D2	Full incubation	Six months	3 years
Participant D3	Accelerator	Flexible	flexible
Participant D4	Full incubation	6 months	5years
Participant D5	Accelerator	3 months	9 months

Table 5.1 incubation period in the local incubators.

Participants N2 and E1 see that the incubation period in full-term incubators is long. In section (5.3.1.3.1 ‘*The defects of the existing incubators*’), their opinions were discussed.

Through the results of this research, that they are consistent with what is mentioned in the literature review for the incubation period throughout the world. On the other hand, Bruneel et al. (2012) said: “Third generation BIs’ tenants stayed less than two years in their respective BIs whereas their first and second-generation counter-parts stay for much longer periods”.

In addition, there is an important point which is the difference in the duration of the incubation between the incubated generations. It is noticed that the first generations of incubatees required 5.12 years, the second generation required 5.0 years while the third generation required 1.70 years only for graduation from the incubator (Bruneel et al., 2012, p.117). He justifies this by saying that most incubatees of the third generation have

established previous projects (Bruneel et al., 2012, p.117). Saudi Arabia is considered to be in the initial stages in the field of incubators since the first incubator was setup since 2008 with the graduation of the first batch of people incubated. As was mentioned previously in this research, it is important to build a culture that supports the initiation of SME projects in Saudi Arabia. This is mentioned by Bruneel and can be considered a positive indicator that the next generations may require a shorter incubation period which would contribute to increasing the effect of incubators for accepting more projects.

5.3.1.6 Normative pressure arising from the exit policy for local incubators:

After talking about the incubation period, it is suitable to talk about the policies for exiting from the local incubators. The exit policies for incubatees in Saudi incubators can be through graduation from the project or the termination of the incubation, as was mentioned in section 4.3.1.6. This was summarised in four points: 1- A project reaches a stage where it is able to operate successfully outside the incubator. 2- A project reaches a stage where there is no success for the project. 3- A project repays the loan received from the incubator (this may be an indicator that the project is capable of operating and generating profits that exceed the operational costs). 4- In business accelerators, the time factor is significantly shorter in comparison with the full incubator. In that case exiting from the incubator is associated with the end of the duration which normally ranges from 3 to 9 months' maximum.

On the other hand, section 4.3.1.6 discussed the opinions of the participants in the research, including incubated project owners and incubator managers. Opinions were taken on Saudi incubators' exit policies; all their answers were that there are no strict laws setting a certain time for exiting the project from the incubator. Many of the incubated participants mentioned that the rules and regulations for exiting from incubators are not clear and specific. Thus, the findings of the research are consistent with what is stated in the literature review; that there are no strict laws for exiting from incubators at a certain time, and there is little clarity on rules and regulations about incubators' exit... There is no incubator over the past generations that has had clear-cut rules for exit from incubators (Bruneel et al., 2012, p.115). The researcher sees that the agreement between the Saudi incubators with the international incubators may be due to incubators looking for project success rather than being concerned with the stay of the incubated project for an additional period of time, if this increase serves the project.

5.3.1.7 Understanding the implications of the services provided to the incubatees in the local incubators:

Incubators mostly provide the services required for the success of the projects. However, the services provided by incubators differ from one incubator to another. In section 4.3.1.7, the services provided by the Saudi incubators to those incubated have been discussed. The incubator managers and those incubated have mentioned a group of services provided by the Saudi incubators which are summarised as follows:

1. Business planning.
2. All types of consultations (administrative - financial - legal - marketing).
3. Space (office of the project including the services required for the work of the project owner).
4. Office services (secretary and conference rooms).
5. Training courses.
6. Networking.
7. Counselling and guidance.
8. Assistance for obtaining financing.
9. Logistics support for the project.
10. The Waed incubator provides a unique service which is: Monthly salary for incubated students who are in the last semester of their study, which is the stage of graduation for the Bachelor degree. In the case of students joining a business accelerator for three months in order to develop their projects (in a Waed incubator only).

The Saudi Governmental incubators provide their services completely free of charge with the exception of the Waed incubator which charges duties on those who want to have an office (about \$93 per month) for each office, and students are exempted from paying this charge. The manager of the incubator commented that they do not want a person who says that they want an office and does not take their place. Participant N5 (in an incubator, not a Waed incubator) said that the incubator had implemented the policy of ending projects when project owners who are registered do not attend the office. He said that, before this application, there were projects that were waiting to join an incubator and this decision has accelerated joining the incubator.

It can be said that the provision of all services free of charge is an incentive for SME owners in Saudi Arabia in terms of starting a new business or the continuation of such projects (see also the section 5.3.2.1.1 '*Understanding the status of technological projects in Saudi Arabia which do not require a large amount of capital*'). In addition, they contribute to motivating

people who have ideas for projects which need to be converted into reality. On the other hand, the suggestion could be made that the failure to pay any charges by incubatees may also have negative aspects. For example, failure to pay any charges by incubatees may compel the owners of incubated projects to delay graduation from the incubator under the flexible exit policies from local incubators at the present time. The owners of start-up projects prefer not to be spending money on renting an office and other multiple expenses but to benefit from the project for multiple years in the incubator - free of charge. This increases the burden on incubators in addition to minimising the chances of joining an incubator for owners of non-incubated projects who have shown a wish to join. Furthermore, it may increase dependency on incubators as mentioned in section 5.3.1.3.1. Some of the owners of the projects depend on incubators to a great extent.

On the other hand, table 4.5 illustrates the importance and evaluation of the service provided by the incubator to incubatees.

From the table, it is clear that all services provided by the incubator and required for incubatees were either useful or very useful. This may give an indication that the services provided by the incubator to incubatees fit in with the requirements of the incubatees who are the owners of the local technology projects. On the other hand, the researcher notices a lack of clarity in understanding the part of the questions on productivity services provided by the incubator. The researcher did not focus on the question only, but attempted to explain the meaning by explaining the terminology to the participants as: improvement to your product by experts and specialists. Consequently, there were variable opinions that were: no opinion, useful opinion or very useful opinion. It can be understood why some people mention that such services are not available and the incubator does not provide such services since it may be thought that they are separate services in themselves, such as legal services but, in reality, they are included within the consulting services. The researcher aimed to include such a question within the questions to try to see the effect, importance and capability of incubators in developing their services.

These services can be considered to be essential for project owners in general and the owners of the start-up projects in particular. All incubatees mentioned the importance of these services for their projects. Some of them mentioned that it is likely that their project would not have started without the incubator but certainly it would not have reached the level it had without the services provided by the incubator. When participant P2, one of the owners of a non-incubated project, was asked what the effect would have been if the services had been provided to him free of charge for his project, he answered that it would have solved

“obstacles”. This may show the effect of these services on the owner of a non-incubated project where his project needs most of these services. In addition, some incubators may provide special services to the owners of technology projects that require services at a high level. Participant E1 mentioned that the incubator had provided for him a famous international consulting company for conducting a study on his project. He mentioned that this study was very useful. On the other hand, a few of the incubatees said that the service provided by incubators was either not sufficient or not available in some regions in which case the project is virtually incubated as discussed previously in section 5.2.5.

Some participants said that there is weakness in the services provided to the medium-sized projects as mentioned in section 5.3.1.2.1, and that the services provided are only suitable for emerging projects. Participant D4 mentioned that she noticed the effect of the services provided by the incubator at the beginning of the project. This may be due to the fact that the services have been designed and provided in a manner that is suitable for start-up projects and not for their later development or for medium-sized projects. This point needs more attention from the authorities supporting SMEs in Saudi Arabia where the provision of programmes and initiatives that support the medium-sized projects after the initiation stage are considered. This could be after the graduation of the incubatees, this was suggested by one of those who graduated from the incubator, or for the provision for separate services to medium-sized projects that have never been incubated in the emerging phase of the project⁴⁵.

The results of the research on the services provided by incubators in Saudi Arabia shows that they are very similar to the services provided by international incubators as mentioned in the literature review (see section 2.6). Yet, there is a very important point which is that all government incubators in Saudi Arabia provide their services free of charge and this is considered to be an important step for Saudi Arabia, as confirmed by participant D2. In addition, the researcher did not come across any international incubators that are providing their services completely free of charge.

To sum up, the incubator, in essence, is not the walls that contain an office to be provided for project owners. Instead it is the services provided to the incubatees. Through what was observed by the researcher regarding local and international incubators, one of the most important elements that distinguish one incubator from another is the quality of services provided to the incubatees. Moreover, the services are significantly correlated to the service providers who are mostly managers or staff of incubators. The effect of the managers and

⁴⁵ See the recommendations section 7.3.

staff of incubators has been discussed in section 5.3.1.3.2. It can be observed that there is a compatibility between the positive opinions of many of the incubatees in evaluating the managers and staff of incubators and the positive opinion of the incubatees on the services provided. On the other hand, the poorness of suitable expertise by the managers and staff of incubators has been mentioned in section 5.2.1.3.2 and can also be linked to the poorness of the services provided to the medium-sized projects. It is possible that incompetent staff (with some exercises and basic counselling) could provide guidance and basic services to an emerging project but they may not be able to provide services that they do not know (it was mentioned in section 5.3.1.3.2 that a number of staff of incubators had never practised business activity). In addition, the poorness of the services and programmes directed towards the medium-sized projects that are provided by incubators may contribute to the inability of the managers and staff of incubators to provide the suitable support.

5.3.1.7.1 Comprehending the value added to the incubated businesses:

Since incubation is providing services to the incubated SMEs, it is hoped value will be added to the business. In the previous section, the services provided by incubators to the incubated project owners were discussed. These services will constitute a value-added for the projects. However, there are other forms of value added resulting from the incubation as a whole. In section 4.3.1.7.1, the form of value which can be added to the incubated technology projects were discussed, and were briefly as follows:

1- Development of the project from the ideas stage to the stage that it will become self-employment. 2- Preparing the project on the right commercial and legal principles. 3- Project development. 4- Increasing the profits of the project. 5- Relationships resulting from the incubated business and cooperation with them. 6- Evaluation of the project, the acceptance or rejection of the project for incubation is part of the value-added. 7- Evaluation and development of the project owners. In addition, an important part of the value-added is the credibility which has been dealt with in detail in chapter number 4.3.2.5

There is great similarity in the added value provided by the Saudi incubator with the international incubators which have been mentioned in the literature review. Similarities such as incubators do not provide their services for the first stages of the project life cycle only, but also contribute to the growth and boom of the project (Khorshed et al., 2012, p.1). Also, the availability of incubated projects under one ceiling and the sharing of resources and joint services that enhances the chances of cooperation between them (Ratinho et al., 2010,

p.7). Moreover, acceptance in an incubator gives an indication that the start-up company has promising indicators for growth (Ratinho et al., 2010, p.7).

Through achieving that compatibility between the local and international incubators, it makes to say that the performance of the local incubators is running smoothly in terms of the achievement of the desired objectives for which incubators have been established. From the results of the findings on the added value, it is noticed that they are different from one project to another. On the other hand, there is added value which has a general effect on most incubated projects such as increasing credibility⁴⁶.

5.3.1.8 Understanding the local incubators culture:

One of the objectives of this research is to study the effect of the Saudi incubators on local SME companies. It is reasonable to suggest that it is useful to study local incubators' culture, and how the cultures are enhanced by the incubated projects. This is done through posing a question to the participants in the research. Participants, who are incubated project owners, were asked the two following questions:

- 1-What is the culture that the incubator enhances between projects: cooperation or competition?
- 2- What is the culture that the incubator enhances: the implementation of work through the most expedient route or through best practice?

Table number 4.6 illustrates the answers of the participants in the research.

In order to know how the cultures are enhanced by non-incubated projects, the participants were asked the following question:

What is the culture that your company enhances: the implementation of work through the most expedient route or through best practice?

Table 4.7 illustrates the answers of the participants in research who are non-incubatees

The aim is to compare how the incubators' culture enhances the culture for incubated and non-incubated projects. This is done by answering the question of the methodology of the work that is for making the projects a success in the most expedient way or using best practice. It is noticed that the majority of the incubated projects seek to perform through best practice. As regards the non-incubated projects, however, their answers were that more than half of the projects are implemented in the most expedient way. This may be justified since

⁴⁶ For more information, see section 5.3.2.5.

the incubated projects have the most resources that enable them to perform the project with the best methods due to many reasons:

- 1- The experiences and consultations available for incubated project enables them to implement the projects using best practice.
- 2- The element of cost for the projects may play a vital role. Incubated projects have less overhead expenses than non-incubated projects. Consequently, the incubated projects can spend more on the projects.
- 3- Incubators may be keen to keep their reputation through demonstrating that the incubated project acts in the best manner possible. Therefore, it is possible that incubators will be keen on promoting a culture within which incubated projects implement the best work.

Bøllingtoft (2012, p.305) mentioned in the literature review that owners of incubated projects who are under one ceiling are more likely to have co-operation among them. (See Bøllingtoft and Ulhøi, 2005, p.278; Al-Mubarak and Busler, 2011, p.3; Bøllingtoft, 2012, p.310).

From the above, it can be seen that the culture enhanced by incubators as regards cooperation between the incubatees is comparable with Saudi incubators as mentioned in the findings of this research and with what is mentioned in the literature review.

5.3.2 The second section:

5.3.2.1 Technical projects in Saudi Arabia associated with institutional theory:

Section 4.3.2.1 has discussed the view of the participants in the research on the previous and current status of the technology projects in Saudi Arabia. A number of participants mentioned that there has been a change in the direction of information technology in Saudi Arabia over the past years. Participant P4 said that it is difficult to obtain financing in the field of technology projects because the risk side in those projects is significant. Participants P3 and P4 stated that there was apprehension from the investors about investing in technology projects. This may be due to the fact that Saudi Arabia is still at the beginning for technical orientation and investment, unlike other countries, such as the USA, which has passed through the experience of the internet bubble and its effect on investment in technology projects. The researcher has observed that during the past three years, there have been demands from individual investors or, as they are called, 'angel investors' to invest in start-up projects in Saudi Arabia. However, some initiatives have been set up by a group of

individuals in Saudi Arabia for the purpose of investing in SME projects including Oqal⁴⁷. It has been seen that participants P3 and P4 are not incubatees as such but have set up their businesses in collaboration with these ‘angel investors’ who helped finance them.

In addition, the two previous businesses are medium-sized business and not small projects. As such large amounts of money were required for financing these projects, which makes the process of obtaining finance difficult. It is noted that the Credit Bank provides finance up to 10 million SR (\$2.6 million US)⁴⁸.

For more information on the technology projects in Saudi Arabia, see the following section:

- 1- Section 5.2.2.2 on the success and failure of the projects in Saudi Arabia.
- 2- Section 5.2.2.2.1 on the percentage of success of the incubated projects in Saudi Arabia.

5.3.2.1.1 Understanding the status of technological projects in Saudi Arabia which do not require a large amount of capital:

Capital is considered to be one of the basic elements for which the owner of any project needs to start his/her project. Section 5.1.2.1 has previously discussed the supporting funds in Saudi Arabia. This section analyses the status of the Saudi technological projects and their need for capital. Participant D2 mentions that the first incubator that emerged as a national initiative was a technological incubator. He justifies the reason by saying that technological projects are the businesses that require the least capital. Many of the technological project owners have supported this by talking about their experiences, such as participants P2, P5, N1, N3, N8 and E1 and how their technological projects were not in need of a large amount of capital at the beginning⁴⁹.

A real possibility is that the need for capital differs from one project to another in accordance with the nature and idea of the project, but talking about the need for capital here is general. Through the answers of the incubated and non-incubated participants, it is noticed that both incubated and non-incubated technological projects in Saudi Arabia can be established and start with a small amount of capital. However, participant D2 comments that the emerging technological projects in Saudi Arabia are in need of every Saudi Riyal. Participant D2 adds that the role of incubators contributes in minimising these expenses significantly especially as the Saudi governmental incubators provide their services free of charge which significantly

⁴⁷ See www.oqal.org for more information.

⁴⁸ See section 5.2.2.1 the supporting funds in Saudi Arabia.

⁴⁹ For more details on their experiences, see section 4.3.2.1.1.

reduces the operational costs⁵⁰. This is what has been confirmed by participant N3 by saying that, at the beginning, he did not have capital to be able to open an office or hire staff. However, during the incubation, the incubator contributed to the growth of his project and he was able to hire ten staff. This was the situation at the time of the interview.

5.3.2.2 Implications arising from the success of technical SMEs in Saudi Arabia:

The success of the technological project is the objective of the owners of incubated and non-incubated projects. This is the aim for incubators or any type of government initiatives, whether the project is a profitable or a non-profitable project; success is not limited to financial success. In the chapter on the finding, section 4.3.2.2, the opinions of the participants have been reviewed. Incubators managers, incubated project owners and non-incubated projects owners commented on the factors that contribute to the success of technological SME projects in Saudi Arabia. Table number 5.2 illustrates a summary of the factors mentioned by the participants.

Participant	Factor
D1, P2	Support and Guidance
D1, P3, P5, N4	Networking
D2, N4	Business planning
D4	Characteristics of the project owner
P2, P5, D4, N4	Idea of the project
P4, E1	Access to fund support
P2, P4, N4, N5, E1	Team work
P4, E1	'Ecosystem' for motivating SMEs
P5	Legal structure of the company
E1	Logistics
N4, N5	Marketing for the Product
N4	Launch the project quickly
N6, N7	Training
N7	Management and financing skills

Table 5.2 Summary of the view of the participants of the most important factors contributing to the success of technological SME projects in SA.

⁵⁰ See section 5.3.2.4 Understanding the effect of the incubators on the incubated technological projects to reduce the costs of set-up and operation.

The researcher notices that the vast majority of the factors that have been mentioned are services directly provided by the incubator. In addition, the incubator helps in providing the remaining small percentage of factors indirectly for the owners of incubated projects⁵¹. In the case where the incubator performs its required tasks in a proper manner, then it may contribute clearly to the success of the projects through the provision of all helping factors that the projects need and which have been mentioned by those participating in the research. The objective of incubators is to help the projects through incubation and to provide the helping factors for the success of the project.

The researcher notices, based on general analysis, that the project owners and their projects mention factors that they see they need in their own projects and thus in a personal capacity. This is the case for both incubated and non-incubated projects. This is noted through digressions of the participants when explaining the factors that may contribute to the success of technological SME projects in Saudi Arabia. For example, when participant N2 mentioned one of the factors in his answers which is: the building of teamwork, he digressed by saying "I suffered from this and I cannot say that I have a team, but in the light of the suffering that I experienced, the team is one of the most important things in small projects". Participant N2 also adds another factor which is: you should not wait until the project has finished completely, speed up the launch of your project. He justifies this by saying: "I have built things from zero which were not supposed to be built ever". For the work team, there is another example that was mentioned by participants P2, P4, N4, N5 and E1, and the topic of staff has been discussed in section 5.1.3. The previous participants mentioned their personal suffering with this point. It is maybe natural that most of the people build their visions through their experiences.

The researcher notices that there is an agreement between the opinions of participant P4 and participant E1 regarding their vision of the factors needed for technological SME projects in Saudi Arabia.

When all incubator managers, participants D1, D2, D3, D4 and D5, were asked about whether they have conducted studies for measuring the percentage of the success of technological projects in Saudi Arabia, all of them replied with no. The researcher sees the importance and necessity of studies that measure the life cycle of technological projects in

⁵¹ For more information, see section 5.3.1.7 Understanding the implications of the services provided to the incubatees in the local incubators.

Saudi Arabia⁵². That is to study the Saudi projects and evaluate their current status and to develop concepts and plans that fit in with the current status for SME projects in Saudi Arabia. On the other hand, participant D2 mentions that the percentage of failure of small projects locally, ranges from 80% up to 90%. Participant D2 mentioned that the percentage is not based on studies they have conducted but based upon deductions. However, participant D2 mentions that they have made an attempt in Jeddah city (one of the Saudi cities) to measure the percentage of the success and failure of the projects. Over the years, they have collected samples and the result was that the percentage was high. The researcher could not obtain the results of this experiment, although he had requested it from the new manager of the incubator. Participant N4 says that 90% of the non-incubated technological projects may be terminated within three months. Since there are no local studies that disprove or prove the opinion of participants D2 and N4. However, there are indications of similarity in the literature review. It was mentioned that, on average, one third of the European projects do not continue up to the second year (OECD, 2002; Aerts et al., 2007, p.254). They also add that 50-60% of the projects do not continue until the seventh year. However, the high percentage of project failure in Saudi Arabia can be understood since the community in general is new to the idea of new commercial projects. This is because, in the recent past, the businesses were family commercial businesses.

To help the reader gain a wider understanding of the local Saudi Arabian SME environment, the next section sheds some light on the people behind the projects. Four success-stories for technology SME set-ups in Saudi Arabia are presented below. Three of the SMEs were incubated and one was not.

1- Saleh Alzaid (Alkhozim, 2010; InnovationSaudi, 2013a; Tech world, 2013):

Saleh is a Saudi youth who graduated from King Fahad University for Petroleum and Minerals with a specialty in software engineering. He worked in Aramco Company as a system analyst for oil exploration systems. However, he gave up his job and devoted himself to developing applications that have now gained global popularity. Saleh started out by making applications for the Internet in his leisure time and programming and writing up such applications in his personal technical blog. ‘Unity’ is a website for retrieving the addresses of shortcut websites where many of the websites are blocked (although not the main website which is not a shortcut). This was the idea that led Saleh to the global field where ‘Unity’ was added to the famous web directory Go2web20. This led to technical websites writing about

⁵² See suggestions for further research 7.4.

‘Unity’ in different languages including English, French, Chinese, Japanese and Hungarian. The number of articles in different languages written about the website has approached a hundred to date and this does not take into account the number of global technical websites which have written about this successful idea. Saleh then launched Tweet Mail, which is a service that publishes electronic mail on Twitter. It is worth mentioning that this service was widely acclaimed by its users. Thus, Saleh was encouraged to expand the service to include all social networking sites including Facebook and Tumblr. Saleh currently serves as the Chief Executive Officer of Lunar Systems and Information Technology and he has also worked with the Microsoft Corporation.

2- Essam Alzamel (InnovationSaudi, 2013b):

Essam Alzamel said “The Online feature is that every person is able to convert his ideas into reality”. Essam is a Saudi youth who was sent by Saudi Aramco to study at Tulane University in the USA from where he gained a bachelor’s degree in chemical engineering. Essam is employed with Saudi Aramco. He started working on his project in 1999 when he was still at university. His project led to the setting up of a foundation in 2002 under the name ‘Remal’. The foundation expanded when an investor joined him thus increasing the strength of the project and pushing it forward. Essam developed an automation of Saudi Stock Trading called the ‘Baloot Game’ (which was sold to a foreign company for the largest sum of money paid to date for an Arab game). He also developed Areeb World (an instructional game that contributes to the education of children in a recreational manner). He began with concepts and found ways to turn these ideas into products. The demand for these products played a major role in the growth of the company. According to Essam the obstacles experienced by start-ups in Saudi Arabia include the fact that people are afraid to run a risk and that the technical market is not defined clearly enough for many investors.

3- Jihad al Ammar (Almkhalafi, 2012; Badir technology incubators program, 2012; IEyouth, 2013):

Jihad is a Saudi youth who turned his project from an idea into reality. Jihad established his project, called ‘Qayeem’, whilst employed in several jobs in order to finance it. He was employed as a programmer and a developer among other things. He started out his project using his own money. Jihad targeted the technical field and aimed to set up an internet company specifically because this does not require initial set up and operation expenses. Once he set up the site, a company that invests in internet initiatives and another investor chose to finance him and they played a major role in the growth of Jihad’s project. Qayeem is a website and mobile application that locates the best restaurants in a city. It is worth

mentioning that the information and assessments are written by the visitors of the site themselves. Qayem was launched in 2008 with a focus on restaurants and will expand in the future to include different fields. Jihad states that incubation played a remarkable role in the progress of his project.

4- Riyadh Restaurants Guide (InnovationSaudi, 2013c; MySaudiGuides, 2016):

Fatima Alqadi is the media spokeswoman of the Riyadh Restaurants Guide and one of the founders of this site. Fatima and her colleagues started working on the site in 2007 with hardly any capital via Facebook using pictures of restaurants and opinions about the restaurants. The idea was turned into an organised site that serves more than 50 thousand visitors and which has expanded to include a guide for beauty centres in Riyadh. The women plan to extend their work to various fields such as shopping and events to become the first such site in SA.

5.3.2.2.1 Understanding the level of the success of incubated technological projects:

At this stage, the discussion about the percentage of success of incubated technological projects may not be conclusive due to the short life cycle of incubators themselves. There is only one incubator that has been established since 2008. For the rest of the incubators, the oldest incubator is eighteen months old (at the time of the interviews). In addition, there was only one incubator out of the four incubators that were studied in this research that have technological projects which have graduated from the incubator. Participant D1 mentioned that the six projects had graduated from the incubator [at the time of the interview]. Hackett and Dilts (2004, p.68) mention that the simplest measure for successful projects is graduation from the incubator.

In section 4.3.2.2.1, in the findings chapter, the answers from those participating in the research about the success of the incubated projects were mentioned. All the managers of the incubators have also been asked about this matter. Participant D1 said that the percentage of success for projects is 65% while participant D2 mentioned that the percentage is 80%. However, participants D3, D4 and D5 said that their incubators were still in the early stages. Nevertheless, participant D4 mentioned that the life cycle of the incubator is one year and they have eight incubated projects, three of these projects have achieved profits. Participant D5 says that the life cycle of their incubator is 7 months only and they have 7 projects, two of them have achieved a percentage of growth ranging from 11- 50% and only one project achieved more than 100%. However, the performance of the incubator of participant D3 and its incubated project is not good. The reasons have been discussed in the section on the

evaluation of current incubators, 5.3.1.3. If we exclude the performance of the incubator of participant D3 for the reasons mentioned previously, the researcher notices that it can be generally said that there is growth in the new incubators that may be higher than the old incubators. That is due to the fact that the initiatives at the beginning face more obstacles than those faced by successive initiatives. It may be also due to the fact that these new incubators have benefitted from the experiences of the previous incubators and avoided the mistakes committed in the past. Participant D4 mentioned that, before starting the incubator, a visit was paid to all the initiatives and Saudi incubators to review their work. With respect to the success of the incubated projects, the following table 5.3 illustrates the summary of their answers, (for more detailed answers, see section 4.3.2.2.1).

Participant	The percent of growth before incubation	The percent of growth after incubation
N1	Did not mention specific percentages	Voted during the Arab net conference as the fastest growing emerging company in the field of the internet in Saudi Arabia in 2013
N2	Project started in the incubator	Whilst working full time on the business, the growth rate was 60% during one year and a half. And after working full time 30% within 4 months
N3	Project started in the incubator but if it was not incubated, it would not have been able to reach this growth because it did not have the resources	100 %
N4	Growth stopped	40 %
N5	Did not mention specific percentages	Incubation has contributed greatly to growth
N6	Did not mention specific percentages	After incubation, there was significant increase in growth
N7	Did not mention specific percentages	Growth increased four times after incubation
N8	During the first two years, there	120 %

	was no progress described as the stage of set-up, Thinks that if he was not in the incubator, the growth would have been 40%	
E1	Did not mention specific percentages	Project passed through multiple stages of growth during the period of incubation and it reached 1000% at peak

Table 5.3 summary of the estimated percentage of growth of the incubated projects of those who were interviewed.

Some participants mentioned some of the other successes achieved by the incubated projects. Participant E1 mentions that his incubated project won a prize during an international competition. The competition was the World Bank award for the best 50 commercial technological emerging projects in the world, the project was selected as the fourth best commercial technical project emerging in the Middle East region (Alriyadh, 2011). The same project also has been ranked in first position for the top 100 fastest growing companies less than five years old in Saudi Arabia (Almadinah, 2012). Moreover, the project of participant N1 has been voted (in the Arab net conference) as the fastest growing emerging company in the internet field in Saudi Arabia in 2013. Participant D5 mentioned that one of the projects that had joined them in the field of training has organised training courses for more than 4000 students within seven months.

On the other hand, not all incubated projects have achieved success. Participant D1 mentioned that about 35% of the projects were not successful. Participant D2 also mentioned that the percentage of failed projects in their incubator is 20%, and when he was asked about their mechanism for dealing with the incubated projects that did not achieve success, he replied that they were given a chance to work on their project for several months and if they did not achieve any success, then they stopped their incubation completely and gave them a choice of a part-time virtual incubator.

INFODEV supports 40 incubators and it was mentioned that the rate of success of its incubated projects is 75-81% (INFODEV, 2009, p.6; Al-mubaraki and Busler, 2012, p.156). From this, the suggestion could be made that the rate of failure of incubated projects in INFODEV is 19- 25%. If we have a look at what was mentioned by participants D1 and D2, we will find that the percentage of success and failure of the incubated projects was similar between incubators in Saudi Arabia and what was mentioned in the literature review. Based

upon the NBIA report (NBIA, 2006, Tamasy, 2007, p.461) it was mentioned that 87% of the projects that have graduated from incubators, which are members of NBIA, are still in business. Participant D1 mentions that the percentage of survived projects that have graduated from such incubators is 100%, and the comparison here is for developing a general concept of the current status of Saudi incubators and comparing them with other incubators. The incubators in NBIA are old and have a large percentage of graduates in addition to the fact that the field of incubators in Saudi Arabia is in its primary stage because only eighteen months have elapsed since the graduates graduated from Saudi incubators (at the time of conducting the interviews). In addition, there are graduates from only one incubator which may not give complete criteria for the survival percentage of the projects that have graduated from Saudi incubators, but they give indicators that can be used as guidance.

Based upon what has been mentioned in the findings of this research on the percentage of success of projects and the percentage of surviving graduated projects after graduation from Saudi incubators, and comparing them with what was mentioned in the literature review, it is reasonable to suggest that this similarity in the percentages is a positive indicator as to the effect of the local incubators on technological SME projects in Saudi Arabia.

5.3.2.3 Comparison between the incubated and non-incubated technological SMEs in Saudi Arabia aligning with isomorphism and competitive pressure:

This section, together with many other sections, provides an answer to the second question of the research questions on the study of the effect of the technological local incubators. This is done by comparing between the incubated technological projects and the non-incubated technological projects. Section 4.3.2.3 in the findings chapter has discussed in an extensive manner the opinions of the participants who own incubated or non-incubated technological SMEs projects in Saudi Arabia.

Briefly, all owners of the incubated technological projects, participants N1, N2, N3, N4, N5, N6, N7, N8 and E1 have stated that incubators have greatly contributed to the growth of their projects. Section 4.3.2.3 has reviewed the amount of growth of all participants in more detail. Also, many of the owners of the incubated projects, who were participating in the research, said that the difference is clear and quite significant between the period preceding the incubation and the period following incubation with regard to the fact that the percentage of growth was very large after joining an incubator. Few of the participants mentioned that there were additional factors that may also have contributed to this growth, but they all agree that incubators are the largest supporting factor. Moreover, the project owners, that have started

the projects since their set-up in an incubator, mentioned that it is not possible to reach the level of growth they have reached without incubation. This is because, if they were not being incubatees, they would not have been able to reach services, consultations and facilities they have obtained and that has contributed to the growth.

At the level of the non-incubated projects, all the owners of such projects, participants P1, P2, P3, P4 and P5 were asked about the effect of incubators on technological projects and the effect of the services provided by governmental incubators free of charge and if they contribute to minimising the costs of set-up and operation. They have all replied that these services have a significant effect on projects and they also contribute to minimising operational costs for emerging projects. Section 4.3.2.3 reviewed the opinions of non-incubated participants in more detail. They have answered from their experiences of starting technological business in Saudi Arabia depending upon their own resources.

However, the researcher noticed that, after mentioning the free services provided by the government incubators to some project owners and asking them about the effect of such services on technological projects in Saudi Arabia, they stated that they will research the matter in great detail.

A number of sections have either directly or indirectly discussed a comparison between the incubated projects (and the effect of incubators on them) and the non-incubated projects including:

Section 5.3.2.2.1 discussed the success of incubated businesses. It mentioned that many of the projects have different rates of growth before and after incubation. The project before incubation can be considered to be a non-incubated project, then, after joining, it becomes an incubated project. It is possible here to measure the effect of incubators on the incubated and non-incubated projects. From this also, the effect of incubators can be measured in broad detail whereas there are many constant factors and very few variable factors. The most important constant factor is that the project does not change and the project owner also does not change, while the greatest variable factor is the incubation. From the findings that have been mentioned in section 5.3.2.2.1 about the amount of project growth during the two phases, before and after incubation, it can be observed that there is a significant and clear effect of incubators on the projects after incubation in increasing the project growth in comparison with the phase before incubation.

Section 5.3.2.2 has reviewed the factors that help in the success of SME projects in Saudi Arabia. These were mentioned by the owners of incubated and non-incubated projects. In total, it makes to think the project owners usually want: guidance, consultations, operational

services and financing from the supporting programmes which were mentioned as factors that help SME projects to success.

Considering the status of the emerging technological SME projects in Saudi Arabia, many questions can be asked in relation to these factors: are technological projects able to provide these elements which the participants mentioned as elements that help in attaining success? Do the projects have the capability to have access to these elements? In the case of having the capability to access to such elements, do they have the capability to pay for the cost of these services whether the project is small or medium-sized.

The researcher notices that most of the factors mentioned by the participants help in the success of technological SMEs in Saudi Arabia. These are provided by the incubator free of charge and may therefore contribute to the success of the incubated projects more than the projects which are non-incubated. Participants N3, N4, N5, N6 and N7 say that incubators, through services they provide, have played an essential role in increasing the growth of the projects. For example, participant N8 mentions that, without incubators, he thinks his project would have achieved 40% growth but, with incubation, the growth of his projects has reached 120%. On the other hand, participant P1 (who is the owner of a non-incubated project) mentions that, if services provided by incubators free of charge had been provided to his project, then "some obstacles will be solved".

The researcher also notices the effect of the services provided by incubators and how they play an important role in the growth of incubated technological projects in Saudi Arabia.

Regarding the growth of technological projects, there are incubated projects that have reached very large growth rates, such as participants E1 and N1⁵³.

However, this does not mean that non-incubated projects were not successful in Saudi Arabia. There are many non-incubated technological projects which have achieved many successes⁵⁴. However, from the findings of the research, incubators have contributed to increasing the growth of incubated projects on a large scale.

Section 5.3.1.8 Understanding the local incubators culture, in which there is a comparison between the incubated and non-incubated projects regarding their performance in terms of the culture in the projects between best practices and the most expedient route. The researcher noticed that the majority of incubated projects have a culture of implementation of projects through best practices, while more than a half of the non-incubated projects follow the culture

⁵³ See section 5.3.2.2.1 for more deities.

⁵⁴ See the success stories mentioned in section 5.3.2.2.

of implementing through the most expedient route. It may be that best practice and not the most expedient route is the correct method and it may be a general criterion from which results can be obtained. The companies that are keen on performing their work using best practice and are provided with consulting services that help them (from incubators) are most likely to have the best projects. If we assume that one project was given to two companies, one of them is incubated and the other is non-incubated, then the culture of the companies will mean work is carried out either using best practices or the most expedient route. It can generally be said that the owners of incubated projects may have a final end product which is better than the final end product of the non-incubated projects.

Section 5.3.2.5 Credibility discussed in greater detail the effect of incubators of increasing credibility of incubated projects after joining incubators. The results have shown that all participants in the research who are incubated project owners, participants N1, N2, N4, N5, N6, N7, N8 and E1 (with the exception of one participant who was not asked the question) said that the incubator had contributed to increasing the credibility of incubated businesses. In addition, the participants from the incubated businesses mentioned that they used the credibility gained from the incubation as an added value in various ways. Some of them benefitted from this added value with investors and others with clients, suppliers, insurance companies, obtaining financing and government or non-government contracts. A number of them mentioned that they were not able to obtain contracts or commercial deals without being under the umbrella of incubation. Participant N6 mentioned that he had an experience of applying to various agencies for work related to his project before incubation and his request was rejected. However, incubation made a difference to him and a number of agencies agreed to sign with him. Participants N5 and N8 attributed the following reason to some agencies: when someone went to them to sign a contract, they say, 'Who are you, we do not know you?' They mean that the owner of a small project is unknown to them. Participants P1 and P2 (owners of non-incubated projects) mentioned that they faced this problem in the matter of credibility for start-up projects. The weakness of credibility is considered one of the obstacles that face start-up projects in Saudi Arabia which was discussed in section 4.4.1.

Section 5.3.2.4 reviews the effect of incubators on the owners of incubated projects in minimising the set-up and operational costs. All the managers of incubators and all incubatees said that incubators contribute in minimising the set-up and operational costs

(with the exception of participant N8)⁵⁵. A number of participants mentioned that incubators contribute greatly in minimising the set-up and operational costs. Participant N3 mentioned that he started his project with five thousand dollars and without the incubator, he was not able to open an office or hire staff, but with the existence of the services provided by incubators, such as an office with complete services, he used his capital in other ways. Participant N2 said that incubation had helped him to start his project and had made a great contribution to the set-up and operational costs by 60-70 %⁵⁶.

The researcher noticed that there may be two reasons why this effect differs from one project to another in the operational costs for incubated project owners: the first reason is the stage and the level of the project, whether it is at the start-up, beginner, middle or advanced stage. The researcher observed, through what had been mentioned by a number of participants, that the most noticeable effect of incubators on projects was in their primary stages. As participant D4 stated, that the impact for her incubator was great when the incubated project was at the start-up level. The second reason is that project owners benefit from services provided by the incubator. When a number of the incubatees were asked about some services provided by incubators, some of them replied that they know that there are services but that they did not use them. However, the researcher did not find a clear reason for not benefitting from services, and, when some of the participants were asked about the services, they replied that they did not think of using them.

On the other hand, when the participants in the research, who are owners of non-incubated projects were asked about whether incubators contribute to minimising the operational costs, they replied that they greatly contribute to minimising operational costs. Participant P2 mentions that the contribution of incubators to minimising the set-up costs reaches 80% during the first three years, then it is reduced until it reaches 60%. Participant P5 was asked about the effect of the incubator on minimising the set-up and operational costs if he was an incubatee, he replied that the effect constitutes 55-60% of the project⁵⁷.

Section 5.3.2.4 discussed the effect of the incubator in minimising two aspects of the set-up and operational costs: the first one was the tangible direct services provided by incubators

⁵⁵ Participant N8 mentioned that the reason is due to the fact that he did not obtain services that would contribute to minimising his costs. This may be due to the fact that participant N8 has been virtually incubated.

⁵⁶ See section 4.3.2.4 for the results of the research that reviews the answers of Participants about the effect of incubators in minimising the set-up and operational costs.

⁵⁷ See section 4.3.2.4 about the results of the research and the answers of Participants on the effect of incubators in minimising the set-up and operational costs.

such as an office with complete services, and the second one was multiple intangible services. Participant N1 mentions the other aspects that were provided by incubators "not only financial contribution, but they allow you to work on a full-time basis in the project. There's no need for you to care about the bills, maintenance or breakdown of air conditioners or anything else". The researcher sees that the two aspects have a significant and integral importance in minimising the set-up and operational costs, whereas the costs may be an obsession in the first stages for the start-up projects, especially when they are in the start-up phases. This was confirmed by participant D2, he said: "the small set-ups, especially the emerging technological set-ups, need each Riyal". Participant N3 mentioned that he had a little capital which was not enough for opening an office and hiring staff, but because he was in the incubator he was able to spend the capital directly on the project itself. Participant P2 (the owner of a non-incubated project) adds that the emerging technological projects face difficult beginnings. Also, the beginning of the project is difficult and it needs guidance and orientation from experts. He explains this by saying that the owner of an emerging project with little experience is required to establish a successful company. So, there is an increasing need, in this case, for experts in the same field, not to say which is the right or wrong way but to advise which way is less expensive and more feasible. This is what incubators provide for start-ups; they provide competent consultants, enabling start-ups to benefit from each other. Also, start-ups are conscious of the obstacles that an incubated project once faced. Therefore, new start-ups should not face the same obstacles. As regards the local context, some participants in section 5.3.1.3.2 mentioned that some mentors in some incubators are weak in the stages of medium growth. However most of the incubatees mentioned their evaluation of performance of the services provided by incubators as positive⁵⁸. Participant D5 (manager of one of the incubators) says that the effect of incubators on minimising the operational costs appears to be because the project owner does not have to waste time on things that are not a priority for the project. This may also be due to the fact that incubators, through consultants, direct project owners into spending the capital they have on the most important aspects required for their project.

In addition, the effect of incubators also contributes to providing an integral environment which, in turn, contributes to making the project owner and the working team concentrate their attention on the project itself without paying attention to any secondary details that may take their time or distract them from the project. On the other hand, the owner of a non-

⁵⁸ For more information, see section 5.3.1.3

incubated project takes full responsibility for any aspect of his own project that takes his time and efforts away from the project itself. This does not mean that incubated project owners do not have to pay setup and operational costs but that they are less than the costs of a non-incubated project. The incubator provides an office with complete services and takes charge of all bills and maintenance and other needs. The owner of the incubated project can start his project from the time he is accepted in the incubator, unlike the owner of a non-incubated project who needs to establish a complete office from the beginning and this takes time away from the project life cycle.

There are important aspects for owners of businesses. Participant D2 mentions that incubators contribute to minimising the failure of business due to some aspects. He explains those aspects by saying that the incubator makes a great contribution to minimising losses for incubated project owners; when an incubated project fails, then it fails early on, unlike the owner of a non-incubated project who realizes that the project is likely to fail only after he has made great efforts and spent huge amounts of money. In the incubator, however, the projects that show signs of failure are suspended by the incubators. Participant D2 also adds that they have stopped projects after 6 months so, there is no huge loss of money because it was guaranteed by the incubator. To compare two projects, both of them failed after six months, the amount of money that the incubated project spent was small in comparison with that spent by the owner of the non- incubated project. This was because the owner of the non-incubated project had to prepare an office and a suitable place of work before the project could begin. This, generally speaking, costs a lot of money which is not paid by the owner of the incubated project but by the incubator. In addition, incubators are conscious of which projects have indicators of early failure. That is for two reasons: the first one is that the officials in the incubator predict this failure by virtue of their experience, and that was confirmed by participant D2. The second reason, from the point of view of the researcher, is that the incubated project starts work in the project directly from the date of joining the incubator, but the non-incubated project needs time to prepare the place and to finalise government procedures before he/she can start their project. So, the incubated project will make big strides at the same time as paying more attention to the indicators of failure than occurs in the non-incubated project.

