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Does Institutional Environment Promote Women's IT Entrepreneurial Intentions in Saudi Arabia? Technological and Institutional Perspectives

Research-in-Progress

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Abstract

From the foregoing studies, they unanimously agreed that women in technological entrepreneurship and innovation are strongly underrepresented. Based on previous literature of female entrepreneurship and Information Systems (IS), the study for the first time aims to propose an integrated model to explain women's IT entrepreneurial intention as a new driver of IT entrepreneurial behavior. In particular, we aim to investigate the influence of socio-cultural factors as well as technological factors on intention and decision-making processes that lead women to become tech-entrepreneurs in Saudi Arabia. Investigating such factors that affect women's entrepreneurial intention to become so is beneficial for motivating a new generation of women entrepreneurs in the IT context as well as providing a further understanding to IS researchers and practitioners.

Keywords: Women's Entrepreneurship, Saudi Arabia, Technological Entrepreneurship, Innovation

Introduction

In the last decades, new business creation has been viewed as a source that promotes economic growth, and drives innovation. It is becoming a matter in societies and governments in different countries. Specifically, we could observe an increasing awareness of the importance of technological entrepreneurship and innovation (Chen 2013; Chen 2014; Dutta et al. 2015). Despite the increasing awareness of this importance, evidence indicates that women in such businesses are heavily underrepresented (Ezzedeen and Zikic 2012; Hampton et al. 2011; Marlow and McAdam 2012). This prevailing culture is more pronounced in a society characterized with a high level of stereotypical gendered expectations toward technology businesses (Marlow and McAdam 2012) and well-defined gender roles such as Saudi community (Almobaireek and Manolova 2013). Thus, given the necessity to enhance women participation in business venturing and the significance of the technological entrepreneurship on socio-economic growth, there is a need for further investigation. Thus, it incorporates knowing the status quo, identifying the influential factors, and exploring women's probability and motivations toward technology entrepreneurship. However, the existing literature indicates that there is no empirical study to understand female entrepreneurial intention as a predictor to perform IT entrepreneurial behaviors. Furthermore, most of the literature on female entrepreneurship in general and more specifically in Saudi Arabia is concentrated on traditional and non-technological businesses. Hence, a gap in the literature still exists.

Literature Review

Gender Influences on Technology Entrepreneurship:

Science, technology, and innovation have been associated with a strongly masculinized culture which resulted in making such fields less attractive for women. Therefore, this prevailing culture leads to reducing women-related invention and innovation ideas as profitable businesses (Hampton et al. 2011; Marlow and McAdam 2012). In Addition, although more women are gaining formal

qualifications to enter the technological entrepreneurship, women are heavily underrepresented in this area (Hampton et al. 2011; Marlow and McAdam 2012). Particularly, in Saudi women context, whereas their knowledge has not yet been transferred into technology businesses (Yousuf Danish and Lawton Smith 2012). Furthermore, a sizeable amount of literature suggests that gender stereotypes play an important role in entrepreneurial behavior toward technological entrepreneurship (Ezzedein and Zikic 2012; Marlow and McAdam 2012). Despite these facts, the existing literature shows that innovation, technology and women's entrepreneurs are rarely discussed in the same context, though each has a vital value for human and economic growth.

Saudi Women Entrepreneurs

Recently, women's entrepreneurship has recently become a topic of interest Saudi Arabia. Although, women are traditionally restricted to join the economic field for a long time (Almobaireek and Manolova 2013), there is a noticeable improvement of women status in this field, driven largely by changing the direction of Saudi government to support women's empowerment and gender equality. For instance, Almunajjed (2010) stated that women own 12% of businesses in the country, and 16% among the major manufacturing firms (Almunajjed 2010). Furthermore, among 8 of the 45 Fast Growth Companies were founded by women, which are recognized in 2008 as the biggest contributors to job creation, innovation and economic growth (Almobaireek and Manolova 2013). In addition, the government has launched many entrepreneurship initiatives in an effort to support the entrepreneurial culture and enhance women role in the labor force and economic sector through entrepreneurship leadership, such as Aramco Entrepreneurship Center, and Badir Program from the scientific organization of King Abdulaziz City for Science and Technology (KACST). However, women's participation in these initiatives is nascent with a limited entrepreneurship rate. Additionally, the economic aspects of business women are still at the low levels of awareness (Yousuf Danish and Lawton Smith 2012). Despite these facts, there have been few studies of women's entrepreneurship that help to identify factors that are affecting probabilities and start-up decision towards entrepreneurship in general and technological entrepreneurship in specific. Such an approach is likely to offer an opportunity to predict entrepreneurial behavior among Saudi women and understanding their probability.

