

**On the Structure and Internal  
Mechanisms of Business Incubators:  
*A Comparative Case Study***

PhD Thesis

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Author

Ali Ahmad

Supervised by

Dr. Sarah Ingle

DCU Business School

Dublin City University

Dublin 9

Ireland

# Declaration

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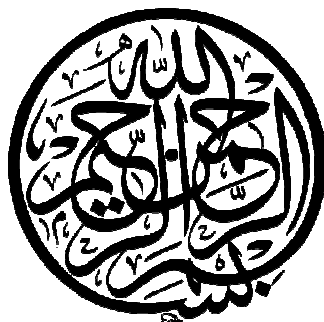
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## Acknowledgement & Dedication



The transliteration of the above Arabic calligraphic text is: *Bismillah ir-Rahman ir-Rahim*. It is translated as: "In the name of Allah, the most Gracious, the most Compassionate". This axiom opens every chapter (bar one) of the glorious Quran – the book of revelations by Allah (God) to Prophet Mohammad (sallallahu alaihi wasallam – lit. peace be upon him). *Bismillah ir-Rahman ir-Rahim* adorns every human act with a meaning and purpose. It conveys the grand majesty of Allah and is a call to His essence. *Bismillah ir-Rahman ir-Rahim* is, therefore, the most appropriate foreword for this thesis because it is true that without Allah's supreme, loving kindness I would not have had the capability, capacity, motivation, resources, desire and all necessary pre-requisites and requirements to pursue and complete this piece of research. Hence, this work is most humbly dedicated to Him – the First and the Last, the Manifest and the Hidden, the Architect and the ex-nihilio Creator, the lone Master of the universe and the All-Knower of everything. He willed it so and it was.

إِنَّمَا قَوْلُنَا لِشَيْءٍ إِذَا أَرَدْنَاهُ أَنْ نَقُولَ لَهُ كُنْ فَيَكُونُ ﴿٤٠﴾

Innama qawluna lishayin itha aradnahu an naqoola lahu kun fayakoon

And Our word unto a thing, when We intend it, is only that We say unto it: Be! and it is

(Al Quran 16:40)

# On the Structure and Internal Mechanisms of Business Incubators: A Comparative Case Study

By

*Ali Ahmad*

## Abstract

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It is an established economic development paradigm that entrepreneurship promotes innovation and encourages the creation of high quality jobs. In order to enhance entrepreneurial activity, the focus in Ireland to date has been on public-sector venture creation programmes. Of such programmes, business incubators, over the years, politically and in terms of public funding, have received perhaps the highest level of attention. Thus, incubators in Ireland have become important policy instruments for promoting early stage entrepreneurship.

The research project outlined in this thesis to investigate this important phenomenon began with an extensive review of the incubator-incubation literature. This review showed that given the importance attributed to incubators, surprisingly little is known about how they function, or, the *internal process of incubation*. In other words, what is not understood completely are the dynamics of an incubator's *internal* processes, normative environment and structural properties which enable human activity. Researching these aspects is important due to their important link with incubation "success". A more sophisticated understanding of how incubators *incubate* will allow us to exercise more control over the quality of incubation programs, thereby, influencing the likelihood of incubated firms surviving after the incubation period.

In order to investigate the incubation process and incubators' normative environment and structural properties, a qualitative, multi-site case study approach was utilised. A pragmatist-interpretivist philosophy and the social mechanisms literature informed the research's meta-theoretical lens. Data was collected during 2009-2010 at two different types of incubation facilities in Dublin; a 'community enterprise centre' and a 'university campus-based high-tech incubator'.

The research's most significant finding is that incubation is primarily *relational* in nature, and the process is co-produced by both the incubator manager (IM) and a specific client in independent dyads. A number of factors influence the development of IM-Client, Client-Client, Client-IM-Client and Client-Third Party relationships, chief of which are the leadership style of the IM, the physical design of the incubator facility, the incubator's client mix and the incubation *ethos*.

It was also determined that the scale, scope, intensity, frequency and thus the quality of incubation is dependent on, what has been termed, an *incubation click*. This is a bond based on the understanding that incubation assistance can be competently provided, and that such mentoring, coaching or developmental assistance is also proactively sought. Incubation is triggered in a sophisticated normative environment under the prevalence of ground rules, subtle signals, the interplay of personal histories, hidden agendas, perceptions of value and human biases.

As a result of this research our knowledge of various aspects of incubators' structure and their status as complex hybrid organisations has also increased. Incubators' structural attributes such as de-coupling, mis-alignment of managerial incentives and sources of internal coordination and control uncertainty suggest why it continues to be difficult to evaluate their performance and socio-economic impact.

Overall, the research has raised the profile of *incubation* research in the incubator-incubation discourse. Although modelling the incubation process is difficult due to high levels of randomness inherent in the internal incubator environment, the increased understanding of process variables, normative patterns and structural properties developed as a result of this research will allow the introduction of efficiencies to improve the chances of incubation "success".