In the literature review, there was a detailed discussion at the international level regarding the effect of incubators in increasing the percentage of success or increasing project survival. Incubators contribute to minimising the risks of failure of small projects (Tamásy, 2007, p.461). 87% of members of NBIA who graduated from its incubators, still practise

commercial business (NBIA, 2016). The study by the European Commission (2002) shows that the rate of survival of business is higher than 80-90% (after five years) for non-incubatees (Aerts et al., 2007, p.255). Ratinho (2011, pp.164-165) mentioned that the findings of his research have shown that incubators contribute in developing the incubated projects through solving the problems they face. With regard to developing countries, it was mentioned in the literature review that survival rates of incubated projects are very high and it may reach up to 85% in the countries that have strong support from the government and links with universities such as in China and Brazil (Scaramuzzi, 2002, p.25).

This section and the sections previously mentioned, present two findings of this research. First, the researcher looked at the opinions of the incubated and non-incubated project owners who passed through the two stages. For the latter the researcher investigated both before and after incubation and also through what had been mentioned in the previous sections. Based on these opinions, it can be said that the findings of the research have shown that there is a clear positive effect for incubators on the owners of the incubated SME technological projects in Saudi Arabia. The findings showed clearly that the majority of the local incubated projects have a high level of growth. Second, the comparison conducted in this research between the incubated and non-incubated projects shows that incubated businesses have levels of growth which are clearly greater than non-incubated businesses. It can also be said that the owners of incubated projects have more chance of success than the chances of success available to the owners of non-incubated projects. Saudi Arabia is classified as one of the developing countries with huge government support provided to the initiatives supporting SME projects and incubators, the findings of this research have shown the significant impact of incubators on the projects. All of these findings are consistent with many studies in the literature review that mentioned the advantages and the effect of incubators on the incubated projects.

5.3.2.4 Understanding of the effect of the incubators on the incubated technological projects to reduce the costs of set-up and operation:

The beginning stages of the projects can be considered the most important stages in a projects' life cycle. The set-up and operation costs can be also considered to be one of the more important aspects of a project. Therefore, many of the initiatives that are directed towards SMEs aim to reduce set-up and operation costs, thus concentrating on the beginning

stages of a project. So, the reason behind using the word incubator is to indicate the incubation of the projects in their primary stages⁵⁹.

In section 4.3.2.4 from this research, the participants have been asked about the role played by incubators in Saudi Arabia in reducing set-up and operation costs. Participants taking part in the research included incubator managers and owners of incubated and non-incubated projects. All (with the exception of participant N8) agreed that incubators have an effect on reducing set-up and operation costs. The reason for participant N8's thinking can be attributed to the fact that he did not receive the services that would reduce the set-up and operation costs. There are probably four reasons for this. Firstly, because participant N8 is a virtual incubatee. Secondly, he is living in a city where there isn't an incubator. Thirdly, there may be weaknesses to do with both parties regarding the mechanism of virtual incubation and the ability to benefit from it⁶⁰. Fourthly, what participant N8 mentioned applies to his own project and not the effect of incubators in general where he mentioned that the performance of the incubator in the capital city is marvellous. Table number 5.4 illustrates the opinions of the participants of the research on the effect of incubators in reducing set-up and operation costs.

The effect of incubators on reducing the set-up and operation costs can be divided into two aspects as mentioned by many participants including participants D2, D5, N1 and N4. The first aspect is a tangible effect represented in the services provided by incubators. Services which are required by the owners of the incubated projects such as an integrated office, consultations and other services provided by incubators. Incubators contribute in reducing the set-up and operation costs for the projects because in the beginning stages, projects may not achieve sufficient profits. Such profits support the continuity of the work of a project. So, the contribution of incubators means the incubated project owners do not have to bear fixed costs such as rental of an office and multiple invoices. In addition, the beginning stage, being one of the important stages of a project, requires owners to plan and build an action plan which contributes to the success of the project. Start-up projects may not have the capability to spend huge amounts of money on consulting companies that help them in setting up a feasible action plan for their project. Therefore, the contribution of incubators comes in the first stages of the project. Yet, the suggestion could be made that incubators contribute in a certain manner before the beginning of the project. That is when incubators set conditions

⁵⁹ See the literature review sections 2.4 for more details on the definition and naming of incubators.

⁶⁰ See section 5.3.1.2.1 Analysing which type of incubator best fits the local context.

for applicants to join an incubator asking them to submit an action plan for their project. Also, immediately after acceptance, they start developing this plan through consultants in the field. Secondly, an intangible effect, which comes in many forms including the form of the incubatee beginning project work from the moment that he/she is accepted in the incubator. If they were not incubated, they would need a period of time to furnish the office, equipment and apply for services such as internet and other services. In addition, procedures in Saudi Arabia to issue licenses and records from multiple authorities require time which delays starting work⁶¹. The credibility that has been discussed in section 5.3.2.5 contributes indirectly by reducing the set-up and operation costs. Regarding the contribution of credibility for example, participant N6 mentions that joining the incubator has provided medical insurance for his employees while he was not able to receive such medical insurance in the past.

Participant	Rate of the effect
D1	He was not asked directly because he is in the pilot stage. He said that incubators raise the percentage of project success from 20% outside the incubator [non-incubatees] to 70% inside the incubator [incubatees]. That success may be the incubator's contributory element in reducing the set-up and operation costs.
D2	Yes, they have a great impact on two levels: direct level and indirect level.
D3	Yes, they have impact ranging from 60-70%.
D4	Yes, they have impact ranging from 25-30%.
D5	There is a clear effect for the incubators in reducing the costs because they help incubatees to not waste time on things that are not priorities.
N1	Yes, they have an effect in two aspects: material and morale. In that you will be fully dedicated to your project and do not concern yourself with invoices or maintenance or other things.
N2	60-70%
N3	Yes, they have greatly reduced the costs at the beginning.
N4	Yes, they have reduced the costs to 40% and helped me concentrate on additional matters.

⁶¹ See section 4.4.1 Coercive pressure arising from the obstacles facing local SMEs.

N5	At a percent ranging from 10-15% because office services are provided. If these had not been provided by the incubator, we would not have rented an office. In another context however, he mentioned the effect of the services provided by the incubators to his project range from 80-90%
N6	Yes, costs have been reduced to 50%
N7	Yes, they have reduced costs to 15% and the reason for this percentage because I compare it with the capital which is about (six hundred sixty-six thousand dollars).
N8	He mentioned that incubators did not have any effect
E1	Yes, they have reduced the costs to 40- 50% during all stages
P1	He was not asked directly because his project was in the pilot stage. However, when he was asked in another context about the effect on his project if services had been provided by incubators free of charge, he answered: "it will overcome obstacles."
P2	They contribute by reducing costs by 80% for the first three years, then 60% in the following years.
P3	Yes, they reduce costs in a very large percentage
P4	They contribute in reducing 30- 50 % of the costs
P5	Yes, they contribute with more than 60%

Table 5.4 summary of the opinions of the participants in the research on the effect of the incubators in reducing the set-up and operation costs.

It is noticeable from the previous table that most of the participants mentioned a high contribution percentage for incubators in reducing the set-up and operation costs. The researcher notices that the contribution percentage of incubators on the incubated projects varies from one project to another. This is what is confirmed by participant D2 when he was asked about whether they have conducted a study on the effect of the incubator in reducing the set-up and operation costs. He replied that the percentage cannot be measured because the percentages vary from one project to another. Also, the need of the projects for services from the incubator differ from one project to another. From participant D2's answer, it can be deduced why percentages differ from one project to another where the services that the incubated project benefits from play an important role. For example, participant N5 mentioned that the percentage ranges from 10-15% because there are services that if they had

not been provided by an incubator, he would not have used, such as the office. If it had not been provided, they would not have rented this office. However, participant N1 mentions that the main reason for joining the incubator was the office.

The researcher also notices that there is a very positive vision from the owners of the non-incubated projects on the contribution of incubators in reducing the set-up and operation costs. This may result from the vision and experiences of the non-incubated projects in practicing their work in the real world and the cost of establishing and operating a project.

In the literature review, a number of studies mentioned that incubators contribute in reducing the set-up and operation costs for the projects. This is where the service provided by incubators such as the provision of an office at a low cost and joint services or consultations contribute in reducing the overhead costs imposed on the incubatees (Chelle et al 2011, p.2; Bruneel et al 2012, p.111) However, the primary stages of the technology projects life cycle are considered to be difficult stages. Incubators contribute through the services they provide in reducing fixed costs for incubated project owners (Tamásy 2007, p.462).

From the foregoing, it can be said that there is an effect of the local incubators in reducing the set-up and operation costs through the services provided by incubators free of charge to the incubatees. The effect of these services is in saving money for the owners of the incubated projects in the stages of set-up and operation. In addition, the vision of local non-incubated projects owners supported the opinion that the local incubators have an effect in reducing set-up and operation costs. Therefore, the results of the research agree with what is mentioned in the literature review that incubators contribute in reducing the set-up and operation costs.

5.3.2.5 Credibility:

Start-up projects face many obstacles that can hinder their growth, most notably credibility. The following sections discuss credibility from a local perspective, specifically considering the effect of incubators of increasing both this credibility and the continuity of SMEs.

5.3.2.5.1 Credibility in the local context aligning with institutional theory:

Credibility is considered one of the most important elements that SMEs require in their primary stages to help the growth and continuity of such projects. Section 4.3.2.5.1 in the findings chapter discussed the opinions of those participating in the research, which were obtained from interviews conducted with incubator managers and the owners of incubated

and non-incubated projects. Many participants mentioned the importance of credibility in starting and continuing projects.

Participant P2 stated that the lack of credibility in small institutions hampers them when they are forced to accept projects with little margin of profitability from government agencies, but which enables them to list these large agencies as their clients. This helps them to obtain credibility with other clients. Participant P1 stated that it is difficult for start-up companies, which have, for example, a product that has been on the market for three years, to compete with major companies that may have had products on the market for 10 or 20 years. Participant P2 confirmed that small companies cannot enter into competition with large companies, whether local or international, because small local companies lack credibility despite providing the same product as the foreign company. Describing his experience before incubation, participant N6 said many agencies had refused to deal with his start-up. He added that when submitting a project, it is accepted under the name of the company in which the participant works; if the company is not well-known, the project will not be signed, even if its idea is good. Participant N6 noted that current Saudi policy is based on a number of well-known mega-companies, such as Aramco. In the same context, participant P2 mentioned that the government sector has no trust in small companies, although these may be able to attract projects worth up to 20 to 50 million SR (US\$4 million to 5.3 million). He attributed this to the fact that small local companies are unable to start projects due to the government sector's distrust in them. When the researcher asked participants P1, P2: "Was the reason for the distrust of the large agencies in SME projects a result of the low potential of SMEs to implement large projects?" they replied in the negative, and said that many small companies have the capability to implement mega projects.

On the other hand, participant P5 argued that there should be rules and regulations for the protection of customers against small projects that provide their products through platforms such as Instagram.

The researcher asked participant N6 about credibility for current SMEs. He said that the situation had not been improved yet, but will be better in the future.

In the literature review, starting a new project is considered a difficult task because entrepreneurs face difficulties in finding suitable resources to develop their projects and a lack of credibility when entering into the market (McAdam and Marlow, 2007, p.363). In other words, it is difficult for a new start-up to suggest that it is reliable if it does not possess credibility (McAdam and Marlow, 2007, pp.365-366). It is natural for the owners of a start-up business to not possess a reputation or legitimacy in the market (Schwartz, 2013, pp.8-9).

This may have a negative impact on business transactions, such as negotiations with suppliers, clients or financing institutions. However, Ratinho et al. (2010, p.7) argue that the liability of newness can be minimised by credibility.

Based on the previous sections, which discussed the obstacles facing the owners of start-up businesses, it is argued that credibility is very important for technology SMEs, especially in their primary stages where credibility may minimise several obstacles, such as the liability of newness.

Based upon the findings of this research, local SMEs face the same challenges faced by SMEs around the world, including the factors mentioned in the literature review. This study found that the owners of Saudi non-incubated technology SMEs talked about the importance of credibility on a large scale, since they suffer from an absence of credibility in their projects. Their vision is confirmed by project owners who have passed through two stages, before and after incubation, such as participant N6.

5.3.2.5.2 Understanding the contribution of incubators to credibility:

Based on the importance of credibility for the owners of SME projects, as described above, one of the important key findings of this research (see Section 4.3.2.5.2) showed that Saudi technology incubators have made a high contribution in increasing the credibility for incubated projects. This is an intangible added service. A number of participants, such as N2 and N4, considered credibility to be the most important added value from the incubation process. In addition, a number of participants, who are the incubated project owners, such as N4, N5 and N8, said that credibility is the one of the reasons why they would join an incubator. Moreover, a number of participants, such as N2, N3, N5, N6, N7 and N8, emphasised that their projects fall under the umbrella of the largest agencies, which obviously increases the credibility of the incubated technology projects. The Bader technology incubator is a KACST initiative, whilst the Waed incubator is an initiative of the Aramco Company, which gives the owners of the incubated projects a significant increase in credibility. Participant N5 mentioned that whilst there may be a group of people who do not know about the Bader incubator, the vast majority definitely know about KACST.

The importance of the credibility obtained by the owners of incubated projects from the incubation process is a result of several factors. Firstly, it helps the owners of the technology-incubated projects to obtain contracts, as mentioned by participants N2, N5, N6, N8 and E1. This increase in credibility for the incubated projects is a result of the incubation process; help in obtaining government contracts is exactly what the owners of the non-incubated

projects need, as discussed in the previous section. Secondly, the existence of an incubated project with a reliable agency helps to attract employees, as mentioned by participant N6. However, the findings of the research showed that local SMEs, whether incubated or non-incubated, have experienced problems in employment processes (see Section 4.2.3). This study argues that incubators contribute to the process of recruiting new staff and increasing the acceptance rate of job offers in small companies by increasing credibility in start-up incubated companies through affiliation with reliable names; this is a problem experienced by the owners of SME projects. Thirdly, local incubators play an important role, through their own networks and the introduction of incubated SMEs, in running reliable projects. Participant P3 mentioned that relationships play a significant role in the success of a project. Even if the idea of the project is good, without these relationships, it will not be able to continue. Locally, these relationships may be sometimes given priority over the quality of the project. Participant E1 added that relationships are the most important advantage provided by incubators; when facing an obstacle with a certain agency, the incubator will provide a letter in support of the project. Moreover, he added that the owners of non-incubated projects lack this advantage. This statement was based on interviews with the owners of non-incubated projects. Fourth, incubators help support technology start-up projects with agencies that have set conditions for dealing with large companies. Participant N6 mentioned that local health insurance companies provide good coverage and set a requirement that agencies should have at least 35 employees. He told them that as a start-up company he did not have this number of employees, but since he comes under the umbrella of an incubator belonging to a mega company, he has a letter of support. Fifth, the existence of SMEs under the umbrella of the incubator gives them greater credibility in comparison with non-incubated projects. Participant D4 (a manager of an incubator) said that during an exhibition targeting the owners of start-up projects or productive families, it was noticed that some of the owners of the non-incubated projects wanted to display their products in the pavilion of the incubator and justified this by saying that this gives their projects greater credibility.

In the literature review, one of the most important obstacles facing the owners of start-up projects is the lack of credibility with relevant agencies, such as suppliers, clients and new employees (Totterman and Sten, 2005, pp.491-492-504; McAdam and Marlow, 2007, p.363). However, accepting these start-up projects in the incubator would enhance credibility and give projects a positive reputation associated with the incubator (McAdam and Marlow, 2007, p.363). Many studies cited credibility as one of the basic elements for the incubation process (for example OECD, 1997, pp.72-106; European Commission, 2002, p.42; McAdam

and McAdam, 2008, p.278). However, credibility is considered to be one of the most important services that incubators provide to incubated projects (Ferguson and Oloffson, 2004, p.5; McAdam and Marlow, 2007, p.361; McAdam and McAdam, 2008, p.278; Schwartz, 2013, pp.8-9). Incubators play an essential role in linking incubated projects with the name of the incubator, which in turn enhances credibility for the incubated companies (McAdam and Marlow, 2007, p.363; McAdam and McAdam, 2008, p.285; Schwartz, 2013, p.305). Incubators enhance mechanisms for building partnerships and creating networks between companies, universities, investors and investment agencies (Hansen et al., 2000, p.80; Hannon, 2005, p.63; McAdam and Marlow, 2007, p.4). These networks and relationships help start-up companies to overcome the obstacles associated with the liability of newness and support the development of the cooperative relationships that are considered of paramount importance in both the primary and growth stages for start-up companies (McAdam and Marlow, 2007, p.363). One of the participants of the McAdam and Marlow, (2007, p.369) study, stated that credibility is one of the most important features for the process of incubation, especially for start-up projects, because the address is known when these projects deal with clients. He added that, in contrast, working from home, for example, does not provide much credibility. McAdam and McAdam (2008, p.11) suggest that credibility is the most important benefit that start-up projects obtain from the incubation process, in which their projects become linked with the name of the incubator. The project owners therefore highly value the credibility provided to them through their acceptance in incubators (McAdam and Marlow, 2007, p.375). The increase in credibility increases the chances of the project surviving, even though the available resources are scarce (Singh et al., 1986, p.173; Ratinho et al. 2010, p.7). Although there is a clear effect resulting from the acceptance of start-up projects in incubators, which in turn increases credibility, this effect becomes reduced when these companies grow and become more experienced (McAdam and McAdam 2008, p.288).

From the findings of this research, it was noted that local incubators help start-up projects in the primary stages by providing services, including credibility. Credibility is considered to be one of the most important reasons that encourage these projects to join the incubator due to its effective role in building relationships with concerned agencies. This contributes to the growth of these companies and increases the chances of their survival.

In a comparison between the findings of this research and the literature review, it may be argued that Saudi incubators are similar to some of those described in the literature review in terms of presenting credibility as one of the added services to incubated SMEs (see Section

5.3.2.5.1). It may thus be argued that the findings of this research showed the important contribution that Saudi TBIs make by offering credibility as an intangible added value in overcoming one of the most important obstacles faced by the owners of technology SME projects (see Section 5.4.1).

5.3.2.5.3 Comprehending what affects credibility:

From the previous sections, it is apparent that credibility affects start-up projects and that incubators have a role in the provision of credibility for these projects. There are several factors that reduce or increase this credibility. All incubatees (participants N1, N2, N3, N4, N5, N6, N7, N8 and E1) had direct experience in varying proportions of an incubated project gaining increased credibility with many agencies, whether investors or governmental agencies.

As mentioned in the previous section, joining an incubator is considered to be an indicator of the credibility of these SMEs. This may result from the strict conditions set by incubators to determine which SMEs are accepted in the incubator (see Section 5.4.2). This was confirmed by all the interviewed incubator managers (participants D1, D2, D3, D4, and D5). They mentioned that their objective when setting these conditions and criteria was the increased care taken when selecting projects to be incubated from the application submitted by SMEs. Section 5.4.2 discussed the conditions set for the local incubators that participated in the research; the findings demonstrated that there are substantial differences between incubators. This study notes that the agency to which the incubator belongs may have an effective role in increasing credibility. For example, incubators that belong to agencies such as KACST or Aramco have higher credibility than other incubators. This was confirmed by some participants, who said that some people do not know the incubator but instead know the agency to which the incubator is affiliated. This confirms the findings of the research described in Section 5.3.1.3 (*'Evaluation of the Performance of Incubators'*) that the performance of one of the commercial incubators that had emerged from a normal company (not a large company or one with a good reputation) was not good and that the numbers being incubated was low.

In contrast, two of the incubatees (participants N3 and E1) mentioned that incubation may have a negative impact on credibility in incubated technology SMEs. Participant E1 mentioned that a long incubation period for the incubated project in the incubator may act as a negative indicator. However, participant N3 mentioned that some people believe that the

incubated project lacks the capability to implement mega-projects, which might arise from a lack of awareness of incubators and their role (see Section 5.2.6.1).

Based on the findings of this research, it is argued that credibility, as an added value for the incubated SMEs, varies in proportion between incubated projects. Participant D2 confirmed that it may provide greater added value to one project and not to another. This matter is attributed in this study to the nature of the project itself; the technology SMEs that have links with large agencies or who need to show substantial credibility have a greater need to increase the credibility of their projects. This was confirmed by a number of participants who have dealings with many large agencies. For example, participant N3, whose project deals with the provision of services to a certain category, did not use a letter of recommendation from the incubator. However, participant N3's project may have been affected by the credibility provided by the incubator. Because he is an incubatee and the headquarters of the company is located inside the incubator, he was not forced to deal with agencies that require greater credibility. This may be confirmed through the statement of participant D4 that the incubated project owners wanted to exist inside the incubator to enhance the credibility of their projects.

5.3.2.5.4 Suggestions for increasing credibility along with institutional theory:

The previous section reviewed credibility. A number of participants mentioned that credibility is a problem facing technology SMEs in Saudi Arabia. In Section 4.3.2.5.4, some participants mentioned a number of solutions that may help resolve this problem:

- Governmental support for local SMEs through the adoption by government agencies of products and services provided by local SME projects who are competing with services and products provided by the largest companies.
- There should be a classification in governmental agencies for SMEs, for example, a black list of companies that do not provide suitable services.
- The largest companies should not be allowed to compete with SMEs for governmental bids.
- There should be capability for due diligence regarding SMEs.

From the findings of this research, it is argued that the existence of incubators alone will not be sufficient to provide credibility to all SMEs. This is due to the huge number of non-

incubated technology SMEs, which need credibility. The need for assurances and mechanisms to help build trust in local technology SMEs is important. The second chapter in the literature review dealt with the royal decree for the establishment of an organisation for SMEs. It is hoped that the contributions of the organisation will support SMEs and should soon help change the local rules and regulations in order to help find solutions, as mentioned in Section 5.4.1.2.

5.3.2.5.5 Analysing the contribution of incubators to credibility: Is it a local or international?

Credibility is one of the attributes most difficult to obtain for emerging companies (McAdam and Marlow, 2007, p.365; Schwartz, 2010, p.8). A number of articles in the literature review described the effect of incubators on increasing the credibility of incubated companies, which was discussed in previous sections. In addition, local incubators help increase credibility, as shown in the findings of this research described in the Chapter 4.

Lunenburg (2012, p.4) stated that:

“Credibility is acquired by having the appropriate credentials. For example, physicians, computer specialists, and tax accountants, who have shown tangible evidence of their expertise, will be listened to closely and thereby granted expert power.”

Participants D1 and D2 referred to this subject when describing the benefit of the Bader incubator coming under the umbrella of the King Abdulaziz City for Science and Technology. The provision of experts in the field from inside this institution (one of the largest research centres in Saudi Arabia) is necessary for an incubated business, as is the ability to seek the assistance or expertise of foreign consulting companies. For example, participant E1 stated that he has been provided with a specialised foreign consulting companies. However, acceptance into an incubator is often considered an indicator that the company has potential because experts usually evaluate a project before it joined the incubator (McAdam and Marlow, 2007, p.363). This was mentioned by the incubator managers (participants D1, D2, D3, D4 and D5).

In a study of 12 companies in an incubator in the Republic of Ireland, McAdam and Marlow (2007, p.374), found that the incubator improves the credibility and professional image of incubated businesses. McAdam and Marlow (2007, p.375) said start-up companies appreciated credibility provided to them by incubators. However, over time, and as the start-

up companies gained maturity, this effect decreased compared to newer emerging companies, as confirmed by participants D4 and E1.

Regarding the local aspect, when participant N6 was asked whether credibility is affected by local culture, he responded: “I think so ... it is unfortunate that in Saudi Arabia until now is not accepted, and it is incomprehensible that small companies might have value. They are all accustomed to a number of big companies, because when you go and present yourself, they will ask you which company you are from.” When participant N7 stated that incubators increase credibility, he was asked the question, “Do you think this is special in the local or international environment?” He responded, “Generally speaking, when you follow a large organisation, you are trustworthy, but locally I have noticed that this increases.”

Participants D2 and N7 mentioned that the credibility provided to local incubators is different. Participant D2 (a manager of an incubator) mentioned that the location of SMEs plays an important role in the ability to evaluate projects and to assess whether or not a project and its owner can be trusted. He added that his experience as an arbitrator of projects in the USA, Italy and Saudi Arabia had shown that in the USA and Italy it is easy, through due diligence, to obtain information and information on the project’s background and owner. However, nothing of this nature happens in Saudi Arabia. This study argues that the importance of credibility in the local context provided by the local incubator is bigger than in other countries. The lack of alternatives and sources of credibility for local SMEs has led many SME projects to suffer from an inability to obtain the trust of large agencies, which has led some participants to propose that there should be a list to classify SMEs.

5.4 To identify the obstacles facing SMEs when they attempt to join technology incubators:

In the next sections, there will be discussions of the obstacles facing SMEs in SA in general. This will be followed by a discussion of the conditions and criteria for the selection of incubatee in SA incubators in more detail. Obstacles when attempting to join an SA technology incubator will then be discussed.

5.4.1 Coercive pressure arising from the obstacles facing local SMEs:

Section 4.4.1 in the findings chapter discussed the opinions of the participants in the research including the managers and the owners of incubated and non-incubated SMEs. The research findings showed that there are 13 types of obstacles facing the local SMEs. These obstacles in brief are:

- 1- E-Payment gateway.
- 2- Finding employees with sufficient skills and with the desire to work in a small business (see section 5.2.3).
- 3- The multiple agencies responsible for submission of permits.
- 4- Poor financing in the field of IT (see section 5.2.2.1).
- 5- Intellectual property.
- 6- Lack of confidence in emerging companies (see section on Credibility 5.3.2.5).
- 7- Internal delivery and postal addresses.
- 8- The business owner or one of the partners works as a government employee (see section 5.4.3).
- 9- Investment in IT projects (see section 4.4.1.1).
- 10- Marketing (see section on Credibility 5.3.2.5).
- 11- Experience in business management.
- 12- Commitment.
- 13- Saudi rules and regulations associated with SMEs (see section 5.4.1.1).

There was a variation in the views of participants regarding obstacles. There are some obstacles mentioned by the majority of the participants such as E-Payment gateways and this confirms the importance of it for SME project owners in Saudi Arabia. In the present time, it is also considered to be a major obstacle for technology project owners in Saudi Arabia. In Section 4.4.1 it was mentioned that SADAD is the only E-payment system in SA. AlGhamdi and Drew (2011, p.242) also state that (at the time of writing) SADAD was the only E-payment system available in SA. They stated that SADAD is considered to be an expensive service by SMEs. This is concurrent with the findings of this research.

In section 4.4.1, participant N1 mentioned that “electronic payment represents only 30%.” The researcher sought to cover a number of points from several sources and thus, found a it ⁶², study of electronic commerce in SA which examined both micro and small organisations was compiled in the middle of 2017. The aim of this study was to survey owners of electronic stores in SA, 384 of the electronic store owners in SA participated in this study (Digital Research Company, 2017, p.7). The study found that only 11% of the stores used E-Payment services (3% SADAD account and 8% credit card) while the major percentage which is 48%

⁶² Prepared by the Digital Research Company for the Ministry of Trade and Investment and the General Authority for Small and Medium Enterprises.

used a non-electronic way and is fully dependent on payment upon receipt. The findings of this recent report confirmed the findings of this research, which is that E-Payment is considered to be one of the biggest obstacles facing technology SMEs in SA. The researcher this one point which is E-Payment, developed two conclusions consistent with analysing on . what was mentioned in the literature review through using the hermeneutic approach

The researcher sees that there are a number of obstacles mentioned by the participants that may be associated with the types of the work practiced by the project owner.

In the literature review, many articles have discussed the obstacles facing SME projects around the world. Sadi and Henderson (2011, p.405) mention that there are obstacles facing Saudi SMEs including the difficulty of obtaining financing (this is in relation to obstacle number 4), the lack of administrative efficiency (related to obstacle number 11), and poor information on the market and negative circumstances of the market (related to obstacle number 10). He also adds that there is a weakness in the owners and managers of SME projects as regards administrative knowledge and marketing expertise in attracting partnership with foreign companies (related to obstacle number 9). On the international level, emerging companies suffer from a lack of credibility since it requires time to acquire reputation due to the newness of the company or newness of its products (related with obstacle number 6) (Schwartz 2013, p.304). The weakness of education in the field of business management is considered to be one of the decisive factors in the failure of start-up projects (related to obstacle number 11) (Schwartz and Blesse 2011, p.67). The emerging companies mostly require financing for development and growth and they usually obtain such financing from investors or public support funds (related to obstacle number 4) (Clarysse and Bruneel, 2007; Ratinho et al. 2010, p.9). Hertog (2010, p.25) mentioned that financing is considered a major challenge for SMEs around the world but it is a greater challenge in developing markets. He also adds that SMEs in the Arabian Gulf face the same problems faced by start-up companies in non-Western countries in general (related to obstacle number 4).

Many of the obstacles have been discussed and referred to in previous sections. In the literature review, many of the SME obstacles in the world and Saudi Arabia have also been mentioned. Through the findings of this research and what is stated in the literature review, it makes to say that there is a great similarity between the obstacles facing SMEs in Saudi Arabia and with what has been mentioned in the literature review. Some obstacles may be more difficult such as local rules and regulations related to SMEs or related to financing as mentioned by Hertog (2010, p.25).

5.4.1.1 Coercive pressure arising from the Saudi rules and regulations associated with SMEs:

This section is linked to the previous section. However, the importance of the participants' opinions in this research justifies a separate section. The findings of this research show that the majority of the participants such as D1, D2, D4, P1, P4, N1, N5, N6 and E1 mentioned that the rules and regulations connected with SME projects in Saudi Arabia are hindering the growth of such projects. Participant D2 (manager of one of the incubators) goes further and states that the rules and regulations are hindering small projects and the work of business entrepreneurs and also hindering the set-up of incubators. In 4.4.1.1, many of the participants expressed their opinions on how the rules and regulations are hindering SME projects and what exactly those obstacles are. They said that among the obstacles are rules and regulations for the following:

- 1- Partnership contracts that are suitable for emerging companies such as stocks option or preferred stock.
- 2- Lack of rules and regulations that support venture capital.
- 3-Lack of mature law for intellectual property rights.
- 4-Rules and regulations that do not differentiate between technological enterprises and other enterprises.
- 5-Bureaucracy
- 6-Slow development of rules and regulations in Saudi Arabia.
- 7-Length of time taken to obtain suitable work permits
- 8-Multiple authorities granting permits for SMEs.
- 9- The lack of permits suitable for new projects and ideas (business concept) ⁶³.

The researcher observes that there are a number of obstacles mentioned by the participants in the research in section 5.4.1 that are linked to local rules and regulations. Also, 5 of 12 of the elements that hinder SME projects in Saudi Arabia mentioned in the previous section are directly linked with local rules and regulations which are as follows:

- 1- E- Payment gateway. The prohibition of online payments in Saudi Arabia is a common comment amongst the majority of the participants. It is considered the most important obstacle.

⁶³ See section 4.4.1.1 to review for more details of all the previous points.

- 2- Multiple Agencies. The multiple agencies responsible for submission of permits and the multiplicity of the agencies granting permits is considered an obstacle for the owners of emerging projects. It faces them especially in the beginning stages of the project where the project owner needs support to start their project. Participant N3 mentioned that he needed 6 months to finalise the procedures. The multiplicity of the agencies from which SMEs obtain multiple licenses to start work may be the most difficult obstacle for owners of start-up projects because of their lack of experience in this compared to others. Therefore, incubators, for example, provide a person to perform these procedures on behalf of the owner. Allowing the owner of an incubated project to start work from inside the incubator and not occupy themselves with permits.
- 3- Property rights. Intellectual property right laws which are not supportive and are thus an obstacle since there are many technology projects that are linked with intellectual properties. The existence of rules and regulations that protect the owners of intellectual property rights are important. In addition, it is important to have easy and facilitated registration procedures for the owners of ideas and project owners. Such registration should protect projects since the project as a whole may be based upon a certain idea.
- 4- Internal delivery and postal addresses. This is one of the problems facing project owners wishing to communicate with their clients and to deliver their purchases or services to them. Local companies providing delivery services between cities have emerged and are competing with international companies such as FedEx and others in terms of price. The lack of an address for direct delivery makes it difficult and requires many indirect solutions. For instance, communication with the owner of the parcel via telephone to deliver the parcel to a designated place. Alternatively, the owner of the parcel comes to the delivery centre to collect the parcel by himself.
- 5- Government Employment. There is an established problem of a business owner or partner working as a government employee. Rules and regulations necessitate the solution of employees in governmental sectors establishing projects in the name of relatives who are not government employees. The number of governmental employees, specifically Saudi staff, up to 22/12/2014 is 1.1 million according to the report of the Ministry of Civil Service (Statistical report number 14). This figure can be considered to be significant as it deprives more than one million citizens from starting work directly under their own names. Also, these rules and regulations can be considered to be hindering the development of small projects in Saudi Arabia as they limit opening new projects. This does not comply with Saudi development policies for supporting SME projects. In

addition, such rules and regulations encourage some people to try deception such as pretending to be a partner or owner in certain businesses without being officially registered. This is what was confirmed by participant D2 in his experience with due diligence for a project owner who submitted an application to join the incubator. There were no businesses registered in his name officially. After making a search, they found that he was not suitable to join the incubator.

In addition, some of the remaining obstacles mentioned by the participants are linked indirectly with local rules and regulations. For example, regarding investment in IT projects, some participants such as participant N1 mentioned that the existing rules and regulations do not support foreign investors investing in local projects. Participant N1 adds by saying that in order for the investors to invest in local projects, they should at least be familiar with rules and regulations.

On the other hand, some participants such as participants P2 and P3 see that the rules and procedures have improved. However, participants D5 and N8 mention that Saudi rules and regulations are not hindering SME projects.

A number of studies in the literature review have discussed how the effect of the rules and regulations, is to hinder growth and development of SMEs on an international level. The rules and regulations supported institutionally are considered a serious obstacle in the development of entrepreneurship (Scaramuzzi 2002, p.32). Scaramuzzi also adds that there are external factors that hinder the growth of SMEs such as legal barriers, poor financing, unclear governmental policies in supporting SMEs, bureaucracy and other factors (2002, p.32).

From the foregoing and in addition to what has been mentioned by the participants in this research, the researcher observes that the majority of obstacles mentioned by the participants pertain to governmental rules, regulations and procedures linked with SMEs. Also, there is a small similarity to some extent between what is mentioned in the results of this research and what is mentioned in the literature review. However, the researcher observes that the rules, regulations and procedures related to existing SMEs in Saudi Arabia may not be compatible with the orientation of Saudi Arabia in supporting local SME projects⁶⁴.

⁶⁴ See the recommendations section 7.3.

5.4.1.2 Understanding the mechanism of overcoming these obstacles of emerging companies:

After discussing the obstacles for technology projects in Saudi Arabia in the two previous sections, this section discusses some solutions proposed by the participants to overcome the obstacles facing the local SMEs. Section 4.4.1.2 mentioned the opinions of the participants regarding these proposals.

The opinions thus summarised are that there should be support for SME projects in Saudi Arabia. The opinions of the participants in terms of these proposals are to support SME projects in Saudi Arabia, the existing support is not enough and they see that the support should come from two aspects:

- 1- Support through the creation of rules and regulations that help in the growth of SMEs in Saudi Arabia. They mentioned, for example, that local SME projects should have priority for governmental projects and contracts in cases where the availability of products from SME companies meet the requirements of a project. The section 5.4.1. (*‘Coercive pressure arising from the obstacles facing local SMEs’*) discussed the lack of confidence in governmental projects. Section 5.2.2.5. (Credibility) discussed the credibility in local SME projects. Also, it was mentioned in the credibility section that incubators have the effect of increasing credibility which is needed to obtain more contracts and projects.
- 2- Support with guidance and orientation, where orientation in freelance businesses may be new to Saudi society. The importance of increasing the number of initiatives supporting SMEs at the present time is therefore useful for encouraging freelance workers⁶⁵.

There are a number of participants such as participant D2 and D4 who have mentioned that change is slow in amending rules and regulations in Saudi Arabia. Participant D2 adds that the change in the Saudi rules and regulations should take its natural course of action since there are no fast solutions. This is confirmed by participants P2 and P3 through their experience in the projects they see improvements in rules and regulations. Participant P2 says that during 12 years of the life cycle of their project, the rules and regulations have undergone many changes.

The researcher sees that the obstacles mentioned by participants and the methods of overcoming those obstacles discussed in 5.4.1.1 and 5.4.1 need real effort and vision from senior leadership in Saudi Arabia. This is due to the importance and role of SMEs in Saudi Arabia. Despite the important role of existing initiatives, they may not be sufficient to

⁶⁵ See section 5.2.2 Coercive pressure arising from freelance working.

promote SMEs in Saudi Arabia. Saudi Arabia now has more young people than ever coming to work in SME projects. They are attracted to work in entrepreneurial projects in general and technological projects in particular. Rather than forming initiatives in the future, it may have greater impact if these changes to support SMEs come in the short to medium-term, to take advantage of the trend. The researcher sees that the field of technology requires faster change in line with the fast growth of the technological field worldwide. Such change would ensure that Saudi Arabia achieves its objectives in supporting SME projects⁶⁶.

5.4.2 Normative pressure arising from the conditions and criteria for the selection of incubate:

The phase of the selection of incubatees is considered one of the most important phases for the incubator itself and the incubatees. The importance of this phase for the incubator is that many unsuccessful projects join the incubator which might affect the performance of the incubator itself. Setting conditions for acceptance of incubatees does not mean that the incubator will not end up supporting unsuccessful projects. However, setting selection criteria can help incubators filter the incubatees in the selection phase. It seeks, through the conditions set, to increase the rate of successful businesses it incubates. Bergek and Norrman (2008, p.23) described it as “picking-the-winners approach”, where incubator staff seek to identify potentially successful characteristics in the projects they are screening. In terms of incubatees, the importance stems from the fact that it is considered to be the transitional stage in the life cycle of the project; the acceptance in the incubator greatly contributes to the growth of the project⁶⁷.

The findings of this research highlight several aspects of the conditions and criteria for the selection of incubatee for SA incubators. The researcher observes that the conditions differ from one incubator to another and that some incubators set conditions and see them as important conditions. Whilst other incubators do not see them in the same way, such as full dedication to the project. Participants D3 and D4, the managers of two incubators, mentioned that it is a basic written condition. Participant D5 says that it is a basic but not written condition. However, participants D1 and D2, as incubator managers, mention that full dedication to the project is not a condition for acceptance⁶⁸. This is confirmed by some of the

⁶⁶See the recommendations section 7.3.

⁶⁷ See section 5.3.2.3 Comparison between the incubated and non-incubated technological SMEs in Saudi Arabia aligning with isomorphism and competitive pressure.

⁶⁸ See section 4.4.2 on what are the differences among incubators for each condition.

project owners who have been incubated and who are not fully dedicated to the project such as participants N2 and N4.

The researcher sees that the variation of conditions among incubators is in favour of the owners of advanced projects. If, a project owner who does not meet the conditions in a certain incubator, they may find acceptance in another incubator where they meet the conditions.

In the official site of Badir technology incubator, they mentioned the following conditions for acceptance in the incubation (Badir, 2016):

- The project should be based upon innovation in the field of information and communications technology.
- The idea of the project should be implementable, commensurate with the capabilities of the project owner and the incubator.
- The entrepreneur should develop a finance plan with knowledge of the market and competition.
- There should be harmony between those team members with an administrative background.
- The entrepreneur should describe clearly the chance of success for his project.
- The percentage of Saudis in the project should not be less than 51%.
- There should be a primary model for the project.

Waed incubator mentioned in its website many conditions for joining the incubator which are follows (Waed, 2016a):

- The applicant should not be working in Saudi Aramco or any affiliated companies of Aramco.
- His age should not be less than 18 years old.
- The applicant should be a secondary school certificate holder at least.
- The applicant should not be working in the military sector.
- The applicant should be Saudi or one of the GCC countries national or legally residing in the Kingdom of Saudi Arabia.
- The idea of the work submitted should be within the portfolio of the accepted ideas in Aramco Company for entrepreneurial businesses which can be supported by the Aramco centre for entrepreneurial businesses (Waed, 2016b).

- The applicant should demonstrate an understanding of the terms of confidentiality and legal notice in Aramco Centre for Entrepreneurship. The applicant to show approval and agreement by signing these terms before taking their place in the incubator.
- To satisfy the conditions and requirements of registration including providing an action plan and other documentation (Waed, 2016c).

Moreover, Deem al Manahel incubator mentioned in its website conditions as follows (Deem Almanahel, 2015):

- The project owner should be a Saudi lady.
- The project owner should be serious in applying for the project.
- She should own 10% of the capital of the project.
- She should join a training program.
- The idea of the project should be financially profitable.
- She should pass the personal interview.

On the other hand, the researcher did not find any information (at the time of writing the research) about the conditions of incubation in the website of one incubator where its manager has been interviewed. The conditions may not be available on the website, but are mentioned by the incubator manager during the interview. The absence of this information from the website may support the evaluation mentioned stating that the performance of the incubator was not good⁶⁹.

Therefore, the local incubators have set conditions and criteria for the selection of incubatees. Section 4.4.2 discussed views of the participants in the research, including incubator managers, on the conditions and criteria in the incubations where they work. They will be mentioned here briefly for each point:

- 1- Idea of the project.
- 2- Qualities of the project owner/ team work.
- 3- Capability of the project for employment.
- 4- Financial success of the project.
- 5- Suitability of the project for the objectives of the National Plan for Science, Technology and Innovation.
- 6- Full dedication to the project.
- 7- The project owner should be Saudi.
- 8- Non- repetition of incubated projects.

⁶⁹ See section 5.3.1.3 Evaluating the current incubators from an institutional theory approach.

9- The applicant should attend a mini course on the project management.

From the answers of the incubator, it is clear that the selection process for incubatees in the local incubators passes through four stages. The first, second and fourth stages are similar while the third stage is not required by many incubators in terms of its conditions for acceptance. These stages are:

The first stage: to submit an application for incubation, where the project owner should submit the idea of their project to the incubator. This can be through the incubator website or directly to them.