Drawing on previous literature of female entrepreneurship and Information Systems, the current study aims to develop an integrated model for IT entrepreneurial intentions. Particularly, we aim to examine the influence of informal institutions and technological factors on intention and decision-making processes that lead women to become tech-entrepreneurs in Saudi Arabia. Hence, two specific research questions are explored:

- Do socio-cultural factors, which represent the culture of society, affect Saudi women's IT entrepreneurial intention?
- What role do technological factors play in the decision making to start technological entrepreneurship by Saudi women?

Research Model and Hypotheses Development

Socio-Cultural Factors

Scholars of entrepreneurship have focused their attention on the influence of institutions in general and more specifically socio-cultural factors on entrepreneurial process and have adopted institutional theories in their investigation (Thornton et al. 2011). In the context of female entrepreneurship, considerable studies have adopted the institutional economic theory in their investigation (Díaz-García and Jiménez-Moreno 2010; Julia Rouse et al. 2013; Noguera et al. 2013). In terms of North, informal institutions refer to the social and cultural factors that affect entrepreneurial process (Noguera et al. 2013; North 1990). The importance of such factors in the decision to start-up businesses and entrepreneurial behavior is well-documented (Thornton et al. 2011), arguing that entrepreneurship is embedded in a social context (Thornton et al. 2011). As a starting point, socio-cultural factors could include patterns of social norms, beliefs and practices treating men and women differently, and usually unequally. They produce different perceptions and opportunities for men and women in society (Julia Rouse et al. 2013). They also result in differences in entrepreneurial process, which may explain why women have different perceptions and tend to perceive themselves and the entrepreneurial environment in a less favorable than men (Langowitz and Minniti 2007). These perceptions (e.g., perceived opportunities, fear of failure), in turn, are also important cognitive elements to be considered because of their influence on entrepreneurial process (BarNir et al. 2011;

Koellinger et al. 2013; Noguera et al. 2013), and entrepreneurial intention (Camelo-Ordaz et al. 2016). Therefore, drawing on institutional theory, this study will examine the influence of socio-cultural factors of individual-level perceptions on the decision to start-up businesses.

Entrepreneurial Intentions Theory

A considerable amount of literature arguing that intention plays a very relevant role in the decision to start a new firm and predict behavior. Specifically, the Theory of Planned Behavior (TPB), has also become the most influential and increasingly common framework in entrepreneurial intention literature (Chen 2014; Díaz-García and Jiménez-Moreno 2010; Krueger et al. 2000; Zhao et al. 2005). According to the TPB, entrepreneurial intention illustrates the effort that is required from individuals to acquire the entrepreneurial behavior (Krueger et al. 2000). It is considered to be influenced by different antecedents including the degree of perceived behavioral control (Ajzen 1991), which is similar to the construct of perceived self-efficacy (Díaz-García and Jiménez-Moreno 2010) that is adopted in this study. This study utilizes behavioral intention and it is considered as essentially appropriate to analyze the intention to become an IT entrepreneur as a predictor to perform IT entrepreneurial behaviors. However, TPB model neither considers institutional variables nor technological factors as influential factors on entrepreneurial intention. Thus, there is a need for other variables to measure women's IT entrepreneurial intentions. Furthermore, this model fits perfectly within the institutional economic theory, which could support this study.