# Table of Contents

---

<b>Chapter 1 – Introduction</b> .....	9
<b>Chapter 2 – Background Literature &amp; Problem Definition</b> .....	15
Outline.....	15
2.1 Incubation Policy and Landscape at the European Union Level.....	16
2.2 Germany.....	22
2.3 Italy .....	28
2.4 Comparing & Contrasting Germany & Italy.....	34
2.5 Discussion.....	38
<b>Chapter 3 – The Business Incubation Process: A Systematic Literature Review</b> .....	42
Outline.....	42
3.1 Introduction.....	43
3.2 Methodology for Selecting Articles, Selection Criteria & Exclusions.....	46
3.3 Thematic Review of Selected Studies.....	55
3.3.1 Incubation as a Mechanism for New Venture Creation.....	55
3.3.2 Incubation as a Mechanism for Resource Allocation.....	58
3.3.3 Incubation as a Socio-Political Game.....	60
3.3.4 Incubation as a Co-Product of Incubator-Incubatee Dyads.....	61
3.3.5 Incubation as an Outcome of Network Behaviour.....	63
3.3.6 Incubatee Selection as a Predictable & Controllable Process.....	64
3.4 Discussion & Conclusion.....	69
<b>Chapter 4 – Studying the Business Incubation Process: A New Mechanisms-Based Conceptualisation</b> .....	73
Outline.....	73
4.1 Introduction.....	74
4.2 Theoretical Perspectives for Studying Incubation & their Weaknesses.....	76
4.3 A Pragmatist View of Social Mechanisms: How is it Superior to the Competing Rational Choice & Practice-Action Traditions?.....	78
4.4 Conceptualising Incubation Using Gross’s (2009) ‘A Pragmatist Theory of Social Mechanisms’.....	81
4.5 Conclusion.....	84
<b>Chapter 5 – Research Methodology &amp; Process</b> .....	86
Outline.....	86
5.1 Introduction.....	87
5.2 Nature of Research Methodology.....	88
5.3 The Case Method and its Relevance to the Project.....	89
5.4 Designing the Research: Elements of the Case Methodology.....	90
5.4.1 Case Study Strategy.....	90
5.4.2 Case Selection Approach & Criteria.....	92
5.4.3 Negotiating Access.....	94
5.4.4 Unit of Analysis.....	95
5.4.5 Research Questions.....	95
5.4.6 Data Collection Methods.....	98
5.5 Issues of Research Rigor.....	108
5.5.1 Validity & Reliability in Qualitative Research.....	108
5.5.2 Achieving Validity & Reliability - 1: Triangulation.....	108
5.5.3 Achieving Validity & Reliability - 2: Validity Strategies.....	109
5.6 Analysis of findings.....	111
5.7 Display of Research Data.....	117

<b>Chapter 6 – Case Descriptions</b> .....	119
Outline.....	119
8.1 DubInc.....	120
8.1.1 Historical Perspective.....	120
8.1.2 Organisational Structure & Division of Labour.....	122
8.1.3 Service Portfolio & Revenue.....	124
8.1.4 Client Base.....	125
8.1.5 Incubation Policy & Practice: Formal Mechanisms.....	127
8.2 IncuWorks.....	130
8.2.1 Historical Perspective.....	130
8.2.2 Organisational Structure & Division of Labour.....	133
8.2.3 Service Portfolio & Revenue.....	134
8.2.4 Client Base.....	137
8.2.5 Incubation Policy & Practice: Formal Mechanisms.....	138
8.3 Summary: Comparative Overview of <i>DubInc</i> & <i>IncuWorks</i> .....	142
<b>Chapter 7 - Findings from Case Studies – I: Relationships: <i>The Key Dependent Variable</i></b> .....	145
7.1 Introduction.....	145
7.2 The Nature of IM-Client Relations.....	146
7.3 Inside the IM-Client Dyad: Understanding Co-Production's Value.....	150
7.4 Client-Client Interaction.....	154
7.4.1 Impact of Client-Mix on Client-Client Interaction.....	157
7.4.2 The Impact of Physical Layout on Client-Client Interaction.....	161
7.5 Client-IM-Client Interaction.....	167
7.6 Client-Third Party Interaction.....	173
7.7 Concluding Remarks.....	179
<b>Chapter 8 - Findings from Case Studies – II: <i>Norms &amp; Triggers</i></b> .....	181
8.1 Introduction.....	181
8.2 The Incubation Ethos.....	182
8.3 Base Bonds of the Dyadic Relationship & the “Incubation-Click”.....	188
8.4 The Triggers of Incubation: Stealth, Subtle Indicators & Heuristics .....	197
8.5 Concluding Remarks.....	202
<b>Chapter 9 - Findings from Case Studies – III: <i>Structure of the Incubation Process</i></b> .....	204
9.1 Introduction.....	204
9.1 The Three Strategies of Incubation Co-Production.....	205
9.2 Other Elements Impacting Dyadic Strategy.....	209
9.3 Incubation Stages Experienced by Client Firms.....	211
9.4 Pre-Incubation, Pre-Selection & Selection.....	214
9.5 The Nature and Range of Co-Production Developmental Assistance.....	224
9.6 Concluding Remarks.....	229
<b>Chapter 10 - Findings from Case Studies – IV: <i>Emerging Themes on the Structural Properties of Incubators</i></b> .....	231
10.1 Introduction.....	231
10.2 The Nature of IM Work & the “De-Coupling” of Incubator Structure.....	232
10.3 De-Constructing the IM's Role: Leadership & Organisational Culture.....	236
10.4 Uncertainty in the Incubation Environment.....	242
10.5 Concluding Remarks.....	245
<b>Chapter 11 – Discussion &amp; Conclusion</b> .....	247
11.1 Introduction.....	247
11.2 Theoretical Contributions.....	248
11.2.1 What is the nature of the relationship between the incubator organisation and client firm? & How does the internal normative environment impact on the organisation and orchestration of the incubation process?.....	250
11.2.2 How are the various stages of the incubation process organised? & What are the various strategies of dyadic co-production?.....	254
11.2.3 How are new firms inducted for incubation?.....	257