The second stage: an evaluation of the project by the incubator, through evaluating the form submitted by the project owner. If the model submitted to the incubator is compatible with the incubator's conditions and criteria, then they move to the next stage.

The third stage: evaluating the project owner and the team work within the project through a personal interview by some of the incubator staff.

The fourth stage (in some incubators): joining the training course is a condition of acceptance requirements in the incubator. Participant D4 and D5 mention that attending the training course does not necessarily mean acceptance in the incubator. Also, they added that the incubators' goal of training course attendance is to increase the owner's experience in project management.

The researcher has noticed that there is some flexibility in some conditions mentioned by incubator managers. If the project is evaluated to show a high chance of success, they may try to ignore some conditions that the project does not meet.

On the other hand, six of the participants in the research who are incubated project owners were asked to give their views on the conditions and criteria for the incubatees. Three incubatees mentioned that they are reasonably difficult, two mentioned that they are easy and one mentioned that it is difficult. The participant who mentioned that it is difficult, did so because he is an incubatee in an incubator with a condition that the applicant should attend a mini training course for one week before incubation. However, the same participant mentioned that this course is very useful⁷⁰.

The researcher observes that discussions were from the perspective of advanced project owners and did not discuss the perspective of the incubator too. The researcher sees that it would have been useful if the local incubators had been set the following service explanations: the services provided by the incubator should meet the requirements of the

⁷⁰ See section 4.4.2 for more information

project for success. This principle may exist for some managers or employees of the incubator but it should be clearly written for all employees in incubators. So, the project owner will be directed to the incubator that provides the best services for his project. This is what is applicable in some of the international incubators as mentioned.

On the level of international incubators, the literature review mentioned the importance of conditions and criteria for incubatee selection for incubators. In many articles in the literature review, it was mentioned that the incubatee selection process is one of the most important stages for incubators (e.g. Aerts et al. 2007, p.256; Bergek and Norrman 2008, p.23; Ratinho et al. 2010, p.9). According to Hacket and Dilts (2004), the majority of what has been done in the incubator models is linked with the process of selection of the incubatees (Bergek and Norman 2008, p.23). Kim and Jung (2010, p.276) state that there is empirical evidence that incubators contribute in increasing innovative power, networking and economic efficiency of incubated projects in comparison with the non-incubated projects. Kim and Jung (2010, p.276) also add that the results of these outputs are linked to the strength of the selection of projects in technology incubators as mentioned by Hacket and Dilts (2004).

Looking at the conditions of the international incubators, much of the literature review discussed the selection conditions for incubatees. Technology incubators are attracted by projects with more than one person in its work team and where the work team has accumulated experiences (Ratinho et al. 2010, p.14). This is similar to what has been mentioned by the managers of Saudi incubators in point number 2 listed in this section.

Mcdam and Marlow (2007, p.364) mentioned a number of conditions set by incubators for selecting incubatees including:

- The services or product should be based on technological knowledge (c.f. point number 5 in this section).
- The project will grow significantly within three years and achieve annual sales of one million Euros (c.f. point number 4 in this section).
- The project will employ more than 10 employees (c.f. point number 3 in this section)

Bergek and Norman (2008, p.23) mention a number of factors and conditions that incubators consider for measurement when selecting the incubatees such as:

- Previous technology experience for the project owner or work team (c.f. point number 2 in this section).
- The project is capable of generating profits (c.f. point number 4 in this section).
- The idea of the project (c.f. point number 1 in this section)

The project age is considered to be one of the important elements that some international incubators use in selecting projects (Bruneel et al., 2012 p.113; Zhu et al. 2014, p.8). Zhu et al (2014, p.8) adds that the age of the project should be less than two years. Bruneel et al. (2012, p.113) mention that incubators from all generations adopt less strict policies in the selection of incubatees which have technological orientation and profit capability. Such incubatees are always preferable in selection (c.f. point number 1, 4 and 5 in this section).

Discussions have covered the opinions of the participants in the research and what has been mentioned in the literature review. It can be said that there is agreement between the international and local incubators in the importance of the selection stage of the incubatees. Regarding the conditions and criteria, Saudi incubators agree with many of the conditions and criteria of international incubators. They also differ in some conditions and criteria. This can be explained as a natural matter based upon the policy and vision of each incubator and consistent with the direction of the country. For example, the life cycle of the project is not mentioned in local incubators but it is mentioned in international incubators. The researcher observes through interviewing managers of Saudi incubators that this condition may exist in a non-written form and not be obligatory. It is subject to the judgment of the incubator regarding the suitability or non-suitability of the project. The researcher noticed that there is flexibility in some conditions in Saudi incubators that are consistent with what has been mentioned in the literature review (e.g Bergek and Norrman 2008, p.11; Bruneel et al., 2012, p.113). The researcher observed that there is some vagueness in some conditions for some of the local incubators. In those cases, this supports arguments made by researchers (Bruneel et al. 2012, p.113), regarding international incubator conditions.

5.4.3 The isomorphism and competitive pressure arising from the obstacles facing SME technological projects when attempting to join the local incubators:

The findings in section 4.4.3 discussed the opinions of the participants in the research. This included the incubator managers and incubated and non-incubated project owners concerning obstacles that technology project owners face in Saudi Arabia when attempting to join local incubators. The researcher through the opinions of the participants and the findings of this research, divided the obstacles into three major divisions.

The first division is obstacles due to governmental rules and regulations:

- Preventing government employees from obtaining commercial licenses in their own name. Thus, the incubator is not able to accept such a project because the government employee cannot obtain an official license for practicing commercial business.

Participant D2 mentioned that this matter resulted in government employees wishing to practice commercial business, opening their commercial business in the name of a family member or close friend. They do so in order to obtain authorization from them to manage the project. Therefore, a phenomena known as silent partner has recently emerged since the work is owned by a person (who is the government employee) and registered in the name of another person in the official documents. This matter may have multiple negative aspects on commercial businesses. It is considered as circumventing the local rules and regulations. In addition, such circumventions render the imposition of due diligence on such persons (the silent partner) so it is a difficult matter. This is what had been mentioned by participant D2 that they had once faced this problem in the incubator⁷¹.

The issue of preventing government employees from obtaining commercial licenses has been discussed frequently in the Saudi Arabian media (e.g. Alhosseini, 2009; Alshabana, 2012; Alibrahim, 2014; Albalawi, 2015). The Undersecretary of the Ministry of Civil Service Assistant for Review, Dr. Abdul Allah Alsanidi, mentioned the reason for government preventing employees from obtaining commercial licenses during their time working with government. “That there is a difference between the objective of working in the public sector and work in the private sector. Since the government employee seeks to translate the goals and the decisions of the government into concrete services to the citizens and the employee in the private sector is working to achieve the goals of the owner of the company” (Alsaniadi, 2012). Alhosseini (2009) puts forward another point of view, namely that government employees are waiting for the rules and regulations to allow them to start a business. He describes how current government prevents a person to register the commercial licenses in the name of family members to gain additional income. Recently, the Saudi Arabia Shura Council approved a study on allowing government employees to start a business (Albalawi, 2015). The members of the Saudi Arabia Shura Council studied the recommendation for this study. Sixty members approved the decisions due to the importance of eliminating cover-ups and to attempts to circumvent the system. Shura Council member, Mr. Hamad Al Hassoun, recognised the existence of what he called a disgraceful problem of how registering a business was covered-up by using the names of wives and daughters. On the opposite side, fifty-five members voted against

⁷¹ For more information, see section 5.4.1.1

the proposed rules and regulations and warned of the danger of approving the rules and regulations on the employees' performance. Shura Council member Mr. Khader AlQurashi said "it must be on the Shura Council to disassociate himself from the approval of such a proposed study". Shura Council member Mr. Osama Qabbani added that combining government and private work was contrary to the principles of fairness. Shura Council member Mr. Mefleh Al Rashidi said, "If government employees are allowed to start a business, then what will be left for the unemployed citizen". Shura Council member Mr. Abdulrahman Al higan, warned that it "would not be in favour of the public sector to give the government employee the right to start a commercial business."

Therefore, the researcher sees that it is important to provide substantial solutions to allow government employees to place their name on commercial registers in their own names directly⁷². Thus, allowing government employees to open a commercial business that may support the direction of Saudi Arabia in encouraging freelance work. In circumstances where a government employee achieves success in a project, then they may decide to resign from the government job and be fully dedicated to freelance work⁷³. This issue is seen in Saudi society as an obstacle imposed on government employees in the field of freelance business. Moreover, this is also beneficial for local government because when a government employee resigns from their job, there will be a vacant job for another person interested in government work.

- Obtaining work permits takes a long time. In addition, there are multiple agencies that grant work permits. This point was discussed as one of the obstacles in 5.4.1.1. There are many incubators that accept projects before the beginning stage of the project and indeed there are some incubators which help the applicant to finalise license procedures. Having a project that is licensed would be an advantage that distinguishes one applicant from another. Having said this, neither local incubator managers interviewed for this research nor incubator websites mentioned having a business license as one of the conditions of entry. However, when Aldharrab (2010) (in an experiment discussed below in Section 5.4.3) sought to join an incubator, he was asked if he had a commercial licence in his application form.

Secondly, obstacles due to the rules and regulations of local incubators:

⁷² See the recommendations section 7.3.

⁷³ See section 5.2.2 Encouraging freelance work.

- An unclear idea of the project, or an idea that is a duplication of another business concept is an obstacle to joining. Many of the projects applying for incubators are duplications of another project and the project does not add any additional substance to the idea or change the dominant model of the work. This is what has been confirmed by the incubator managers, participants D2, D4 and D5. However, the project owners, participants P1 and P5 mentioned that the idea of the project was the reason for not applying to the incubator after they had reviewed the incubator conditions. In addition, participant N1 says that he faced an obstacle in joining the incubator where he applied to join the incubator. His request was rejected because the evaluators in the incubator said that the project was a duplication. He adds that in order to find a solution for this obstacle, he needed to sit with the officials of the incubator and to explain to them the difference in his idea. However, many incubators such as the incubator managed by participant D4 do not have an objection to idea duplication as long as the project owner is capable of proving that the project will generate profits.
- Availability to work within the incubator office. Participant D3 mentioned that they have faced a problem with some projects. Such projects are currently working in the market and they do not want to work within the incubator office justifying that they have an existing office. Participant D3 mentioned that the reason for this request by the incubator is because this is the easiest way of communicating, meaning communication in terms of start-up projects requiring development and finding new ideas. The researcher sees that the incubator request to work within the incubator is an obstacle that hinders projects from joining; this matter needs to be reviewed by incubators because many local and international incubators apply for virtual incubation. In addition, the role of the incubator is to support the projects not to lead them.
- The difficulty of conditions set by incubators in general. This was mentioned by participants D2 and D5 that their incubator set difficult conditions meaning only a few projects are accepted. Many participants such as participant P1 mentioned this point in its totality. The more difficult the conditions set by incubators in general, the less likely it is that projects will meet the conditions. The researcher sees that the capability of the incubator to incubate a certain number of projects is one of the most important factors in increasing the difficulty of the conditions. Participants N7 and E1

(they were the first who had been incubated in the first local incubator) confirmed that at the beginning, the conditions were easier than the conditions at the present time. This is normal with the increasing popularity of incubators over the past years⁷⁴.

- Length of duration for waiting for acceptance for the incubator which has two aspects. Firstly, there is the time taken for incubators to respond after requests have been submitted. Secondly, the time taken from the acceptance of the project for incubation up to the stage of its actual incubation. During the years 2011 up to 2013, there was a revolution in the concept of incubators in Saudi Arabia with increasing requests to incubators from project owners. Owners of projects did so in case the number of incubators was not sufficient during this period. Participants N5 and N6 mentioned that they have suffered during the stage of waiting for acceptance by the incubator although they have applied to join two different incubators. At the end of this period however, new incubators started to emerge and receive requests for incubation.
- Dedication to the project. Three incubators out of the four interviewed mentioned that dedication to the project is an essential condition for them. They consider this to be a commitment by the project owner to his/her own project. This may be an obstacle for an employee who has a project or an idea of a project but does not wish to quit their job. There may be many factors in this. For instance, a fear of losing the main means of living by quitting a job. However, the employee may be able to work in their project during evenings when they are not committed to their main work. So, it may be useful to make such a person a virtual incubatee and accordingly, they will be provided services. In addition, incubators provide joint offices where incubatees can come at any time without allocating a special office for each incubatee. This would contribute in managing the demand to open new projects. There are several experiences for incubatees who have started their projects while working in their jobs. Then, after a period of time, they have resigned from their jobs and become fully dedicated to their projects, such as participants N1 and N2. Also, there are project owners who are still performing their day jobs and work in their project in the evening, such as participant N4 who says that he does not need to quit from his morning work because he works with a team of partners. It is worthwhile mentioning that a non-government employee can obtain commercial registers in their own name.

⁷⁴ For more Information, refer to section 5.4.2 Normative pressure arising from the conditions and criteria for the selection of incubate.

On the other hand, participant N2 mentioned that after he became fully dedicated to his project, the rate of growth in his project had significantly increased more than in the period during which he was not fully dedicated to his own work.

- The unclear explanations for services that are provided by the incubator to project owners. Participant N2 mentions that he faced a problem when he tried to join because he did not know what the incubator would provide for him and what his obligations were. The researcher sees that this may be normal practice because incubators in Saudi Arabia are still in the beginning stages. In addition, there is inadequate awareness of the work of incubators⁷⁵.

Thirdly, personal obstacles due to the project owner:

- Lack of suitable personal characteristics to carry out the project, as is mentioned by participant D2. The researcher sees that it may be beneficial if the project can be predicted to achieve significant success or add additional value to the country. It may be possible to require an owner to form a team to work with them in the project. Alternatively, the incubator may contribute in forming this team through work partnerships with those who have been incubated. This is one of the sub-services provided by the incubator.
- An unwillingness to run a risk in quitting a job to be fully dedicated to the project such as mentioned by participant D2.

On asking some incubator managers about obstacles facing owners of technology projects when trying to join, there were various responses. Participant D2 answered that there should not be obstacles “because even when we reject them, we enter into a process with them”. Moreover, when participant D2 was asked about the reason for rejecting the projects, he replied that the conditions of the incubator had not been met by the projects. He also added that there are some conditions that the incubator cannot solve such as government employees who cannot obtain official permits for practicing commercial business. In addition, when participant D5 was asked about the obstacles that face projects in trying to join an incubator, he answered that the applicants should only need to convince the incubator and its decision-makers that the project is feasible. Participant D4 was also asked about the obstacles that projects face when trying to join an incubator, she answered that there are no obstacles; there are a large number of incubators and the method of applying to incubators varies. However, this does not mean that incubator managers did not mention any obstacles (the replies have

⁷⁵ See section 5.2.6.1 Understanding the implications of awareness of Saudi incubators.

been mentioned previously in this section and section 4.4.3), but they are replying to this in general.

To give another dimension, the researcher is including some experiences of technology business owners from outside of this research. The experiences cover joining an incubator and their experience of that process.

Experience of Nawaf Harieri (Harieri, 2009):

Nawaf Harieiri in his blog on 14-12- 2009 mentioned his experience in trying to join the incubator summarised as follows:

He heard about the incubator for the first time in a Riyadh Geeks meeting. That is an authority specializing in supporting technology projects. He was optimistic and he submitted his application. He applied for four projects instead of one due to his enthusiasm. They contacted him after one week after his submission request for initial approval for the projects. However, he had to separate each project into separate requests. He had submitted two projects that he wanted the incubator to support more than the other projects. He waited for more than two weeks, then, he contacted them to inquire into the status of the request. The official told him that they were still studying the projects and there are four persons studying the projects from many aspects. He had been waiting for one week, then this became two weeks, which became one month and that became two months. By that time, he had forgotten about the matter. One day, he received a telephone call from an incubator employee apologizing for the delay. The incubator employee said that they admired one of the projects that he had submitted, they asked him to explain the idea further. He explained the ideas as much as he possibly could and he proposed sending to the incubator employee a prototype of the project. He had worked throughout the waiting period, so the project was now almost ready. He had expected a response explaining how the incubator works in theory. He was surprised, however, with the very strange reply!

The incubator employee says: no, no, you do not need to show me the website, I do not specialize in technology... I have understood your ideas and I will display it to one of the youths in the Riyadh Geeks meeting next week.

One week passed, and he sent the incubator employee an email as requested from him. The incubator employee called him the next day saying: sorry for the delay which was caused by us, we have studied your project. However, we (the incubator) think that it is not suitable and the project idea is not new. Also, the incubator employee mentioned that the advantages of his project were already available in certain websites.

On the same page of the blog that is written by Mr. Harieiri, marketing and public relations manager (in the incubator) Mr. Yasser Alsabali, commented in the replies section. He tried to discuss, explain and comment on some points mentioned by Hariri. His reply is summarised as follows:

- It seems that you do not understand what incubation is and what it provides, and all of the explanations are found in the incubator website.
- The staff of the incubator are not necessarily technicians. The incubator is not a tool for development of technology, it is a business development set-up; there is a great difference between the two concepts.
- The acceptance of projects and ideas is only determined after studying them by the team of the incubator.
- Bader Technology Incubator for Information and Communication Technology belongs to King Abdulaiziz City for Science and Technology and it has enough consultants and technological experts, to seek assistance from other agencies.

He added that the incubator had some requirements and asked him to provide documentation, but he did not provide them with this.

1- Experience of Mazen Aldharrab (Aldharrab, 2010):

Mazen Aldharrab in his blog on 6-2-2010 mentioned his experience in attempting to join the incubator summarised as follows:

He submitted a request through Bader portal. After several options, he found that he had to fill in a registration form. He said “It was a word file! Not an electronic registration form.” which contains personal data and data of your company. There did not seem to be a section for enquiring if he had a commercial license. He had questions about setting up a project but there didn’t seem to be a process for asking. Whilst not leaving space for questions, many of the questions in the form were repeated. There was no space for technical detail or even to write about them. Also, there were no guidelines for applicants and no explanation of what to expect next. Whilst filling out the form, he did not understand in detail exactly what an incubator does and the stages of incubation were not explained. Also, there are matters that created problems for him such as: will the incubator adopt the company in general? Or adopt the project which is considered to be one of the projects of the company? He said “I have reviewed the page of Bader clients on the official website of Bader and I found it as mixture of the two!”

Seven days passed after applying to the incubator, and by that time he had not received a confirmation to say they had received the request. Therefore, he sent an e-mail to Bader portal, but did not receive any reply. So, he visited the incubator and he was received by one of the employees. The incubator employees answered some of his questions, and the first thing the incubator employees mentioned to him is that the time necessary for processing any request is fifteen working days. Fifteen days passed and no-one contacted him from the incubator, He then contacted Bader and asked them about the project. Due to work pressure conditions, he was promised that they would contact me in the near future. Days passed and one of the incubator employees contacted him. The incubator employees started to ask a group of questions on the project and its feasibility. He started to discuss the idea with them from a business perspective, replying in detail. The strange thing is that most of the discussion was on matters that he been answered in detail on the form designated for incubation requests! After that long discussion, the employee started to tell him about the type of projects incubated by the incubator. The incubator employee asked him to explore the market, to target a sector of the market and to explore the extent of their target market's acceptance of the idea and its feasibility. The incubator employee used the famous terminology: "Do your homework".

On the same page of the blog written by Aldharrab, the marketing and public relations officer, Mr. Yasser Alsabali, commented in the section of replies. He tried to discuss, explain and comment on some points mentioned by Aldharrab.

The researcher tried to follow up whether Mazen Aldharrab had joined the incubator or not, and whether he had any comments on the incubator. The researcher found a tweet in his Twitter account on 2-1-2013 (three years from writing his experience in the blog), he commented on one of the replies by saying:

"My experience with them as an incubatee is more than marvellous, and also as a follower for their activities, I see that there is a paradigm shift in Bader and its work in the recent years for which they deserve thanks." (Aldharrab, 2013)

Based upon the opinions of research participants (including the managers of incubators); the owners of incubated and non-incubated projects and the two experiences outside the sample of the study, it can be said that incubators have passed through many stages during their formation in Saudi Arabia. The first years of the first incubator in Saudi Arabia (Bader technology incubator which was established in 2008) were an experimental stage for the

incubator that was successful in some aspects and failed in other aspects⁷⁶. This may be understood in terms of the business world in that some businesses reach the first stages but then fail to perform the advanced stages of the work. This is also confirmed by the comment of a number of participants in the research. In that incubators have passed through several stages in terms of rules, regulations and procedures. In addition, there is the experience of Mazen Aldharab, where a change in his point of view had occurred three years from his first experience.

The researcher sees that there are obstacles mentioned in this section that can be solved, and there are obstacles that it is difficult to solve such as governmental regulations. The researcher thinks that one of the things that may help to achieve plans for supporting SME projects in Saudi Arabia is rules and regulations. It is important to consider the rules and regulations that can limit the growth of technological SME projects and non-technological projects in Saudi Arabia. This will be covered in the recommendations section 7.3.

As regards the obstacles that can be solved, they are the obstacles linked with incubators and the project owner. The researcher sees that there is a change for the better as regards incubators in terms of overcoming obstacles facing the project owners wishing to join the incubator. Noting that it was mentioned in 5.4.2 that incubators have some flexibility in some of the conditions that may hinder joining the incubator. The stage of evaluating the projects is considered to be one of the most important stages in the success of the incubator. An inadequate evaluation of the idea may lead to the rejection of an incubation request. The researcher sees that there is a gap in the technological expertise of the evaluators in technology incubators. Thus, many of the owners of technology projects who have applied to a technology incubator and not a general incubator have struggled to have their idea understood by evaluators in the incubators. This is confirmed by a number of participants in the research in addition to those who have said they have had the same experience. The researcher saw the comment of the officer of public relations in an incubator which was similar to the experience of Nawaf Hariri “the employees of the incubator are not necessarily technicians, the incubator is not a tool for development, yet it is a set-up for business development”. This was not true. The stage of evaluating the idea may require many technological and business aspects since the incubator is concerned with technology projects. Even in the case of an incubator which is a general incubator, it is useful when evaluating

⁷⁶ See section 5.3.1.3 Evaluating the current incubators from an institutional theory approach.

technology projects to have among the evaluators those with technological experience that suits the projects.

The researcher sees that the variation of conditions among incubators that were mentioned in the previous section 5.4.2 may contribute in solving the obstacles that incubators face (mentioned in this section “secondly”). So, if an applicant does not meet the conditions of a certain incubator and such conditions hinder them from joining the incubator, they can go to another incubator that does not require such conditions. This is what participant D4 confirmed, that at the present time, there is multiplicity in incubators in addition to a lack of difficulty in applying to incubators.

5.5 Conclusion:

This chapter presents an additional analysis in answering the research questions (see section 1.4). Through the analysis and comparison of what was discussed in two chapters of this research, in an attempt to gain a wider understanding of the phenomenon under investigation. This Chapter (Five) presents a discussion of the findings of this research presented in Chapter Four by analysing these findings as a whole in more details than the previous chapter. Then, comparing these findings with what is mentioned in the literature review that was presented in Chapter Two of this research. The findings of this chapter show that there are some points where the findings of this research (presented in Chapter Four) agree with what is mentioned in the literature review (presented in Chapter Two). On other hand, there are findings of this research inconsistent with what is mentioned in the literature review. There are some features of Saudi incubators which differ from the cases that are mentioned in the literature review. One of the important key findings for this chapter, was made through analysing the findings of this research and comparing them with the international experiences mentioned in the literature review. The researcher found that most sections of this research and its findings, are consistent with what is stated in the literature review. It should be noted here that some sections contain several opinions, the researcher in this case sought to take the orientation that represents the majority in the section.

This consensus in many aspects between Saudi incubators and the experiences mentioned in the literature review may be due to the use of best practice in incubator government initiatives in SA. They are acquainted with the use of best practices in developed countries and benefit from the best experiences, as the findings of this research reveals. Participant D2, the manager of the first incubator in SA, confirms this.

The findings presented in this chapter are with regard to Saudi incubators. Sometimes they are consistent and sometimes they are not consistent with international experiences. That opens up the way for further research on Saudi incubators (see section. 7.5). The next chapter discusses and relates the findings of this research to Institutional Theory.

Chapter 6: Technology business incubators and Institutional Theory

6.1 Introduction:

This research aims to investigate the effect of technology business incubators on SMEs. The case study was applied to Saudi Arabia incubators and SMEs. An interpretive paradigm has been followed and hermeneutics used as a research methodology (see chapter three). As part of this approach, a case study was prepared by interviewing relevant participants and analysing the data (as outlined in chapter five) by applying a technique developed by Patterson and Williams (2002, p.45).

There are more than 100 theories that can be applied to IS research (Larsen and Eargle, 2015). Institutional theory has been chosen as it covers many cultural aspects such as conduct, ethics, politics, economics, social aspects and legal angles (Scott, 2008; Weerakkody *et al.*, 2009, p.355). Numerous IS researches have used institutional theory (e.g. Mignerat and Rivard 2005, p.5; Mignerat and Rivard 2009, p.369; Weerakkody *et al* 2009, p.354; altayar, 2011, p.265; Sanad, 2012, p.240). The institutional theory has addressed in the literature review chapter through nine subsections (see sections 2.15).

In incubator research, Hackett and Dilts (2004, p47) state, “from an institutional perspective, the incubator could be viewed as mediating the impacts of institutions on the incubatees, amplifying the positive and mollifying the negative”. This research attempts to investigate the effect of technology business incubators upon the incubatees. In addition, the research aim was to explore the impact and benefits of technology business incubators through conducting a comparison between SMEs on incubation and SMEs that have not been incubated. It was expected that the research would provide significant data, being uniquely placed to measure the impacts both institutions and incubatees have on one another.

Institutional theory in this research provides a useful approach, facilitating the analysis of several types of organisations that can be classified as institutionalised⁷⁷ (Scott 2001, p.83). Incubators work under the umbrella of multi-institutional processes such as political processes, social processes, governmental systems and economic environments. In addition to this, institutional theory enables the researcher to concentrate on incubators in SA and examine different factors that these institutions face. The analysis looks at these processes from an institutional point of view, rather than concentrating on the incubatee or non-incubatee SMEs. Further, institutional theory provides the framework for a study of this

⁷⁷ For more information, see section 2.15.1 ‘*Institutional theory and incubators*’.

phenomenon in the wider context. Hence, the aim is to study the effect of technological incubators within a broader context, with an emphasis on the effect on individuals and the effect on systemic and environmental aspects for organisations. Furthermore, the emphasis on a multi-level and multi-stakeholder environment is a key strength of institutional theory since it has the potential to promote knowledge and a way of understanding societal, organisational and individual matters (Currie, 2009, pp.63-66). In addition, the social and historical forces are examined widely by institutional analysis. This includes the relationship between explicit laws and implicit cultural understandings, as this influences the behaviour of organisations (Orilowski and Barley, 2001, p.153). In that regard, Shi et. al. (2008, p.275) claim that institutional theory may highlight the importance of institutional environments in changing the behaviours of social players and modifying trends. It should be also noted that institutional theory can provide a framework for studying a phenomenon in its wider context in combination with hermeneutics as a methodological stance (see Altayar, 2011, p.58). This stance aims to provide better understanding by interpreting meanings of data collected (see chapter three). Finally, at a societal or country level, institutional theory has been applied to elucidate innovation and enterprise (Almahdi and Dickson 2010, p.6). Furthermore, it is proposed that the application of institutional theory may, in future research, have a beneficial effect on the relationship between incubators and incubatees. Thus, institutional theory explores the impact of local, regional, national and global institutions on the incubator and the incubatees alike (Bruton and Ahlstrom, 2003; Hackett and Dilts 2004, p.47).

The next sections will present a brief summary of some institutional theory concepts and the subtexts within those concepts in the literature on the subject. Such concepts and subtexts are useful when applying institutional theory in the study of the effectiveness of technology business incubators (see section 6.7).

6.2 The rationale behind applying institutional theory in examining the effectiveness of technology business incubators:

The advantages of institutional theory, which have been explained in the literature review chapter (section 2.15), include the researcher's exposure to the possibility of examining certain phenomena on an institutional level rather than an individual level. In that regard, this research attempted to make a cross-sectional examination of the effectiveness of introducing business technology incubators where their main goal is the improvement of SMEs.

The following are the rationale behind applying institutional theory in this research:

- In the field of incubators research, institutional theory has been applied by several researchers and that has been presented in section 2.15.1.
- One of the incubator' roles is that the incubator should be a mediator between the institution and an incubatee, based on an institutional perspective (Hackett and Dilts, 2004a, p.47). They add that this could advance an increasingly positive and decreasingly negative aspect. Using this perspective can help achieve the aim and objectives of this research mentioned in section 1.3. Using institutional theory can provide a wider understanding of the impacts and benefits of incubators.
- Most incubators' initiatives are supported by government⁷⁸, thus incubators can be affected by their policies, rules and regulations (Essenhardt, 1989; Scott, 2005; Corsi and Berardino, 2014, p.326). This is due to the fact that the resources of incubators rely on local systems, such as governments and universities (Corsi and Berardino, 2014, p.326). Since all the organisations that are followed by incubators and incubators themselves are institutions, (see section 2.15.1) studying incubators by using institutional theory provides an approach to advance and transform start-ups into institutions (Phan et al., 2005, p.180). That can help to understand the impacts and benefits of being an incubatee in order to address the research questions of this research (see section 1.4). The Government's main objective in creating initiatives such as incubators is to support SMEs providing added value to the economy.
- Several researches applied institutional theory to studying pressure in the incubator domain such as Davidsson et al. (2006, p.1) and Hjortsø et al. (2015, p.1). In the previous point, it was mentioned that incubators are supported by governments. Since the general theme in SA is a top-down approach, that can lead to a type of pressure. Incubators are considered to be hierarchical organisations and, being a part of larger bodies, decisions are thus made from top decision-makers to those further down within divisions (Aranha, 2003, p.1). Therefore, using a theory that has been used in examining the pressure that may occur from legislative bodies is appropriate.
- Incubators as mentioned started through institutional bodies, in addition to the fact that incubators themselves are institutions and they are helping incubatees' businesses to transform into institutions. Thus, it is useful to use a theory that is suitable for studying institutions. Scott (2001, p.83) stated that institutional theory is an effective

⁷⁸ see section 2.5 'Government role in supporting incubators'.

method to analysis multiple types of organisations that are considered to be institutionalised.

- The power point in institutional theory has its focus on multi-level and multi-stakeholder analysis and has great potential to promote a better way of understanding societal, organisational and individual matters (Currie, 2009, pp.63-66). Since incubators are multi-level organisations and deal with multi-stakeholder, it is useful to apply institutional theory.

The researcher found that these concepts which are interconnected to institutional theory addressed in this section, offer rich insight to phenomena under investigation. The significance of this research lies in the fact that the research applies institutional theory in an examination of the effectiveness of incubators in Saudi Arabia which has not previously been attempted. This research may add value to the relevant body of knowledge by extending the literature on incubators and expanding future research scope.

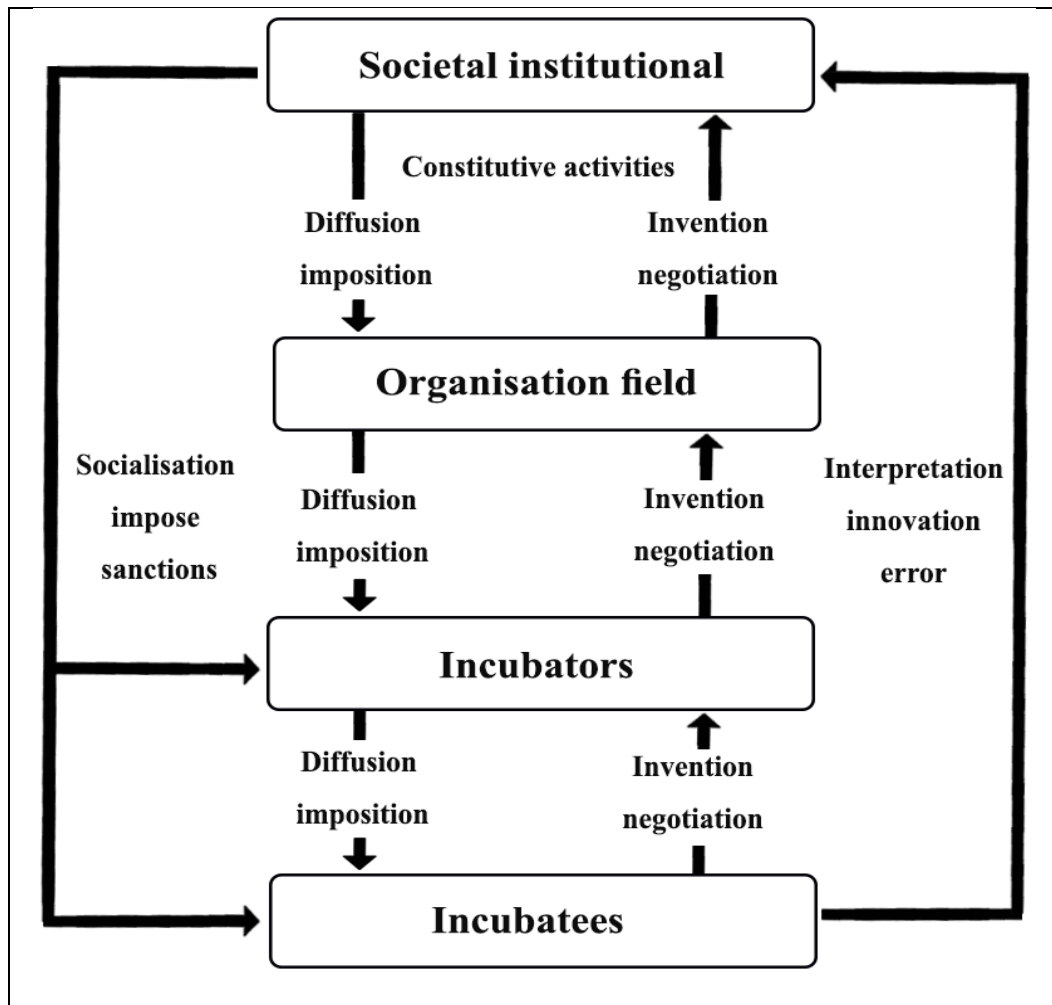
6.3 Institutions and culture:

In the findings of this research (see chapter four) it was revealed that cultural aspects have a major impact on incubators in Saudi Arabia. This research has identified several cultural and institutional aspects that may affect incubators in Saudi Arabia, which correspond with institutional theory. An ‘ecosystem’ has been recognised as an integral part of the cultural aspect of institutions. This draws the researcher’s attention to further exploration of its potential impact on incubators (see sections 4.2.4 and 5.2.4). Firms not only operate within their industries: their operation is much broader as it crosses various other industries. The ‘ecosystem’ constitutes various types of stakeholders that can directly or indirectly influence incubators, amongst which government agencies may play a major role. Social structures and activities can contribute to a broader environment for the ‘organisational field’ at a macro level (Scott, 2008, p.191). The application of institutional theory to ‘ecosystem’ perspectives is very rare. Zacharakis et.al (2003, p.218) have applied “population ecology, institutional theory, and the ‘ecosystem’ perspective to an investigation of the development of the Internet”. They state that applying these concepts provides extensive understanding at a macro level. This research has been applying institutional theory directly to the findings. In that regard, several opinions from participants (see section 4.2.4) indicate that the development of an ‘ecosystem’ is interrelated with government policies and therefore in a direct way manipulates the expansion of incubators as a top-down approach. Figure 6.1,

shows the top-down and bottom-up processes in institutions and the impact on the incubatees in Saudi Arabia. In addition to the cultural aspects that are associated with institutions, the 'ecosystem' and the 'organisational field' also play a part. According to Scott (2008, p.191) "top-down activities, diffusion, translation, socialization imposition, authorization, inducement, and imprinting ... allow higher level (more encompassing) structures to shape, both constrain and empower, the structure and actions of lower level actors." A number of participants perceived the concept of an 'ecosystem' in a way that reflects upon isomorphic pressures. In particular, mimetic pressure (cf. section 6.2.7) where participants have taken the form of imitating the business practices of other countries. Moreover, the suggestions from participants indicate that changes can be made in a bottom-up direction which signifies social and cultural dimensions as an essential constituent of the 'ecosystem'. When the cultural aspect is an integral part of the 'ecosystem', it provides a foundation for the advancement of 'institutional logics' (cf. section 6.3.3). Scott (2008, p.191) mentions that "these bottom-up processes include, variously: selective attention, interpretation and sense-making, identity construction, error, invention, conformity and reproduction of patterns, compromise, avoidance, defiance, and manipulation." Furthermore, the researcher notices that there has been an absence of an 'ecosystem' in the 'organisational field'. This 'ecosystem' is the rules and regulations, or lack thereof, for the local SMEs (see section 4.4.1.1), in addition, to the many obstacles that already face local SMEs (see section 4.4.1). Social institutions create socialisation sanctions for incubatees, which creates the 'institutional logics' that form the beliefs, morals, values and religious values. Due to the lack of SME rules and regulations in Saudi Arabia, some incubators have the additional role of being the source of credibility for incubatees (see section 4.3.2.5). An alternative view is that one of the benefits that incubators bring is credibility for SMEs. This is especially relevant to those that are in their infancy: their recognition in the market as being in affiliation with an incubator implies that the company is trustworthy (see section 4.3.2.5). In addition to this, the credibility of such an enterprise is higher and it holds positive outcomes such as the ability to acquire a loan, join certain mutual funds and contribute to obtaining contracts. Another effective consequence in incubating SMEs is an ability to carry out due diligence of those firms which has its benefits on both micro and macro level.

Another important institutional aspect that influences the effectiveness of incubators is the encouragement of freelance work. From an institutional theory perspective, this segment has been identified by researchers as an existing phenomenon that may potentially have a positive impact on SMEs in Saudi Arabia. The research findings indicate the positive effect of

incubators on freelance work after increased governmental support to SMEs (see section 4.2.2). This has the advantage of creating jobs and challenging the existing approach to the issue of unemployment. Nevertheless, the awareness of incubators' existence (and incubatees benefit from joining incubation programs) has been identified as weak (see section 4.2.6.1). This is from the public perspective as well as the perspective of officials who are directly or indirectly involved in policing incubators.



Figures 6.1 Top-down and bottom-up processes in institutions and the impact of institution on the incubatees in Saudi Arabia. Adapted from Scott (2008, p.192).

6.4 Organisational field:

As mentioned in the previous section the 'organisational field' has relevant aspects which have an impact upon incubators in Saudi Arabia. The 'organisational field' is a term recognised as describing an area within which different organisations operate. In the findings of this research, some segments have been related to the organisational field.

Saudi Arabia's geography plays a part in an incubator's effectiveness. With a population of nearly 30 million and a large geographical area, it can be argued that the performance of incubators is rather limited. However, with the advance and use of technological resources, the issue of covering this large area almost does not exist (see section 4.2.5).

The first incubator in Saudi Arabia was set up in 2008. The expectations of society and especially those who were associated with incubators in different ways were somewhat different (see section 4.3.1.1). However, the performance and effectiveness of incubators differs according to the nature of the business that is being incubated and also the type of incubator itself (see section 4.3.1.2).

6.5 'Institutional logics':

As aforementioned in section 6.3 *'Institutions and culture'* there is a related effect upon incubators in Saudi Arabia. In the findings of this research included is mention of governmental policies that are imposed onto Saudi Arabian SMEs may delay the progress of the private sector in many ways (see section 4.4.1.1). It can be argued from an institutional perspective that the adoption of sustainable practices is tied up with Saudi rules that in many ways may hinder both SMEs and incubators. Also, this external pressure influences SME strategies and decision-making processes. However, this research has identified that the Saudi national plan is highly embedded into the ethos of incubators and it carries out one of the more important aspects of 'institutional logics' (see section 4.2.1). In doing so, this research has drawn attention to the body of knowledge that provides a foundation for future exploration of this phenomenon.

Among the number of pressures that incubators face in Saudi Arabia are obstacles that prevent effective functioning for SMEs. In an attempt to overcome these obstacles, society is faced with situations where loopholes are found and laws are violated in many ways (see section 4.4.3). To minimise the likelihood of such undesirable outcomes occurring, this research has identified criteria for incubators in order to encourage the potential success of incubatees (see section 4.4.2). From an institutional perspective, the existence of strict policies in the selection process and the direct involvement of the government in the same, further explains the strategy of safeguarding social capital.

6.6 Isomorphism: institutional pressures:

Following the division of institutional pressures into three types of pressure (see section 2.15.6) and the addition of competitive pressure (see section 2.15.7), as a separate pressure,

giving four pressures in total, there is a discussion in this section regarding their impact upon the technology business incubators in Saudi Arabia. Figure 6.2 outlines the four types of pressures that influence Saudi incubators. By mentioning and identifying the pressures, it is possible to illustrate the environment from which they arise. According to Gstraunthaler (2010, p.397) “incubators are exposed to pressure from shareholders, both public and private, and adopt certain strategies to deal with their expectations.” The following sections will discuss the four types of pressures and identify the stakeholders who put pressure on SA TBIs.

6.6.1 Mimetic pressure:

Mimetic pressure occurs when an organisation copies aspects of another organisation for example their behaviour and structure (Hillebrand *et al.*, 2011, p.593). This research identifies segments of mimetic pressure (see section 2.15.6) that can be regarded as positive in a sense that many incubators are actually copying the ways that business is conducted by successful incubators. One of the participants (an incubator manager) states that it is part of the Saudi National Plan (see section 4.2.1) to open an incubator within every Saudi university. In line with this, the research has identified that participants are referring to the Bader incubator as being one of the successful incubators that other incubators follow in terms of their procedural manner. Furthermore, the researcher identifies another type of mimetic pressure arising from the aspiration of some incubatees, to the experience of international incubators. It is worth mentioning that some local incubators have previously copied the experiences of some of the international incubators and applied them to the Saudi environment as another mimetic pressure. However, some participants mentioned that this experience was not successful (see section 4.3.1.2). In the case of an organisation copying from similar organisations at a national level: this can be considered to be a successful adoption (Kraatz and Zajac, 1996, p.815; Altayar, 2011, p.267). From the findings, it could be argued that the experience of copying practices from a successful local incubator is a “positive mimetic pressure”. While the experiences of copying the international incubators is described as “negative mimetic pressure”.