Utilizing the intentional theory, Chen (2014) proposed a model that identifies two important technological dimensions as key drivers of IT entrepreneurial intention: computer self-efficacy and personal innovativeness with IT, which will be illustrated in the following section.

Women's IT Entrepreneurial Intentions

Based on the above theories and models, the following hypotheses are developed

Perceived Opportunities: ability to recognize opportunities plays an important role in the entrepreneurial process. In accordance with this, Shane and Venkataraman (2000) explain the field of entrepreneurship as a study of sources of opportunities and entrepreneurs should be able to recognize these opportunities (Noguera et al. 2013). However, scholars show significant gender differences for this perception (Camelo-Ordaz et al. 2016; DeTienne and Chandler 2007; Koellinger et al. 2013; Noguera et al. 2013). They find that traditional roles assigned to women in a society support the idea that entrepreneurial activity is less desirable for them than for men (Baughn et al. 2006; Langowitz and Minniti 2007), which lead them to perceive fewer entrepreneurial opportunities (Gonzalez-Alvarez and Solis-Rodriguez 2011; Noguera et al. 2013). Other authors have demonstrated a positive and significant correlation between the ability to perceive opportunities and entrepreneurial intention of both genders, with a stronger effect on women (Langowitz and Minniti 2007). Hence, we could observe that social processes that experienced by women during their lives could be responsible to control women's behavior and develop different abilities to perceive opportunities and therefore, different motivations to become entrepreneurs. As such, this study assumes that

H1: *Perceived opportunities positively influence the IT entrepreneurial intention of Saudi women.*

Fear of Failure: many scholars suggest that entrepreneurs must be able to face risky situations, and possible failure. Consideration of these possibilities is a significant factor of an individual to start-up business. The presence of a certain degree of fear of failure could affect decision-making to start-up and the entrepreneurial process (Arenius and Minniti 2005; Camelo-Ordaz et al. 2016; Langowitz and Minniti 2007). Scholars find that women entrepreneurs are more risk-averse and consequently, less likely to expect debt financing in order to capitalize their business (Shinnar et al. 2012). Furthermore, Pathak et al, (2013) examined the relationship between women's attitudes of fear of failure and entry into entrepreneurship, concluding that this variable vary depending upon the strength of a country's gendered institutions (Julia Rouse et al. 2013). Hence, the increased fear of failure experienced by women that lead to reduce entrepreneurial intention can be explained by formal and informal institutions. Other authors observe that a strong relation between gender and fear of failure, and this aspect could play an important role in the explanation of the gender entrepreneurial gap (Camelo-Ordaz et al. 2016; Koellinger et al. 2013; Shinnar et al. 2012). On the basis of these arguments, the following hypothesis was formulated:

H2: *Fear of failure negatively affects the IT entrepreneurial intention of Saudi women.*

Role Models: scholars have established the importance of role models in general business behavior (BarNir et al. 2011). The presence of entrepreneurs with successful role models create a positive influence to entrepreneurs, and provides information which reduces the ambiguity associated with starting a business (Arenius and Minniti 2005). Research on gender aspects in entrepreneurship

discussed the importance of woman's knowledge of another entrepreneur, which has a positive influence on her participation in entrepreneurship. However, Kelly et al, (2012) found that women are also less likely than men to report knowing an entrepreneur (Austin and Nauta 2015). In the Saudi context, some authors show that women's entrepreneurship has not provided enough successful female role models for encouraging more women in entrepreneurial initiatives as an appropriate career path (Almobaireek and Manolova 2013). Consequently, this factor could explain the gap in female entrepreneurship in the Kingdom. In conclusion, we could observe that that role model plays an important role in women's entrepreneurial intention. Thus, the following hypothesis is proposed:

H3: *Role models positively influence the IT entrepreneurial intention of Saudi women.*