11.2.4 How is incubation triggered in a dyadic setting?.....	258
11.2.5 How do the structural properties of incubators impact on the organisation and orchestration of the incubation process? & In what ways does the incubator manager's leadership style impact on co-production efficacy?.....	260
11.2.6 How does Client-Client interaction within the incubator organisation take place?.....	264
11.3 Reflections on Social Mechanisms Theory & Research Limitations.....	266
11.4 Policy Recommendations, Further Research & Concluding Remarks.....	270

<b>References</b> .....	274
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## APPENDICES

Appendix A.....	298
Appendix B.....	300
Appendix C.....	306
Appendix D.....	310
Appendix E.....	318
Appendix F.....	320

## List of Figures

Figure 1 – Business Incubation Model .....	19
Figure 2 – Innovation Centres in Germany .....	23
Figure 3 – Italian Innovation Outlook (relative to EU27) .....	30
Figure 4 – The Two Incubating Models .....	32
Figure 5 – Smilor's (1987) framework .....	56
Figure 6 – Campbell et al's (1985) framework .....	56
Figure 7 – Life Cycle Development with the University Science Incubator .....	58
Figure 8 – Vicious Circle of Commercialisation at Corporate Incubators.....	60
Figure 9 – A model of co-production in business incubators .....	62
Figure 10 – Incubatee Selection Matrix.....	65
Figure 11 – The Inductive Logic in a Qualitative Study.....	89
Figure 12 – Data Analysis Procedure adopted from Creswell (2009).....	112
Figure 13 – Dublnc Organisational Structure .....	123
Figure 14 – IncuWorks Organisational Structure .....	133
Figure 15 – Type of Interdependencies .....	155
Figure 16 – Development of Incubation Relationships: A Conceptual Framework.....	251
Figure 17 – Contextualising Incubation Strategies & Stages.....	255

## List of Tables

Table 1 – Broad-based Comparison of Incubators-Incubation in Germany & Italy.....	36
Table 2 – Selected Articles' Selection Rationale & Context.....	50
Table 3 – Conceptualisations of Incubation, their Weaknesses & Further Research.....	67
Table 4 – The Link between Literature Review & Research Questions.....	97
Table 5 – Initial Areas Covered with the IM .....	99
Table 6 – General 1 <sup>st</sup> Interview Guide.....	102
Table 7 – Data Sources & Amounts .....	105
Table 8 – Dublnc Interview Subjects.....	106
Table 9 – IncuWorks Interview Subjects .....	107
Table 10 – Dublnc Service Portfolio.....	124
Table 11 – Dublnc Client Mix .....	126
Table 12 – Dublnc Incubation Unit Application Form.....	127
Table 13 – IncuWorks Service Portfolio .....	135
Table 14 – IncuWorks Client Mix.....	137
Table 15 – IncuWorks Desk Space & Incubation Unit Application Forms .....	139
Table 16 – Overview of Dublnc & IncuWorks .....	143
Table 17 – Mentoring & Coaching Differences .....	226
Table 18 – Summary of Major Findings & Contributions .....	249



# 1

## **Introduction**

### *Background/ Significance | Focus | Structure*

In this chapter, background details of the research are presented along with its objective, the research questions, the approach to theory development and the structure of the thesis.

Since the 1970s, when the contribution of small new ventures to economic development began to be increasingly recognised, a more sophisticated understanding of the mechanisms to promote their creation and growth has been struggling to emerge. Researchers and policy makers have constantly engaged with the issue of how programmes can be structured to facilitate the new venture creation process and to increase success rates. As a result, there is growing awareness that new venture creation is a multi-dimensional phenomenon. A whole host of variables relating to the entrepreneur, the new firm and the environment interact in complex ways within the dynamic system of new enterprise development (Gartner, 1985; Lichtenstein et al, 2006; Davidsson & Gordon, 2010; Shepherd, 2011)

Out of a myriad of new venture creation mechanisms such as business, science and technology parks, grant assistance schemes, educational initiatives, mentoring programmes, it is business incubation that most comprehensively resolves the issues surrounding the new venture creation process. Incubators create, within a physical boundary, the ideal conditions to bring together the expertise and resources necessary for promoting the development and growth of new ventures. The venture creation process ongoing inside an incubator is controllable, brings providers and consumers within close proximity and allows easy and timely access to resources for a particularly turbulent phase in new venture survival.

The focus of much of the research on incubators to-date has been on understanding their social and fiscal contributions to various facets of government policy and vice versa (Hannon & Chaplin, 2003; Hackett & Dilts, 2004a; Phan et al, 2005; Hackett & Dilts, 2008; Patton et al, 2009; Warren et al, 2009). Such assessments are usually restricted to a particular country or region and employ quantitative approaches to analyse data on a variety of indicators related to incubator performance. While such research has produced very useful insights, it is limited in the understanding that it provides about the *context* and *process* of new venture creation going on inside an incubator. Therefore, there is a role for additional research on (a) the relationships between the various facets of the internal process and their inter-relationships; (b) the impact of the internal normative environment; and (c) the contributions of the unique structural properties of incubators to new venture 'success'. Investigating incubators' internal mechanisms, norms and structure are essential for understanding the entrepreneurial process or life-cycle (Russell & Russell, 1992). Researching these three inter-related aspects will help in developing new theory to explain the variation in incubation outcomes across models and regions as well as differences in incubator performance in a cross-national context.