In addition, another mimetic pressure has been identified, some of the incubated participants have mentioned that they have been asked by non-incubated companies about the benefits of the incubation for their companies. The awareness of the existence of incubators in Saudi Arabia is increasing (see section 4.2.6.1) however, despite organising conferences and informative events it is not clear what managerial strategies are in place for raising

awareness. From the institutional perspective, mimetic pressure should directly affect incubators, as their success is perceived as positive. However, managerial performance in this regard could raise questions for further studies as to whether the greater mimetic pressure imposed on incubators results in stronger managerial belief regarding its benefits as well as its effectiveness.

6.6.2 Normative pressure:

Even though the normative ideology is to operate incubators as enterprises that should become self-sufficient, government-imposed and regulated, rules create potential constraints in the incubators' intention of self-sufficient operation and existence. These constraints create an additional obstacle that directly has an impact on the self-sufficiency of incubators. Thus, if observed from an institutional perspective, this generates a completely new platform for further evaluation of norms and values. Nevertheless, most Saudi incubators are governmental institutions that, without government funding would most probably suffer financially. Therefore, for these institutions, any analysis is double-sided, as there are benefits as well as constraints. Incubators have to stay as institutionalised bodies dependant on government support. This further places their work within the political 'ecosystem' of Saudi Arabia in order to secure future funding and express achievements within the boundaries of political objectives. Another type of government funding, is that of Saudi Credit and Saving Bank that provides support for SMEs (see section 4.2.2.1). Possible to say that the Saudi Credit and Saving Bank is the largest institution providing financial support to SMEs in Saudi Arabia.

Another relevant aspect is an intention to double the number of incubators in 2014-2015 and also raise the number of incubators to 80 by 2025 (see section 4.3.1.3). This is part of a Saudi national plan that indirectly imposes normative pressure (see section 2.15.6) on the incubators and firms which are, from the incubators point of view, prospective firms to incubate.

Another normative pressure that has been identified in the research is the pressure that incubators themselves impose upon the incubatees. In section 4.3.1.8, the incubatees participants were asked about the ways that incubators enhance the implementation of their work. Normative pressure can arise from a successful interpretation of a particular model in an organisation. This may contribute to the adoption of this model within other organisations (Sherer, 2010, p.127; Altayar, 2011, p.270). Since incubators are a place where an incubated company can benefit from the experiences of other companies, they are thus learning from

successful experiences and avoiding the ways that are not significant for their business as some participant's mention.

The consulting companies also have been identified as a normative pressure, where they play the role of a third party providing suggestions, recommendations and guidelines for incubators and the incubatees (see section 4.3.1.2.1). According to DiMaggio and Powell (1991, p.70) consulting companies provide support and advice allowing incubatees to benefit from the experiences of other experiments.

6.6.3 Coercive pressure:

As has been mentioned in the findings, incubators in Saudi Arabia started as a Government initiative (see section 4.2.1). Hence, it is a top down management approach, and that may lead to some coercive pressure. "As a response to coercive pressure from government, SBIs [student business incubators] occurred approximately at the same time at all comprehensive universities in Denmark." (Hjortsø *et al.*, 2015, p.19). In addition, according to King et al (1994, p.139) governments in developing countries often intervene to accelerate the adoption and implementation of IT innovations. This research investigates technology business incubators that support and incubate technology business SMEs in Saudi Arabia.

This study identifies a set of formal and informal coercive pressures (see section 2.15.6) vis-à-vis incubators in Saudi Arabia. When we talk about formal pressures, these are identified in section 4.4.1 where the findings point out obstacles that SMEs face. There are several obstacles to the formation of an SME identified. Amongst these, obstacles in day-to-day operations are the most prominent. These involve poor financing in the sector, appropriate employee concerns, a vague division of responsibilities and government rules and regulations. Saudi rules and regulations have been identified as an additional constraint by many participants (see section 4.4.1.1) making the institutionalisation of incubators difficult. For instance, the regulation of foreign company policies and the long procedural processes presents difficulties. According to Ribeiro and Scapens (2006, p.6) "The government and its agency can be a source of coercive pressures."

The other types of coercive pressures are informal which are reflected in this study through the contemporary issue of unemployment. This issue further implies governmental support towards freelance work. However, this encouragement holds a supplementary burden on incubators. As an explanation of this type of pressure, on one hand Government has invested a huge amount in encouraging freelance work (see section 4.2.2). On the other hand, entrepreneurs have been influenced to undertake freelance work by family members who

have already started their businesses through the same schemes, or perhaps because of poor education quality that does not provide individuals with positive outcomes. Also, a family's influence on others can be a mimetic pressure⁷⁹. The nature of families in Saudi Arabia is that they tend to be large and interconnected and supportive, which means the career path of one family member may affect the path of others within their family network (see section 4.2.2).

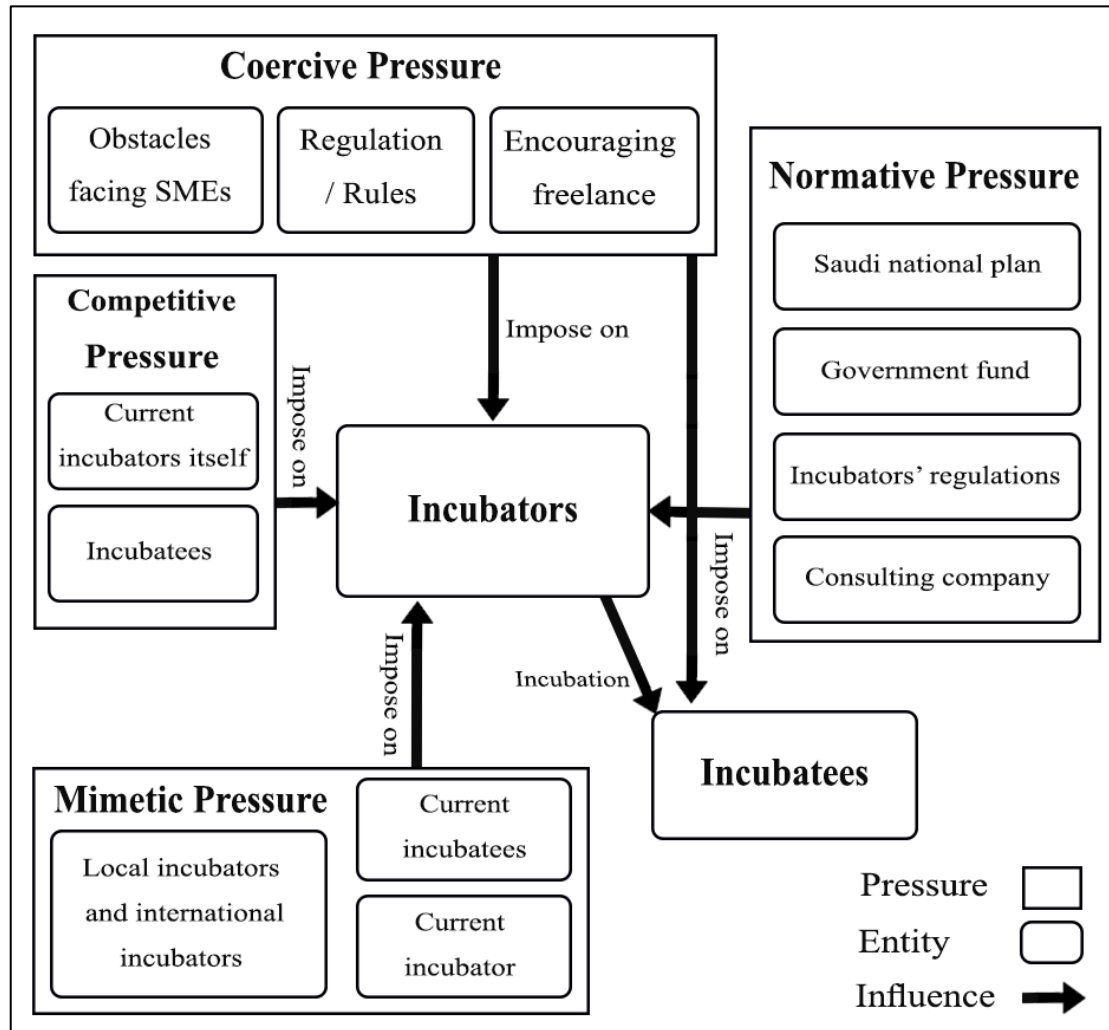
6.6.4 Competitive pressure:

As mentioned in section 2.15.6 there is a fine line between the different types of institutional pressures. Also, Mignerat and Rivard add (2005, p.14) "Some competitive pressures could be easily confused with institutional pressures."

In the findings of this research (see chapter four), a number of competitive pressures (see section 2.15.7) have been detected. Several sections in the research discussed the local incubators in Saudi Arabia from several angles (see sections 4.3.1.2.1 and 4.3.1.3). There are competitive pressures that can be identified between the current incubators. Furthermore, some of the participants mentioned that the level of performance of current incubators in Saudi Arabia varies. In this context, one of the universities has started an accelerator as its own incubation program; that may lead one of the biggest incubators in Saudi to start her first accelerator initiative in collaboration with a famous accelerator in the Arab world. Other organisations will follow the leaders in their sector in order not to be perceived as less innovative or responsive.

On the other hand, the competitive pressures between the incubatees in local incubators are limited (see sections 4.3.1.8). Most of the current incubators do not accept similar technology business companies to be incubated at the same time, as one of their aims is to enhance the collaboration between the incubatees. However, one of the incubator managers has mentioned that they will be accepting similar SMEs to enhance the competitive pressures between the incubatees.

⁷⁹ See section 6.2.5 for the fine line between the pressures.



Figures 6.2 the impact of institutional isomorphism and competitive pressure upon TBIs in SA

6.7 Impacts of this research on understanding of the relationship between institutional isomorphism and competitive pressure:

Incubators are considered to be one of the initiatives that has received attention and support from many governments around the world (see section 2.5) as one of the supportive tools of SMEs. This section discusses the impacts of this research on understanding the relationship between institutional isomorphism and competitive pressure upon SA TBIs.

This research presents two new theoretical developments which add to the body of knowledge. They seek to contribute to understanding the pressures on SMEs and how SMEs respond to isomorphism and competitive pressure.

First, by analysing the findings of this research presented in chapter four, the researcher observes that the pressures that affect SME projects are not fixed, and they vary from one business life phase to another. In the early stages of the project, the SMEs may be affected by coercive pressure (see section 6.6.3), which may arise from the rules and regulations related

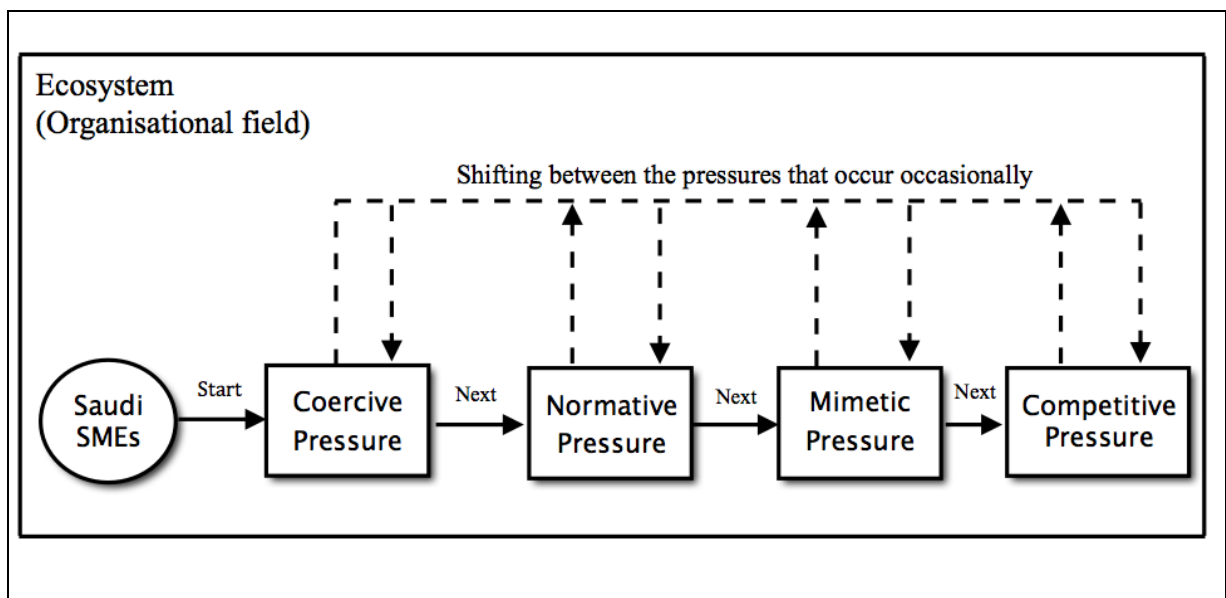
to the SMEs and their initial operating stages (see section 4.4.1.1). At this time their main purpose is to deal with the obstacles facing Saudi SMEs (see section 4.4.1). This is followed by the second phase which is that SMEs may face a normative pressure (see section 6.6.2), which may arise when SMEs attempt to obtain support, whether tangible or intangible support. An example of normative pressure is when SMEs seek to obtain intangible support (such as consultations) from external advisory bodies. The bodies have standards that SMEs must follow. Incubators are one of these bodies in which incubated SMEs must adhere to its regulations and procedures (see section 5.4.3). Another example of normative pressure is when SMEs seek to obtain tangible support (such as funding), SMEs must follow the requirements of the funding providers to obtain funding (see section 5.2.2.1). The researcher believes that the phase after the normative pressure is the third phase which is a mimetic pressure phase. This can be observed through the early years of the life of SMEs, some SMEs may admire the success of some other companies, so they copy the successful methods of these companies and these methods apply to them as mimetic pressure (see section 6.6.1). After technology SMEs have grown through years, they begin to look for what similar companies in the market are doing. Hence, it can be said that this is the fourth phase of SMEs, which is a competitive pressure (see section 2.15.6). It is possible to distinguish between mimetic pressure and competitive pressure in that the SMEs with mimetic pressure are looking at how they operate and in the competitive pressure they are looking at the outcome.

These four phases mentioned do not necessarily mean that all SMEs will pass these phases in sequence. However, this arrangement was built upon two data elements, the first one based on the findings of this research and the second based on the researcher's knowledge of the SME environment in SA. The goal is to illustrate these stages (see figure 6.3) showing the pressures that SMEs in Saudi Arabia might encounter from an institutional perspective. The researcher observes that all types of pressures previously mentioned may affect SMEs from two sides. First, these pressures may affect SMEs during different times of start-up life, and after a certain amount of time, these pressures may decrease or disappear. For example, incubated SMEs have passed through normative pressure, which arises from the regulations and procedures of the incubator during the incubation stage, and these pressures end as soon as the SME project leaves or graduates from the incubator. This is where "Exit strategies lead to the giving up of domains exposed to the pressure" (Gstraunthaler 2010, p.404). Second, some SMEs may shift from a one of the phases as referred to in figure 6.3 to another, based on several factors. This could be the nature of the business of SMEs or a phase of the SME

where a new direction of the company may require licenses; thus a business faces rules and regulations similar to the first phase (coercive pressure)

Second, it can be argued that the 'organisational field' (see section 6.4) for SA SMEs can be part of the Saudi 'ecosystem'. The findings of this research presented show that the 'ecosystem' has an impact on the phases of isomorphism and competitive pressure which affect SMEs in several aspects. The following example illustrates the referred effect; it makes to say that the rules and regulations related to SA SMEs (which are part of the 'ecosystem') are coercive pressure, when these rules and regulations are an obstacle facing SMEs. When these regulations and regulations do not hinder or are non-existent, then in that case the pressure affecting SMEs may change or become non-existent. However, a recognition of the institutional pressures does not necessarily imply that organisations have to address all the negative pressures that are placed upon them (Gstraunthaler 2010, p.404). As stated in section 5.2.4, the Saudi government is adopting a very top-down style of shaping of the 'ecosystem'. Adopting this top-down approach in environments creates multiple types of pressures on SMEs.

What is presented in this section regarding the two theoretical developments opens the way for future studies, which will be discussed in section 7.5.



Figures 6.3 illustrating the pressure phases that SMEs in Saudi Arabia might encounter, using an institutional perspective.

6.8 Conclusion:

In this chapter, institutional theory has been applied to achieve a wider explanation and understanding of the effect of technology business incubators on SMEs in Saudi Arabia. This chapter put forward two theoretical developments.

Institutional theory concepts have been addressed by linking those concepts in the literature review chapter (see sections 2.15) with the findings of this research addressed in chapter four. Furthermore, the rationale behind applying institutional theory to investigate the effectiveness of technology business incubators was presented. It has been concluded that from an institutional perspective that incubators in Saudi Arabia are impacted upon by the three types of pressures that affect institutional isomorphism which are coercive, normative and mimetic. It could be argued that occasionally, there is a fine line between the pressures. For example, as mentioned in the section 6.6.2 on normative pressure, rules and regulations may be recommended by an external advisory body. In contrast, on coercive pressure the pressures may come from a 'professional' regulatory bodies. So, such institutional bodies applying pressure are not always professional bodies. In addition, a competitive pressure that has been described is another aspect of isomorphism. These pressures can arise from many organisations or identities. Furthermore, institutional theory has been applied to investigate the phases of the pressures that Saudi SMEs may come across. The first theoretical contribution made is that Saudi SMEs are often impacted at the beginning by coercive pressure, then normative pressure, then mimetic pressure until competitive pressures are encountered. However, in some cases, the Saudi SMEs may shift from one phase to another. The second theoretical contribution concerns the impact of the 'ecosystem' on the isomorphism pressure phases. These theoretical contributions provide a wider understanding for the phenomena under investigation.

The next chapter discusses how the research question has been addressed and summarises the contributions and recommendations made. It provides a conclusion for the thesis.

Chapter 7: Conclusion

7.1 Introduction:

This chapter presents conclusions and recommendations regarding this research. The purpose of this research is to study the impact of technology incubators on SMEs in Saudi Arabia. Thus, this chapter reviews the main contributions to this research, in addition to the limitations of the study, and proposes recommendations to decision-makers and authorities connected with SMEs and incubators in Saudi Arabia, as well as proposals for further research.

7.2 Contributions:

7.2.1 Addressing the research questions:

This research addresses the three research questions mentioned in the first chapter through a review of the literature as a theoretical background, in addition to collecting qualitative data through interviews and documentations as mentioned in chapter three.

The data analysis was discussed in the fourth chapter and the fifth chapter dealt with the comparison and discussion of the findings. Furthermore, the fourth and the fifth chapters have been divided into many sections in order to answer the research questions one after the other.

Addressing the first question:

(1) In what way might TBIs affect SMEs in the Saudi Arabia environment?

In the fourth chapter, sections 4.2.1 to 4.2.7.1 (nine sections) reviewed the analysis of the answers of the research participants in order to answer the first question. Sections 5.2 to 5.2.7.1 (nine sections) in the fifth chapter reviewed the discussion of the results of this research and the literature review relating to the first question. The results of this research revealed that there has been a significant governmental orientation in Saudi Arabia towards supporting the spread of SMEs. This has been done through the initiatives of incubators beginning with the setup of the first incubator in 2008 as part of the National Plan for Science and Technology. A huge budget had been allocated for the purpose of transforming Saudi Arabia into a knowledge-based economy. It encourages freelance work through supporting programmes, whether financial support through Saudi supporting funds, or through the programmes of incubators in a plan to increase the number of incubators from twenty-one

incubators⁸⁰ in 2015 to eighty incubators in 2025. The research found that incubators play an important role in the development of start-up projects in the local environment. However, this research found that there is a lack of awareness of incubators in Saudi Arabia that does not fit in with the level of aspiration from the government. The nine sections in the fifth chapter compared the previous results with the literature review and identified where they concurred such as in relation to the government's support and funding of initiatives that encourage SMEs and the obstacle regarding employment.

Addressing the second question:

(2) What are the potential impacts and benefits which might arise from the application of TBIs to SMEs in Saudi Arabia?

To answer this question, it was divided into two sections. The first section related to the first part of the question: to establish the impact and benefits of technology business incubators, and the second part related to conducting a comparison between SMEs on-and-off incubation in Saudi Arabia. Together, both parts answer the second of the research questions.

The first part:

In order to study the impact of incubators on SMEs in the local environment, sections 4.3.1 to 4.3.1.8 (thirteen sections) of the fourth chapter discussed this impact. Furthermore, sections 5.3.1 up to 5.3.1.8 (thirteen sections) of the fifth chapter discussed the recent situation regarding incubators in Saudi Arabia and the types of programmes of incubation provided by incubators in Saudi Arabia. These types of programmes are divided into three types: general incubator, virtual incubator and accelerator. Subsequently, this chapter discussed the opinions of the incubatees relating to business types suitable for incubation, where incubation ranged from accelerators to virtual incubators. The research found that virtual incubators are rarely found in Saudi Arabia. However, the research proposes the importance of the existence of these three types of incubators at present. That was followed by a discussion of the defects of the current incubators in Saudi Arabia from the point of view of the research participants, whether they were views expressed regarding the incubator itself or on the managers and staff of the incubator. In addition, there was a comparison between what was mentioned in the literature review and the participants view of the importance of the roles played by incubators as institutions and managers and staff of the incubator in the life cycle of

⁸⁰ In addition to, eight organisations that offer incubation programs within their services.

incubated projects. The duration of incubation and existing policies play an important role in their impact. The research found that the duration of these projects and existing policies regarding local incubators were similar to the situation concerning international incubators, as mentioned in the literature review. The services provided by incubators are the main objective that drives the project owners towards incubators. The results of this research reviewed the services provided by Saudi incubators to incubated project owners, and the importance of these services to incubated project owners. This is in addition to the evaluation of the services provided by the local incubators by the incubatees. This research is considered to be the first research conducting a study on a number of Saudi incubators and the services provided and their impact on incubated project owners. The findings revealed that the services provided by the Saudi incubators are similar to the services provided by the international incubators. However, some incubators provide additional services that are not provided by international incubators, such as a monthly salary to incubated project owners. In order to study the impact of the SA TBIs culture on SMEs, this research explored the culture of local incubators, through defining the culture that enhances local incubators.

The second part:

This part compares incubated and non-incubated SME projects in Saudi Arabia. The aim of this comparison is to study the effect of the local incubators on the incubated SME projects and to compare them with non-incubated SME projects. Sections 4.3.2 to 4.3.2.5 (eight sections) of the fourth chapter discussed the results of this research and compared these results with what was stated in the literature review, which has been mentioned in the second chapter and reviewed in the fifth chapter in sections 5.3.2 to 5.3.2.5 (eight sections). Prior to commencing the comparison, section 5.3.2.1 previewed the situation regarding technology SMEs in Saudi Arabia in general. The findings of this research confirmed that technology projects in Saudi Arabia do not require huge capital to establish their projects. This research discussed the opinions of the participants, including the managers of incubators and owners of both incubated and non-incubated projects, concerning the factors that may contribute to the success of technology projects. The results and analysis of this research demonstrate that the majority of the elements that might contribute to the success of the projects in Saudi Arabia are provided by local incubators. This was followed by studying the rate of success or failure of incubated projects in the local incubators. This research is considered to be the first research to conduct a study of the rate of success or failure of incubated projects in various Saudi incubators. Furthermore, many sections then compared technology in incubated and

non-incubated SMEs in Saudi Arabia. The results of this research clearly demonstrate the positive effect Saudi incubators have on technology projects in many aspects. Several sections discussed these aspects, such as the effect of incubators in minimising the setup and operation costs for incubated projects. In addition, many sections discussed the impact of incubators in increasing the credibility of incubated projects. Therefore, it is feasible to state that one of the contributions of this research is showing that the Saudi incubators have an impact increasing the credibility of technology start-up projects.

Addressing the third question:

(3) What are the potential obstacles that SMEs encounter when they attempt to join technology incubators in Saudi Arabia?

It is important to study the obstacles that face owners of SMEs when attempting to join local incubators, as this is considered one of the most important factors that influence technology SMEs and all incubators in general. Determining these factors contributes to increasing the awareness of local incubator managers and policy-makers regarding obstacles that face local technology SMEs. In the findings of this research, sections 4.4.1 up to 4.4.3 (five sections) of the fourth chapter and sections 5.4.1 to 5.4.3 (five sections) of the fifth chapter answer the third question of this research. In order to understand the obstacles facing Saudi technology projects when joining incubators, the obstacles facing projects in general were studied gaining a more comprehensive view regarding SME technology projects in Saudi Arabia and the issues they face. The findings of this research revealed that there are thirteen obstacles facing technology projects in Saudi Arabia, and discussed one of these factors extensively due to its importance, namely, Saudi rules and regulations relating to SMEs. Subsequently, this research identified and discussed the criteria of the Saudi incubators for acceptance into the incubation programmes, in addition to the opinions of the research participants about these criteria. One of the contributions of this research was to identify and discuss the conditions of incubation in Saudi incubators, since it is considered to be the first study of its kind that discusses the criteria for acceptance into the local incubators. As part of that it discusses the opinions of incubator managers and the owners of both incubated and non-incubated technology SMEs in Saudi Arabia. The findings of this research revealed that the criteria for incubators in Saudi Arabia have changed since their beginnings and have become more difficult than at the beginning of this initiative.

Moreover, the findings of the research demonstrated that there are obstacles facing the owners of Saudi technology projects when attempting to join an incubator. These factors were defined into three main divisions: 1- obstacles resulting from local (Saudi) rules and regulations; 2- obstacles resulting from the conditions of the incubators themselves, where the findings of this research show that the conditions for joining the Saudi incubators are different from one incubator to another; 3- obstacles associated with the owner of the project; and there are many obstacles listed under each of these divisions. This research is the first research that defines the obstacles facing the owners of technology SME projects in Saudi Arabia when they try to join the local incubators. Such obstacles include the E-Payment gateway and recruitment. Also, this finding revealed that there are several obstacles that relate directly to the obstacles facing project owners when attempting to join an incubator including, Saudi rules and regulations and multiple agencies responsible for submission of permits.

7.2.2 Main contributions:

This research contribution can be divided in two sections, theoretical contributions and contribution to knowledge.

7.2.2.1 Theoretical contributions:

This research makes two novel theoretical contributions and other contributions, some of which have been mentioned in the previous section and others that will be covered in the following points:

- First, the researcher indicated that technology SMEs and incubators in Saudi Arabia are affected by the wider institutional context, in four aspects of institutional isomorphism pressures: coercive, mimetic, normative and competitive. In particular, section 6.4 indicated through the study of the pressures during various stages of the life cycle of SMEs in Saudi Arabia, that these pressures are multiple and that they transfer from one type of pressure to another according to the life cycle of the technology SMEs, as illustrated in Figure 6.3.
- The second unique theoretical contribution of this research is that it has identified that the ‘ecosystem’ has an impact on the isomorphism pressure phases that affect SMEs in multiple ways. The presence and absence of rules and regulations related to Saudi SMEs (as a part of the ‘ecosystem’) can create different types of pressure. Another

factor related to the ‘ecosystem’ is the top-down approach that the SA Government adopts that creates various types of pressures on SMEs.

7.2.2.2 Contributions to knowledge:

Studying Saudi incubators can contribute to the knowledge base through:

- Seeking to fill the gap in the research about developing countries, as mentioned in the literature review (chapter two) and especially Saudi Arabia, as stated in chapters one and two. Furthermore, this research can help bridge the gap by increasing knowledge of TBIs in the countries that have a similar culture, especially GCC countries and Arab countries and, by exploring the differences between incubators in Saudi Arabia and the rest of the world (see section 2.9 on the effect of the geographical factor on incubators).
- This research conducted a comparative study between incubated and non-incubated technology SMEs by studying the most significant variable factor in the life cycle of these projects, which is the incubation process. This was done in order to study the impact of incubators on these technology projects in Saudi Arabia. This research is the first to conduct a field study that includes the technology SMEs and the impact of incubators on them in the Saudi context. This study contributes towards increasing the awareness of those in charge of incubators and policy-makers dealing with the impact of incubators, especially given the significant orientation of Saudi Arabia towards being a knowledge-based economy and the great orientation towards increasing the number of incubators in SA.
- One of the contributions of this research is that it has indicated many important elements, whether for the technology incubated SMEs, Saudi incubators or the decision-makers. For example, the lack of awareness concerning the concept and culture of incubators, as mentioned in section 5.2.6.1, and the fact that the Saudi technology projects do not need a huge amount of capital to begin with, as mentioned in section 5.3.2.1.1.
- The results of this research have shown that technology SMEs in Saudi Arabia suffer greatly in terms of their credibility when dealing with other agencies. However, this research has shown that the Saudi incubators greatly contribute towards increasing the credibility of technology SMEs in cases where they are incubated.

- One of the important contributions of this research is the theoretical contribution, through the use of institutional theory for studying the impact of TBIs on SMEs in Saudi Arabia. This theory increases the understanding and analysis of the findings of this research. This study is the first of its kind to use institutional theory to study the impact of SMEs in Saudi Arabia, as mentioned in section 6.3.

7.3 Recommendations of the research:

- According to the findings of this research, it is clear that Saudi incubators have a positive impact on incubated technological SMEs. Therefore, the orientation of Saudi Arabia towards supporting an increase in the number of technological incubators in Saudi Arabia is considered to be a positive step. However, there are a number of opinions from the owners of the incubated and non-incubated SMEs and the managers of incubators that were discussed in chapter five of this research, such as, the long incubation period, the weak support for medium-sized businesses and the poor performance of virtual incubators. Chapter five, provided an evaluation of the performance of local incubators and some remarks on their performance and ways to benefit from incubators in a better way. Thus, it is important for the authorities concerned to address these defects and remarks.
- Arguably many of the existing rules and regulations do not support the orientation of Saudi Arabia in supporting freelance work and technological SMEs. The research in section 5.4.1 discussed thirteen of the obstacles facing technological SMEs in Saudi Arabia, where the majority of such obstacles are related to the local rules and regulations for SMEs or project owners. It is important that those interested in the field of developing SMEs and decision-makers in Saudi Arabia should seek to overcome these obstacles facing technological projects. It is possible that by amending these laws they can contribute to increasing the growth of SMEs in Saudi Arabia, as discussed in several sections such as section 5.4.3.
- There are some rules and regulations that it would be useful to revise for the development of technological start-up projects, such as the commercial address, which stipulates that a physical location is required in order to be classified as a commercial location when opening registered activity in the Ministry of Commerce. Nevertheless, many technological projects can be established from home, which is observed in many countries of the world. However, technological project owners face

difficulties when they try to convert their business into an establishment or company, because they need to obtain a commercial location. The matter is not only related to the cost of renting the commercial location, but it is also related to obtaining various permissions from several authorities; this reduces the speed of transforming the projects from home into registered projects that can be dealt with (see section 5.2.7.1).

- This research discussed the credibility of technological SMEs in Saudi Arabia in section 5.3.2.5, and the fact that agencies that have commercial relationships with start-up projects do not trust such projects. The results indicated that incubators contribute to increasing the credibility of incubated projects. However, incubators alone are not sufficient for developing technological projects in Saudi Arabia and they need supporting factors to contribute in increasing the credibility of SMEs, especially start-up technological projects. Therefore, it is important that there should be elements that can provide the criteria for evaluating the performance of technological SMEs in Saudi Arabia. For example, a related authority carries out a credit check for SME projects in Saudi Arabia using criteria that are suitable for the local market, such as the General Organisation for Small and Medium-Sized Establishments, which was established in Saudi Arabia by the end of 2015.
- Many of the initiatives supporting technological SMEs in Saudi Arabia are greatly directed towards projects under implementation or start-up projects. Section 5.3.1.7 mentioned that the services provided by incubators are greatly directed towards start-up or small projects, and not medium-sized projects or those that have graduated from the incubator. However, some managers of incubators stated that they do provide services to medium-sized projects. However, according to the opinions of some participants they are not really suitable for the real requirements of medium-sized projects.
- One of the findings of this research (see section 4.2.6.1 '*Understanding the implications of awareness of Saudi incubators*') highlighted that the symposiums and conferences held by several parties in Saudi Arabia, have a significant positive impact in support of SMEs. Therefore, the researcher sees the importance of accommodating more symposiums and conferences aimed at entrepreneurs. Moreover, the researcher preferred the location of symposiums and conferences not to be confined to large cities, but also in medium-sized cities. This is in order to attract more SMEs owners, who may find travelling to large cities hinders their attendance. This was mentioned

in section 5.2.5 ‘*The geography of Saudi Arabia associated with institutional theory*’ that the geographical area of Saudi Arabia is large.

- Finally, it is important for decision-makers to consider the development of technological SMEs in Saudi Arabia from the many angles that contribute in the growth of this vital sector. For example, incubators alone will not be sufficient for developing this sector if incubators face obstacles that surpass their inherent ability to provide growth and momentum within the SME sector.

7.4 Limitations of the study:

Evidently, any research is subject to a number of limitations that result from time constraints or available sources. Despite the significant contributions of this research, there are limitations due to the scarcity of research about incubators in Saudi Arabia. Indeed, finding sources about Saudi Arabia was difficult and required much time, effort and searching. Due to the time limitation of this research, the fieldwork had to be carried out at a single point in time rather than carried out over a longer period, given that the nature of this research was to explore the phenomenon of the incubator in SA, rather than to study a single type of incubator such as a university or corporate incubator. Furthermore, this is the first research that studied a number of incubators, incubatees and non-incubatees in several cities in Saudi Arabia.

7.5 Suggestions for further research:

Based upon the findings of this research, there are several proposals for conducting research in the future:

- This research presents two new theoretical contributions, as stated in Section 7.2.2. These theoretical developments provide a good basis on which to repeat this research in a different culture.

QA1: What are the pressures that may affect technology SMEs during the life cycle of business?

QA2: How is the ‘ecosystem’ of technology SMEs affected?

- This research can be considered to be an essential point; researchers can re-implement this research in the future to study the resultant change over many years.
- The survival rate of SMEs is one of the important elements upon which the success or failure of Saudi projects can be measured. As mentioned in section 5.3.2.2, there is a

need for conducting a field study or for a competent authority to establish legislation that contributes towards understanding the survival rate of SMEs, given the absence of these studies or mechanisms in Saudi Arabia. Recently, research was conducted by Almakenzi et al. (2015, p.147) to study ten hypotheses regarding the measurement of survival rates in Saudi Arabia. However, more research is needed to test these hypotheses through fieldwork.

QA3: What is the survival rate of technology SMEs (incubated and non-incubated) in SA?

- Many of the incubators in Saudi Arabia exist in universities. Thus, it is possible that these incubators could be studied in Saudi universities.

QA4: In terms of impact, do they perform the required role and what are their advantages and disadvantages?

QA5: What are the similarities and differences between general TBIs and universities TBIs?

- The research in section 5.2.4 discussed the Saudi ‘ecosystem’ for SMEs, and its impact on incubators was discussed in section number 6.3.1. It is important to study the eco-system in an expanded manner.
- In the fourth chapter, the research mentioned the services provided by incubators in Saudi Arabia, which was then discussed in chapter Five. There is a need to study these services in an extensive manner at the local context level and to demonstrate the importance of the services provided.

QA6: What are the services provided by incubators in SA? And how have these services had an impact on incubatees?

- One of the added values provided by incubators is credibility. In this research it was found that incubators contribute in increasing such credibility for incubated technological SMEs. However, this point needs to be elaborated upon in future research.

QA7: In what way might credibility gains through incubation for technological SMEs, assist the incubatees.

7.6 Suggestions for practice and practitioners in the field of incubators in SA:

The bodies or individuals that are relevant to the incubators field can be considered as one of the most important elements in this research. This research found that there are five categories that are related to the field of incubators in particular or entrepreneurship and government initiatives in Saudi Arabia in general. They are as follows: 1. government and decision-makers 2. managers and staff of incubators 3. incubated technology projects 4. non-incubated technology projects 5. researchers. This section aims to provide some suggestions to practitioners by providing a more comprehensive view of the phenomenon of incubators in Saudi Arabia. These suggestions contribute to promote previous work and develop future work in all these groups.

7.6.1 Government and decision makers:

It can be said that governments and decision-makers are the key drivers of incubators around the world in general⁸¹ and Saudi Arabia in particular⁸²; in terms of the role they play in supporting incubators as one of the initiatives aimed at supporting SMEs. The researcher believes that governments and decision-makers in Saudi Arabia are the most important category in which this research seeks to present its outputs for them for two reasons. First, they are the primary stakeholders in the creation, development and follow-up of these initiatives. Second, it was detailed in the literature review chapter⁸³ that decision makers often rely on the top-down approach. In addition, this research showed that Saudi Arabia as an institutional organisation I also based on the concept of a top-down approach⁸⁴. Therefore, the outputs of this research will be useful for those who make decisions, develop and follow-up these decisions in the field of incubators and initiatives that support SMEs in Saudi Arabia. The following points present some suggestions that emerged from the findings of this research, directed at the government and decision makers in Saudi Arabia:

- This research showed that there is a huge governmental and financial support for incubators and for incubated and non-incubated technology projects. One finding found that the financial support for technology projects is not a problem in the Saudi environment, compared to international experiences in general. Through the findings of this research, the researcher sees that the entities concerned with financial support

⁸¹ See section 2.5 Government role in supporting incubators.

⁸² See section 2.11.4 Technology business incubators in Saudi Arabia.

⁸³ See section 2.13 Incubators and innovation networks.

⁸⁴ See section 4.2.4 The Saudi 'ecosystem' associated with isomorphism and competitive pressure.

for projects in Saudi Arabia should take into account some aspects which are discussed in sections 4.2.2.1 and 5.2.2.1 'Support funds in Saudi Arabia aligning with normative pressure'.

- In every work environment, there will be obstacles that may limit the growth of SMEs. The findings of this research showed that there are thirteen types of obstacles facing the local SMEs. One of the most important of these obstacles is some of the regulations and laws regarding SMEs. The research shows that these obstacles are in consistent with Saudi Arabia's orientation to support SMEs projects and achieve their aspirations, especially with the National Transition Plan⁸⁵. The findings showed that incubators contribute to solving obstacles facing the incubated technology SMEs.
- The findings showed that there is a clear weakness in evaluating the impact of incubators' initiative by the relevant bodies. The research shows that it is important to conduct a continuous annual evaluation and also an evaluation for every three years which will be more comprehensive and take into account the goals for which the incubator was established. It is important to bear in mind that not all incubators should be evaluated by the same measurement standards, but special measurement standards linked to aims and objectives of that incubator or accelerator should be used⁸⁶.
- The findings show that the Saudi 'ecosystem' for technology projects is in its preliminary stages. The construction of a local ecosystem is not only through establishing initiatives but is an integrated system that contributes to the growth of SMEs. One of the participants in this research questioned the importance of having initiatives that support the establishment of new SMEs projects where in contrast there are no mechanisms to support a local market contributing to the formation of a loop in the local ecosystem.
- The researcher created two theoretical contributions that are related to the ecosystem for technology projects in Saudi Arabia. This reflects the findings that technology projects face four types of pressures in the life stages of the project and that these pressures are often in the form of a sequence relating to the stage of the project⁸⁷. In

⁸⁵ see section 5.2.1 Normative pressure arising from the Saudi national plan.

⁸⁶ For more information, see section 5.3.1.3 Evaluating the current incubators from an institutional theory approach.

⁸⁷ see Figure 6.1.

addition, there may be a shift between these four pressures depending on the nature of the project and the stages in which it passes, which may vary from one project to another. Hence, the researcher sees that it is useful for decision makers to take into account these pressures experienced by technology projects in Saudi Arabia, especially pressures that are in the first stages of the life of a project, which may hinder the starting of the project or lead to the failure of the project in the first stage.

- A point related to the ecosystem mentioned in this section, this research showed that there is a clear weakness in the credibility of technology SMEs projects in Saudi Arabia. The findings also showed that local incubators have a clear contribution to enhancing credibility in incubated technology projects. One of the most important factors that will contribute to increasing credibility in local technology projects is when the government, in many of its projects, depends on local technology companies. This will contribute to the achievement of many aspects of development sought by Saudi Arabia.
- This research showed that the awareness about incubators and supportive initiatives of technology SMEs are still weak. The findings also show that conferences and seminars held in Saudi Arabia have a significant impact on raising this awareness. The researcher pointed out that the importance of providing these initiatives to the targeted parties is one of the most important steps that will achieve the desired goal of these initiatives. The researcher also confirms on the importance of setting up these conferences and seminars in the medium cities in conjunction with large cities to reach the largest possible segment.
- This research presented a study of the types of current incubators in Saudi Arabia and then discussed the types suitable for the Saudi environment now and in the future, whether conventional incubators, business accelerator or a virtual incubator. This is due to the diversity and differing needs and types of local technology projects and that each type serves a different segment of technology projects. The research also found that there is a clear weakness in the performance of virtual incubators and the absence of clear mechanisms for its work in Saudi Arabia.
- There was a weakness in the services provided to the medium enterprises. This stage is a critical stage in the life of projects. Therefore, the research confirms the importance of the existence of special initiatives to support this type of project because it is considered the next stage after the graduation of projects from incubators

in general, or existing projects that have exceeded the start-up phase and need to support the growth process further.

- Based on the above, the research recommends continuous support for current incubators and business accelerators. With the need to make periodic evaluation (see above) and to review any types of incubators that contribute to the achievement of the objectives of the national plan.

7.6.2 Managers and staff of incubators:

The managers and staff of incubators are responsible for applying these initiatives on the ground. So, the role that managers and staff of incubators play is a key role in the success of any incubator, as well as contributing to the success of the incubated project⁸⁸. Since one research objective was to evaluate the current incubators phenomenon, a number of incubators managers, the owners of incubated and non-incubated projects in Saudi Arabia were interviewed. They shared their views and evaluations on the current status of incubators in Saudi Arabia⁸⁹. In addition, another objective of this research is to evaluate the services provided by the owners of incubated projects in Saudi Arabia based on their experiences⁹⁰. Therefore, the researcher sees the importance of this research to the managers and staff of incubators, as it will contribute to the ability of the managers and staff of incubators to develop the performance of incubators in addition to focusing on the services needed by the owners of incubated projects. The following provide some suggestions for the managers and staff of incubators in Saudi Arabia:

- It is useful for managers and staff of incubators to look at the above points addressed to the government and decision makers, as they practice some decision-making whether in the incubator or when their views are requested by considered bodies.
- The findings of this research found that managers and staff of incubators play a vital role, so managers and staff working in incubators field must realize the importance of their role.
- The findings also showed that there is weakness in some of the experiences and skills of some managers and staff of incubators in Saudi Arabia. This weakness was

⁸⁸ See sections 2.8.2 Managers and staff and 5.3.1.3.2 Managers and staff of incubators associated with isomorphism and competitive pressure.