Entrepreneurial Self-Efficacy (ESE) reflects an individual's perceived capability to perform entrepreneurial roles successfully (Chen et al. 1998). Many studies suggest that individual's with higher entrepreneurial self-efficacy has higher entrepreneurial intentions (Chen et al. 1998; Krueger et al. 2000). However, the literature shows that, compared to men, women tend to perceive themselves and the entrepreneurial environment less desirable (Langowitz and Minniti 2007). This perception in turn influences their entrepreneurial intentions and subsequent lower levels of entrepreneurial behavior (Wilson et al. 2007; Zhao et al. 2005). Additionally, there is evidence that women are more likely than men to limit their career choice and interests due to their low perception of the necessary skills and capabilities (Wilson et al. 2007). Palmer et al. (2015) have found that the relationship between gender and entrepreneurial intentions was reduced when self-efficacy was considered (Palmer et al. 2015). So, it is possible to consider that women perceptions of themselves play a greater role in the decision to start a business. As such, this study assumes that

H4: *Entrepreneurial self-efficacy positively affects the IT entrepreneurial intention of Saudi women.*

Computer Self-Efficacy (CSE) refers to the individual's belief and judgment of her/his capability to use computer in different situations (Compeau and Higgins 1995). A sizeable amount of IS literature demonstrated that CSE is a key component of individual's behavior in using computer (Chen 2013; Chen 2014; Compeau and Higgins 1995; Venkatesh 2000). Recent studies have analyzed the relationship between CSE and entrepreneurial intention. For instance, Chen (2013; 2014) demonstrated that CSE has a direct and positive impact on entrepreneurial self-efficacy, which in turn influences entrepreneurial intention. Therefore, it is reasonable to consider that CSE as an antecedent to female entrepreneurial self-efficacy in the IT context. CSE can be helpful to reduce the effects of low self-efficacy of women and consequently increasing ESE. This is consistent with a finding that shows users who possess high CSE are more likely to form positive perceptions of IT and IT usage intentions (Venkatesh 2000). Thus, the following hypothesis is proposed:

H4a: *Computer self-efficacy positively influences entrepreneurial self-efficacy of Saudi women.*

Personal Innovativeness in IT (PIIT): a considerable amount of IS literature has demonstrated that PIIT is associated with IT adoption and usage (Agarwal and Prasad 1998; Chen 2014; Dutta et al. 2015). PIIT represents "the willingness of an individual to try out any new information technology" (Agarwal and Prasad 1998, p. 3). Within the entrepreneurship context, Schumpeter's definition of entrepreneurship addresses economic factors as well as emphasizing on innovation (Schumpeter 1934). According to Schumpeter, entrepreneurship is a function of innovation opportunities, and entrepreneurs are innovators who create something new into economy. From IS perspective, entrepreneurs highly depend on technological innovation to create new technological enterprises and new technologies (Chen 2014; Dutta et al. 2015). Some well-empirical studies have tested the relationship between PIIT and individual's behavior providing evidence of a significant relationship (Agarwal and Prasad 1998; Chen 2014; Dutta et al. 2015). For instance, Chen (2014) shows that PIIT has a direct and indirect influence on ESE and IT entrepreneurial intention (Chen 2014). A result confirmed by others such as Dutta et al, (2015) who show that PIIT act as key drivers, and the impact of PIIT on entrepreneurial intention is fully mediated through perceived feasibility. Perceived feasibility, also referred to as entrepreneurial self-efficacy in many studies (Dutta et al. 2015). In the present study, it is reasonable to view that female entrepreneurship at an IT level is driven by many factors including innovation and PIIT. As discussed earlier, scholars found that compared to men, women's perception of their entrepreneurial skills have been more reduced frequently, regardless their real skills (Noguera et al. 2013; Wilson et al. 2007). Therefore, it is reasonable to expect that PIIT could play a critical role in the development of entrepreneurial self-efficacy. This proposition confirms previous studies showing that individual with high PIIT will improve his/her ability, motivate him/her to incubate technological innovation and look for ways it could be deployed to transform technology innovation into market opportunity (Dutta et al. 2015). Thus, the following hypothesis is proposed:

H4b: *Personal innovativeness with IT positively influences entrepreneurial self-efficacy of women.*

Based on the above hypotheses, the initial research model has been developed as shown in Figure 1. As illustrated in the model, socio-cultural factors have a direct influence on IT entrepreneurial intention, and technological factors have indirect influence via entrepreneurial self-efficacy.