Following on from the above, the main objective of the research presented in this thesis is: to investigate the normative environment, internal mechanisms and structural properties of incubator organisations for the purpose of identifying key elements that positively influence the development of new enterprises.

In order to progress this objective, a number of questions will be addressed in this thesis:

1. How are the various stages of incubation organised?
2. What are the various strategies of dyadic co-production?
3. How do the structural properties of incubators impact on the organisation and orchestration of the incubation process?

4. How does the internal normative environment impact on the organisation and orchestration of the incubation process?
5. What is the nature of the relationship between the incubator organisation and client firm?
6. In what ways does the incubator manager's leadership style impact on co-production efficacy?
7. How is incubation triggered in a dyadic setting?
8. How does Client-Client interaction within the incubator organisation take place?
9. How are new firms inducted for incubation?

The research questions above are derived from a systematic examination and review of the incubation process literature. In this review, an analysis of 23 previously published studies relevant to this research is undertaken. Details of the methodology employed for developing a pool of relevant studies, as well as the criteria used to select the most applicable of these is provided later. The selected studies were categorised into one of six conceptualisations which describe the predominant theoretical view on incubation held by previous researchers. These conceptualisations are: (1) incubation as a mechanism for new venture creation; (2) incubation as a mechanism for resource allocation; (3) incubation as a socio-political game; (4) incubation as a co-product of incubator-incubatee dyads; (5) incubation as an outcome of network behaviour; and (6) incubatee selection as a predictable and controllable process. The literature review assisted in identifying knowledge gaps and areas for further research, which facilitated the development of the research's objective and associated questions.

The research questions acted as useful starting points and guides for the research process, and were in no way used to limit / ring-fence the scope of enquiry as is usually the case in positivist or hypothetico-deductive approaches. In order to deploy a hypothetico-deductive approach, a conceptual framework linked to hypotheses to be tested, proved or disproved would have been required. It was not possible to develop such a framework (linked to hypotheses) due to the paucity of relevant research on the

incubation process. There were very few studies that made their exclusive focus (either separately or together) incubators' internal mechanisms, normative environment and structural properties. As a result, a holistic picture is missing of what occurs inside an incubator that introduces positive changes in client firms<sup>1</sup>, thereby promoting their growth and development after the incubation period. In the absence of a high level of background understanding of the incubation process's dynamics, major impacting variables and their causal relationships, an exploratory strategy based in an inductive, qualitative and interpretive approach was ideal.

A systematic and two-tracked approach is used to address the research questions. *First*, theoretical frameworks from the social sciences were scrutinised to assess compatibility with the research's objective, in other words, the lens through which to analyse data and build new theory. As a result, the social mechanisms literature was identified as it provides the concepts and language not only to understand the nature of the questions being posed, but to make sense of observations about the internal processes, norms and structural properties of incubators. *Second*, actual examples of processes, norms and structural properties were scrutinised in order to see how these positively (and negatively) influence the internal incubation environment and the development of new enterprises. This analysis was carried out at two Irish business incubation facilities (a community enterprise centre and a high-technology university campus incubator).

The first track focuses on theory and the second on practice. The development of knowledge involves a complicated interplay between the two; neither alone is sufficient. Yet this interplay does not occur in a smooth or linear fashion. Trying to describe the path of this kind of research as well as the substance of the argument presents challenges for the researcher.

The final structure of the thesis is a function of the systemic nature of what was being investigated and the way the subject is being approached.

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<sup>1</sup> Enhancements or improvements introduced as a result of incubation intervention which positively contribute to the post incubation survivability of new ventures.

Although the theoretical lens is presented first, followed by the empirical research, it should be emphasised that both tracks were pursued simultaneously during the course of the empirical research and in the development of the conclusions. The presentation of the research is organised as it is for ease of exposition. To facilitate the journey through the thesis, a brief outline is now presented:

In the next chapter (Chapter 2), background literature on incubators-incubation is presented to set the geographical context for this research, and to outline the research problem and its significance. This sets the stage for Chapter 3 which deals with the *internal process of incubation*. In this chapter a systematic review of published literature on the incubation process is presented. As already outlined, 23 studies were selected, categorised and reviewed which helped in identifying gaps in knowledge along with avenues to advance research in the area. The main conclusion arising from this review was that the present functionalist research agenda being pursued in the incubator-incubation area has resulted in ‘black-box’ models that place little emphasis on processes and normative and structural variables.

The theoretical framework used to guide the research is presented in Chapter 4. The feasibility of extant frameworks from social theory in the study of *processes or mechanisms* is explored, resulting in the identification of the Social Mechanisms literature. The two broad approaches for studying social mechanisms – the *rational choice* and the body of work that goes under the rubric of *practice-action* theory – are scrutinised. It is shown that both rational choice and the practice-action tradition have weaknesses, and that considering the spirit and objective of this research, Gross’s (2009) new *pragmatist theory of social mechanisms* is the ideal way forward. In this chapter, when Gross’s (2009) base theory is applied to incubation, it results in a completely new *mechanisms-based* conceptualisation of the incubation process.

The philosophical worldview and theoretical lens adopted for the research inevitably has an impact on methodology and method, and this impact is

scrutinised in the development of the research methodology in Chapter 5. In this chapter the usefulness of the inductive multi-site comparative case study methodology is discussed as the most appropriate approach for studying *incubation as a social mechanism*. A detailed case study protocol is also presented.