⁸⁹ See section 4.3.1.3 Evaluating the current incubators from an institutional theory approach.

⁹⁰ See section 4.3.1.7 Understanding the implications of the services provided to the incubatees in the local incubators.

reflected negatively in the performance of one of these incubators, whose manager was interviewed in this research⁹¹.

- The researcher values the importance of the selection of the manager and staff for incubators, and sees that the selection should be accurate and based on the objectives and aspirations of the incubator itself. Also, this process is an important part of the stage of incubator establishment.
- The research recommends that incubators managers should be well versed in four aspects and previous experience: 1. projects management 2. incubators management 3. groups management 4. experience and knowledge of the local market. It can be said that without all these experiences, it is difficult to achieve the success of the incubator under the weak leadership. These experiences give the incubator's manager the ability not only to manage the incubator, but also to choose incubated projects⁹².
- The research recommends that staff of technology incubators should have the following skills and experiences: 1- knowledge in the establishment and management of technology projects. 2. experiences and technical skills (such as design, programming, etc.). The research sees that these experiences should not necessarily be available in all staff, but there must be a mix of both types of staff to provide appropriate services to incubated technology projects.
- It is useful for incubator managers to use experiences from outside the incubator periodically to provide these experiences to incubated projects and to the incubator's own team.
- The continuous interaction between managers and staff of incubators and the owners of incubated projects is significant. It should not be only the scheduled interaction which is often a monthly or quarterly between incubators staff and the owners of incubated projects. This interaction is better when spontaneous, not formal, to make it easier for the owners of incubated projects to enjoy the experiences of the incubator's manager and its staff.
- The services provided by the incubator play a key role in the success of incubated projects⁹³, where this research discussed and evaluated the services provided by

⁹¹ See section 4.3.1.3 Evaluating the current incubators from an institutional theory approach.

⁹² See section 5.4.2 Normative pressure arising from the conditions and criteria for the selection of incubate.

⁹³ See section 2.6 Incubator services.

incubators⁹⁴. The value and utility of services provided by incubators vary from one project to another. Therefore, the research sees that it is important to review the services provided to incubators by the officials on a regular basis to suit the needs of incubated projects in that period. In the past for example, incubators provided some services such as fax, which today is not important.

- Incubators' managers play a vital role in the process of networking between incubated projects and related parties such as investors, suppliers and others. The research confirms the importance of enhancing this role in local incubators.
- This research discusses a number of obstacles that may prevent projects from being accepted in the incubator⁹⁵. Some of the obstacles are based on the regulations and laws of the incubators themselves. Hence, the researcher sees reviewing the conditions of the incubator periodically by the officials of incubators is important⁹⁶, since incubators in Saudi Arabia have a kind of flexibility in the conditions and regulations relating to the acceptance of the incubatees and is in accordance with what is stated in the literature.
- A number of the owners of incubated projects mentioned that the incubation period for conventional incubators is long⁹⁷. Therefore, the researcher suggests that the readiness of projects to exit the incubator should be reviewed periodically. Also, there should not be a complete exit, but transforming the project into virtual incubation for a limited period. This is so that the projects do not suddenly leave the incubator completely and finally. This will provide free space to accept new projects that need traditional incubation.
- The research suggests that incubators' managers should conduct studies and evaluate the performance of the incubator itself, and that the evaluation is not specific to the incubated technology projects. This evaluation is divided into three categories: 1- incubator's staff 2- the owners of incubated projects 3- projects that applied for joining incubators and were not accepted.

7.6.3 Incubated technology projects:

⁹⁴ See section 4.3.1.7 Understanding the implications of the services provided to the incubatees in the local incubators.

⁹⁵ See section 4.4.3 The obstacles facing SME technological projects when trying to join the local incubators.

⁹⁶ See section: 5.4.2 Normative pressure arising from the conditions and criteria for the selection of incubate:

⁹⁷ See section 4.3.1.5 Normative pressure arising during the incubation period in local incubators.

Incubated technology projects are the focus of attention for the services provided by governments when they create supportive initiatives for SMEs such as incubators. The owners of incubated technology projects are considered an important part of this research, in which the researcher seeks to measure the impact of incubation on their projects and what are the services that are useful for the owners of incubated technology projects. Also, this research studied the obstacles facing the owners of incubated technology projects when they are trying to join incubators. The findings of this research showed many important outputs for incubated technology projects. The following presents some suggestions to the owners of incubated technology projects or projects that think to join incubators:

- The researcher sees that the most important steps to be submitted by the owner of a technology project who thinks to join the incubator are two things: 1 - choose the most suitable incubator for the project 2 - choose the type of incubation appropriate for the project. There is a disparity in the performance of incubators and the quality of services provided and the appropriate type of incubation.
- When the owners of the projects join incubators, the most important goals for them is to get the tangible and intangible services. It is useful for the owners of incubated projects to know all the services that incubators can provide. The researcher noted that when some of participants of the incubated projects were asked about some of the services provided by the incubators, the answer of some of them was that either they did not use them or they did not know that the incubator provide these services in this manner.
- The researcher found two theoretical contributions related to technology projects in Saudi Arabia. Regarding the technology projects, there are four types of pressures in the project life cycle and these pressures are often arranged at the time of project occurrence depending on the stage of the project⁹⁸. The researcher believes that it is useful for the owners of technology projects in Saudi Arabia to be ready for any pressure they may face for each stage. This early preparation may contribute to overcome these pressures. This also applies to non-incubated technology projects.
- It is useful for the owners of incubated technology projects to intensify the network during their incubation period whether with the incubator's manager, staff or the owners of incubated projects. Some of the participants, who are owners of incubated projects mentioned that through the network with other owners of incubated projects

⁹⁸ See Figure 6.3.

inside the incubator, they benefit from them and they shortened some of the experiences they had experienced and gave them better suggestions based on their previous experiences.

- Through the findings of this research, the long incubation period may have some negative effects on the owners of technology projects either on the project itself or may result in a negative impact by some parties, such as investors and others who may form an impression that this project is unable to work outside the incubator. Therefore, the researcher sees that it is important for the owners of technology projects to take into account the appropriate and sufficient time for the project to remain in the incubator and to choose the appropriate time to leave the incubator. This decision should be made by the owner of the project rather than the incubator itself because he or she is the person most familiar with the project.
- Equally the researcher sees that it is important that during the incubation period, the owner of the project at some stage before leaving the incubator should show readiness for this stage during the incubation period and not after.

7.6.4 Non-incubated technology projects:

For governments in general and for this research in particular, non-incubated technology projects are equally important as incubated technology projects. The vast majority of technology SMEs are non-incubated projects. This is due, of course, to the absorptive capacity of incubators. However, new or non-incubated technology projects can be considered the target segment of incubators. The following points provide some findings of this research and its suggestions for the non-incubated technology projects:

- The findings of this research showed that local technology incubators clearly contribute to the growth of incubated technical projects when compared to non-incubated technical projects. Therefore, the researcher sees that it is possible for non-incubated technology projects to benefit from incubation initiatives launched by Saudi Arabia; since joining the incubator will achieve the goals of the project itself and support its orientation in an appropriate way. The findings of this research showed that a number of the owners of non-incubated projects thought to join incubators or re-think about joining incubators after they get to know about the services provided by incubators.

- The findings of this research showed that there are three types of obstacles that may prevent some projects from joining the incubator⁹⁹. Two of these types can be solved by the owner of the project himself. The first type is the obstacles that are made by the incubators' systems themselves; it is possible to attempt to resolve these obstacles with the incubator by the owner of the project. One participant stated that when he was trying to join the incubator for the first time, his request was rejected. After he knew the reasons for the rejection from the incubator, he sought to resolve them and then he was accepted. The second type is the obstacles that are related to the owner of the project himself. In this case, the owner of the project can measure the costs of solving these obstacles and compare them to the impact that he may get from joining the incubator.
- There are a number of incubators that accept non-incubated projects and provide them some services free of charge. There are also some initiatives from different bodies interested in supporting SMEs and they offer free services to local entrepreneurs. The researcher finds that it useful for non-incubated technology projects to access\ enjoy these free services. Since non-incubated technology projects need, at their beginning, to disburse the capital available to them on the main structure of the project.
- Among the findings of this research, the seminars and technical conferences held in Saudi Arabia have a significant impact on the owners of technology projects. Therefore, the researcher sees that it is important to attend such seminars and technology conferences to expand the circle of the network for the owners of the projects. This also applies to incubated technology projects.
- Among the findings of this research, Saudi Arabia over the past years has allocated a very large amount directly to the financial support of SMEs¹⁰⁰. The findings also showed that many of the owners of the incubated and non-incubated technology projects are focused on the financial support from the Credit Bank, while there are many government programs and initiatives as well as non-governmental programs and initiatives that provide financial support for technology projects in Saudi Arabia.

⁹⁹ See section 4.4.3 The obstacles facing SME technological projects when trying to join the local incubators.

¹⁰⁰ See section 5.2.2.1 Support funds in Saudi Arabia aligning with normative pressure.

7.6.5 Researchers:

This research sought to contribute to fill the gap in the literature review in respect of the scarcity of research in the field of incubators in developing countries and Saudi Arabia in particular ¹⁰¹. This research presents many research aspects related to incubators, entrepreneurship or SMEs in Saudi Arabia.

- The findings of this research highlighted many findings summarized in ten important points in the conclusion section 4.5. The researcher sees that there is an appropriate opportunity for future research to study these findings extensively. Two examples of the ten points and how researchers can work on the outputs and findings of this research will be mentioned:
 1. The findings of this research showed two different sections; the first section showed that there is a huge expenditure by the Saudi government in supporting SMEs and this is consistent with the international experiences¹⁰². On the other hand, the second section showed that technology projects in Saudi Arabia do not require large capital¹⁰³ which is not compatible with international experiences. Through the orientation of the Saudi government in the huge expenditure and through the findings of this research which showed that the technology projects in Saudi Arabia do not need a large capital, all these would open several areas related to these two sections for researchers.
 2. The findings of this research showed that there are thirteen obstacles facing technology projects in Saudi Arabia. The researcher sees that there is a good chance to study these obstacles either individually for each of these obstacles or to study a set of similar obstacles. This would contribute to raising awareness of what the technology SMEs need in Saudi Arabia and how these obstacles have an impact on the growth of local technology projects.
- This research presents two theoretical contributions¹⁰⁴. The researcher sees that there is an appropriate opportunity to re-study the institutional isomorphism and

¹⁰¹ See section 2.11 Incubators in developing countries.

¹⁰² See section 5.2.2.1 Support funds in Saudi Arabia aligning with normative pressure.

¹⁰³ See section 5.3.2.1.1 Understanding the status of technological projects in Saudi Arabia which do not require a large amount of capital.

¹⁰⁴ See section 6.7 Impacts of this research on understanding of the relationship between institutional isomorphism and competitive pressure.

competitive pressure that the technology SMEs face which presented in Figs 6.3 in future research through two aspects. The first aspect is to re-apply this study in Saudi Arabia after a period of time to measure: Are these pressures still going on? Have they changed? or are they disappeared? How they have disappeared or changed? The second aspect is by applying this theory on other countries and measuring the type of institutional isomorphism and competitive pressure facing the technology SMEs projects in other countries. Are they similar to the findings of this research or they are different? In addition to study the impact of the 'ecosystem' of any country in the creation of institutional isomorphism and competitive pressure on the technology SMEs.

7.7 Conclusion:

This research presents the theoretical and empirical underpinnings of the impact of TBIs on Saudi technology SMEs. It presents two original theoretical contributions to the body of knowledge.

This chapter presents how the research questions have been answered through the division of the structure of this research in two particular chapters: the fourth chapter (data analysis) and the fifth chapter (findings comparison and discussion), where the answer to each of the research questions was divided into several sections. In addition to the limitations of the study, several recommendations were also submitted to the stakeholders and the decision-makers for technology incubators in Saudi Arabia and Saudi technology SMEs. A number of proposals for future research in this field were stated. Overall, there is a need for conducting more research in this field, especially in the Saudi environment.

The findings of this research revealed many elements that had previously been mentioned in the literature, and confirmed the findings of the previous research stated in the literature. In addition, the findings of this research indicated new elements that had not been mentioned in the literature. Hence, this research presents a number of contributions to the existing body of knowledge. If these insights are taken on board, then there will be a better understanding of TBIs, which in turn provides opportunities for more successful TBIs.

Reference

- Abdul Khalid, F., 2012. An empirical analysis into the underlying components impacting upon business incubation performance of Malaysian ICT incubators. (PhD) RMIT University.
- Aberham, G., 2011. PROMOTING INDUSTRIAL DEVELOPMENT IN ETHIOPIA THROUGH THE ESTABLISHMENT OF TECHNOLOGY BUSINESS INCUBATION (Case Study on Basic Metal and Engineering Sector) (Doctoral dissertation, aau).
- Abetti, P. A. (2004). 'Government-Supported Incubators in the Helsinki Region, Finland: Infrastructure, Results, and Best Practices'. *Journal of Technology Transfer*, 29 (1): 19–40.
- Acs, Z. J., and Armington, C. (2006). *Entrepreneurship, Geography, and American Economic Growth*. New York: Cambridge University Press.
- Acs, Z.J, Audretsch, D.B., 1992. The social and economic impact of entrepreneurship. In: Sexton, D.L., Kasarda, J.D (Eds.), *The State of the Art of Entrepreneurship*. PWS-Kent Publishing Company, Boston, MA, pp. 45–68¹⁰⁵.
- Adegbite, O., 2001. Business incubators and small enterprise development: the Nigerian experience. *Small Business Economics*, 17(3), pp.157-166.
- Adi, K., Riptanti, E.W. and Irianto, H., 2017. Growing A Technopreneurship-Based New Entrepreneur In Business Incubator. *Asian Journal of Innovation and Entrepreneurship*, 2(02), pp.122-139.
- Adkins, D., 2001, A Report for the Japan Association of New Business Incubation Organisations (JANBO): Summary of the U.S. Incubator Industry, Athens, OH: National Business Incubation Association.
- Adkins, D. (2002). *A Brief History of Business Incubation in the United States*. Athens, Ohio: National Business Incubation Association.
- Aerts, K., Matthyssens, P. and Vandenbempt, K., 2007. Critical role and screening practices of European business incubators. *Technovation*, 27(5), pp.254-267.

¹⁰⁵ PS: the page number based on copy Available at: <http://people.few.eur.nl/thurik/Research/Books/Thurikf.pdf> [Accessed 06 Feb. 2016].

Ajie, F.T. and Cahyadi, E.R., 2017. INCUBATOR MANAGEMENT MODEL IN INDONESIA. *Jurnal Aplikasi Manajemen*, 15(3), pp.463-471.

Ajjawi, R. and Higgs, J., 2007. Using Hermeneutic Phenomenology to Investigate How Experienced Practitioners Learn to Communicate Clinical Reasoning. The qualitative report, 12(4), pp.612-638.

Akçomak, S 2011 Incubators as tool for entrepreneurship promotion in developing countries in Naudé, W (ed.) *Entrepreneurship, Innovation, and Economic Development* Palgrave Macmillan, Basingstoke

Akçomak, S., and E. Taymaz (2007). ‘Assessing the Effectiveness of Incubators: The Case of Turkey’. In V. V. Ramani, and A. V. Bala Krishna (eds), *Business Incubation: An Introduction*. Hyderabad: Icfai University Press, 234–64.

Alalmaai, R. (2013). Nabulsi's: We Aim to Support the Facility Valued at 250 Billion Riyals during the next 5 Years. *Alyaum Newspaper*. [online] Available at: <http://www.alyaum.com/article/3097410> [Accessed 18 Feb. 2015].

Albalawi, A. (2015). Shura approves the study to allow government employees to start a Commercial business. *Alriyadh newspaper*. [online] Available at: <http://www.alriyadh.com/1032618> [Accessed 24 Nov. 2015].

Aldharrab, M. (2010). My experience with 'Badir' incubator. [Blog] Mazen Aldharrab blog. 6th February. Available at: <http://www.mazen.com.sa/blog/?p=482> [Accessed 24 Nov. 2015].

Aldharrab, M. (2013). [Twitter] 2ed January. Available at: <https://twitter.com/mdarrab/status/286490659051929600> [Accessed 24 Nov. 2015].

Aldiaan, A. (2016). *Graduation of 130 thousand universities annually .. Riyadh tops unemployed*. [online] Alhayat. Available at: <http://www.alhayat.com/article/731409/-تخريج-130-ألفا-من-الجامعات-سنويا-والرياض-تصدر-العاطلين> [Accessed 19 May 2018].

Aleqtisadiah Newspaper, (2012). Minister of Finance: Credit Bank Supported Small and Medium-sized Enterprises of 4 Billion Riyals. [online] Available at: http://www.aleqt.com/2012/02/07/article_624327.html [Accessed 27 Mar. 2016].

Algahtani, F. (2015). Director «HadeF»: the low number of registered «Hafiz» to 1.4 million. *Okaz newspaper*. [online] Available at:

<http://www.okaz.com.sa/new/issues/20121202/Con20121202552481.htm> [Accessed 19 Feb. 2015].

AlGhamdi, R. and Drew, S., 2011. Seven key drivers to online retailing growth in KSA. IADIS International Conference e-Society.

Alhosseini, K. (2009). Government employee waiting decision to allow them to start a business. Alriyadh newspaper. [online] Available at: <http://www.alriyadh.com/485408> [Accessed 24 Nov. 2015].

Alibrahim, A. (2014). Waiting for the decision to allow the government employee to start a commercial business!. Alriyadh newspaper. [online] Available at: <http://www.alriyadh.com/972729> [Accessed 24 Nov. 2015].

Aljishi, s. (2013). Small and medium-sized enterprises and the lack of standardized definition (1 of 4). Aleqtisadiah. [online] Available at: http://www.aleqt.com/2013/07/22/article_772223.html [Accessed 9 Dec. 2015].

Alkhozim, S. (2010). Success story for the global site Untiny. [online] Technical buildings. Available at: <https://buildingsoftech.wordpress.com/2010/01/31/Ù,ØµØ©-Ù†Ø-Ø§Ø--Ø§Ù,,Ù...Ù`Ù,Ø¹-Ø§Ù,,Ø¹Ø§Ù,,Ù...ÙŠ-Ø§Ù†ØªÙ†ÙŠ/> [Accessed 25 Nov. 2015].

Allen, D.N. and Rahman, S., 1985. Small business incubators: a positive environment for entrepreneurship. Journal of Small Business Management, (May 1984), pp.19-24. Available at: <http://www.questia.com/googleScholar.qst?docId=5001689130>.

Allen, D.N. and Mccluskey, R., 1990. Structure , Policy , Services , and Performance in the Business Incubator Industry. , pp.61-78.

Almahdi, H.K. and Dickson, K., 2010. Entrepreneurship education and development as an integral part of the enterprise system in Saudi Arabia.

Al-madina newspaper, (2015). "S-me" project wins first place for the top 100 fastest-growing company. [online] Available at: <http://www.al-madina.com/node/354810> [Accessed 2 Jul. 2015].

Almakenzi, S., Bramantoro, A. and Rashideh, W., 2015. A SURVIVABILITY MODEL FOR SAUDI ICT START-UPS. International Journal of Computer Science & Information Technology, 7(2), p.145.

Almkhalafi, M. (2012). Young successful technical projects despite the limited government support. Alriyadh newspaper. [online] Available at: <http://www.alriyadh.com/739181> [Accessed 25 Nov. 2015].

Almubartaki, H.M., Al-karaghoul, W. & Busler, M., 2010. The creation of business incubators in supporting economic development. European, Mediterranean & Middle Eastern Conference on Information Systems, 2010, pp.1–13.

Al-Mubarak, H et al. 2010 The Creation of Business Incubators in Supporting Economic Developments. European, Mediterranean and Middle Eastern Conference on Information Systems. 12-13 April 2010, Abu Dhabi.

Al-Mubarak, H. and Busler, M., 2012. Road map of international business incubation performance. *Journal of International Business and Cultural Studies*, 6, pp.1-15.

Al Mubarak, H., 2011. Critical activity of successful business incubation. *International Journal of Emerging Sciences*, 1(3), p.455.

Al-Mubarak, H.M. and Busler, M., 2012, January. Middle East towards Incubator Benefits: Case Studies. In *Proceedings of World Academy of Science, Engineering and Technology* (No. 63). World Academy of Science, Engineering and Technology.

Al-Mubarak, H. and Busler, M., 2013. The effect of business incubation in developing countries. *European Journal of Business and Innovation Research*, 1(1), pp.19-25.

Almoawi, A.R.N.A. and Mahmood, R., 2011. Applying the OTE model in determining the e-commerce adoption on SMEs in Saudi Arabia. *Asian Journal of Business and Management Sciences*, 1(7), pp.12-24.

Alriyadh, (2013). 2025 will see the presence of 80 Technology Incubator established more than 1,700 company. [online] Available at: <http://www.alriyadh.com/816021> [Accessed 7 Feb. 2016].

Alriyadh, (2013a). Subsidy of More than 1.6 Million Job Seekers in 12 Months. [online] Available at: <http://www.alriyadh.com/799218> [Accessed 13 Feb. 2015].

Alriyadh, (2015). World Bank award for Saudi technical business venture that compete with 750 projects worldwide. [online] Available at: <http://www.alriyadh.com/646442> [Accessed 3 Jul. 2015].

- Alriyadh, (2016). Minister of Labour in the Shura: the unemployment rate in the Kingdom 11.5%. [online] Available at: <http://www.alriyadh.com/1122833> [Accessed 10 Feb. 2016].
- Alsanidi, A. (2012). Can an employee obtaining commercial licenses. Al-jazirah. [online] Available at: <http://www.al-jazirah.com/2012/20121006/rj1.htm> [Accessed 13 Mar. 2016].
- Alshabana, K. (2015). Allow employees to trade!. Sabq newspaper. [online] Available at: <http://sabq.org/nU0aCd> [Accessed 24 Nov. 2015].
- Alsheikh, A., 2009. Business Incubation and Economic Development: A Study in Saudi Arabia. (PhD.), University of Surrey.
- Al-Somali, S.A., 2012. Electronic commerce adoption: a study of business-to-business practice in Saudi Arabia (Doctoral dissertation, Aston University).
- Altayar, M., 2011. An Investigation into the Adoption, Implementation and Utilisation of Campus Portals: A Comparative Case Study of Saudi and UK Universities. (PhD.), De Montfort University.
- Alzahrani, A., 2011. An Integrated Model of Web-based Government Services Acceptance: G2C Perceptive. (PhD.), De Montfort University.
- Amezcu, A.S., 2010. Boon or Boondoggle? Business incubation as entrepreneurship policy. (PhD.), Syracuse University.
- Aranha, J.A.S., 2003. Incubator models. InfoDev Incubator Support Center. Pontificia University Calolica: Brazil.
- Arnd-Caddigan, M. and Pozzuto, R., 2006. Truth in our time. *Qualitative Social Work*, 5(4), pp.423-440.
- Asad Sadi, M. and Henderson, J. (2011). Franchising and small medium-sized enterprises (SMEs) in industrializing economies. *Journal of Mgmt Development*, 30(4), pp.402-412.
- Atamna, A.M., 2013. An exploration into senior managers' perceptions of strategic management. The case of the National Oil Corporation (NOC) in Libya (Doctoral dissertation, University of Bradford).
- Audretsch, D. B. (2007). *The Entrepreneurial Society*. New York: Oxford University Press.

- Aunger, R., 2010. Technological Forecasting and Social Change Types of technology. *Social Change*, 77, pp.762-782.
- Autio, E. and Klofsten, M., 1998. A comparative study of two European business incubators. *Journal of Small Business Management*, 36(1), p.30.
- Badir, (2016). Information and Communication Technology Incubator | Badir Program Technology Incubator. [online] Available at: <https://badir.com.sa/en/incubator/information-and-communication-technology-incubator> [Accessed 24 Feb. 2016].
- Badir technology incubators program, (2012). Incubated in Badir: Qayem website. [Online film] Available at: https://www.youtube.com/watch?v=dLc_LGtD_pE [Accessed 6 Feb. 2016].
- Barbero, J.L., Casillas, J.C., Ramos, A. and Guitar, S., 2012. Revisiting incubation performance: How incubator typology affects results. *Technological Forecasting and Social Change*, 79(5), pp.888-902.
- Barley, S.R. and Tolbert, P.S., 1997. Institutionalization and structuration: Studying the links between action and institution. *Organisation studies*, 18(1), pp.93-117.
- Barrow, C., 2001. *Incubators: a realist's guide to the world's new business accelerators*. Wiley.
- Bartelsman, E et al. 2009 “Measuring and Analyzing Cross-Country Differences in Firm Dynamics”, in Dunne, T et al. (eds.) *Producer Dynamics*, U. Chicago Press, Chicago, Ill.
- Basque Saudi Fransi, (2015). Small & Medium Enterprises - Banque Saudi Fransi. [online] Available at: <http://www.alfransi.com.sa/en/article/corporate-services/commercial-banking/small-medium-enterprises.html> [Accessed 10 Dec. 2015].
- Behairy, H., Obeid, A., Bensaleh, M., Hennache, A., Bakry, S. and Qasim, S. (2013). The role of national research centers and universities in the economic development of saudi arabia. *International Association for Management of Technology*.
- Benbasat, I., Goldstein, D.K. and Mead, M., 1987. The case research strategy in studies of information systems. *MIS quarterly*, pp.369-386.
- Bergek, A and Norrman, C 2008 Incubator best practice *Technovation*, 28(1-2), pp.20-28.

Bertaux, D. 1981. From the life-history approach to the transformation of sociological practice. In *Biography and society: The life history approach in the social sciences*, ed. by D. Bertaux, 29–45. London: Sage.

Birch, David. 1987. *Job Creation in America: How Our Small Companies Put the Most People to Work*, New York: The Free Press.

BIS 2010 “Small and Medium Enterprise Statistics for the UK and Regions” BIS Economics and Statistics Website At: <http://stats.bis.gov.uk/ed/sme/> [Accessed 1 Mar. 2012].

BIS, (2015). BUSINESS POPULATION ESTIMATES FOR THE UK AND REGIONS 2015. Statistical series. [online] Department for Business, Innovation & Skills. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/467443/bpe_2015_statistical_release.pdf [Accessed 17 Dec. 2015].

BIS 2015 “Small and Medium Enterprise Statistics for the UK and Regions” BIS Economics and Statistics Website At: <http://stats.bis.gov.uk/ed/sme/> [Accessed 1 Mar. 2012].

Blaikie, N., 2007. *Approaches to Social Enquiry: Advancing knowledge*, Cambridge, UK: Polity Press.

Bleicher, J. and Bleicher, J., 1980. *Contemporary hermeneutics: Hermeneutics as method, philosophy and critique* (p. 163). London: Routledge & Kegan Paul.

Boland, R., 1985. Phenomenology: a preferred approach to research on information systems. In: Mumford, E. et al (eds) *Research methods in information systems*. Amsterdam: North-Holland, pp. 193-201.

Boland, R.J., 1991. Information system use as a hermeneutic process. *Information systems research: Contemporary approaches and emergent traditions*, pp.439-464.

Boland, R.J., Newman, M. and Pentland, B.T., 2010. Hermeneutical exegesis in information systems design and use. *Information and Organization*, 20(1), pp.1-20.

Bolino, M.C., Turnley, W.H., Bloodgood, J.M., 2002. Citizenship behavior and the creation of social capital in organizations. *Acad. Manage. Rev.* 27, 505–522.

Bøllingtoft, A. (2012). The bottom-up business incubator: Leverage to networking and cooperation practices in a self-generated, entrepreneurial-enabled environment. *Technovation*, 32(5), pp.304-315.

- Bøllingtoft, A. and Ulhøi, J.P., 2005. The networked business incubator—leveraging entrepreneurial agency?. *Journal of business venturing*, 20(2), pp.265-290.
- Brown, R. and Mawson, S., 2016. Targeted support for high growth firms: Theoretical constraints, unintended consequences and future policy challenges. *Environment and Planning C: Government and Policy*, 34(5), pp.816-836.
- Bruha, P. (2014). How Many Companies Are There in Brazil. [online] *The Brazil Business*. Available at: <http://thebrazilbusiness.com/article/how-many-companies-are-there-in-brazil> [Accessed 8 Feb. 2016].
- Bruneel, J., Ratinho, T., Clarysse, B. and Groen, A. (2012). The Evolution of Business Incubators: Comparing demand and supply of business incubation services across different incubator generations. *Technovation*, 32(2), pp.110-121.
- Bruton, G.D. and Ahlstrom, D., 2003. An institutional view of China's venture capital industry: Explaining the differences between China and the West. *Journal of Business Venturing*, 18(2), pp.233-259.
- Bryman, A., 2008. *Social research methods*. 3rd ed. Oxford: University of Oxford.
- Bryman, A., 2015. *Social research methods*. Oxford university press.
- Bryman, A., 2016. *Social research methods*. 5th ed. UK: Oxford University Press.
- Bugliarello, G., 1998. Knowledge parks and incubators. In: Dorf, R.C. (Ed.), *The Handbook of Technology Management*, 1.41–41.49.
- Burrell, G. and Morgan, G. (1979), *Sociological Paradigms and Organisational Analysis*, Heinemann Educational Books, London.
- Buys, A. J., & Mbewana, P. N. (2007, September/October). Key success factors for business incubation in South Africa: the Godisa case study. *South African Journal of Science*, 103(9-10), 356-358.
- Caiazza, R., 2014. Benchmarking of business incubators. *Benchmarking: An International Journal*, 21(6), pp.1062-1069.
- Campbell, C., 1988. Change agents in the new economy: Business incubators and economic development. Cooperative Community Development Program, Hubert H. Humphrey Institute of Public Affairs, University of Minnesota.

Chelule, E., Van Greunen, D., Herselman, M. and Veldsman, A., 2011, May. Mobi-incubation user experience for rural entrepreneurs in emerging economies. In IST-Africa Conference Proceedings, 2011 (pp. 1-9). IEEE.

Clarysse, B. and Bruneel, J., 2007. Nurturing and growing innovative start-ups: the role of policy as integrator. *R&d Management*, 37(2), pp.139-149.

Clarysse, B., Wright, M., Lockett, A., Van de Velde, E. and Vohora, A., 2005. Spinning out new ventures: a typology of incubation strategies from European research institutions. *Journal of Business venturing*, 20(2), pp.183-216.

Cole, M. and Avison, D., 2007. The potential of hermeneutics in information systems research. *European Journal of Information Systems*, 16(6), pp.820-833.

Colombo, M.G. and Delmastro, M., 2002. How Effective are Technology Incubators? Evidence from Italy. *Research Policy*, 31(7), pp.1103-1122. Available at: <http://ideas.repec.org/a/eee/respol/v31y2002i7p1103-1122.html>.

Colombo, M.G. and Grilli, L., 2005. Founders' human capital and the growth of new technology-based firms: A competence-based view. *Research policy*, 34(6), pp.795-816.

Commission of the European Communities, 2000. *Innovatie in een kenniseconomie*.

Cooper, H., 2010. *Research synthesis and meta-analysis: a step-by-step approach*. 4th ed. Los Angeles: Sage.

Cooper, S., Endacott, R. and Chapman, Y., 2009. Qualitative research: specific designs for qualitative research in emergency care?. *Emergency Medicine Journal*, 26(11), pp.773-776.

Coopers and Lybrand LLP (1995). Growth Companies with University Ties Have Productivity Rates Almost Two-thirds Higher Than Peers, *TrendSetter Barometer* (January 26, 1995).

Corbin, J. and Strauss, A., 1990. Basics of qualitative research: Grounded theory procedures and techniques. *Basics of qualitative research: Grounded Theory procedures and techniques*, 41.

Corbin, J. and Strauss, A., 2008. *Basics of qualitative research: techniques and procedures for developing grounded theory*. 3rd ed. Thousand Oaks: Sage.

- Cornelius, B. and Bhabra-Remedios, R., 2003. Cracks in the egg: improving performance measures in business incubator research.
- Corsi, C. and D, D., 2014. Assessing the business incubators' performance referring the local development in Italy. *European Scientific Journal*, 10(10).
- Creswell, J., 1998. *Qualitative inquiry and research design: choosing among five traditions*. Thousand Oaks: Sage.
- Creswell, J., 2007. *Qualitative inquiry and research design: choosing among five approaches*. 2nd ed. Thousand Oaks: Sage
- Crotty, M., 1998. *The foundations of social research: Meaning and perspectives in the research process*. London. Thousand Oaks; California; New Delhi: SAGE Publications.
- Currie, W., 2009. Contextualising the IT artefact: towards a wider research agenda for IS using institutional theory. *Information Technology & People*, 22(1), pp.63-77.
- Darlaston-Jones, D., 2007. Making Connections: The Relationship between Epistemology and Research Methods. *Australian Community Psychologist*, 19(1), pp. 19-27.
- Davidsson, P. and Honig, B., 2003. The role of social and human capital among nascent entrepreneurs. *Journal of business venturing*, 18(3), pp.301-331.
- Davidsson, P., Hunter, E. and Klofsten, M., 2006. Institutional forces: The invisible hand that shapes venture ideas?. *International Small Business Journal*, 24(2), pp.115-131.
- Davies, M., 2009. *Mixed-use Incubator Handbook: A Start-up Guide for Incubator Developers*. World Bank infoDev Project.
- De Gagne, J.C. and Walters, K.J., 2010. The lived experience of online educators: Hermeneutic phenomenology. *Journal of Online Learning and Teaching*, 6(2), p.357.
- Dee, N.J., Livesey, F., Gill, D. and Minshall, T., 2011. *Incubation for Growth*. Research summary.
- Deem Almanahil, (2015). Funding program. [online] Available at: http://deem-almanahil.org/?page_id=18 [Accessed 24 Nov. 2015].
- Dembo, M. H. (1994). *Applying educational psychology*. White Plains, New York, NY:

Longman Publishing Group.

Denzin, N. and Lincoln, Y., 2005. *The sage handbook of qualitative research*. 3rd ed. Thousand Okas: Sage.

Derakhshani, S. and Hart, M., 2010, May. Desirable practices for contact centres outsourced to an African country. In *IST-Africa, 2010* (pp. 1-9). IEEE.

DiMaggio, P. and Powell, W. (1983) The iron cage revisited: institutional isomorphism and collective rationality. *American Sociological Review*, 48(2), pp.147-160.

DiMaggio, P. and Powell, W. (1991) The iron cage revisited: institutional isomorphism and collective rationality in organisational fields. In: Powell, W and DiMaggio, P. (eds) *The new institutionalism in organisational analysis*. Chicago: The University of Chicago Press, pp. 63-82.

Douché, J.P., 2016. An affordance lens on the influence of incubators on firms' strategy development.

Easterby-Smith, M., Thorpe, R. and Lowe, A., 2002. *Management Research: An Introduction*, 2nd ed. London: Sage Publications.

EC. (2002). *Benchmarking of Business Incubators, Final Report*. Brussels.

Eisenhardt, K.M. Agency theory: An assessment and review. *Academy of management review*, 14(1), 1989, 57-74.

Eisenhardt, K.M. and Martin, J.A., 2000. Dynamic capabilities: what are they?. *Strategic management journal*, pp.1105-1121.

Ekanem, I.U. and Abiade, G.E., 2018. Factors influencing the use of e-commerce by small enterprises in Nigeria. *International Journal of ICT Research in Africa and the Middle East (IJICTRAME)*, 7(1), pp.37-43.

Eke, D., 2012. Investigating the current state of the art on Ethics Reviews of Information and Communications Technology Research in UK Universities.

Elster, E. and Phipps, J., 2013. SMEs: The Key Enablers of Business Success and The Economic Rationale for Government Intervention. *London: Department for Business Innovation & Skills.*

Eriksson, P., Kovalainen, A., (2008), *Qualitative Method in Business Research*, SAGE Publications

Etzkowitz, H., de Mello, J.M.C. and Almeida, M., 2005. Towards “meta-innovation” in Brazil: The evolution of the incubator and the emergence of a triple helix. *Research Policy*, 34(4), pp.411-424.

European Commission, 2002. Benchmarking of business incubators, Enterprise Directorate General, Brussels.

European Union, (2015). User guide to the SME definition. Publications Office of the European Union, 2015. [online] Luxembourg: European Union. Available at: <http://ec.europa.eu/DocsRoom/documents/10109/attachments/1/translations/en/renditions/native> [Accessed 8 Dec. 2015].

Fama, E.F., 1980. Agency problems and the theory of the firm. *Journal of Political Economy* 88, 288–307.

Feldman, M.P., 2001. The entrepreneurial event revisited: firm formation in a regional context. *Industrial and corporate change*, 10(4), pp.861-891.

Felsenstein, D., 1994. University-related science parks—‘seedbeds’ or ‘enclaves’ of innovation?. *Technovation*, 14(2), pp.93-110.

Ferguson, R. and Olofsson, C., 2004. Science parks and the development of NTBFs—location, survival and growth. *The journal of technology transfer*, 29(1), pp.5-17.

Fox, K. (2014). The rise of the uk accelerator and incubator ecosystem. [online] Telefónica UK Limited. Available at: http://cdn.news.o2.co.uk.s3.amazonaws.com/wp-content/uploads/2014/12/O2_WAYRA_Report_121214.pdf [Accessed 3 Feb. 2016].

Freeman, J., Carroll, G.R. and Hannan, M.T., 1983. The liability of newness: Age dependence in organisational death rates. *American sociological review*, pp.692-710.

- Friedland, R. and Alford, R.R., 1991. Bringing society back in: Symbols, practices and institutional contradictions.
- Gadamer, H., 1976. The historicity of understanding. In: Connerton, P. (ed.) *Critical sociology: selected readings*. Harmondsworth: Penguin, pp.117-133.
- Gadamer, H.G., 1989. Truth and method (J. Weinsheimer & DG Marshall, trans.). *New York: Continuum*.
- Gassmann, O., 2006. Towards a resource-based view of corporate incubators. *International Journal of Innovation*, 10(1), pp.19-45.
- Geanellos R. Sustaining well-being and enabling recovery: the therapeutic effect of nurse friendliness on clients and nursing environments. *Contemp Nurse* 2005;19:242—52.
- Ghasemizad, A., Kazemi, M., Abbasi, A. and Mohammadkhani, K., 2011. Improvement of technology business incubators' effectiveness: An explanatory model. *African Journal of Business Management*, 5(22), p.9278.
- Giddens, A., 1984, *The Constitution of Society: Introduction of the Theory of Structuration*, Berkeley, CA: University of California Press.
- Grandori, A. and Giordani, L.G., 2011. *Organising entrepreneurship*. Routledge
- Gravetter, F. J., & Forzano, L.-A. B. (2012). *Research Methods for the Behavioral Science*. Wadsworth: Cengage Education.
- Gray, D. E., 2014. *Doing Research in the Real World*. 3rd ed. UK: Sage Publications.
- Greene, P.G. and Butler, J.S., 1996. The minority community as a natural business incubator. *Journal of Business Research*, 36(1), pp.51-58.
- Grimaldi, R. and Grandi, A. (2005). Business incubators and new venture creation: an assessment of incubating models. *Technovation*, 25(2), 111-121.
- Gstraunthaler, T. (2010). The business of business incubators. *Baltic Journal of Management*, 5(3), pp.397-421.
- Guba, E.G. and Lincoln, Y.S., 1994. Competing paradigms in qualitative research. *Handbook of qualitative research*, 2(163-194), p.105.
- Gust, C. and Marquez, J., 2004. International comparisons of productivity growth: the role of information technology and regulatory practices. *Labour Economics*, 11(1), pp.33-58.

- Guest, G., Bunce, A. and Johnson, L., 2006. How many interviews are enough? An experiment with data saturation and variability. *Field methods*, 18(1), pp.59-82.
- Hackett, S.M. and Dilts, D.M., (2004a). A real options-driven theory of business incubation. *The Journal of Technology Transfer*, 29(1), pp.41-54.
- Hackett, S. and Dilts, D. (2004b). A Systematic Review of Business Incubation Research. *The Journal of Technology Transfer*, 29(1), pp.55-82.
- Hadfield, J., Brown, D., Pembroke, L. and Hayward, M., 2009. Analysis of accident and emergency doctors' responses to treating people who self-harm. *Qualitative Health Research*, 19(6), pp.755-765.
- Hadley, G.S., 2012. Blended EAP professionals in corporatized higher educational institutions: a critical grounded theory (Doctoral dissertation, University of Birmingham).
- Halaweh, M., 2012. Application Of Grounded Theory Method In Information Systems Research: Methodological And Practical Issues. *The Review of Business Information Systems (Online)*, 16(1), p.27.
- Hannon, P.D., 2005. Incubation policy and practice: building practitioner and professional capability. *Journal of Small Business and Enterprise Development*, 12(1), pp.57-75.
- Hansen, M.T., Chesbrough, H.W., Nohria, N. and Sull, D.N., 2000. Networked incubators. *Harvard business review*, 78(5), pp.74-84.
- Harcourt, M., Lam, H. and Harcourt, S., 2005. Discriminatory practices in hiring: institutional and rational economic perspectives. *The International Journal of Human Resource Management*, 16(11), pp.2113-2132.
- Harieri, N. (2009). Experience finance a project in Saudi Arabia!. [Blog] Nawaf Harieri. 9th December. Available at: <http://nawaf.me/blog/251> [Accessed 24 Nov. 2015].
- Harrison, Bennett. 1997. 'Lean and Mean: Why Large Companies will continue to dominate the Global Economy,' New York: Guilford
- Harvey, L. and Myers, M., 2002. Scholarship and practice: the contribution of ethnographic research methods to bridging the gap. In: Myers, M. and Avison, D (eds) *Qualitative research in information systems: a reader*. London: Sage, pp.169-180.