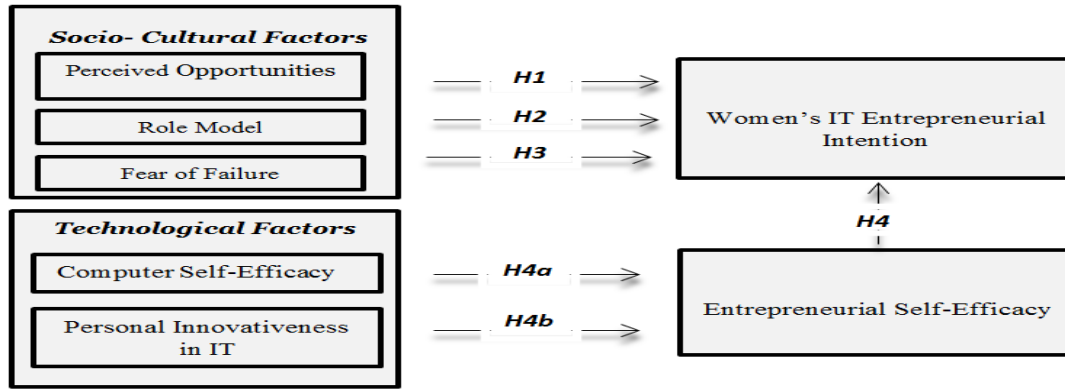


Figure 1: Initial Model of Women's IT Entrepreneurial Intention

Research Methodology

This study will apply a mixed method (quantitative and qualitative methods). Stage one will employ a quantitative method (survey) to collect numerical data to test hypotheses. Stage two will employ a qualitative method (interviews). Data collected from interviews will be interpreted to validate the quantitative results. As the study aims to explore the influence of chosen factors on women's IT entrepreneurial intentions, it is concluded that the target population of this study will be female students. Specifically the survey instrument will be administered to university students (fourth and fifth year) majoring in IS and other related areas as well as subjects related to business and management. Also, the sample of this study will include non-entrepreneurs including graduates, employed and unemployed women and nascent entrepreneurs, in other words people who are not entrepreneurs yet, but are pondering on it. There are basic reasons for selecting students. Firstly, university students' samples have been widely used in entrepreneurship research more specifically when considering entrepreneurial intentions. Students will make a professional career decision imminently after, and often before, graduation (Krueger et al. 2000). Also, according to Sexton and Bowman (1986), entrepreneurship students did not differ in a significant way from business owners in terms of conformity, energy level, interpersonal affect, social ability and risk aversion (Díaz-García and Jiménez-Moreno 2010). Similarity, Chen (2013-2014) stated that a large number of world-class IT companies are founded by technology entrepreneurs including college students and graduated.

Conclusion

This study, for the first time, aims to make a significant contribution by examining empirically women's IT entrepreneurial intention as well as its antecedent factors. Based on previous literature, the model has been proposed to answer the research questions. The following table illustrates the alignment between research questions, factors and hypotheses. The result of this study aims to motivate a new generation of women entrepreneurs in the IT context. Also, it will provide a further understanding to IS researchers, and practitioners. Furthermore, practical implications will provide knowledge and means for policymakers for designing policies that promote female entrepreneurship.

Research Questions	Factors	Hypotheses
Do socio-cultural factors, which represent the culture of society, affect Saudi women's IT entrepreneurial intention?	Perceived Opportunities, Fear of Failure, Role Model, Self-Efficacy	H1, H2, H3, H4
What role do technological factors play in the decision to start IT entrepreneurship among women?	Computer Self-Efficacy, Personal Innovativeness in IT	H4a, H4b

Table 1 illustrates the relations between research questions, factors and hypotheses

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