The next five chapters (Chapters 6-10) present an analysis of the empirical case data. The first of these is non-analytical and provides background details on the two case organisations. The remaining four chapters are analytical and present the themes and patterns emerging from the case data analysis work. These chapters and their accompanying themes have been organised on the basis of the research's envisaged main output i.e. new theory of incubators' internal mechanisms, normative environment and structural properties.

In Chapter 11 - Discussion & Conclusion, the major contributions of the research are presented. The research questions are revisited and it is demonstrated how these have been 'answered'. A number of conceptual frameworks are presented to capture the research's contributions to theory. Two questions are posed and discussed: was the choice of social mechanisms as a theoretical framework an adequate one and to what extent are the findings from this research generalisable to the wider incubator-incubation phenomenon? The thesis ends with a reflection on the research's limitations, its impact on professional practice and recommendations for further research.

## Background Literature and Problem Definition

### Outline

In this chapter background literature on the incubator-incubation phenomenon is examined and the resulting analysis is used to define the research problem being identified in the thesis. This is done by, *first*, placing previous literature within a relevant geographic and policy context and extracting the reasons for the wide scale adoption of the incubator model as a new venture creation mechanism. Arguments developed highlight that in the flurry of political lobbying during the 1990s-2000s that led to the rapid expansion of incubators-incubation across the European Union (EU), policy makers, practitioners and researchers alike failed to focus on what is key to understanding incubators' true impact – *internal incubation processes*. *Second*, a review of incubators' development and impact at EU member state-level is presented which allows for a clearer context-bound sense of the state-of-art in incubator-incubation research to emerge. In turn it becomes possible to clearly highlight the direction of this research project in a stalemate between two opposing camps – one which has produced evidence to suggest that incubators make a significant difference in reducing start-up risk and the other camp which believes incubators do not give tax payers value-for-money. Structured in this way, the chapter is able to draw attention to the essential 'missing ingredient' in previous research which is key to understanding incubators' impact, define the research problem and setup a context for the following literature review chapter.

## 2.1 Incubation Policy and Landscape at the European Union Level

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The support for incubators-incubation at the EU level comes from a number of broad policies to bolster the growth in the number of SMEs. EU policy aimed at supporting SMEs can be found in the 'European Charter for Small Enterprises' (ECSE) which was instituted in the mid-1990s<sup>2</sup>. This Charter replaced the paradigm that emphasised the importance of large corporations as engines of economic progress and job creation. Instead, during the 1990s, EU policy and politics were re-focused to support the growth and development of small business. This focus remains, to-date, on top of the policy agenda.

Under the ECSE's mandate two initiatives were launched in 1997, the 'Business Environment Simplification Task Force' and the 'Action Plan to Promote Entrepreneurship and Competitiveness'. These initiatives brought together representatives from the business community and public authorities in EU Member States to prepare independent reports on ways of improving legislation and removing unnecessary hindrances to the development of European businesses, particularly SMEs.

Progress Reports from EU member states on the implementation of the ECSE have been reviewed and discussed at annual conferences and meetings from 2001 organised by the European Commission (EC). Since the 2004 Conference on the ECSE held in Dublin, parties to the Charter have increasingly focused on 'Innovation and Technology Transfer' (EC-Enterprise Directorate General, 2004). This can be termed as the beginning of the new policy focus towards supporting *innovative* new SMEs and stemmed from research that suggested that from the total population of European SMEs, only a fraction (2%) were responsible for the majority of competitive innovations and thus jobs created (EURO INFO, 2000).

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<sup>2</sup> From the website of the European Commission - [http://ec.europa.eu/enterprise/enterprise\\_policy/charter/charter2001.htm](http://ec.europa.eu/enterprise/enterprise_policy/charter/charter2001.htm) (accessed Sept. 2009).



In 2006, the above broad-based agreement on the importance of innovation to European SME growth and competitiveness turned into official policy through the EC's adoption of the communication on innovation 'Putting knowledge into practice: A broad-based innovation strategy for the EU'. This communication was augmented in 2007 with the EC's adoption of "Lead Market Initiative for Europe". In the same year, the EC launched the 'Competitiveness and Innovation Framework Programme (2007-2013)' which aims to encourage the competitiveness of European enterprises by supporting innovation activities, provide better access to finance and deliver business support services in the regions<sup>3</sup>. The purpose of these policy frameworks and programmes is to call upon EU Member States "to make the structural reforms necessary to deliver the results required...[and]...to enable Member States to develop new measures in favour of the support of innovation, taking into account the identified market failures of Europe in this domain"<sup>4</sup>.

The main argument for the correction of the alleged market failures suggested by the EC Innovation Policy, is the curbing of SME failure, especially in the start-up phase. Empirical data on firm dynamics in the OECD suggests 30 to 40 per cent of entering firms do not survive the first two years and although failure rates decline with duration, only about 40 to 50 per cent of entering firms in a given year are still in business seven years later (Scarpetta et al, 2002). Thus, for reducing entrepreneurial risk and to improve new firm survival rates, the EC Innovation Policy recommends the provision of *business support services* to new innovative start-ups for reducing the risk of business failure (Commission of the European Committees, 2005).