HASSELBACH, T., 2010. DR GORDANA KIERANS AND PROFESSOR RONALD GLEICH Strascheg Institute for Innovation and Entrepreneurship (SHE) EBS Business School International University, Wiesbaden, Germany. *Value in Due Diligence: Contemporary Strategies for Merger and Acquisition Success*, p.119.

Haveman, H., 1993. Follow the leader: mimetic isomorphism and entry into new markets. *Administrative Science Quarterly*, 38, pp. 593-627.

Heidegger, M. 1962. *Being and Time*. Translated by John Macquarrie & Edward Robinson; Harper & Row Publishers San Francisco

Henn, M., Weinstein, M. and Foard, N., 2006. *A short introduction to social research*. London: Sage.

Hertog, S., 2010. Benchmarking SME policies in the GCC: a survey of challenges and opportunities. Brussels, EU-GCC Chamber Forum. Available at: http://www.europolitique.info/pdf/gratuit_fr/270047-fr.pdf [Accessed March 20, 2012].

Heshmati, A., 2015. The effect of credit guarantees on SMEs' R&D investments in Korea. *Asian Journal of Technology Innovation*, 23(3), pp.407-421.

Hillebrand, B., Nijholt, J.J. and Nijssen, E.J., 2011. Exploring CRM effectiveness: an institutional theory perspective. *Journal of the Academy of Marketing Science*, 39(4), pp.592-608.

Hjortsø, M.D., Larsen, S.K., Kongsted, P., Met, Ö., Frøsig, T.M., Andersen, G.H., Ahmad, S.M., Svane, I.M., Becker, J.C., Straten, P.T. and Andersen, M.H., 2015. Tryptophan 2, 3-dioxygenase (TDO)-reactive T cells differ in their functional characteristics in health and cancer. *Oncoimmunology*, 4(1), p.e968480.

Holt, R.D. and Oliver, M., 2002. Evaluating web-based learning modules during an MSc programme in dental public health: a case study. *British dental journal*, 193(5), pp.283-286.

Howley, R.G., 2009. The role of information systems professionals in the provision for privacy and data protection within organisations, systems and the systems development process.

- Honig, B. and Karlsson, T., 2010. Social Capital and the Modern Incubator: A Comparison of In-group and Out-group Social Networks. *Journal of Small Business & Entrepreneurship*, 23(sup1), pp.719-731.
- Hornstein, N., 2007. 7 Empiricism and Rationalism as research strategies. In J. McGilvray, ed. *The Cambridge Companion to Chomsky*. pp. 145–163.
- Howcroft, D. and Trauth, E.M., 2004. The choice of critical information systems research. In *Information Systems Research*. Springer US. pp.195-211.
- Howells, J., 2006. Intermediation and the role of intermediaries in innovation. *Research policy*, 35(5), pp.715-728.
- Hunter, M.G., 2004. Qualitative research in information systems: An exploration of methods. *The handbook of information systems research*, pp.291-304.
- Hutabarat, Z. and Pandin, M. (2014). Absorptive Capacity of Business Incubator for SME's Rural Community Located in Indonesia's Village. *Procedia - Social and Behavioral Sciences*, 115, pp.373-377.
- IEyouth, (2013). Youth Innovation and Entrepreneurship Jihad Ammar #IEyouth. [Online film] Available at: <https://www.youtube.com/watch?v=nUjOR1mveW8> [Accessed 25 Nov. 2015].
- INBIA, (2016). Business Incubation FAQs - NBIA. [online] Available at: <http://www.inbia.org/resources/business-incubation-faq> [Accessed 15 Feb. 2016].
- InfoDEV., 2009. Mixed-use Incubator Handbook: A Start-up Guide for Incubator Developers. Retrieved on July 5, 2010, from <http://www.infodev.org/en/Publication.733.html>.
- InfoDev, (2013). About infoDev | infoDev. [online] Available at: <http://www.infodev.org/about> [Accessed 22 Feb. 2016].
- Innosupport.net. (2017). InnoSupport - Supporting Innovation in SME: 11.1.1 What are Innovation Networks?. [online] Available at: <http://www.innosupport.net/index.php?id=2330> [Accessed 11 Apr. 2017].

InnovationSaudi, (2013a). Saleh Alzaid - Twitmail. [Online film] Available at: <https://www.youtube.com/watch?v=Hp3d-GsixMw> [Accessed 25 Nov. 2015].

InnovationSaudi, (2013b). Essam Alzamel - Areeb World. [Online film] Available at: <https://www.youtube.com/watch?v=BmAYx2q9jgw> [Accessed 25 Nov. 2015].

InnovationSaudi, (2013c). Fatimah Alghady - Riyadh Guide. [Online film] Available at: <https://www.youtube.com/watch?v=s1iWoyNDxRI> [Accessed 25 Nov. 2015].

IS Theory (2016) Top 10 IS Theories 2014. Available from: http://istheory.byu.edu/wiki/Top_10_IS_Theories_2014 [Accessed 25/02/2016].

IS Theory (2016) Welcome to the theories used in IS research Wiki. Available from: http://istheory.byu.edu/wiki/Main_Page. [Accessed 12/02/2016].

Jardine, D.W., 1992. The fecundity of the individual case: Considerations of the pedagogic heart of interpretive work. *Journal of Philosophy of Education*, 26(1), pp.51-61.

Johansson, M., Hanson, E., Runeson, I. and Wåhlin, I., 2015. Family members' experiences of keeping a diary during a sick relative's stay in the intensive care unit: A hermeneutic interview study. *Intensive and Critical Care Nursing*, 31(4), pp.241-249.

Jones, Matthew 1997 'Structuration theory and IT' in *Re- thinking management information systems*. Wendy L. Currie and Bob Galliers (eds), 103–135. Oxford: Oxford University Press.

Jørgensen, F. and Ulhøi, J.P., 2010. Enhancing innovation capacity in SMEs through early network relationships. *Creativity and Innovation Management*, 19(4), pp.397-404.

Junaid Ahmad, A., 2014. A mechanisms-driven theory of business incubation. *International Journal of Entrepreneurial Behavior & Research*, 20(4), pp.375-405.

KACST. (2016). Summary of Saudi national plan. Available from: <http://www.kacst.edu.sa/ar/research/mpt/DocLib/physy1.pdf>. [Accessed 12 Feb. 2016].

Kamal, E.M. and Flanagan, R., 2014. Key Characteristics of Rural Construction SMEs. *Journal of Construction in Developing Countries*, 19(2), p.1.

Kanamugire, N. and Ndayishimiye, N., 2016. Entrepreneurial infrastructure for the development of entrepreneurs in Rwanda.

Keat, R. and Urry, J., 1975. c. 2nd ed. London: Routledge and Kegan Paul.

Khorsheed, M.S., Alhargan, A. and Qasim, S.M., 2012. A Three-Tier service model for national ICT incubator in Saudi Arabia. In Proceedings of IEEE International Conference on Management and Service Science (p. 11).

Kim, H.Y. and Jung, C.M., 2009. Does a technology incubator work in the regional economy? Evidence from South Korea. *Journal of urban planning and development*, 136(3), pp.273-284.

King, G.A. and Morris, S.C., 1994. Early compositional changes during postharvest senescence of broccoli. *Journal of the American Society for Horticultural Science*, 119(5), pp.1000-1005.

King Fahd University of Petroleum and Minerals (KFUPM). (2010). COOP Program Guidelines. [online] Available at: http://www2.kfupm.edu.sa/stutrainig/files/coop_guidelines.pdf [Accessed 10 Mar. 2016].

Kinsella, E.A. (2006) Hermeneutics and Critical Hermeneutics: Exploring Possibilities within the Art of Interpretation. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, 7(3). Available at: <http://www.qualitative-research.net/index.php/fqs/article/view/145> [Accessed November 5, 2012].

Klein, H. and Myers, M., 1999. A set of principles for conducting and evaluating interpretive field studies in information systems. *MIS Quarterly*, 23, (1), pp. 67-94.

Kock Jr, N.F., 1997. Myths in organisational action research: reflections on a study of computer-supported process redesign groups. *Organizações & Sociedade*, 4(9), pp.65-91.

Koshy, P., 2010. Role and relevance of business incubators in ICT led global educational system: case for eco-enterprise village.

Koshy, P 2010 Role and relevance of business incubators in ICT led global educational system. Available at: <http://mpira.ub.uni-muenchen.de/27293/>

- Kraatz, M.S. and Zajac, E.J., 1996. Exploring the limits of the new institutionalism: The causes and consequences of illegitimate organizational change. *American sociological review*, pp.812-836.
- Kuhns, B.A., 1999, *Technology Transfer Performance: The Impact of Entrepreneurial Responses to Institutional and Commercial Pressures in US Universities*, Houston, Texas: University of Houston.
- Kvale, S. (1996). *Interview: An introduction to qualitative research interviewing*.
- Lacity, M.C. and Janson, M.A., 1994. Understanding qualitative data: A framework of text analysis methods. *Journal of Management Information Systems*, 11(2), pp.137-155.
- Lai, K.H., Wong, C.W. and Cheng, T.E., 2006. Institutional isomorphism and the adoption of information technology for supply chain management. *Computers in Industry*, 57(1), pp.93-98.
- Lai, Y.K., Zhou, Q.Y., Hu, S.M. and Martin, R.R., 2006, June. Feature sensitive mesh segmentation. In *Proceedings of the 2006 ACM symposium on Solid and physical modeling* (pp. 17-25). ACM.
- Lalkaka, R., 2002. Technology business incubators to help build an innovation-based economy. *Journal of Change Management*, 3(2), pp.167-176. Available at: <http://www.tandfonline.com/doi/abs/10.1080/714042533>.
- Lalkaka, R., 2003. Business incubators in developing countries: characteristics and performance. *International Journal of Entrepreneurship and Innovation Management* 3 (1/2), 31–55.
- Lammers, J.C. and Barbour, J.B., 2006. An institutional theory of organizational communication. *Communication Theory*, 16(3), pp.356-377.
- Landes, D.S., 1999. *The wealth and poverty of nations: Why some are so rich and some so poor*. WW Norton & Company.
- Lambert, G. and Schaeffer, V., 2009. A new role for small business in innovation networks: an industrial perspective. *International Journal of Entrepreneurship and Small Business*, 9(1), pp.1-19.

- Larsen, K.R., Allen, G., Vance, A. and Eargle, D., 2014. Theories used in IS research wiki. Retrieved July, 19, p.2014.
- Lee, A., 1994. Electronic mail as a medium for rich communication: an empirical investigation using hermeneutic interpretation. *MIS Quarterly*, 18, (2), pp. 143-157.
- Lee, A.S. and Dennis, A.R., 2012. A hermeneutic interpretation of a controlled laboratory experiment: a case study of decision-making with a group support system. *Information Systems Journal*, 22(1), pp.3-27.
- Lee, N., 2014. What holds back high-growth firms? Evidence from UK SMEs. *Small Business Economics*, 43(1), pp.183-195.
- Lee, S.Y., Florida, R. and Acs, Z., 2004. Creativity and entrepreneurship: a regional analysis of new firm formation. *Regional studies*, 38(8), pp.879-891.
- lender, C., 2003. Management, Professionals and Funding of University Business Incubators Worldwide. In: *The 48th ICSB Conference Proceedings*, Belfast.
- Lennermo, M. and Lindberg, A., 2016. Incubators' role in born globals' early phase of internationalization.
- Lewis, D.A., 2001, 'Does Technology Incubation Work? A Critical Review of the Evidence,' Athens, OH: National Business Incubation Association.
- Lewis, D.A., 2003. *Innovation, Incubation and Place: An evolutionary theory of the performance of Technology Business Incubators*. (PhD.)
- Lindelöf, P. and Löfsten, H., 2002. Growth, management and financing of new technology-based firms—assessing value-added contributions of firms located on and off Science Parks. *Omega*, 30(3), pp.143-154.
- Löwegren, M., 2003. *New Technology-Based Firms in Science Parks-A Study of Resources and Absorptive Capacity*. Lund University.
- Lukaitis, S. and Cybulski, J., 2004, January. A hermeneutic analysis of the Denver international baggage handling system. In *Information systems foundations: constructing and criticising* (pp. 1-16). ANU E Press.

- Lumpkin, J.R. and Ireland, R.D., 1988. Screening practices of new business incubators: the evaluation of critical success factors. *American Journal of Small Business*, 12(4), pp.59-81.
- Lunenburg, F.C., 2012. Power and leadership: an influence process. *International journal of management, business, and administration*, 15(1), pp.1-9.
- Luoto, S., Towards the dialogic space of pre-incubation—the construction of the preliminary model. *Research reports A2*, p.35.
- Lyons, T.S., 2000, June. Building social capital for sustainable enterprise development in country towns and regions: successful practices from the United States. In *First National Conference on the Future of Australia's Country Towns*, LaTrobe University, Center for Sustainable Regional Communities, Australia. Available at: <http://www.regional.org.au/au/countrytowns/keynote/lyons.htm>
- Maddison, A., 2007. *The world economy volume 1: A millennial perspective volume 2: Historical statistics*. Academic Foundation.
- Mahmood, N., Jianfeng, C., Jamil, F., Karmat, J., Khan, M. and Cai, Y., 2015a. Business Incubators: Boon or Boondoggle for SMEs and Economic Development of Pakistan. *International Journal of U-& E-Service, Science & Technology*, 8(4).
- Mahmood, N., Jianfeng, C., Jamil, F., Munir, H., Jintao, L.U., Khan, M. and Cai, Y., 2015b. Snapshot of Technology Business Incubators in China. *International Journal of u-and e-Service, Science and Technology*, 8(7), pp.235-242.
- Markman, G.D., Gianiodis, P.T. and Phan, P.H., 2009. Supply-Side Innovation and Technology Commercialization. *Journal of Management Studies*, 46(4), pp.625-649.
- Marques, J.P.C., Caraça, J.M.G. & Diz, H., 2010. Do Business Incubators Function as a Transfer Technology Mechanism from University to Industry? Evidence from Portugal. *Open Business Journal*, 3, pp.15–29. Available at: <http://benthamsience.com/open/tobj/articles/V003/15TOBJ.pdf>.
- Martin, F., 1997. Business incubators and enterprise development: Neither tried or tested?. *Journal of Small Business and Enterprise Development*, 4(1), pp.3-11.

- McAdam, M. and Marlow, S. (2007). Building Futures or Stealing Secrets?: Entrepreneurial Cooperation and Conflict within Business Incubators. *International Small Business Journal*, 25(4), pp.361-382.
- McAdam, M. and McAdam, R. (2008). High tech start-ups in University Science Park incubators: The relationship between the start-up's lifecycle progression and use of the incubator's resources. *Technovation*, 28(5), 277-290.
- McLean, R. and Stahl, B., 2007. Cooking up critical research: some thoughts on theory, practice and success criteria. Available from: <http://www.mngt.waikato.ac.nz/ejrot/cmsconference/2007/proceedings/theopenstream/mclean.pdf> [Accessed 12/01/11].
- Merrifield, D.B., 1987. New business incubators, *Journal of Business Venturing* 2(4), 277-284.
- Mertens, D.M., 2007. Transformative paradigm: Mixed methods and social justice. *Journal of mixed methods research*, 1(3), pp.212-225.
- Metha, M., 2005. IT integration decisions during mergers and acquisitions. Unpublished thesis (PhD), University of Houston.
- Meyer, J.W. and Rowan, B., 1977. Institutionalized organisations: Formal structure as myth and ceremony. *American journal of sociology*, pp.340-363.
- Mian, S.A., 1994. US university-sponsored technology incubators: an overview of management, policies and performance. *Technovation* 14 (8), 515–528.
- Mian, S.A., 1996. Assessing value-added contributions of university technology business incubators to tenant firms. *Research policy*, 25(3), pp.325-335.
- Mian, S.A., 1997. Assessing and managing the university technology business incubator: an integrative framework. *Journal of business venturing*, 12(4), pp.251-285.
- Mian, S.A., 2011. University's involvement in technology business incubation: what theory and practice tell us?. *International Journal of Entrepreneurship and Innovation Management*, 13(2), pp.113-121.

- Mignerat, M. and Rivard, S., 2005. Positioning the institutional perspective in information technology research. *Cahier de recherche* no, 5(01).
- Mignerat, M. and Rivard, S., 2009. Positioning the institutional perspective in information systems research. *Journal of Information Technology*, 24, (4), pp. 370-390.
- Ministry of Civil Service, (2014). Statistical Bulletin (news) for Civil Service. Issue 14. [online] Ministry of Civil Service. Available at: [https://www.mcs.gov.sa/Ministry/Statistics/Temp/Documents/النتشرة%20الإحصائية%20للخدمة%20المدنية%20العدد%20\(الرابع%20عشر\)20%الشهر%20صفر%201436هـ.pdf](https://www.mcs.gov.sa/Ministry/Statistics/Temp/Documents/النتشرة%20الإحصائية%20للخدمة%20المدنية%20العدد%20(الرابع%20عشر)20%الشهر%20صفر%201436هـ.pdf) [Accessed 16 Aug. 2015].
- Ministry of Economy and Planning (MEP). (2016). Ninth Development Plan. [online] Available at: <http://services.mep.gov.sa/themes/Dashboard/index.jsp;jsessionid=708915FD9EB4E6E01EDBE0BD64864D75.alfa?event=SwitchLanguage&Code=EN#1459164158097> [Accessed 28 Feb. 2016].
- Mittelstadt, B., 2013. On the Ethical Implications of Personal Health Monitoring.
- Mok, E. and Chiu, P.C., 2004. Nurse–patient relationships in palliative care. *Journal of advanced Nursing*, 48(5), pp.475-483.
- Money, M.L., 1970. University-related research parks. *Industrial Research*, 12(5), p.62.
- Monkman, D., 2010. Business incubators and their role in job creation. President & CEO National Business Incubation Association (NBIA), Athens, Ohio. Retrieved on June, 30, p.2012.
- Monlar, L. A., et al. 1997. Business incubation works, NBIA Publications, Athens, OH.
- Moscovis, S. and Serup, S., 2012. The cultural business incubator.
- Myers, M. and Avison, D., 2002. An introduction to qualitative research in information systems. In Myers, M. and Avison, D. (eds) *Qualitative research in information systems: a reader*. London: Sage, pp.1-12.
- Myers, M. and Klein, H., 2011. A set of principles for conducting critical research in information systems. *MIS Quarterly*, 35, (1), pp. 17-36.

Myers, M.D., 1994. A disaster for everyone to see: an interpretive analysis of a failed IS project. *Accounting, Management and Information Technologies*, 4(4), pp.185-201.

MySaudiGuides, (2016). About The Riyadh Guide For Yummy Yummy Restaurants. [online] Available at: http://www.mysaudiguides.com/yummy/about_us.php [Accessed 25 Feb. 2016].

Neuman, W., 2006. *Social research methods: qualitative and quantitative approaches*. 6th ed. Boston: Pearson.

Neuman, W., 2011. *Social research methods: qualitative and quantitative approaches*. 7th ed. Boston: Pearson.

Nickerson, J. A., & Zenger, T. R. (2004). A Knowledge-Based Theory of the Firm-- The Problem-Solving Perspective. *Organization Science*, 15(6), 617-632.

North, D. C. (1990) *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.

Nyangau, I.N., 2016. Evaluating how industry collaboration affects growth of business incubators in Nairobi County (Doctoral dissertation, Strathmore University).

Oakes, L.S., Townley, B. and Cooper, D.J., 1998. Business planning as pedagogy: Language and control in a changing institutional field. *Administrative Science Quarterly*, pp.257-292.

Oates, B.J., 2006. *Researching Information Systems and Computing*. London, Sage Publications Ltd.

Obaji, N.O., Onyemerela, C. and Olugu, M.U., *Entrepreneurship and business incubation programme: The sure couple*.

Observer, O.E.C.D., 2000. *Small and medium-sized enterprises: local strength, global reach*. Policy Brief.

O'Connor, G.C., Ravichandran, T. and Robeson, D., 2008. Risk management through learning: Management practices for radical innovation success. *The Journal of High Technology Management Research*, 19(1), pp.70-82.

OECD. (1997). *Technology Incubators: Nurturing Small Firms*. Paris: Organisation for Economic Co-Operation and Development.

OECD, 2000. Small and Medium-sized Enterprises: Local Strength, Global Reach, Available at: www.oecd.org/dataoecd/3/30/1918307.pdf.

OECD, 2002. Small and medium enterprise outlook.

Office for National Statistics (ONS), (2012). 2011 Census - Population and Household Estimates for England and Wales. [online] Available at: http://www.ons.gov.uk/ons/dcp171778_270487.pdf [Accessed 9 Mar. 2016].

O’Gorman, C. and Kautonen, M. Policies for New Prosperity: Promoting New agglomerations of Knowledge Intensive Industries, Proceedings, Conference on Technological Entrepreneurship in the Emerging Regions in the New Millennium, Singapore, June 28– 30, 2001.

Oliver, C., 2011. Critical realist grounded theory: A new approach for social work research. *British Journal of Social Work*, pp.1-17.

O’Neal, T., 2005. Assessing the impact of university technology incubator practices on client performance.

ONS, (2014). Business Demography 2014. [online] The Office for National Statistics (ONS). Available at: http://www.ons.gov.uk/ons/dcp171778_425087.pdf [Accessed 4 Feb. 2016].

Orlikowski, W. and Barley, S., 2001. Technology and institutions: what can research on information technology and research on organisations learn from each other? *MIS Quarterly*, 25, (2), pp.145-165.

Orlikowski, W.J. and Baroudi, J.J., 1991. Studying information technology in organisations: Research approaches and assumptions. *Information systems research*, 2(1), pp.1-28.

Otsuki, M., 2002. SMEs supporting systems in Saudi Arabia. speech, October, 15.

Özdemir, Ö.Ç. and Şehitoğlu, Y., 2013. Assessing the impacts of technology business incubators: A framework for technology development centers in Turkey. *Procedia-Social and Behavioral Sciences*, 75, pp.282-291.

Patterson, M. and Williams, D., 2002. Collecting and analyzing qualitative data: hermeneutic principles, methods and case examples. *Advances in Tourism Applications Series*. Champaign: Sagamore Publishing. Available from: http://www.fs.fed.us/rm/pubs_other/rmrs_2002_patterson_m001.pdf

- Pattison, E.M., 1995. The Contribution of Soft Systems Methodology to the Achievement of Change in Organisational Culture (Doctoral dissertation, University of Warwick).
- Patton, Q. M. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks: Sage.
- Peck, J.R., 2014. Can Hiring Quotas Work? The Effect of the Nitaqat Program on the Saudi Private Sector. Working Paper, KACST and MIT March.
- Pena, I. (2004). Business Incubation Centers and New Firm Growth in the Basque Country. *Small Business Economics*, 22(3/4), pp.223-236.
- Perlesz, A. and Lindsay, J. (2003) 'Methodological triangulation in researching families: making sense of dissonant data', *International Journal of Social Research Methodology*, 6, 1, pp25-40.
- Peters, L., Rice, M. and Sundararajan, M., 2004. The role of incubators in the entrepreneurial process. *The Journal of Technology Transfer*, 29(1), pp.83-91.
- Peterson, James et al. 1985 *Creating Jobs by Creating Businesses: The role of the Business Incubator*. Washington DC:, National Council for Urban Economic Development.
- Phan, P.H., Siegel, D.S. and Wright, M., 2005. Science parks and incubators: observations, synthesis and future research. *Journal of business venturing*, 20(2), pp.165-182.
- Pozzebon, M. and Pinsonneault, A., 2005. Challenges in conducting empirical work using structuration theory: Learning from IT research. *Organization studies*, 26(9), pp.1353-1376.
- Punch, K., 1998. *Introduction to social research: quantitative and qualitative approaches*. London: Sage.
- Punch, K., 2005. *Introduction to social research: quantitative and qualitative approaches*. 2nd ed. London: Sage.
- Qian, H., Haynes, K.E. and Riggle, J.D., 2011. Incubation push or business pull? Investigating the geography of US business incubators. *Economic Development Quarterly*, 25(1), pp.79-90.
- Ramady, M. (2005), *The Saudi Arabian Economy: Policies, Achievement and Challenges*, Springer, New York, NY.

Ramady, M., 2013. Gulf unemployment and government policies: Prospects for the Saudi labour quota or Nitaqat system. *International Journal of Economics and Business Research*, 5(4), pp.476-498.

Ratinho, T., 2011. Are they helping? An examination of business incubators' impact on tenant firms, Available at http://doc.utwente.nl/78235/1/thesis_T_Ratinho.pdf.

Ratinho, T. and Harms, R., 2010. Towards a distinction between technology incubators and non-technology incubators: can they contribute to economic growth? 23rd researching entrepreneurship and small business annual conference, pp.1-26. Available at: <http://doc.utwente.nl/74591/>

Fink, M., Hatak, I. (2010): *Current Research on Entrepreneurship and SME Management*, 7th Edition of InterRENT, European Council of Small Business and Entrepreneurship: Turku, ISBN 978-952-249-006-3

Ratinho, T., Henriques, E. and Maltes, L., 2007. Science parks and business incubators: the Portuguese case. Paper for the European Investment Bank.

Reitan, B., 1997. Fostering technical entrepreneurship in research communities: granting scholarships to would-be entrepreneurs. *Technovation*, 17(6), pp.287-296.

RESI Research & Consulting. (2001). *Maryland Incubator Impact Analysis*. Prepared in collaboration with the Maryland Business Incubator Association.

Reuer, J.J. and Tong, T.W. eds., 2007. *Real options theory*. Emerald Group Publishing Limited.

Reynolds, P., Storey, D.J. and Westhead, P., 1994. Cross-national comparisons of the variation in new firm formation rates. *Regional Studies*, 28(4), pp.443-456.

Reynolds, P.D., White, S.B., 1997. In: *The Entrepreneurial Process: Economic Growth, Men, Women, and Minorities*. Quorum Books, Westport, CT.

Ribeiro, J.A. and Scapens, R.W., 2006. Institutional theories in management accounting change: contributions, issues and paths for development. *Qualitative Research in Accounting & Management*, 3(2), pp.94-111.

- Roberts, P. W. and Greenwood, R (1997). Integrating transaction cost and institutional theories: Toward a constrained-efficiency framework for understanding organisational design adoption. *Academy of Management Review*, 22(2), 346-374
- Robson, C. 2011. *Real world research: a resource for users of social research methods in applied settings*. 3rd ed. Chichester: John Wiley.
- Robson, P.J. and Bennett, R.J., 2000. SME growth: the relationship with business advice and external collaboration. *Small Business Economics*, 15(3), pp.193-208.
- Romer, P., 1989. Endogenous technological change (No. w3210). National Bureau of Economic Research.
- Rory, Cellan-Jones., 2010. Access all areas: Life-changing technology. BBC. Available at: http://www.bbc.co.uk/blogs/thereporters/rorycellanjones/2010/12/access_all_areas_life-changing.html [Accessed 15 March 2012].
- Rosenberger, J., 2003, *What are Real Options?: A Review of Empirical Research*. Paper presented at the Academy of Management, Seattle, WA.
- Rothaermel, F. T., & Thursby, M. (2005a). Incubator firm failure or graduation?: The role of university linkages. *Research Policy*, 34(7), 1076-1090.
- Rothaermel, F. T., & Thursby, M. (2005b). University-incubator firm knowledge flows: assessing their impact on incubator firm performance. *Research Policy*, 34(3), 305-320.
- Sá, C. and Lee, H., 2012. Science, business, and innovation: understanding networks in technology-based incubators. *R&D Management*, 42(3), pp.243-253.
- Saleh, A.S. and Ndubisi, N.O., 2006. An evaluation of SME development in Malaysia. *International Review of Business Research Papers*, 2(1), pp.1-14.
- Salem, M.I., 2014. The role of business incubators in the economic development of Saudi Arabia. *The International Business & Economics Research Journal (Online)*, 13(4), p.853.
- Salido, E., Michel, F. and Santiso, J. (2013). The Accelerator and Incubator Ecosystem in Europe. [online] Available at: <http://www.lisboncouncil.net/component/downloads/?id=897> [Accessed 19 Dec. 2015].

Sanad, Ahmed A. Developing an Integrated Model to Support Effective Customer Relationships Management Implementation within the Private Sector of the Kingdom of Saudi Arabia. (PhD). De Montfort University, 2011.

Sanad, A.A., 2012. Developing an Integrated Model to Support Effective Customer Relationships Management Implementation within the Private Sector of the Kingdom of Saudi Arabia.

Saudi Credit Bank, (2015). Saudi Credit Bank. [online] Available at: <http://www.scb.gov.sa/AboutUs/BankSystem.aspx> [Accessed 23 Feb. 2015].

Saudi Credit Bank (SCB), (2012). Saudi Credit Bank. [online] Available at: <http://www.scsb.gov.sa/portal/Page/325> [Accessed 23 Mar. 2016].

Saunders, M., Lewis, P. and Thornhill, A., 2007. Research methods for business students. Harlow: Pearson Education Limited.

SASO, (2016). SADAD Payments System. [online] Available at: http://saso.gov.sa/en/eservices/Pages/sadad_a.aspx [Accessed 23 Feb. 2015].

Sauner-Leroy, J.B., 2004. Managers and productive investment decisions: The impact of uncertainty and risk aversion. *Journal of small business management*, 42(1), pp.1-18.

Sawhill, J.C. and Williamson, D. (2001), "Mission impossible? Measuring success in nonprofit organizations", *Nonprofit Management and Leadership*, Vol. 11 Nos 3, Spring, p. 378.

SBIN. (2013). 2025 will see the presence of 80 Technology Incubator established more than 1,700 companies. [online] Available at: <http://www.sbin.org.sa/-/حاضنة-80-عام-2025-سيشهد-وجود-1700-شركة-تقنية-تؤسس-أكثر> [Accessed 7 Feb. 2016].

SBIN, (2014). 1st Annual Guide to the Saudi Small Business Incubator Network. [online] SBIN. Available at: <http://www.sbin.org.sa/FileUploads/Downloads/DownloadFolderFiles/Documents/1037718125.pdf> [Accessed 7 Feb. 2016].

Scaramuzzi, E., 2002. Incubators in developing countries: Status and development perspectives, Available at: [http://egateg.usaidallnet.gov/sites/default/files/Incubators in Developing Countries.pdf](http://egateg.usaidallnet.gov/sites/default/files/Incubators%20in%20Developing%20Countries.pdf)

Schillaci, C.E., Romano, M. and Longo, M.C., 2011. Academic Entrepreneurship, University Incubator and Corporate Governance. *Sinergie Italian Journal of Management*, (75), pp.89-107.

Schotter, A. and Braunstein, Y.M., 1981. Economic search: an experimental study. *Economic Inquiry*, 19(1), pp.1-25.

Schwandt, T. (2000). Three epistemological stances for qualitative inquiry. In N. K. Denzin and Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed., pp. 189-213). Thousand Oaks, CA: Sage.

Schwandt, T.A., 2001. *Dictionary of qualitative inquiry*.

Schwartz, M., 2013. A control group study of incubators' impact to promote firm survival. *The Journal of Technology Transfer*, 38(3), pp.302-331.

Schwartz, M. & Hornyh, C., 2010. Cooperation patterns of incubator firms and the impact of incubator specialization: Empirical evidence from Germany. *Technovation*, 30(9-10), pp.485-495. Available at: <http://dx.doi.org/10.1016/j.technovation.2010.05.001>.

Schwartz, M., 2013. A control group study of incubators' impact to promote firm survival. *The Journal of Technology Transfer*, 38(3), pp.302-331.

Schwartz, M. and Blesse, S., 2011. Incubator Organisations as Entrepreneurship and SME Policy Instrument in Transition Economies: A Survey Among Six Countries. *Asia Pacific Journal of Innovation and Entrepreneurship*, 5(3), pp.63-91.

Scillitoe, J.L. and Chakrabarti, A.K., 2010. The role of incubator interactions in assisting new ventures. *Technovation*, 30(3), pp.155-167.

Scott, P., 1983. The geometries of 3-manifolds. *Bulletin of the London Mathematical Society*, 15(5), pp.401-487.

Scott, W. (2001) *Institutions and organisations*. Thousand Oaks: Sage.

Scott, W. (2008) *Institutions and organisations*. Thousand Oaks: Sage.

Scott, W.R. Institutional theory: Contributing to a theoretical research program. *Great minds in management: The process of theory development*, 2005, 460-484.

Scott, W.R. and Meyer, J.W., 1991. The rise of training-programs in firms and agencies-an institutional perspective. *Research in organizational behavior*, 13, pp.297-326.

Sebrae, (2015). Sebrae Expert in Micro Enterprises and Small Businesses in Brazil | Sebrae. [online] Available at: http://www.sebrae.com.br/sites/PortalSebrae/canais_adicionais/sebrae_english [Accessed 8 Dec. 2015].

Shahidi, Hassan. 1998. The impact of business incubators on entrepreneurial networking: A corporate study of small, high technology firms. Ph.D. Dissertation., George Washington University.

Shalaby, N. (2004), SMEs Capabilities and Needs Assessment, Eastern Province, Saudi Arabia.

Shalaby, N., 2008. Business and Technology Incubation Initiatives in Saudi Arabia. *The Quarterly Magazine of the Arab British Chamber of Commerce*, pp.28-31.

Shalaby, N.M., 2003, June. The role of incubators and technology parks as a home for entrepreneurs in Saudi Arabia. In XX IASP world conference on science and technology parks, Lisboa, Portugal.

Shane, S. and Venkataraman, S., 2003. Guest editors' introduction to the special issue on technology entrepreneurship. *Research policy*, 32(2), pp.181-184.

Sherer, S., 2010. Information systems and healthcare: an institutional theory perspective on physician adoption of electronic health records. *Communication of the Association for Information Systems*, 26, (1), pp.127-140.

Shi, Y., Desponts, C., Do, J.T., Hahm, H.S., Schöler, H.R. and Ding, S., 2008. Induction of pluripotent stem cells from mouse embryonic fibroblasts by Oct4 and Klf4 with small-molecule compounds. *Cell stem cell*, 3(5), pp.568-574.

Short, J.C., Ketchen Jr, D.J., Shook, C.L. and Ireland, R.D., 2010. The concept of "opportunity" in entrepreneurship research: Past accomplishments and future challenges. *Journal of Management*, 36(1), pp.40-65.

Singh, J.V., Tucker, D.J. and House, R.J., 1986. Organisational legitimacy and the liability of newness. *Administrative science quarterly*, pp.171-193.

- Skalski, J.E., 2009. The Epistemic Qualities of Quantum Transformation.
- Skinner, B.F., 1976, *About Behaviorism*, New York: Vintage Books.
- Smilor, R.W. (1997) 'Entrepreneurship: Reflections on a Subversive Activity', *Journal of Business Venturing* 12(3): 314–46.
- Smilor, R.W. and M.D. Gill Jr., 1986, *The New Business Incubator: Linking Talent, Technology, Capital, and Know-how*, Lexington: Lexington Books.
- Smith, J. A., & Eatough, V. (2006). Interpretative phenomenological analysis. In G. M. Breakwell, S. Hammond, C. Fife-Schaw, & J. A. Smith (Eds.), *Research methods in psychology* (3rd ed.). London: Sage.
- Solow, R.M., 1956. A contribution to the theory of economic growth. *The quarterly journal of economics*, pp.65-94.
- SPA, (2015). The official Saudi Press Agency - SPA. [online] Available at: <http://www.spa.gov.sa/viewstory.php?lang=ar&newsid=1412354> [Accessed 10 Feb. 2016].
- Sternberg, R., Behrendt, H., Tamásy, C. and Seeger, H., 1996. Bilanz eines Booms: Wirkungsanalyse von Technologie-und Gründerzentren in Deutschland; Ergebnisse aus 108 Zentren und 1021 Unternehmen. Dortmund: Vertrieb für Bau-und Planungsliteratur.
- Stinchcombe, A.L., 1965. In March, JG (Ed.), *Handbook of Organisations*.
- Svejvig, P. (2009) Literature review of enterprise systems research using institutional theory: towards a conceptual model. Available from: http://www.hha.dk/man/is/wp/WP_2009_01_PER_SVEJVIG.PDF [Accessed 20/09/2015].
- Sydow, J. and Windeler, A. (2003) Reflexive Development of Interfirm Networks: The Role of Managers and Consultants. In Buono, A.F. (ed.), *Enhancing Inter-Firm Networks and Interorganizational Strategies*. Information Age Publishing, Greenwich, CT, pp. 169–86.
- Tamásy, C., 2007. Rethinking Technology-Oriented Business Incubators: Developing a Robust Policy Instrument for Entrepreneurship, Innovation, and Regional Development? *Growth and Change*, 38(3), pp.460–473.
- Tech world, (2013). Tech Boxnq: Saleh Alzaid interview [high quality]. [Online film] Available at: <https://www.youtube.com/watch?v=w7QwDQ9k7Ko> [Accessed 25 Nov. 2015].

- Teece et al., 1997 D.J. Teece, G. Pisano and A. Shuen, Dynamic capabilities and strategic management, *Strategic Management Journal* **18** (7) (1997), pp. 509–533.
- Teo, H., Wei, K and Benbasat, I., 2003. Predicting intention to adopt interorganisational linkages: an institutional perspective. *MIS Quarterly*, 27, (1), pp. 19-49.
- The World Bank. (2016). Population density (people per sq. km of land area) | Data | Table. [online] Available at: <http://data.worldbank.org/indicator/EN.POP.DNST> [Accessed 29 Feb. 2016].
- The World Factbook, (2018). Saudi Arabia. [online] Available at: <https://www.cia.gov/library/publications/the-world-factbook/geos/sa.html> [Accessed 20 Feb. 2018].
- Thierstein, A. and Willhelm, B., 2001. Incubator, technology, and innovation centres in Switzerland: features and policy implications. *Entrepreneurship & Regional Development*, 13(4), pp.315-331.
- Thirsk, L.M., Moore, S.G. and Keyko, K., 2014. Influences on clinical reasoning in family and psychosocial interventions in nursing practice with patients and their families living with chronic kidney disease. *Journal of advanced nursing*, 70(9), pp.2117-2127.
- Thompson, C.J., 1997. Interpreting consumers: a hermeneutical framework for deriving marketing insights from the texts of consumers' consumption stories. *Journal of marketing Research*, pp.438-455.
- Thornton, P.H. and Ocasio, W., 2008. Institutional logics. *The Sage handbook of organisational institutionalism*, 840, pp.99-128.
- Tilana, L., 2015. The impact of business incubation in shaping the entrepreneurial mindset among incubatees (Doctoral dissertation).
- Tolbert, S. and Zucker, G. (1994) Institutional analyses of organisations: Legitimate but not institutionalized. *Institute for Social Science Research Working Papers in the Social Sciences*, 6(5), University of California: Los Angeles.
- Torrance, D.A., 2012. Distributed leadership in Scottish primary schools: myth or actualities?.
- Tötterman, H. and Sten, J., 2005. Start-ups business incubation and social capital. *International Small Business Journal*, 23(5), pp.487-511.

Tsai, F.S., Hsieh, L.H., Fang, S.C. and Lin, J.L., 2009. The co-evolution of business incubation and national innovation systems in Taiwan. *Technological Forecasting and Social Change*, 76(5), pp.629-643.

U.S small business administration, 2011. U.S. SBA Office of Advocacy Frequently Asked Questions, 2011, Available at: <http://www.sba.gov/sites/default/files/sbfaq.pdf>.

UK Business Incubation (nd) Business Incubation Development Framework (BIDF) [WWW]. Available from: <http://www.ukbi.co.uk/resources/the-framework.aspx> [Accessed 02/04/2012]

United Kingdom Science Park Association (UKSPA), (2015). A Brief Introduction to Business Incubation. Factsheet 1. [online] UKSPA. Available at: <http://www.ukspa.org.uk/sites/default/files/factsheet%201%20-%20A%20Brief%20Introduction%20to%20Business%20Incubation.pdf> [Accessed 10 Dec. 2015].

UKTI, (2011). SCIENCE PARKS AND BUSINESS INCUBATORS IN THE UK. UK Trade & Investment.

UN, (2003) Technology Capacity-Building Initiatives for the Twenty-First Century in the ESCWA Member Countries. in: United Nations Publications, (ed.) Review of Sustainable Development and Productivity Activities. New York, pp.28-31

UNIDO, (1999). In-depth evaluation of selected UNIDO activities on development and transfer of technology. United Nations Industrial Development Organisation.

Urquhart, C., Lehmann, H. and Myers, M.D., 2010. Putting the 'theory' back into grounded theory: guidelines for grounded theory studies in information systems. *Information systems journal*, 20(4), pp.357-381.

Vanderstraeten, J. and Matthyssens, P., 2010, January. Measuring the performance of business incubators: A critical analysis of effectiveness approaches and performance measurement systems. In ICSB World Conference Proceedings (p. 1). International Council for Small business (ICSB).

Voisey, P., Gornall, L., Jones, P. and Thomas, B., 2006. The measurement of success in a business incubation project. *Journal of Small Business and Enterprise Development*, 13(3), pp.454-468.

Waed, (2016a). Application Terms & Conditions. [online] Available at: <http://waed.net/English/Pages/Application-Welcome.aspx> [Accessed 24 Feb. 2016].

Waed, (2016b). Wa'ed Loans. [online] Available at: <http://waed.net/English/Programs/EnterpriseDevelopment/Pages/Supported-Sectors.aspx> [Accessed 24 Feb. 2016].

Waed, (2016c). Wa'ed Loans. [online] Available at: <http://waed.net/English/Programs/EnterpriseDevelopment/Pages/Requirements.aspx> [Accessed 24 Feb. 2016].

Wagner, C., Kawulich, B. B. & Garner, M. (2012). *Doing Social Research: A global context*. Maidenhead, Berkshire, UK: McGraw-Hill Higher Education.

Walsham, G., 1993. *Interpreting information systems in organisations*. Chichester: John Wiley.

Wang, S. and Cheung, W. (2004) E-business adoption by travel agencies: prime candidates for mobile e-business. *International Journal of Electronic Commerce*, 8(3), pp. 43-63.

Webb, P., Pollard, C. and Ridley, G., 2006, January. Attempting to define IT governance: wisdom or folly?. In *System Sciences, 2006. HICSS'06. Proceedings of the 39th Annual Hawaii International Conference on* (Vol. 8, pp. 194a-194a). IEEE.