Evidence in support of business support services such as incubators-incubation is found across a spectrum of policy documents and reports. For example, a 2002 EC-funded study 'Benchmarking European Incubators' found that the survival rate of incubator clients was significantly higher (80–90% still exist after 5 years), than the business success rate amongst the wider SME

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<sup>3</sup> From the website of the European Commission - [http://ec.europa.eu/cip/index\\_en.htm](http://ec.europa.eu/cip/index_en.htm) (accessed Sept. 2009)

<sup>4</sup> From the website of the EC – Enterprise & Industry Policy Areas – Innovation Policy - [http://ec.europa.eu/enterprise/innovation/index\\_en.htm](http://ec.europa.eu/enterprise/innovation/index_en.htm) (accessed Sept. 2009).

community (Centre for Strategy & Evaluation Services, 2002). A 2003 EU-wide green paper on entrepreneurship suggests incubators are important for start-ups during the initial difficult period and the wider availability of mentoring is useful to support entrepreneurs when they develop their firms (EU-Commission of the European Communities, 2003). Finally, a 2009 European BIC (Business Incubation Centre) Network (an EU/EC funded body) study states the increase in start-ups marks a four year upward trend, which demonstrates that BICs continue to make an ever more important impact on enterprise creation in Europe and beyond (EBN, 2009).

An exact count of business incubators in the EU does not exist. The CORDIS incubator database (CID) managed by the EC suggests a figure of 700<sup>5</sup>. However, the veracity of CID's claims have been challenged: for instance, Aerts, Matthyssens, & Vandenbempt (2007, pp. 258) suggest that the "CORDIS database is not subjected to any 'quality control'... [upon examining]...the database more closely, it appeared that not all organisations in the database were real incubators". Further, an EC-funded and supported study of 2006 highlighted that CORDIS significantly underestimates the availability of incubation facilities in Europe. There are several reasons for these discrepancies, for instance that entries into the CID are voluntary, are not validated, or kept up to date - this limits the value of this database for analysis (Goddard & Chouk, 2006). Another estimate comes from a 2006 survey and study supported by the EC and conducted by researchers at the Paris Dauphine University's 'Economics of Business Incubation (*Incunomics*) Project'. This report presents an estimate of 936 (Goddard and Chouk, 2006).

A number of explanations can be presented for the unavailability of precise figures on the number of incubators in EU member states: (a) 'definitional ambiguity' – the problem of defining or ascertaining what facility or programme can qualify as an incubator or incubation support (Hackett & Dilts, 2004a); (b) the blurring of distinction between science parks, business incubators, research parks, technology parks and so on (Aerts et al, 2007);

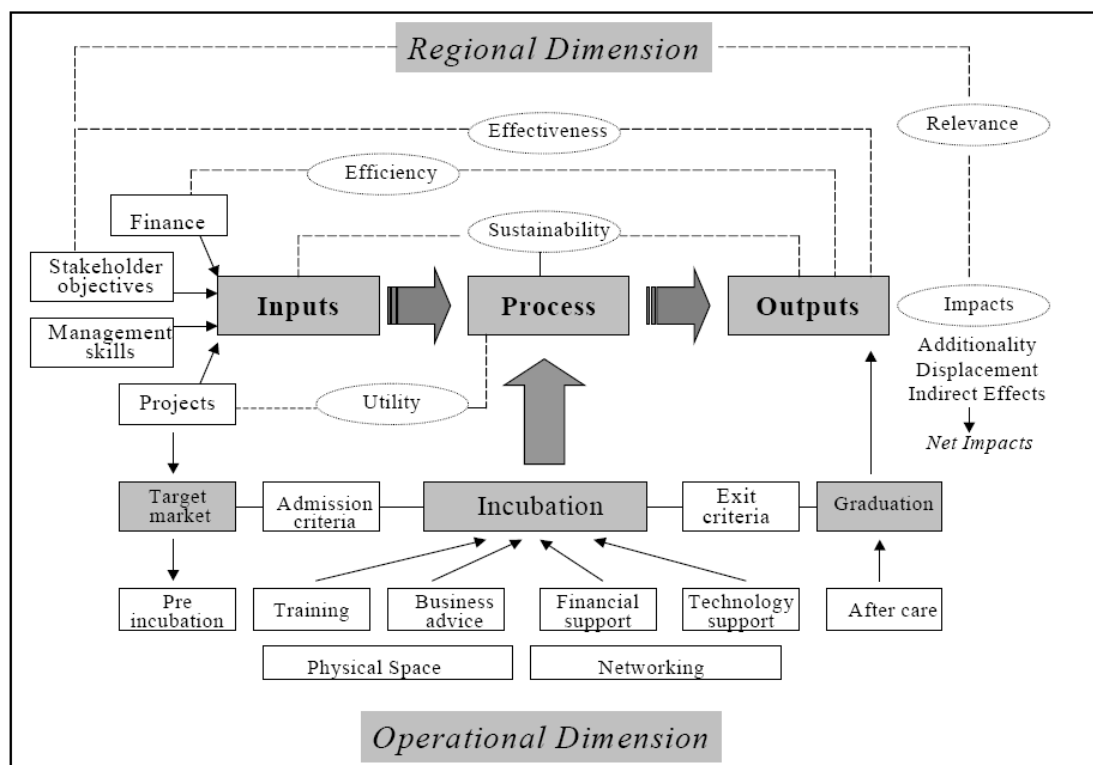
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<sup>5</sup> From the website of CORDIS on the European Commission - <http://ec.europa.eu/enterprise/bi/> (accessed Sept., 2009).

and (c) the unavailability of an EU-wide system of centralised accreditation and record keeping (Tamásy, 2007). Thus, a valid and rigorous explanation of the growth of the business incubator phenomenon in Europe on a representative and theoretically grounded bases still needs to be developed.