Weerakkody, V. Dwivedi, Y. and Irani, Z. (2009) The diffusion and use of institutional theory: a cross-disciplinary longitudinal literature survey. *Journal of Information Technology*, 24(4), pp. 354-368.

Weinberg ML, Allen DN, Schermerhorn JR (2005). Interorganizational Challenges in the Design and Management of Business Incubators. *Rev. Pol. Res.*, 10(2-3): 149-160

Wessner, C.W. ed., 2008. *An assessment of the SBIR program*. National Academies Press.

Westhead, P., 1997. R&D 'inputs' and 'outputs' of technology-based firms located on and off Science Parks. *R&D Management*, 27(1), pp.45-62.

- Westhead, P., Batstone, S. and Martin, F., 2000. Technology-Based Firms Located on Science Parks: the Applicability of Bullock's' Soft-Hard' Model. *Enterprise and Innovation Management Studies*, 1(2), pp.107-139.
- Wiggins, J. and Gibson, D.V., 2003. Overview of US incubators and the case of the Austin Technology Incubator. *International Journal of Entrepreneurship and Innovation Management*, 3(1-2), pp.56-66.
- Wolfe, Charles, et al. 1999. *Technology Innovation Centers: A Guide to Principles and Best Practices*. Auburn, CA: Claggett Wolfe Associates.
- Wymenga, P. et al., 2010. Are EU SMEs recovering from the crisis? Annual Report on EU Small and Medium sized.
- Yang, C.H., Motohashi, K. and Chen, J.R., 2009. Are new technology-based firms located on science parks really more innovative?: Evidence from Taiwan. *Research Policy*, 38(1), pp.77-85.
- Yilmaz, K., 2013. Comparison of quantitative and qualitative research traditions: Epistemological, theoretical, and methodological differences. *European Journal of Education*, 48(2), pp.311-325.
- Yin, R., 2003. *Case study research: design and methods*. 3rd ed. Thousand Oaks: Sage.
- Yin, R., 2009. *Case study research: design and methods*. 4th ed. Thousand Oaks: Sage.
- Youcefi, F. and Lundgren, K., 2017. Social Incubators or Social Work?: Exploring Social Incubators in Mexico.
- Yousuf Danish, A. and Lawton Smith, H., 2012. Female entrepreneurship in Saudi Arabia: opportunities and challenges. *International Journal of Gender and Entrepreneurship*, 4(3), pp.216-235.
- Zacharakis, A.L., Shepherd, D.A. and Coombs, J.E., 2003. The development of venture-capital-backed internet companies: An ecosystem perspective. *Journal of Business Venturing*, 18(2), pp.217-231.
- Zhang, H. and Sonobe, T., 2011. Business incubators in China: an inquiry into the variables associated with incubatee success.

Zhu, Y., Hong, J. and Liang, L., 2014. How the incubator Managers Act as the Niche Manager? Empirical Evidence from China. In PACIS (p. 338).

Zollo, M., & Winter, S. G. (2002). Deliberate Learning and the Evolution of Dynamic Capabilities. *Organization Science*, 13(3), 339-351.

Zucker, L. (1977) The Role of Institutionalization in Cultural Persistence, *American Sociological Review* 42(5), pp. 726-744.

Appendix A: Ethical Form



Faculty of Technology
Application to Gain Ethical
Approval for Research
Degree Activities

For official use

Tracking No:

Date approved:

Initials:

rec'd 24/10/11
10M/071

All Research Degree Projects require ethical approval. Research Students in the Faculty of Technology should complete this form to gain Internal Human Research Ethical Approval in consultation with their supervisors and submit it to the Faculty Assessor with their 'Application to Register for a Research Degree form (RDC:R).

NOTE: If your research involves using human tissue or fluid samples or animals please DO NOT use this application form. You should seek guidance from the Chair of the Faculty Human Research Ethics Committee before starting the project.

1. Applicant	
Last Name: Alsamaani	First Name: Abdulkarim
DMU Email	P08002956@myemail.dmu.ac.uk
Address:	

If you answer any of the following questions with 'Yes', then specific ethical issues WILL be raised that MUST be addressed. You will need to explain in detail in section 3 how you will address these ethical issues.

Has your research proposal identified any of the following research procedures?

Gathering information from or/and about human beings through: Interviewing, Surveying, Questionnaires,	Yes
Observation of human behaviour	No
Using archived data in which individuals are identifiable	No
Researching into illegal activities, activities at the margins of the law	No
Researching into activities that have a risk of personal injury	No
Supporting innovation that might impact on human behaviour e.g. Behavioural Studies	No

Are there other additional factors that could/will give rise to ethical concerns e.g. communication difficulties?

The questionnaire and interviewing with covering letter would be done by using these languages:
English and Arabic

2. Ethical issues identified (State explicitly if no ethical issues are identified)
When the stage of choosing the methodology, whether it is interviewing individuals, and do surveys, i.e. distribute questionnaires by face-to-face, and email. There are four ethical issues identified these are: 1- Informed consent. 2- Privacy. 3- Confidentiality. 4- Perception of inappropriateness.

Note: You should consider the following:

- Providing participants with full details of the objectives of the research

3. How these issues will be addressed:

The research instrument will address the four ethical issues as follows:

- 1- Record informed consent
- 2- Inform the respondents, who must be adults, of the nature of the research and their involvement in it, as well as to inform the respondents that the data collected will only be used for this research
- 3- Inform the respondents that they can withdraw their participation at any time and also that any information that identifies will not be share with anyone. For instance, there is a covering letter attached to explain this.
- 4- Inform the respondents that their data will be appropriately recorded and stored.

- Providing information appropriate for those whose first language is not English
- Voluntary participation with informed consent
- Written description of involvement
- Freedom to withdraw
- Keeping appropriate records
- Signed acknowledgement and understanding by participants
- Relevant codes of conduct/guidelines

4. To which ethical codes of conduct have you referred?

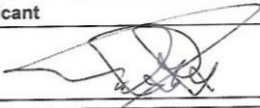
The Social Research Association (SRA) Code will used a guide this research throughout.

Note: For the Faculty of Technology, these codes typically include those published by the BCS, ACM, IEEE or other applicable codes such as the code of the Social Research Association or specific funding bodies, such as the ESRC. Links to some of these codes are available on the Faculty of Technology FHREC website.
http://www.dmu.ac.uk/faculties/technology/current_students/hre/forms_links.jsp

List of accompanying documentation that MUST be submitted to support the application:

- A copy of the research proposal (Application for Registration (RDC:R) form)
- Details of the arrangements for participation in the research by human subjects (including how participants will be recruited, confidentiality procedures, copies of consent forms, any questionnaires that will be used and other documentation as appropriate)
- A copy of all the documentation provided to the volunteer to ensure the clarity of information provided
- Copies of appropriate other ethical committee permissions (internal or external) or supporting documentation
- Other documentation as advised necessary by Supervisory team

AUTHORISATION:

Signature by Applicant	
Signed 	Date 21-10-2011

Signature by First Supervisor	
Signed 	Date 21-10-2011
Name of Supervisor N BEN FAIRWEATHER	

Conditional Approval - Authorising Signature (FHREC Chair)	
Signed _____	Date _____
Tick here if approval is conditional <input type="checkbox"/>	
<i>Note to applicant: If you receive conditional approval, you may proceed with preparing the project but you must NOT start data collection unless you have met the conditions and received full approval.</i>	

Conditions:

Full Approval - Authorising Signature (FHREC Chair)	
Signed _____	Date _____

NOTES FOR GUIDANCE:

- 1 Respondents' co-operation in a research project is entirely voluntary at all stages. They must not be misled when being asked for co-operation.
- 2 Respondents' anonymity must be strictly preserved. If the Respondent on request from the Researcher has given permission for data to be passed on in a form which allows that Respondent to be identified personally:
 - (a) the Respondent must first have been told to whom the information would be supplied and the purpose for which it will be used, and also
 - (b) the Researcher must ensure that the information will not be used for any non-research purpose and that the recipient of the information has agreed to conform to the requirements of any relevant Code of Practice.
- 3 The Researcher must take all reasonable precautions to ensure that Respondents are in no way directly harmed or adversely affected as a result of their participation in a research project.
- 4 The Researcher must take special care when interviewing children and young people. The Faculty REC will give advice on gaining consent for studies involving children or young people.
- 5 Respondents must be told (normally at the beginning of the interview) if observation techniques or recording equipment are used, except where these are used in a public place. If a respondent so wishes, the record or relevant section of it must be destroyed or deleted. Respondents' anonymity must not be infringed by the use of such methods.
- 6 Respondents must be enabled to check without difficulty the identity and bona fides of the Researcher.

Ethical application approval:

The screenshot shows an email client interface for De Montfort University Leicester. The email is titled "Ethics Application Approval - Abdulkarim ALSAMAANI 1011/071" and is dated 24/04/2012. The sender is Anne Smith, Research Co-ordinator at the Research & Innovation Office, Faculty of Technology. The email content discusses the approval of an ethics application for research in Saudi Arabia and provides contact information for the sender.

DE MONTFORT UNIVERSITY LEICESTER

Mail ▾

COMPOSE

Ethics Application Approval - Abdulkarim ALSAMAANI 1011/071

Inbox x

Anne Smith <AmSmith@dmu.ac.uk> 24/04/2012 ★

to me, Research, Ben ▾

Dear Abdulkarim

Ethics Application Approval: **1011/071** - Small and medium enterprises and the effectiveness of technology business incubators in Saudi Arabia

Following receipt of the additional information requested from you by the Faculty Human Research Ethics Committee (FHREC), your application to gain ethical approval for research degree activities has been considered and APPROVED by Prof Bernd Stahl.

Please be aware that changes to the project plan or unforeseen circumstances may raise ethical issues. If this is the case it is the researcher's duty to repeat the ethics approval process.

Kind regards

Anne

Anne Smith
Research Co-ordinator
Research & Innovation Office
Faculty of Technology

DE MONTFORT UNIVERSITY
T: +44 (0) 116 250 6519

Inbox

Starred

Important

Sent Mail

Drafts

[Google Mail]/Old Ma...

[imap]/Drafts

Deleted Items

Follow up

Junk E-mail

MailPilot/Completed

MailPilot/ReviewOn/P...

Misc

Priority

Sent Items

More ▾

Consent Letter: Incubator Director

Dear Incubator Director,

This letter is to give you information in the hope that you will participate in a study for a project as part of my PhD at De Montfort University. This study will inform my project on: Small and medium enterprises (SMEs) and the effectiveness of technology business incubators.

The discussions will be so that I can get a better understanding of the effectiveness of technology business incubators on small and medium enterprises (SMEs)

Participation in this study is entirely voluntary for you, your employees, and your incubated firms, and I will need your assurance that you will allow it to be entirely voluntary for your employees and your incubated firm. It will involve an observation and interview of approximately an hour in length, for a key person in the incubator whom may be relevant, to take place at the incubator's headquarters on _____ as previously arranged. More than one interview and observation may be needed.

You may decide not to answer any of the interview questions if you wish. You may also decide to withdraw from this study at any time either as an individual or as a business by contacting the researcher (Abdulkarim Alsamaani, abdulkarim.alsamaani@myemail.dmu.ac.uk). I may ask for other interviews or clarification of some points some time after the interview, but you will not be obliged in any way to clarify or participate further.

Unless you are say otherwise, the information you provide will considered confidential, except that with your permission anonymised quotes may be used. If you do not allow quotes to be used, information you provide will be treated only as a source of background research, alongside book and web-based research [and interviews with others].

If you request, your name or any other personal identifying information will not appear in my thesis, academic papers & publications; neither will there be anything to identify your place of work or the business.

Notes collected during this study will be retained for 10 years after completion of the PhD in a secure location and then destroyed, if you request. The information gained from this interview will only be used for the academic research, will not be used for any other purpose and will not be recorded in excess of what is required.

If you have any questions regarding this study or would like additional information please ask me before, during, or after the interview.

I can assure you that this study has been reviewed and approved by my PhD supervisors. Thank you for your assistance in this project.

Yours Sincerely,

Abdulkarim Alsamaani
abdulkarim.alsamaani@myemail.dmu.ac.uk

I have read the information presented in the information letter about a study being conducted by Mr. Abdulkarim Alsamaani for his Information Society Doctoral program at De Montfort University.

I have had the opportunity to ask any questions related to this study, and received satisfactory answers to my questions, and any additional details I wanted.

I am also aware that participation in this study is entirely voluntary for me.

I am also aware that participation in this study is entirely voluntary for my employees, and I guarantee that they will get neither advantage nor disadvantage for agreeing or refusing to take part in this study, or because of what they say.

I am also aware that excerpts from the interview may be included in the thesis to come from this research. Quotations will / will not be kept anonymous. I do / do not give permission for my identity to be revealed in research reports. (Please select your choices)

I was informed that I may withdraw my consent at any time by advising the researcher.

I am also aware that withdraw my consent after the interview, the information that I provided will be treated only as a source of background research, alongside book and web-based research [and interviews with others].

With full knowledge of all foregoing, I agree to participate in this study.

Participant Name: _____

Participant Signature: _____

Interviewer Name: _____

Interviewer Signature: _____

Consent Letter: Incubatees

Dear Incubatee,

This letter is to give you information in the hope that you will participate in a study for a project as part of my PhD at De Montfort University. This study will inform my project on: Small and medium enterprises (SMEs) and the effectiveness of technology business incubators.

The discussions will be so that I can get a better understanding of the effectiveness of technology business incubators on small and medium enterprises (SMEs).

Participation in this study is entirely voluntary. I have obtained agreement from your employer that you will get neither advantage nor disadvantage for agreeing or refusing to take part in this study, or because of what you say. It will involve an observation and interview of approximately an hour in length, to take place at _____ on _____ as previously arranged. More than one interview and observation may be needed.

You may decide not to answer any of the interview questions if you wish. You may also decide to withdraw from this study at any time by contact the researcher (Abdulkarim Alsamaani, abdulkarim.alsamaani@myemail.dmu.ac.uk). I may ask for other interview or clarification of some points some time after the interview, but you will not be obliged in any way to clarify or participate further.

Unless you are say otherwise, the information you provide will considered confidential, except that with your permission anonymised quotes may be used. If you do not allow quotes to be used, information you provide will be treated only as a source of background research, alongside book and web-based research [and interviews with others].

If you request, your name or any other personal identifying information will not appear in my thesis, academic papers & publications; neither will there be anything to identify your place of work or the business.

Notes collected during this study will be retained for 10 years after completion of the PhD in a secure location and then destroyed, if you request. The information gained from this interview will only be used for academic research, will not be used for any other purpose and will not be recorded in excess of what is required.

If you have any questions regarding this study or would like additional information please ask me before, during, or after the interview.

I can assure you that this study has been reviewed and approved by my PhD supervisors. Thank you for your assistance in this project.

Yours Sincerely,

Abdulkarim Alsamaani
abdulkarim.alsamaani@myemail.dmu.ac.uk

I have read the information presented in the information letter about a study being conducted by Mr. Abdulkarim Alsamaani for his Information Society Doctoral program at De Montfort university.

I have had the opportunity to ask any questions related to this study, and received satisfactory answers to my questions, and any additional details I wanted.

I am also aware that participation in this study is entirely voluntary.

I am also aware that excerpts from the interview may be included in the thesis to come from this research. Quotations will / will not be kept anonymous. I do / do not give permission for my identity to be revealed in research reports. (Please select your choices)

I was informed that I may withdraw my consent at any time by advising the student researcher.

I am also aware that withdraw my consent after the interview, the information that I provided will be treated only as a source of background research, alongside book and web-based research [and interviews with others].

With full knowledge of all foregoing, I agree to participate in this study.

Participant Name: _____

Participant Signature: _____

Interviewer Name: _____

Interviewer Signature: _____

Consent Letter: Company owner

Dear Company owner,

This letter is to give you information in the hope that you will participate in a study for a project as part of my PhD at De Montfort University. This study will inform my project on: Small and medium enterprises (SMEs) and the effectiveness of technology business incubators.

The discussions will be so that I can get a better understanding of the effectiveness of technology business incubators on small and medium enterprises (SMEs)

Participation in this study is entirely voluntary for you and your employees, and I will need your assurance that you will allow it to be entirely voluntary for your employees. It will involve an observation and interview of approximately an hour in length, for your company and your employees whom may be relevant, to take place at the company's headquarters on _____ as previously arranged. More than one interview and observation may be needed.

You may decide not to answer any of the interview questions if you wish. You may also decide to withdraw from this study at any time either as an individual or as a business by contacting the researcher (Abdulkarim Alsamaani, abdulkarim.alsamaani@myemail.dmu.ac.uk). I may ask for other interviews or clarification of some points some time after the interview, but you will not be obliged in any way to clarify or participate further.

Unless you say otherwise, the information you provide will be considered confidential, except that with your permission anonymised quotes may be used. If you do not allow quotes to be used, information you provide will be treated only as a source of background research, alongside book and web-based research [and interviews with others].

If you request, your name or any other personal identifying information will not appear in my thesis, academic papers & publications; neither will there be anything to identify your place of work or the business.

Notes collected during this study will be retained for 10 years after completion of the PhD in a secure location and then destroyed, if you request. The information gained from this interview will only be used for the academic research, will not be used for any other purpose and will not be recorded in excess of what is required.

If you have any questions regarding this study or would like additional information please ask me before, during, or after the interview.

I can assure you that this study has been reviewed and approved by my PhD supervisors. Thank you for your assistance in this project.

Yours Sincerely,

Abdulkarim Alsamaani
abdulkarim.alsamaani@myemail.dmu.ac.uk

I have read the information presented in the information letter about a study being conducted by Mr. Abdulkarim Alsamaani for his Information Society Doctoral program at De Montfort University.

I have had the opportunity to ask any questions related to this study, and received satisfactory answers to my questions, and any additional details I wanted.

I am also aware that participation in this study is entirely voluntary for me.

I am also aware that participation in this study is entirely voluntary for my employees, and I guarantee that they will get neither advantage nor disadvantage for agreeing or refusing to take part in this study, or because of what they say.

I am also aware that excerpts from the interview may be included in the thesis to come from this research. Quotations will / will not be kept anonymous. I do / do not give permission for my identity to be revealed in research reports. (Please select your choices)

I was informed that I may withdraw my consent at any time by advising the researcher.

I am also aware that withdraw my consent after the interview, the information that I provided will be treated only as a source of background research, alongside book and web-based research [and interviews with others].

With full knowledge of all foregoing, I agree to participate in this study.

Participant Name: _____

Participant Signature: _____

Interviewer Name: _____

Interviewer Signature: _____

Appendix B: Case study protocol:

Background and research context:

Research title	Small and medium enterprises and the effectiveness of technology business incubators in Saudi Arabia.
Researcher name and contact details	Abdulkarim Alsamaani PhD Candidate in CCSR Technology faculty. De Montfort University Leicester LE1 9BH Email: abdulkarim.alsamaani@myemail.dmu.ac.uk
Supervisors	Dr. Ben Fairweather (Research Fellow in CCSR, De Montfort University). Dr. Neil McBride (Reader in CCSR, De Montfort University).
Project timeline	Pilot study: Field work: May 2013 Data analysis: Jun - August 2013 Full Study: Field work: December 2013 – January – February 2014 Finding and Data analysis: April 2014 – January 2015
Research background	The nature of the research is to investigate and study the effects of technology business incubators (TBIs) on small and medium enterprises (SMEs) in Saudi Arabia (SA). The lack of research that investigate the effect of TBIs in SA against ambitious expansion of incubators in SA. The purpose of this study was to investigate the impact of the existing incubators in SA, and provide guidance for currant incubators and for the new that been decided to establish in the near future. The case study seeks to investigate into these topics in more detail.

Research questions	<p>This case study research addresses the research questions:</p> <p>1- In what way might TBIs affect SMEs in the Saudi Arabia environment?</p> <p>2- What are the potential impacts and benefits which might arise from the application of TBIs to SMEs in Saudi Arabia?</p> <p>3- What are the potential obstacles that SMEs encounter when they attempt to join technology incubators in Saudi Arabia?</p>
The case study literary context	<p>There only one study in 2009, when there was no spread of the incubators as in the present time in Saudi Arabia.</p> <p>In addition to the limitations in the previous study because it studied only one incubator in one geographical location.</p>
Ethical approved	<p>Approved (1011/071) by Prof. Bernd Stahl and Dr. Ben Fairweather in 2011.</p>

Table Appendix.1 case study protocol. Adapted from Howley (2007, p.185)

Case study structure:

Nature of the research	<p>This research is explanatory in nature, since the purpose of the research is investigating the effect of technology business incubators in Saudi Arabia context. By using explanatory case study to explore the phenomena under investigation.</p>
The case study sectors that will be cover	<p>Four incubators sectors that been covers:</p> <p>Government incubators.</p> <p>Corporate incubators.</p> <p>Privet incubators.</p> <p>Not-for-profit incubators.</p>
The reason of selecting these sectors	<p>Since this research investigate the effect of TBIs, the need to cover all the type of incubators that establish in Saudi Arabia. For that, the four sectors, cover all incubators that are working in Saudi Arabia context. Moreover, to study the effect of TBIs the need to interview the working in this field with the beneficiaries of TBIs. In addition, to non-incubated SMEs in order to compare them incubatees.</p>

Table Appendix.2 case study protocol. Adapted from Howley (2007, p.185)

Data analysis approach:

The Date collection approaches	In this research, interviews are the main source of data collection. Interviews will be recorded and transcribed. So the data remains reserved, this contributes to the process of analysis and strengthens it. In addition to relevant documentations.
The date will be collected from	The data be collected from four participant's categories that been covers: Incubators managers. Incubated technology SMEs owners. Non-incubated technology SMEs owners. Graduate technology SMEs owners. Through the collection of data from the previous four categories, help increase understanding of the phenomenon under investigation.
The way of stored data	The data will be recorded in a digital format (MP3).
The data destroyed	The data will be retained for 10 years after completion of the PhD in a secure location and then destroyed.
The data analysis method	The data analysis method that been use in the research is hermeneutics. For more see section 3.7.5 and for the reason for chosen this method see 3.7.4.

Table Appendix.3 case study protocol. Adapted from Howley (2007, p.185)

Sample of the participants:**1. Incubator managers**

Interview dates	17-4-2013
Pilot study Name Position	Nawaf Alsahaf General director of Badir incubators.

Organisation	"Badir" program for Technology incubators. Address: Saudi Arabia, Riyadh 12385, Abdullawahed Ibn Ahmad Street P.O.BOX 7351
Telephone	Phone : +966 1 2052018
Email	Fax : +966 1 2054063 Email : info@badir.com.sa Website: www.badir.com.sa/en/
Interview location	The incubators headquarter is in Riyadh city, however, this interview had conduct in Buraydah city, based on the convenient of the participant.
Other respondents	Yes, an incubatees form Badir incubators.
Notes	The interview has conducted before the other interviews, to supervision revision and review to make any suggestions for the next interviews.
Interview giddiness	Allow interviewers to speak freely, and move between the topics (if relevant), taking into account the time of the interview. Before the end of the dialogue it can permission to take a very short stop to make sure that all the questions have been covered.

Table Appendix.4 case study protocol. Adapted from Howley (2007, p.185)

2. Incubatee

Interview dates	2/1/2014
Name	Mohammad Al-Abdulqadir
Position	Founder and CEO
Organiation	OrderMe
diesels	Al Damaam, Kingdom of Saudi Arabia. https://www.orderme.com.sa
Interview location	Al Damaam city.
Notes	The company services at the time of conducting the interview has not been started.

Interview giddiness	Allow interviewers to speak freely, and move between the topics (if relevant), taking into account the time of the interview. Before the end of the dialogue it can permission to take a very short stop to make sure that all the questions have been covered.
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Table Appendix.5 case study protocol. Adapted from Howley (2007, p.185)

3. Non-incubated SME

Interview dates	22/12/2013
Name	Sami Alhelwah
Position	Founder and CEO
Organisation diesels	ExaServe Tel: +966 9200 33 010 Fax: +966 06369 7333 http://www.exaserve.com
Interview location	Riyadh.
Notes	Medium size company
Interview giddiness	Allow interviewers to speak freely, and move between the topics (if relevant), taking into account the time of the interview. Before the end of the dialogue it can permission to take a very short stop to make sure that all the questions have been covered.

Table Appendix.6 case study protocol. Adapted from Howley (2007, p.185)

The symbols employed with reference to the participants in the interviews are as follows:

Participants	Description
Participant D	Manager of the incubator
Participant N	Owner of an incubated business
Participant P	Owner of a business that is not incubated
Participant E	Owner of a graduate incubated business

Table Appendix.7 the symbols employed for the participants

Interviews questions:

This research applies semi-structured interviews as mention in section 3.6.1. The following are the starting questions for the interviews. The questions are divided into three categories; 1- Incubators Managers 2- Incubated SMEs 3- Non-Incubated SMEs.

(1) Interview questions for: Incubators Managers:

1. Personal information:

- 1.1. Age group (18-29) or (30-39) or (40-49) or more than 50 years old?
- 1.2. Gender (male – female) --- This should not be asked, it is only written in the data analysis
- 1.3. Educational degree (Diploma- Bachelor - MBA- PHD- other: specify....)
- 1.4. What is your current position in the incubator? What are the tasks assigned to you?
- 1.5. How many years of experience do you have in this incubator? And also in other incubators?
- 1.6. Do you have previous experience in project management?

2. Incubator information:

- 2.1 When has the incubator started?
- 2.2 Type of the incubator (Technology– mixed– commercial)
- 2.3 What is the number of those who are currently incubated?
- 2.4 What is the number of the incubatees since the establishment of the incubator?
- 2.5 What is the number of those graduated from the incubator?
- 2.6 Is your incubator a part of other incubators? (Whether local or international incubators).
- 2.7 What are the objectives of your incubator? (Contribution in the local economy– creation of diversified projects– creation of jobs).
- 2.8 What is the basis of financing your incubator? (Governmental grants– investments)

3 In your opinion, what is the type of incubators that Saudi Arabia is need at the present time? (Governmental– university– private sector)

- 3.1 Why?
- 3.2 What about the future?

4 Are there any services that you provide before incubation? (consultations to develop the idea- preparing a preliminary action plan to measure the suitability of the market demand- training on the main skills).

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- 5 What is your definition for the micro, small, medium and large-sized projects? And how do you measure such projects?**
 - 6** Being incubated institutions, does that contribute in initiating new projects?
 - 6.1** How?
 - 6.2** From your own point, what are the services that help the start-up institutions to achieve success? (In general)
 - 6.3** What is the most important service?
 - 7 What are the services that you provide to the incubatees in the incubator?**
 - 7.1** From your own point of view, what is the most important service that is beneficial to the incubatees?
 - 7.2** Why?
 - 7.3** In your opinion also, what is the least service that is beneficial to the incubatees?
 - 7.4** Why?
 - 8 In case that the start-up institution is incubated, does that reduce the operational cost?**
 - 8.1** How? (Details needed).
 - 8.2** If yes: what is the percentage per year (%)?
 - 8.3** What is the service that makes significant contribution?
 - 8.4** Do you have any studies that measure how your incubator has contributed in reducing the operational costs?
 - 9 Do you add any additional value through incubating start-up projects?**
 - 9.1** How?
 - 9.2** What is the largest added value?
 - 9.3** How do you measure the added value that you have created in the start-up institutions?
 - 9.4** Are there any studies that you have conducted to measure the added value? If so: is it possible to obtain such studies?
 - 10 Do you think that the current incubators in Saudi Arabia are contributing in the local development as one of the tools of development?**
 - 10.1** What about the future?
 - 10.2** If no: what do they need?
 - 11 At the present time, is there any eco system in Saudi Arabia? What is its impact?**
 - 12 Do you have projects that have achieved success in their business?**

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- 12.1 What is their percentage to the total number of incubatees? (The current or total).
- 12.2 Are there any projects that have reached the break-even point?
- 13 Do you have projects that were not successful in business?**
- 13.1 What is their percentage to the total number of incubatees (The current or total).
- 14 Divide the percentage of the growth of your incubated projects into five categories?**
- 14.1 Negative or zero The percentage of projects: %
- 14.2 10% or less The percentage of projects: %
- 14.3 From 10 to 25% The percentage of projects: %
- 14.4 From 25 to 50% [or more] The percentage of projects: %
- 15 Do you measure the life cycle of your incubated projects?**
- 15.1 If yes: How do you measure this?
- 15.1.1 Is it possible for me to get a copy of these studies?
- 15.2 If no: approximately, what is the percentage out of 100%?
- 16 Do you have any studies that compare the percentage of the life cycle of the incubated and non-incubated projects in Saudi Arabia?**
- 16.1.1 If yes: Is it possible for me to get a copy of this study?
- 16.1.2 If no: In your opinion as a specialist, do these studies contribute in enriching knowledge about incubators?
- 17 From your point of view as a specialist in the field of incubators: are there any sufficient studies in Saudi Arabia?**
- 17.1 If yes or no: What is the impact of this on the local context?
- 18 From your point of view, do you support opening more incubators in Saudi Arabia?**
- 18.1 If yes or no: why?
- 19 From your point of view, what are the obstacles that face the start-up projects in Saudi Arabia in general?**
- 19.1 How can these obstacles be removed?
- 20 In a special manner, what are the obstacles that face the incubated start-up institutions?**
- 20.1 Why?
- 20.2 How can these obstacles be removed?

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- 21 What are the obstacles that face the start-up institutions when trying to join the incubators?**
- 21.1 why?
- 21.2 How can these obstacles be removed?
- 22 Everything has its advantages and disadvantages: what are the disadvantages of the current incubators in Saudi Arabia?**
- 22.1 How can these obstacles be removed?
- 23 What is the type of incubation that you provide?**
- 23.1 Do you provide virtual incubation?
- 23.2 What about the accelerators?
- 23.3 What is the type of incubators that is suitable for Saudi Arabia at the present time?
- 23.3.1 What about the future?
- 24 In your incubator, what are the criteria for the selection of incubatees?**
- 24.1 What is the longest and shortest duration of incubation?
- 25 Evaluate the following characteristics in the process of the selection of incubatees in terms of their importance?**
- 25.1 The idea of the project (unimportant– important– very important).
- 25.2 Administrative experience [Such as: previous experiences in the same field– general administrative experience] (unimportant– important– very important).
- 25.3 Entrepreneur qualities (unimportant– important– very important).
- 25.4 Marketing experience or skills [marketing plan- volume of the targeted market] (unimportant– important– very important).
- 25.5 The product [unique product– has a patent– scarce product] (unimportant– important– very important).
- 25.6 Financial aspects of the project [income of the project– ability of attract investors] (unimportant– important– very important).
- 25.7 Ability for employment [creation of jobs through the project] (unimportant– important– very important).
- 25.8 If the incubation is a full and not virtual incubation: the cooperation with the officials in the incubator (unimportant– important– very important).
- 26 What is your policy for exiting from incubator? (Termination of the duration of incubation)**

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- 27 In your incubator, what are the cultures that you are enhancing (such as competitiveness or compensation with incubatees)?**
- 27.1** The objective that you strive to achieve for the success of the project in your incubator, is it through the shortest or best ways?
- 27.2** Are the objectives of the start-up projects is to gain financial profits only or they take into account the social responsibilities?
- 28 What do you provide to the medium-sized projects?**
- 29** Do you think that there is a gap between incubators and education?
- 29.1** If yes: how can this gap be bridged?
- 30 What are the services that you provide to students in your incubator?**
- 30.1** Is there any awareness and knowledge of the concept of incubators among students?
- 30.2** Do you have any studies that measure this awareness or knowledge?
- 30.2.1** If yes: is it possible for me to receive a copy of these studies?
- 30.2.2** If no: from your point of view, what is the percentage (out of 100%)
- 31 What is the extent of awareness and knowledge people have about incubators in Saudi Arabia?**
- 31.1** Do you have any studies that measure this awareness?
- 31.1.1** If yes: is it possible for me to receive a copy of these studies?
- 31.1.2** If no: from your point of view, what is the percentage (out of 100%)
- 32 Are there any points you want to add?**

Thank you...

(2) Interview questions for: Incubated SMEs

1. Personal information:

- 1.1. Age group (18-29) or (30-39) or (40-49) or more than 50 years old?
- 1.2. Gender (male – female) --- This should not be asked, it is only written in the data analysis
- 1.3. Educational degree (Diploma- Bachelor - MBA- PHD- other: specify....)

2. Company information:

- 2.1. What is your current job? How long you have been working in this job?
- 2.2. What are the tasks assigned to you in the company?
- 2.3. What is the name of the project?
- 2.4. When did you start your business?
- 2.5. What is the area of your business? (The product and/or services)
- 2.6. What is the ownership structure in your company? (Owner - managed - family owned - Independent Ltd - group subsidiary - PLC).
- 2.7. How many employees do you have? (Including you) (Saudi - foreign) full time / part time.
- 2.8. How much was the capital since you started the project? How much is the capital now? (approximately)
- 2.9. What are the facilities your company has access to? (Telephone - Internet - Fax- photocopier - scanner).
- 2.10. Does your company have a website? If Yes: Since when? If No: why?
- 2.11. What are the sources of finance that were used when the company started? (Personal funds - Family funds - private loans (Bank or personal) - investors).
 - 2.11.1 Why?
- 2.12. Did you have any problem raising the business capital?
- 2.13. What is the reason behind selecting the freelance work? Why do you prefer the freelance work rather than a regular job?

3. Before starting your business what kind of preparation did you do? (Workshops - seminars)

- 3.1. When? Where? Why?
- 3.2. Did you do a feasibility study before starting your business?
 - 3.2.1 Did you conduct the study by yourself or through a competent office or other?
- 3.3. What about a Business plan (including marketing)?

- 3.3.1 Did you conduct the study by yourself or through a competent office or other?
- 4. Did you study about the establishment and management of commercial projects in the university or before?**
- 4.1 If yes or no: What is its effect?
- 5. Since you started your business, has there been any progress?**
- 5.1 If Yes: what is the percentage per annum? (From 100%).
- 5.1.1 What is the percentage of the business progress during the incubation?
- 5.1.2 What is the percentage of the business progress after the incubation?
- 5.2 If No: What are the obstacles that prevented the progress of the project?
- 6 How much do you know about government financial support?**
- 6.1 Did you gain any government financial support?
- 6.1.1 If yes: Did you gain any government financial support?
- 6.1.2 If yes: from where? And why?
- 6.1.3 If no: What were the obstacles?
- 6.2 From your point of view: How aware are people about the financial support offered by governments?
- 7 How did you come to find out about incubators?**
- 7.1 Did you take action by joining an incubator immediately?
- 7.1.1 If Yes: What motivated you?
- 7.1.2 If No: What reasons prevented you?
- 7.2 What is the type of incubator that you have joined? (Governmental- commercial- university- other)
- 8 What did incubators offer your business?**
- 8.1 What were the most important services for you?
- 8.2 What were the least important services for you?
- 9 Why did you choose to be incubated?** (Legal services - Finance - management support - training - space etc.)
- 9.1 Have the incubators achieved this requirement?
- 9.1.1 If yes: Approximately what is the percentage? (From 100%)
- 9.1.2 If no: What were the obstacles?
- 10 Evaluate these services in terms of their importance to your project?**
- 10.1 Administrative services [planning – feasibility study – consultations] [not useful – useful – very useful].

- 10.2 Marketing services [including guidance and orientation] [not useful – useful – very useful].
- 10.3 Financial services [not useful – useful – very useful].
- 10.4 Legal services [not useful – useful – very useful].
- 10.5 Production services [develop your product through experts or specialists] [not useful – useful – very useful].
- 10.6 Training services [not useful – useful – very useful].
- 10.7 Free space [a special office for the project] [not useful – useful – very useful].

11 Evaluate these services that provided to you in terms of the performance of the incubators?

- 11.1 Administrative services [Unsatisfactory – good – excellent]. Why?
- 11.2 Marketing services [including guidance and orientation] [Unsatisfactory – good – excellent]. Why?
- 11.3 Financial services [Unsatisfactory – good – excellent]. Why?
- 11.4 Legal services [Unsatisfactory – good – excellent]. Why?
- 11.5 Production services [develop your product through experts or specialists] [Unsatisfactory – good – excellent]. Why?
- 11.6 Counseling and guidance [Unsatisfactory – good – excellent]. Why?
- 11.7 The performance of the manager of the incubator [Unsatisfactory – good – excellent]. Why?
- 11.8 The performance of the staff of the incubator [Unsatisfactory – good – excellent]. Why?

12 Would you recommend that your colleagues join incubators?

- 12.1 Why/Why Not?

13 Do you think that incubators contribute in developing the local economy?

14 Did you face any obstacles when you attempted to join technology incubators?

- 14.1 If yes: What were these obstacles?
- 14.1.1 How did you overpass these obstacles?
- 14.2 If no: Do you think that there are any obstacle that prevents start-up to join incubators?
- 14.3 How do you describe the process of selection incubatees (easy – average – complicated)? Why?
- 14.4 How do you describe the process of joining incubators (easy – average – complicated)? Why?

-
- 15 Has being incubated helped you to start your business?**
- 15.1 **If yes: How?**
- 15.2 **If no: Why?** (Details needed).
- 16 Has your business being incubated helped you reduce operating costs?**
- 16.1 **If yes: How?** (Details needed).
- 16.1.1 Approximately give percentage per year. (From 100%)
- 16.1.2 What are the services that have helped you with that?
- 16.2 **If no: Why?** (Details needed).
- 17 What is the added value that you have gained from been incubated? To (Is there added value that you have gained from been incubated?)**
- 18 Being an incubatee, did that help you to start your project?**
- 18.1 **What is the amount of this growth? (Little- average- excellent)**
- 19 Is there any growth of your project after graduation?**
- 19.1 **If yes: What is the amount of this growth? (Little- average- excellent)**
- 19.1.1 Do you think that incubators contribute in this growth even after graduation?
- 19.1.1.1 If yes: Why?
- 19.2 **If no: Why?**
- 20 Are there any disadvantages from the incubation proses?**
- 21 Are incubators providing them with a competitive environment or cooperative?**
- 21.1 **Is incubators culture for start-ups success, by the shortest ways or the best one?**
- 21.1.1 **If he stills an incubatee: will you continue following the same way after joining the incubator?**
- 21.1.2 **If he graduated: Do you continue following the same way or not? Why?**
- 22 In your point of view, what are the factors that contribute in the success of the start-up projects?**
- 23 Do you want to add any thing?**

Thank you...

(3) Interview questions for: Non-Incubated SMEs

1. Personal information:

- 1.1. Age group (18-29) or (30-39) or (40-49) or more than 50 years old?
- 1.2. Gender (male – female) --- This should not be asked, it is only written in the data analysis
- 1.3. Educational degree (Diploma- Bachelor - MBA- PHD- other: specify....)

2. Company information:

- 2.1. What is your current job? How long you have been working in this job?
- 2.2. What are the tasks assigned to you in the company?
- 2.3. What is the name of the project?
- 2.4. When did you start your business?
- 2.5. What is the area of your business? (The product and/or services)
- 2.6. What is the ownership structure in your company? (Owner - managed - family owned - Independent Ltd - group subsidiary - PLC).
- 2.7. How many employees do you have? (Including you) (Saudi - foreign) full time / part time.
- 2.8. How much was the capital since you started the project? How much is the capital now? (approximately)
- 2.9. What are the facilities your company has access to? (Telephone - Internet - Fax- photocopier - scanner).
- 2.10. Does your company have a website?
 - 2.10.1 If Yes: Since when?
 - 2.10.2 If No: why?
- 2.11. What are the sources of finance that were used when the company started? (Personal funds - Family funds - private loans (Bank or personal) - investors).
 - 2.11.2 Why?
- 2.12. Did you have any problem raising the business capital?
- 2.13. What is the reason behind selecting the freelance work? Why do you prefer the freelance work rather than a regular job?

3. Before starting your business what kind of preparation did you do? (Workshops - seminars)

- 3.1. When? Where? Why?
- 3.2. Did you do a feasibility study before starting your business?

-
- 3.2.2 Did you conduct the study by yourself or through a competent office or other?
- 3.3. What about a Business plan (including marketing)?
- 3.3.2 Did you conduct the study by yourself or through a competent office or other?
- 4. Did you study about the establishment and management of commercial projects in the university or before?**
- 4.2 If yes or no: What is its effect?
- 5. Since you started your business, has there any progress?**
- 5.1. If Yes: what is the percentage per annum? (From 100%)
- 5.2. If No: what are the obstacles that prevented the progress of the project?
- 6. How much your knowledge of government finance support?**
- 6.1. Did you gain any government financial support?
- 6.1.4 If yes: from where? And why?
- 6.1.5 If no: What were the obstacles?
- 6.2. From your point of view: How aware are people of the possibility of financial support from the government?
- 7. How much do you know about government or private support initiatives? (Such as incubators)**
- 7.1. Did you gain any other government or private support?
- 8. Do you know about the incubators initiative?**
- 8.1. If Yes: What do you know? Approximately what is the percentage? (From 100%)
- 8.1.1. What do you know about incubators?
- 8.1.2. Have you considered joining incubators?
- 8.1.2.1 If yes: Why did not you join the incubator?
- 8.1.2.2 If no: What are the most common obstacles that prevent you from joining the incubator?
- 8.2 If no: from your point of view, why did not you know about incubators?
- 9. During the life cycle of the project, did you face any problems that had an impact on the project?**
- 9.1 Is it possible that you may share with us the nature of these problems?
- 9.2 Did these problems have an effect on the survival of the project?
- 10. Evaluate these services in terms of their importance to your project?**
- 23.1 Administrative services [planning – feasibility study – consultations] [not useful – useful – very useful].

- 23.2 Marketing services [including guidance and orientation] [not useful – useful – very useful].
- 23.3 Financial services [not useful – useful – very useful].
- 23.4 Legal services [not useful – useful – very useful].
- 23.5 Production services [develop your product through experts or specialists] [not useful – useful – very useful].
- 23.6 Training services [not useful – useful – very useful].
- 23.7 Free space [a special office for the project] [not useful – useful – very useful].

11. In your company what are the services that you have limited access to? (Legal services - Finance - management support - training - space etc.)

11.1. If the incubators provided these services for free or a low fee would you consider joining an incubator?

11.1.1 If Yes: Why?

11.1.1.1. What will these services add to your business? Approximately what is the percentage? (From 100%)

11.1.1.2. What is the most important service that encourages you to join the incubator?

11.1.2 If no: Why?

12. If your project is incubated in an incubator and these services had been provided to you free of charge does this help you to start up your project?

13. Do you think that these free of charge services will contribute in reducing the operational costs of your project?

13.1 If yes: What is the extent of reduction of the operation cost? (Approximately)

13.2 If no: Why?

14. Do you think that incubators contribute in developing the local economy?

15. In your company for success, do you take the shortest ways or the best one?

15.1. In the case that you are an incubatee: will you continue following the same way after joining the incubator?

16. In your point of view, what are the factors that contribute in the success of the start-up projects?

17. Do you want to add any thing?

Thank you...

Appendix C: Example of transcribed interviews with the Participants in English and Arabic version

Questions (English and Arabic Version)	Participant	Phrase /Excerpt (English and Arabic Version)
<p>Since you started your business, has there any progress?</p> <p>منذ بداية مشروعك، هل هناك تقدم في المشروع؟</p>	N8	<p>Yes, there is a progress. In the first two years, there was no progress as an institution. Over the last two years however, there was a significant progress because it was a period of establishment and spreading the reputation of the project.</p> <p>نعم هناك تقدم، أول سنتين مافيه ولا تقدم كمؤسسة، لكن آخر سنتين صار التقدم بشكل كبير كأنها كانت فترة تأسيس او نشر سمعة.</p>
<p>What is the extent of the business progress after the incubation?</p> <p>ماهو مقدار تقدم المشروع بعد فترة الاحتضان؟</p>	N8	<p>There are reasons pertaining to the incubator and there are reasons pertaining to the incubatee who should endeavor to achieve progress, but it is possible to say that progress without incubation may jump to 40% whereas with incubation it jumps to 120%.</p> <p>فيه أسباب للحاضنة وفيه أسباب لابد للمحتضن يسعى ... لكن نقدر نقول اذا كان فردي بدون احتضان ممكن أقفز الى ٤٠٪. لكن مع الاحتضان ممكن أقفز الى ١٢٠٪.</p>
<p>How much do you know about government financial support?</p> <p>مامقدار معرفتك بالصناديق التمويلية الداعمة؟</p>	E1	<p>I am familiar with the supporting funds such as: credit bank, Almeyaweya funds, Waed fund and others when I was working in Bader incubator as well as listening to news.</p> <p>من خلال طبعا وجودي في بادر وغيره من أخبار أعرف كثير عنها زي بنك التسليف، زي صناديق مثلا المؤبوية وغيرها وصندوق قواعد والشغلوات هذي يعني عندي خبر عنها.</p>
<p>Did you gain any government financial support?</p>	P4	<p>Yes, I have received one quasi-governmental support from Waed incubator in Aramco.</p>

<p>If yes: so what? And if no: What are the obstacles that you have been faced?</p> <p>هل حصلت على دعم تمويل حكومي؟ في حال نعم: ماهو؟ وفي حال لا: ماهي العقبات التي واجهتها؟</p>	<p>N8</p>	<p>نعم، واحد شبه حكومي من واعد في ارامكو.</p> <p>No, I did not request for support and I do not think that I need financing support. The related authorities set complicated conditions and they do not have an expansion system. They provide services to the persons at the initial stages. However, if one year elapsed for this project, then they do not give him support and this is one of the problems although the expansion is very important. In the first year, I was studying the market but now this is the actual time. Therefore, there should be financing funds that support expansion for the owners of the projects.</p> <p>لا ولا طلبت ما اعتقد اني بحاجة و عندهم اشتراطات تعقيدية ما عندهم نظام التوسع هم يخدمون الشخص اللي توه بادي لو كان مضى عليه سنة فقط ما يعطونك وهذا من الاشكا ليات مع ان التوسع مهم جدا أنا أول سنة كنت أدرس السوق لكن الفط ي الآن عرف ودفع عشان يتوسع لابد بصير فيه صناديق تمويلية تدعم التوسع لأصحاب المشاريع.</p>
<p>How did you come to find out about incubators?</p> <p>كيف عرفت عن الحاضنات؟</p>	<p>E1</p>	<p>There was a workshop in King Abdulaziz City for Science and Technology (KACST) and I was an employee there. In this workshop, they talked about how to organize a workshop and whether you have an idea or not, then how do you evaluate the idea and will you complete this idea or not. I have attended this workshop that given by the CO of Bader incubator and after that I have become familiar with Bader incubator.</p> <p>كان فيه ورشة في مدينة الملك عبدالعزيز للعلوم والتقنية كنت موظف في المدينة فكان في ورش عن بادر يتكلمون عن كيف يسوون ورشة كيف تقييم الفكرة إذا عندك فكرة كيف تقييمها وتشوف هل تمشي فيها</p>

		والا لا فحضرت الدورة هذي وهي كانت اللي مقيمها كانهو المدير التت فيذي حق بادر فمنها تعرفت على بادر.
Did you take action by joining an incubator immediately? If Yes: What motivated, you? If No: What reasons prevented, you?	N7	Immediately after I came to know that it is an incubator specialized in technology, I decided to join because I will meet with persons related with technology and their work is related with my specialization. Therefore, I decided to join because this environment encourages me to work hard. أول ماعرفت إنها حاضنة مختصة قررت إني انضم ، مختصة بالتقنية لأنني يواجه ناس لهم علاقة بالتقنية وعارفين بالتقنية وشغلهم كله يدور حول تخصصي اللي أنا داخل فيه فقررت اني انضم لأن هذه البيئة الل ي تحفزني أعمل اكثر .
عند معرفتك بالحاضنات، هل قررت الانضمام للحاضنة مباشرة؟ في حال نعم: ماهو الدافع الذي دفعك للانضمام؟ في حال لا: ماهي الأسباب التي حالت دون ذلك؟	P4	No, incubators have different nature and we have an established business. Even we do not, if the owner of the project is a start-up, incubators only provide a part of the rent. I do not think that the contribution made by incubators is clear and significant. لا الحاضنات طبيعتها مختلفة حنا مشروع قائم. بس حتى لو ماكان عندنا عمل قائم باستثناء إنهم بيوفرون جزء من الإيجار لو إنه مشروع ناجح. ماأعتقد إن المساهمة حق الحاضنات واضح أو كبير.
What did incubators offer to your business?	E1	First of all, incubators provide the office. Second, they also provide the logistic services such as conference rooms that include equipment and furniture and others. With regard to our case, I think that consultations are the most important services as well as periodic meetings with consultants or monitors; this is the most important benefit I gained from the incubation in addition to legal services and training. The legal services help in solving the major issues as well as conferences. Moreover, incubators present your project to the international and national

<p>الحاضنة ماذا قدمت لمشروعك من خدمات؟</p>		<p>prizes, they help in nominating you and this is a very important service. In addition, incubators provide governmental relations. For example, if you have a problem, they help you by preparing a letter in your favour. In addition, incubators provide marketing or networks. For example, if you need a communication company and they know an important person in such communication company, they contact with him to help you. All these are the benefits that we have gained from incubators.</p> <p>أول شي طبعا كان للمكتب، ثانيا الخدمات اللوجستية مثل غرف الاجتماعات مثلا أجهزه وغيره أثاث كل هذا في الأساس. أنا باعتقادي أو بالنسبة لل حالة حقتنا صار في الاستشارات أهم حاجة الاجتماعات الدورية مع المستشاريين أو المرشدين هذا كان هو أهم فائدة استفدتها من الحاضنة، الخدمات القانونية تدريب كان فيه تدريب الخدمات القانونية تساعد، حلت قضايا كبيرة عندي عندك مثلا زي ماقلت التدريب فيه تدريب كويس المؤتمرات، عرض مشروعك للجوائز العالمية والمحلية وكذا يعني يساعدونك يعني يرشحونك هذي مهمة جدا. علاقات حكومية مثلا يساعدونك لو عندك مشكلة يسوون لك خطاب يدعم موقفك مثلا التسويق أو ال شبكات يعرفون انت مثلا تحتاج شركة اتصال هم يعرفون واحد كبير في شركة الاتصالات يساعدك وكذا يعني كل هذي من الاشياء اللي استفدناها من الحاضنة.</p>
<p>What was the most important service for your business?</p> <p>ماهي أهم خدمة بالنسبة لمشروعك؟</p>	<p>E1</p>	<p>At the beginning of incubation process, the most important service is the strategic guidance.</p> <p>أهم حاجة كانت في بداية الاحتضان اللي هو التوجيه الاستراتيجي.</p>
<p>What was the least important service for your business?</p>	<p>N7</p>	<p>The office.</p>

ماهي أقل خدمة بالنسبة لمشروعك؟		المقر.
<p>What are the services that motivated you to join the incubator?</p> <p>ماهي الخدمات التي قررت من أجلها الانضمام للحاضنة؟</p>	N5	<p>The logistic support, legal consultations, location and community for incubatees.</p> <p>دعم لوجستي- الاستشارات القانونية- المكان -والمجتمع للمحتضنين.</p>
<p>Did incubators fulfill these requirements?</p> <p>هل حققت لك الحاضنات هذه المتطلبات؟</p>	N6	<p>Yes, I cannot say that they have fulfilled these requirements 100% but I am satisfied with their services. There were services that compensated other services; there were things that I wanted but I did not get them and there are services that I did not expect to receive but later on, I discovered that I needed them.</p> <p>نعم، مقدر أقول 100٪ بس أنا راضي يعني فيه أشياء عوضت عن أشياء يعني فيه أشياء تبغها ما حصلت عليها بس أشياء ماكنت أتوقع إني أحتاجها وحصلت عليها واكتشفت إنه أحتاجها فعوضت نفسها بس يعني.</p>
<p>Do you advise your colleagues to join incubators?</p>	N6	<p>Yes, irrespective of whether they received financing support or not, they will have experience since most of us are 18- 20 years old and we do not have a sufficient experience on how does the market work. There are some convictions that think that if the product is good, it will succeed. However, there are matters such as marketing and relations and other things that may be out of your control. I think that when you deal with Waed incubator, they make you see other matters that may change your point of view later on. Even though you leave the incubator, you</p>

<p>هل تنصح زملائك بالانضمام للحاضنات؟</p>		<p>will gain sufficient experience.</p> <p>نعم، أنه بغض النظر سواء حصلوا على تمويل ام لا أو لا ييطلعون بال بالخبرة بيشوفون أشياء معظمنا احنا الشباب خاصة الصغار اللي قبل 18 - 20 ما عندهم الخبرة الكافية اللي كيف السوق يشتغل فيه بعض النظرات إنه دام منتجي كويس خلاص بنجح لا فيه تسويق فيه علاقات فيه أشياء يمكن خارجة عن إرادتك فأعتقد أن العملية لما تتعامل مع واعد ويفتحون عيونك عالاشياء هذي قد تتغير نظرتك بعدين حتى لو تركتهم وطلعت بتصير شخص عنده خبرة كبيرة.</p>
<p>Do you think that incubators contribute to local development as a development tool?</p> <p>هل تعتقد أن الحاضنات تساهم في تنمية الاقتصاد المحلي؟</p>	<p>N7</p>	<p>Yes, to a great extent. Most of the youths have ideas but they are afraid to enter into project. Incubators provide incubation to incubatees and this would encourage investment.</p> <p>جدا. أكبر الشباب عندهم أفكار لكن يتخوفون من موضوع دخول المشاريع لكن الحاضنات توفر أبوه للمحتضنين فمشجع جدا للاستثمار.</p>
<p>Did you face any obstacles when you tried to join the incubator?</p> <p>If yes: what are they?</p> <p>If no: do you expect that there are obstacles that hinder joining incubators?</p>	<p>E1</p>	<p>There was no difficulty except the studies that are required before joining the incubators. However, it may have changed now. In addition, the period of incubation is long. These were the major obstacles and I overcome them by doing the required issues that I have supposed to do.</p> <p>معوقات لا ما كان فيه كان صعوبة، الدراسات المطلوبة قبل تنظيم بس يمكن الحين تغير فترة الانتظار تكون هذي المعوقات يعني الرئيسية وتجاوزتها إني سويت المتطلبات المطلوبة مني.</p>
<p>هل واجهتك أي معوقات عندما حاولت الانضمام للحاضنة؟</p>	<p>P1</p>	<p>The conditions of joining incubators are very complicated. For example, the idea should be a new idea that had never been disclosed. However, all of our ideas have been disclosed.</p>

<p>في حال نعم: ماهي؟ في حال لا: هل تتوقع أن هناك معوقات تعوق الانضمام إلى الحاضنات؟</p>		<p>شروط الانضمام للحاضنات شروط تعجيزية فعلى سبيل المثال: الفكرة، قرأت انه يجب ان تكون الفكرة جديدة ولم يسبق وأن طرحت، وأفكارنا كلها مطروحة.</p>
<p>How do you describe the process of selection incubatees (easy – average – complicated)? Why? كيف تصف عملية اختيار المحتضنين (سهلة – متوسطة – معقدة)؟ ولماذا؟</p>	<p>N5</p>	<p>It is average; there still old processes that use papers in all governmental circles. So, you have to fill up the form, which takes long time. متوسطه مع إن فيه اللي في كل مكان حكومي العملية القديمة الورق وتعبي فورم تطول السالفة وهي قصيرة.</p>
<p>How do you describe the process of joining incubators (easy – average – complicated)? Why? كيف تصف عملية الانضمام إلى الحاضنات (سهلة – متوسطة – معقدة)؟ ولماذا؟</p>	<p>N7</p>	<p>Very easy. However, the situation now is difficult due to Bader mechanism. When the project is repeated more than once, then it will be rejected and I think this is a proper policy. سهلة جدا لكن الآن الوضع يصعب بسبب آلية بادر صار عندهم آلية انتقاء المشروع فلما يتكرر المشروع أكثر من مره يرفضونه وأنا أشوفه صحيح.</p>
<p>Being an incubated in an incubator, does this help you to commence your project?</p>	<p>N6</p>	<p>This helps me not by money, but by the acceptance of technology in Saudi Arabia. Most of large companies say that we are too small. There is something that they do not understand such as Twitter. No one knows about Twitter even if you</p>

<p>كونك محتضن بحاضنة، هل ساعدك هذا لبدء مشروعك؟</p>		<p>explain. However, when the concept is successful, then they agree upon. So, with Waed, you have a big name that makes your matters easy.</p> <p>ما كانت الفلوس كان اكسبت حق التكنولوجيا في السعودية فمعظمهم يقولون لك الكبار [المشاريع الكبيرة] يقولون انتو صغار للحين مايفهمونه. تويتر أيام أول محد يفهم ايش هو ولو شرحته لأي أحد بيقولون لك .. الا لما يشوفون ال المفهوم ناجح بعدين يوافقون فلا مع واعد لما يكون عندك اسم شريك كبير خلاص يسهل لك.</p>
<p>If your business being an incubated in an incubator, does this help you in reducing the operation costs?</p> <p>في حال أن مشروعك تم أحضانه، هل ساعدك هذا بتقليل تكاليف التشغيل؟</p>	P3	<p>Yes, to a great extent. If you have consultations, then this will help you a lot not as an investment or amount of money but as a time mechanism, developing business plan and the establishment of the company; these matters will help you a lot.</p> <p>نعم، والله بنسبة كبيرة جدا أشوقها يعني إذا عندك الاستشارات هذي بتساعدك وبتسهل عليك أمور كثيرة خرينا نقول مو استثمار مبلغ مالي بس وقت بتسهل لك في آلية الوقت وتطوير خطه العمل وتأسيس الشركة والأمور هذي بتريحك صراحة بنسبة كبيرة.</p>
<p>What is the added value that you gained from being an incubatee?</p> <p>ماهي القيمة المضافة التي جنيته كون مشروعك محتضن؟</p>	N5	<p>Logistic and legal support and a support for concluding government transactions, and Bader incubator helps you in this respect.</p> <p>دعم اللوجستي .. القانوني ولأنه هنا لازم تمشي معك ظهر تقدر تدخل صفقات حكومية وبادر يسهل لك هالموضوع .</p>
<p>Are there any disadvantages for the incubation process?</p>	E1	<p>Incubation may render the incubatee to rely on the incubator to a great extent.</p>

<p>هل هناك مساوئ من عملية الاحتضان؟</p>		<p>قد يكون الاحتضان يجعل المحتضن يعتمد على الحاضنة بشكل كبير.</p>
<p>Are incubators a competitive or cooperative environment?</p> <p>هل بيئة الحاضنة بيئة تعاونية أم تنافسية بين المحتضنين؟</p>	<p>N8</p>	<p>Bader incubator is a collaborative and not competitive environment because it does not accept incubatees in the same field, it only accept one incubatee in each specific field</p> <p>بادر تتكلم إنه تعاونية وليس تنافسية لأنهم لا يقبلون محتضن بنفس المجال من كل مجال نوعي محتضن واحد.</p>
<p>For the success of start-up projects, does the environment of the incubator helps in making things with the best or shortest ways?</p> <p>هل بيئة شركتك لنجاح المشاريع تشجع على عمل الأشياء بأفضل الطرق أم أقصرها؟</p>	<p>P2</p>	<p>The shortest and best ways. Sometimes, it depends upon the product; if it does not have a new idea then it is achieved through the shortest ways.</p> <p>أقصر الطرق وأفضل الطرق بعض الأحيان يعني هو حسب المنتج إذا كان مافيه فكره جديدة نعملها بأقصر الطرق.</p>
<p>From your point of view, what are the factors that contribute in the success of the start-up projects?</p>	<p>E1</p>	<p>The start-up projects have an environment that helps in the field of industry. There should be logistic services and major companies in the same field of work and consequently they will expand and this helps much in the success of the start-up companies more than incubators. Incubators play a role but this role can be seen in the advanced stages only whereas in early stages, incubators are useful but it is important to have a sustainable business.</p>

<p>من وجهة نظرك: ماهي العوامل التي تساهم في نجاح المشاريع الناشئة؟</p>		<p>المشاريع الناشئة زي ماقلنا يكون فيه بيئة مساعدة من ناحية الصناعة لازم يكون فيها خدمات لوجستية يكون فيه شركات كبيرة في نفس المجال اللي حثتغل فيه يكونون امتداد لك فهذا بيساعد كثير في نجاح الشركات الناشئة أكثر من الحاضنات. الحاضنات لها دور صح لكنها فقط في المراحل المتقدمة المراحل وش يسمونها المراحل الاولية في المراحل هذي تنفع الحاضنات لكن بعد كذا وهو الأهم إنه يصير عندك مشروع مستدام</p>
<p>From your point of view, what is the type of incubators that currently need in Saudi Arabia (governmental – university – private sector)?</p> <p>من وجهة نظرك: ماهو نوع الحاضنات الذي تحتاجه السعودية في الوقت الحالي (حكومية – جامعية – قطاع خاص)؟</p>	<p>D4</p>	<p>Currently, we need all types of incubators.</p> <p>كل الأنواع حاليا نحتاجها.</p>
<p>What are the types of incubators that Saudi Arabia needs in the future?</p> <p>ماذا عن أنواع الحاضنات التي تحتاجها السعودية في المستقبل؟</p>	<p>D2</p>	<p>It will need governmental incubators, university incubators and private sector incubators.</p> <p>تحتاج إلى الحاضنات الحكومية أو القطاع الخاص أو الجامعية كلها.</p>
<p>From your point of view as a specialist in the field of</p>	<p>D3</p>	<p>No, if these studies are available, it would have been easier for some investors to direct their efforts towards incubators. Now [at the time of the</p>

<p>incubators, are there any sufficient studies about incubators in Saudi Arabia?</p> <p>من وجهة نظرك كمختص في مجال الحاضنات: هل هناك دراسات كافية في السعودية عن الحاضنات؟</p>		<p>interview], some investors have directed their efforts to establish business incubators. People are now attending conferences and symposium since they are interested to know the requirements of the market.</p> <p>لا، لو وجدت كان سهل على بعض المستثمرين التوجه للحاضنات والآن [وقت اجراء المقابله] بعض المستثمرين توجهوا لإنشاء حاضنات. صاروا الناس يحضرون مؤتمرات وندوات فعنده رغبة بس مو عارف احتياجات السوق.</p>
<p>What is the exit policy of your incubator?</p> <p>ماهي سياسة الخروج من الحاضنة لديكم؟</p>	D5	<p>The contract is terminated after three months and it is only renewed through reference to the steering committee. We have decided that the contract shall be renewed every three months. At the end of the last period and after referring to the steering committee, we ask him if he will continue or not. The exit policy is applied in accordance with the process that they have made, it maybe three months and it may be renewed to become six or nine months.</p> <p>بعد كل ثلاثة أشهر ينتهي العقد ولا يجدد إلا بالرجوع إلى اللجنة التوجيهية ، احنا قررنا إنه نعطيهم العقد كل ثلاث شهور فانت طالع بس احنا بأخر فترة بعد مايسوي التوجيه , ونقول له إنه بيكمل أو لا ، فسياسة الخروج بتكون حسب العمليه اللي قاموا بها فتلاثة شهور ممكن تتجدد تصير ست شهور أو تسع شهور.</p>

Appendix D: Examples of the 'meaning unit' for each one of the 'thematic labels'

The code	Participant	The sentence
4.2.1 Normative pressure arising from the Saudi national plan	Participant D2	<p>Bader appeared through the National Science, Technology and Innovation Plan. The kingdom's goal was to develop the plan by the Ministry of Planning and National Economy with King Abdul Aziz City. The aim of the plan is the economic and knowledge orientation in order to diversify the Kingdom's income; to have national income rather than relying on petroleum. Thus, the National Plan for Science and Technology was adopted and monitored. It is one of the few plans (two or three or less) in the Kingdom for which a budget has been adopted. The National Plan of Science and Technology has adopted a budget of 80 billion over five years.</p>
	Participant D1	<p>BADER is a national program of the National Innovation Plan; you know that the orientations of Saudi kingdom today is to transform our economy into a knowledge-based economy. The knowledge-based economy now includes thirteen categories, four of which are dedicated to supporting the transformation of the Saudi economy into a knowledge-based economy, and 3 of which are related to the National Plan for innovation support, and this is our current area.</p>
4.2.2 Coercive pressure arising from freelance working	Participant N7	<p>I chose freelance work because it has more potential than a job. The salary of this job is seven thousand only. Freelance work gives you self-development, income, and I think it is better for the future more than a job.</p>

	Participant D4	I go with freelance work. Now, the largest number is for jobs of course, but the percentage of freelance work increased, for example, among 100 graduate students, 90 - 95% of them go to jobs and 5% of them are creative and they tried profit or they have a family business culture. This was in the past but now I think freelance work reaches to 40% or 50% especially with the presence of Instagram. It becomes a great support for girls that they try without any costs. They try the demand of a certain product. I am talking about ladies because my experience is with them.
4.2.2.1 Financial support in Saudi Arabia aligning with normative pressure:	Participant P5	I think that there is a huge lack of knowledge between people about the supporting funds, people do not know them. If they know about them, they do not know how to communicate with them and how to start with them. Entrepreneurs and concerned people know about incubators by 60%. They know that the fund support them, but they do not know how to take the loan and how to benefit from it.
	Participant E1	Through my presence in Bader and other similar institutions, I know a lot about (supporting funds) such as: The Credit Bank, The Centennial Fund and others.
4.2.3 Understanding the implications for employment in Saudi Arabia:	Participant E1	All are local. We have no industry, and we do not have a culture of entrepreneurship. So, people here want high jobs. you employ an employee in a small company; he works with you for a short time and then he moves to a larger company. All of these matters do not help to form startups companies.

	Participant N8	The first thing is that the trained employees in e-marketing are numerous in Cairo. The second is the low wages, especially as it is in line with our online service.
4.2.4 The Saudi 'ecosystem' associated with isomorphism and competitive pressure:	Participant D3	In general, nothing is clear about eco-system.
	Participant P4	The eco-system is still weak.
4.2.5 The geography of Saudi Arabia associated with institutional theory:	Participant P2	The problem is the expansion whether in marketing or some of the products directed to sectors. The beginning of the company was in Al-Qassim, so the problem was to access to the sectors. We were focused on the services that are sold on the internet, so we had problems with the process of marketing remotely. After we came to Riyadh, the situation improved but we have problems with the capital. we have opportunities but these opportunities need an injection of capital.
	Participant D1	As you know, Bader is a national program, so I cannot take Al-Qassim region for example and leave the north region, all citizens of these regions are our sons and brothers. We incubate projects in all these regions. There is a virtual incubation, so you can stay in Jizan and we will provide you the same services, but we apologize for providing you an office.
4.2.6 Incubators and Saudi Arabia	Participant D2	The concept of entrepreneur, innovation and incubators spread throughout the Kingdom. Now, if King Abdul Aziz City closed the program, you will find that the idea has already launched and all universities of the Kingdom have these three concepts:

		incubation, innovation and entrepreneurship. All of these concepts are found by Bader program or at least, Bader has a major role in rethinking, reconsidering or re-evaluating.
	Participant D1	Bader program is supported by the kingdom in order to spread incubators in Saudi Arabia. Now, we have reached a great number which is eleven incubators, and the goal is to reach twenty incubators by 2015. This is the answer of your question and yes, Bader program consists of a large number of incubators, and is supposed to reach 80 incubators 20 years from now.
4.2.6.1 Understanding the implications of awareness of Saudi incubators:	Participant E1	Regarding the awareness of the role of incubators, I feel it is weak because people do not know what does Bader do and what does the entrepreneurship mean. Most of them, I mean the traditional people such as employees, have weak awareness about incubators because the concept of being an entrepreneur has no popularity in the country. The popularity always for studying and for gaining a big job.
	Participant N8	There is awareness and there is an increasing demand for incubation.
4.2.7 Implications leading incubators to contribute to local Saudi development:	Participant D1	Of course, but they have a positive effect since they contribute to the success of the projects, thereby, the percentage of successful small businesses will increase, and the percentage of failed projects will diminish.
	Participant E1	Incubators themselves contribute, but they need other supportive things.
4.2.7.1 Implications leading incubators to	Participant D2	Yes of course, and this context (i.e. the incubators) is suitable for Saudi Arabia. For

contribute to starting new projects:		example, in the USA, the title of the company can be the address of your house, but in Saudi Arabia you need to have a commercial address. Therefore, you need money to rent an office, which is expensive for emerging companies, in addition to their other costs (such as the set-up of an office, etc.). However, in the incubators, all these costs are not paid by the emerging companies, they are provided free of charge by the incubators.
	Participant D3	Incubators contribute in starting new projects of course, because one company may be complementary to other companies. A company may need a specific service, so the center is thinking to open another company that fulfills the service needed by the first company. With respect to IT companies for example, other companies related to this field will open when I decide to open development company.
4.3.1.1 Current incubators in Saudi Arabia aligning with competitive pressure:	Participant D2	At present, the idea of incubation has not matured yet like America. At that stage, every telecommunications company for example open its own incubator.
	Participant D3	In my opinion, I think the commercial incubators are better for one reason; possession of the project increases the process of developing the idea and you can control it. However, government incubators are difficult to enter investors with the owner of idea; this disables the project.
4.3.1.2 Comprehending the types of current incubators in Saudi	Participant D1	What is more suitable for the Saudi community? virtual incubation or office incubators? We

Arabia:		believe that the Saudi society likes the atmosphere of offices to get out of the atmosphere of the house. The Saudi society has its own privacy and likes to gather at home and likes family gatherings. We have just yet started accelerators which called “one hundred days” and we make it through nine months, while incubators are for three or four years.
	Participant D2	We provide all of them (all types of incubation). There are virtual incubators in Hofuf and Jizan, but we have no branches there. Accelerators need funding and we do not have funding, this is a very big problem. Accelerators are a good model for Saudi Arabia. From my point of view, there are two conditions. First, you should have a huge company such as: telecom company or SABIC. Second, the existence of funding. I think that full incubation is the most appropriate, at least, let's say over the next two years, because the credibility in incubators does not exist until now or it is weak, especially in the presence of young people who have no understanding of incubators. It is necessary that the credibility should exist at least in the coming years.
4.3.1.2.1 Analysing which type of incubator best fits the local context:	Participant D5	Incubators are good for research and development for the long term, while large investments and accelerators are beneficial for a high risk validation period. Therefore, in general, I prefer business accelerators, as I feel they are more beneficial than business incubators, which follow a slow paced process.

	Participant N2	Accelerators, by their nature, exercise pressure on you until you accomplish your task, because they may either have paid money to you as a partnership or you have paid money to them so that you can remain with them for several months to benefit from their services.
4.3.1.3 Evaluating the current incubators from an institutional theory approach:	Participant D4	Unfortunately, there are university incubators that did not give any result. On the other hand, our first project was sponsoring a project of creative youth energies at King Saud University. We found an important turnout, and we incubated projects and there are projects that were opened, while the entrepreneurship center at Saud University did not do what we did although we are an external incubator. Many bodies contact with us. The center of entrepreneurship in universities did not achieve the practical goals; it only disseminates the culture, rehabilitates and trains the incubatees, but there is no actual incubation, so I think it does not achieve its goal; I cannot judge what I need if the experience itself did not work.
	Participant N7	They fit and balanced the Saudi environment. There are attempts to support the youth in Riyadh, Rizq Jameel and Chamber of Commerce in Al-Qassim, but they are not suitable for the youth. I think the best two incubators in Saudi Arabia are: Dhahran incubators which belongs to Dr. Al-Zamel and Bader incubator. Other incubators are not suitable such as Riyadh incubator, it does not committed to dates. It copies and pastes the outside's experience, and this is

		<p>not applied here because the environment is different and you need to be more flexible.</p> <p>In addition, sometimes the incubators provide services which are less than you expect. For example, you do not find what are you looking for such as solutions and consultations. You find that the employee in the incubator has an experience less than you, so you benefit from the funding only. So incubators are portfolios of the Credit Bank.</p>
4.3.1.3.1 Disadvantages of current incubators associated with isomorphism and competitive pressure:	Participant D4	<p>Some incubators incubate regardless of the services needed by the incubatee. This is because they want to increase the number of incubated people or they do not know what happen. They want to provide a service and help, but these services are not useful.</p>
	Participant D3	<p>One disadvantage of incubators is the choice of the types of projects. There are projects that have a big potential to provide services in the country such as the charitable services. However, some incubators refuse them because there is no big profit. We need incubators that are specialized in charity support for non-profit charity projects. There are some centers like Princess Al Anoud Institution which contributes to supporting the simple projects.</p>
4.3.1.3.2 Managers and staff of incubators associated with isomorphism and competitive pressure:	Participant D2	<p>Most, if not all, of those who are in charge of our incubators are governmental officials or university professors. But governmental officials or university professors should not be in charge of an incubator if they have no experience of business (the law in Saudi Arabia prohibits governmental officials and university professors from practicing</p>

		business activities). Therefore, they cannot interact with the projects as traders, but instead they interact on a routine basis... The matter is not only related to the managers of incubators, but the staff should also have a business background, so that they have experience of all the stages through which the owner of the project has passed.
	Participant N2	In America, there is a monthly update. However, this is not happening here. The follow-up is weak and people who are responsible do not know exactly what you do. The incubator is ICT incubator and there is no technology specialist among all people who worked with me. If I tell him that this point needs a one month or two months, he does not know whether he needs one or two days. I do not say that I used this gap, but I actually say that they cannot help you and inform you with your mistakes and guide you to another way to do this.
4.3.1.4 The future of local incubators from an institutional theory perspective:	Participant D2	The Kingdom needs all types of incubators.
	Participant D1	In the future, I expect that there will be a cooperation between the private and the public, which called Public Private Partnership (PPP). I expect that it will be distinguished because it has an integration. As you notice, my views differ from everyone else, I believe that the traders must be a part of the private sector. I see, for example, that the cooperation in the private sector in the establishment of incubators is good. This can happen if the state takes a part of the cost of establishing the incubator,

		while the private sector holds the expertise to manage it and so on.
4.3.1.5 Normative pressure arising during the incubation period in local incubators:	Participant D5	After every three months, the contract ends and it is renewed only by the steering committee, where we tell them if there is a value to complete with us or not.
	Participant D1	The minimum duration is 3 months, which is the process of dissolution of the contract if he does not come. The longest duration is 4 years.
4.3.1.6 Normative pressure arising from the exit policy for local incubators:	Participant D5	The exit policy is associated with a period of three months and it may be renewed for six months or nine months. The last two weeks, we inform him either he will complete with us or not, so the exit policy will be according to the progress that he has made.
	Participant D3	The exit policy is not clear. We aim to produce existing projects in the market but the strategy at work is flexible.
4.3.1.7 Understanding the implications of the services provided to the incubatees in the local incubators:	Participant N7	Finance, consultancy, training... They offered a business center, the business center in Riyadh. So, if I have a meeting in Riyadh and I do not have a place, the incubator is my place. They provide a space that can accommodate us. So Bader is my home and this is an advantage. They also provide consulting, for example, they provide a session with an Australian technical consultant from Carida company, which is an Australian company, every six months in addition to periodic sessions with Jordanian and Saudi consulting companies.
	Participant N5	First: the legal advice, if you have a contract with a customer, they review it legally. Second: the place and the meeting room. So

		if there is an event, for example, Arab net sells tickets, while Bader provides free tickets. Also, if you want an investment, they gather you with investors because Bader do not give you money but they give you the introduction on the investors.
4.3.1.7.1 Comprehending the value added to the incubated businesses:	Participant E1	The added value in the formation of business in its beginnings is the most important value, and this has a significant impact on the continuation of the business. The added value includes also the support in terms of the network: the government network and the companies' network. The power of Bader is it has a strong network with the companies, the government and the entrepreneurial community in general, both internal and external, and now it has a strong external communication.
	Participant N3	The added value is that the rate of growth increased significantly. All the things that supported us including the legal and financial support and counseling were very useful for me at the beginning of my project.
4.3.1.8 Understanding the local incubators culture:	Participant N7	Once I knew that it is a competent incubator, I decided to join. Being an incubatee in a technology incubator means that I will meet people who are familiar with technology and their entire job revolves around my specialization. I decided to join because the environment motivates me to work more.
	Participant N6	The environment of our incubators is very cooperative.
4.3.2.1 Technical projects in Saudi Arabia associated with	Participant P2	It was a transitional phase in the Arabic context where people used to depend on foreign companies, and some Arabic

institutional theory:		experiences were successful.
	Participant N8	I think that the technology projects are not a technology alone, but there must be an economic staff with a leading and marketing skills to have a strong product. A programmer can only think programmatically and he feels that he actually launched a product. In fact, it is not launched because it does not start from an economic, marketing or administrative cycle, then it collapses.
4.3.2.1.1 Understanding the status of technological projects in Saudi Arabia which do not require a large amount of capital:	Participant D2	We started in the ICT incubator, because it is least commercial types of business which require a capital, and the person can work from his home while if it is engineering, bio or chemical project, it needs labs and other equipment.
	Participant P5	Our project did not need a capital and we provided it in a personal way.
4.3.2.2 Implications arising from the success of technical SMEs in Saudi Arabia:	Participant P2	People were depending on foreign companies, and some successes directed at the Arab content were appeared. Our interest in the market was the transformation. There be many activities.
	Participant N4	Project Success Factors: the idea of the project and developing a business plan and adhere to it.
4.3.2.2.1 Understanding the level of the success of incubated technological projects:	Participant N8	If he is an individual without incubation, he is possible to jump to 40% but with incubation; he jumps to 120%.
	Participant N3	It was a very high growth annually; it expected to be 100 %, This increase is in the incubation stage.

4.3.2.3 Understanding the effect of the incubators on the incubated technological projects to reduce the costs of set-up and operation:	Participant D3	It reduces the operating costs by 70-80%.
	Participant N6	The incubator helped to reduce the costs, I cannot estimate, but I think it is about 50%.
4.3.2.4 Comparison between the incubated and non-incubated technological SMEs in Saudi Arabia aligning with isomorphism and competitive pressure:	Participant N4	The growth before the incubation was almost halted. I have measured the growth after (after incubation). It approximately reached to 40% over the past year.
	Participant N6	If I had asked for a loan from the bank or entered a partnership, and they paid me double the amount [which I received from the business accelerator upon entering into partnership with them], I could not have done what I have done in the incubator.
4.3.2.5 Credibility	Participant P2	In order to get the clients, we were forced to accept projects from governmental authorities with low profits or projects that suffered from losses. We did say so that we could say 'we have x client' in order to break the confidence barrier because you cannot compete with major companies.
	Participant N8	This is what I see. People will give you their product and conclude a contract with you. That will happen if you were reliable or you have achievements or competencies, or you provide a service in an area that no one provides such service in it. So the service is the scarcity; if this service exists, you cannot do anything more.
4.3.2.5.1 Credibility in the local context aligning with	Participant P5	The government projects do not trust the small enterprises and they do not give them projects.

institutional theory:	Participant N6	I think so, unfortunately I think Saudi Arabia until now does not accept the fact that the small startup gives a value for small companies. They all accustomed to the number of major companies so even when you go and present yourself, they ask you which company you follow, so this is the mentality even when we were working with a government project. They told us that we love your idea but sorry you are not affiliated with the big companies, so we cannot sign a contract with you.
4.3.2.5.2 Understanding the contribution of incubators to credibility:	Participant D2	The third service is credibility, which is needed in any office that he/she would go to, for example, an institution in Al-Qassim. When he [the owner of incubated project] went to take project from Ministry of Defense, he was asked by them saying; “who are you? You are only such startup.” Then, we wrote a letter that lead to get the agreement and they said; “we will observe hem and make all my efforts to watching his work for you; if it is well done or not. However, if he doesn’t comply with the contract conditions, we will notice you and we won’t bear any responsibility. This provides the credibility to many small institutions to start their projects. That is considered very important.
	Participant N7	Incubators increase the credibility of projects because you follow a system, so this system is more trustworthy than a person alone. This gives you more credibility, and for the Saudi environment, this thing is increased much and that is what I noticed.
4.3.2.5.3	Participant E1	As an incubateed, if you stay a long time in

Comprehending what affects credibility:		the incubator, this gives an indicator that your business is still small. This is how the investors see your business. They all ask you: when will you leave the incubator? you should leave the incubator.
	Participant P3	Unfortunately, relationships play a big role to make the company successful. I know young people who have IT companies and their work is excellent. However, they cannot succeed without their relations; they have friends who are employees in government sectors. There are a lot of startups closed their companies because they cannot continue without relations.
4.3.2.5.4 Suggestions for increasing credibility along with institutional theory:	Participant P1	The solution is coercion, especially government sectors, and logistical support by the Chamber of Commerce, so if the Saudi product exists, the preference is to the Saudi product any way.
	Participant P2	I blame the situation of the market. The situation in Saudi Arabia cares about the price not quality. It is natural that the large company that has a marketing capability is capable of minimizing the price more and offering less quality. However, the company that wants to prove itself is trying to offer a high-quality product, but it fails to gain trust because the market in general offers a poor quality product. So, the government sectors resort to the large company to protect themselves because they can risk with their names. There are no criteria classified companies, for example, it should be a blacklist of companies to protect the company and government agencies.

<p>4.4.1 Coercive pressure arising from the obstacles facing local SMEs:</p>	Participant N7	<p>The technical update is the problem for young people. In technology field, they do not put their information, so you find that someone created and developed an application, after that you notice that this application is over because it was not developed by its owner. Also, this application did not keep up with the appearance of social networks; so people do not care about the application. For example, Haraj site neglected social networks. So the lack of development and the lack of keeping up with people's needs have a negative impact. I see this is the only obstacle that face technologists. Sometimes they do not have any background on the management and financial matters. So, they want to launch projects but they do not have a background and they only have a technical capacity, this negative exists, and this is solved and trained by incubators.</p>
	Participant N2	<p>First, the lack of awareness of how to start the project, the current awareness is copying of large enterprises; the same experience, the same plan of action and the same equipment, second, non-commitment, whether from the owner of the idea or project, towards his idea, or from the workers.</p> <p>There are two major obstacles, the first is the lack of easy payment gateways, the second is the lack of clear and accessible addressing system.</p>
<p>4.4.1.1 Coercive pressure arising from the Saudi rules and</p>	Participant P1	<p>They compare technological projects with grocery stores, based upon the area of the shop.</p>

regulations associated with SMEs:	Participant P4	One of the things that made me love the field of IT is my relationship with government, in that laws and procedures are few, and your contact with bureaucrats is limited. This enables us to focus on the work instead of focusing on the procedural aspect. I see friends who are working in other fields spending 50-60% of their time on governmental procedures: this kills creativity and kills the spirit.
4.4.1.2 Understanding the mechanism of overcoming these obstacles of emerging companies:	Participant P4	In general, many government entities were in a different world. For example, the Credit Bank and Bader do not understand us but in Aramco, the situation was much better. They listen to us and there was a bureaucracy. It takes time but at the end of the day it was good; they took a risk to enter a project that did not exist. Overall, Areeb world for example was a good experience. Now the situation is better, and the process is more agile while in our duration the process was difficult.
	Participant D2	There is no instant solution, and matters need to take their natural course in Saudi Arabia. Laws are now changing, but slowly.
4.4.2 Normative pressure arising from the conditions and criteria for the selection of incubate:	Participant D4	The applicant should be Saudi, her age is between 21 - 60 years old, and she should be a full-time worker.
	Participant D5	Novelty of the idea, level of innovation, being in technology, technology driven venture, having the right people with skill to make it happens and the potential investors, so we are a continuation of Waaed, so we are looking for start-ups and fulfilling their needs.

<p>4.4.3 The isomorphism and competitive pressure arising from the obstacles facing SME technological projects when attempting to join the local incubators:</p>	Participant N2	<p>I faced obstacles when I was trying to join the incubator, the big problem was the lack of understanding of the idea by the evaluators. I needed to over one session; I filed a request to be an incubateed and my request was refused, and they said that the idea existed before. I tried to communicate unusually, and I looked for someone because I wanted to know what are the reasons for rejecting the idea. The basic idea was that they did not understand the project exactly. After that, I applied again, the idea was different, and there is no similar project.</p>
	Participant N1	<p>They want to support the project, but they want to support the company and work that creates jobs. This had drawn my attention because you do not just support the project, but you support the economy as well.</p>