In terms of the EU’s incubator best practice recommendations to member states – a 2002 EU incubator benchmarking study presents a general ‘model of incubation’ based on EU-wide survey data. The model uses benchmarks that depict incubator efficiency and performance in terms of using inputs, developing and orchestrating processes and ensuring a steady supply of quality outputs (see Figure 1 below). This model is widely quoted in the policy literature on incubators and has been a benchmark for EU states.

*Figure 1 – Business Incubation Model*  
(Centre for Strategy & Evaluation Services, 2002)



Although the above model is a useful attempt, it has serious limitations such as: (1) the model is divorced from the national and regional environment and the macro-politics of institutional change which determine the real aims and objectives of state-level incubation systems (Aernoudt, 2004); (2) the total absence of the role and influence of the incubatee firm - an important party in the co-production dynamic of the incubation process (Rice, 2002); and (3) the model is fundamentally inward looking because it is presenting a 'black-box' view of the *process of incubation* (Hackett & Dilts, 2008). According to the model, a number of independent 'services' feed into 'incubation' which in turn feed into the 'process' black-box. There is no sense of what services come first and why, their relationships to stages of growth of incubating firms and causal mechanisms. Without due attention to the process of incubation, the internal normative environment and incubators' special structural properties a holistic understanding of 'what incubators really do' and 'how they do what they do' cannot emerge.

In conclusion, business incubation these days enjoys heightened political support since evidence suggests that potential investors, in times of economic crises and downturn, are hesitant and reluctant to invest in uncertain and risky high-tech projects (Sauner-Leroy, 2004). For politicians and bureaucrats, business incubation offers the ideal venture creation vehicle, in that it is a concrete and verifiable investment in an empirically verified idea which works around the world, supports local communities and helps to promote small-scale hi-tech entrepreneurship in both times of economic prosperity and downturn (Costa-David et al, 2002). In the foreseeable future, incubators will continue to grow and remain popular because, firstly, it is inherently difficult to evaluate incubation outcomes and to link these to programmatic objectives due to the special methodological challenges that such research presents (Sherman & Chappell, 1998). Secondly, since the academic community is fairly divided over the contentious issue of real incubator impact, no truly scientific challenge has been presented to suggest that incubators don't work (Tamásy, 2007). Therefore, incubators are here to stay and there is little to be gained by challenging their existence through more impact assessment / evaluation-type research. For politicians, bureaucrats, practitioners and

researchers then, the way forward is to study the ‘impact’ of incubators more closely by focusing on incubation’s processes and investigating which processes contribute to new venture creation ‘success’, how, why and under what conditions. Such a way forward will allow us to develop a more sophisticated and nuanced understanding of a phenomenon that has become an important institutionalised component of the EU’s and its member states’ national innovation systems.

In the following sections, details on the incubation environments of Germany and Italy are presented to highlight differences in (a) national policy objectives, (b) prevalent models, and (c) results of incubator impact evaluations. The purpose here is to scrutinise previous incubator-incubation background literature in appropriate categories and to highlight the predominant research trend or focus. There are several rationales for the inclusion of these two exemplar EU states; first, the included states represent the Latin and Germanic approaches to incubation in the EU and as such are considerably different so as to allow an effective comparison (Aernoudt, 2004). Second, of late, in comparison to other EU states, a significant volume of incubator-incubation research has emerged from Germany and Italy. The conclusions of such research are arguably more sensitive than the diffused results of studies that look at whole regions or continents. Other settings like Sweden, France and the UK were considered, however, the number of available studies was quite low which did not make a state-level analysis feasible. Finally, in terms of sheer numbers, history and state-of-development, Germany and Italy represent the EU forerunners in the incubator-incubation area. It is argued that geographic contextualisation makes the following review of background incubator-incubation literature not only more relevant, but also helps in comparing and contrasting the outputs of previous research in a meaningful manner. The notion of comparison reveals the fringes of what is known about the phenomenon which in turn allows for the identification of new vistas to take knowledge further and in defining the problem being identified in this thesis. It is shown how following the existing research agenda is not going to result in positive advances in knowledge. To further research in the area, a new process-focused approach is advocated.

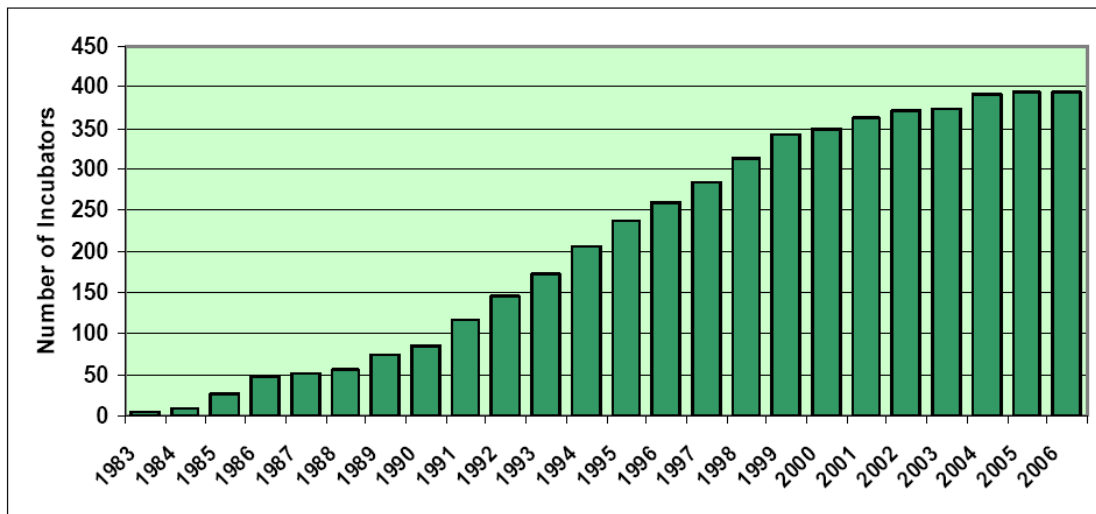
## 2.2 Germany

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A hindrance was faced by the researcher in developing an overview of incubation in Germany. This related to the problem of a lack of studies published in the English language. However, due to the commentary on and analysis of previous industry-level research undertaken by public bodies or academicians by two German researchers Christine Tamásy & Michael Schwartz who have published in English, a number of valid and interesting aspects about the structure and workings of the German incubation industry come to the fore:

*First*, Germany has a relatively long incubation tradition and a very dense incubator population. Major growth occurred following the reunification in 1990. Due to restructuring of the region's economy, large non-competitive industrial plants ceased operations and were replaced by a combination of new local businesses and inward investment. Thus, incubators served to boost regional competitiveness (Centre for Strategy & Evaluation Services, 2002). The first incubator, BIG (German Business & Innovation Centre), was set up in Berlin in 1983. Since the establishment of *Arbeitsgemeinschaft Deutscher Technologiezentren* or The German Association of Innovation, Technology and Business Incubation Centres (ADT) in 1988, incubators increased in prominence and this is evidenced by the increase in the total number of incubators to presently over 400 (Schwartz & Hornych, 2008), one the highest in the EU (see Figure 2 below). ADT now boasts a membership of nearly 400 representing 154 Incubators and other Associated and Affiliated Members.

Figure 2 – Innovation Centres in Germany  
(ADT-Friedrichsdorf, 2008)



ADT’s membership of over 400 represents only one of the two major categories of business incubators in Germany. These broad categories are the ‘*Gewerbezentrum*’ or business incubator (BI) and “*Technologie- und Gründerzentrum*” or technology and founder Centre (TC). BIs are explicitly concerned with the successful start-up of new firms where client selection is not based on either technological competence or innovativeness. TCs, on the other hand, focus on the growth and development of innovative SMEs (not necessarily start-ups). Tenant selection criteria here is captured by the German umbrella concept of or “Technology & Founder Centre”, thus selection is a combination of both constructs – innovativeness and founder characteristics (Schwartz & Hornych, 2008). There is a third category also, “*Gründerzentrum*” or “Technology orientated incubators” - – where between 50% and 74% of client firms are classified as technology-based firms (Centre for Strategy & Evaluation Services, 2002).

*Second*, according to Sternberg et al (1997), in their survey of German incubators, the three over-arching goals that German incubators attributed to themselves, in order of importance, included (a) the support of start-ups, (b) the creation of qualified jobs and (c) the intensification of knowledge and technology transfer (Sternberg et al, 1997). The ADT adds a further two more

objectives: “Promoting Regional Economic Development” and “Creating Financial Self-Sustainability” (ADT-Friedrichsdorf, 2008).

*Third*, German incubators rely considerably on state support for survival. ADT reports that a high number of local/regional, State, Federal, EU-Support Programmes are available to incubators in addition to High-Tech Gründerfonds operating since April 2006 (ADT-Friedrichsdorf, 2008). Coupled with the lack of financing from Private Equity particularly in the seed phase, the state dependence syndrome, as witnessed with incubation facilities in other countries around the world (Phan et al, 2005), is also prevalent in Germany.

*Fourth*, incubators in Germany offer three levels of support to nascent firms: (1) provision of spatially concentrated and flexible rental space at below market price (office and manufacturing space, laboratories, etc.); (2) a number of shared facilities and services such as conference rooms, secretarial support, IT and presentation infrastructure, etc.), charged through allowance or a moderate user fee; and (3) a variety of managerial services and business assistance in the areas of marketing, accounting, human resources or legal matters; and (4) the incubator takes the position of an intermediary, helping the clients to establish formal or informal contacts and to gain access to resources and knowledge (Tamásy, 2001; Tamásy, 2002).

*Fifth*, unlike incubators in the UK and Ireland (McAdam & McAdam, 2008; McAdam & McAdam, 2006; Karatas-Ozkan et al, 2005; Westhead, 1997), Finland and Ukraine (Abetti & Rancourt, 2006) or Sweden (Löfsten & Lindelöf, 2002), only a minority of the German BIs and technology Centres maintain formal linkages with higher education institutions (Schwartz & Hornyk, 2008). Although, as Schwartz (2008) reports, there are exceptions (e.g. the technology Centres in the cities of Dresden or Dortmund), however, in most cases these linkages are missing or rather loose, especially in rural areas (Tamásy, 2002). One could imagine that a lack of strong university linkages would lead to a more generic incubator population in Germany. This in fact is not the case. Interestingly, the share of new German specialist business



incubators (those that specialise in incubating clients focused on a particular industry, such as Media) among the total number of BIs opened has risen considerably in recent years. Schwartz (2008) reports that since 1999, nearly one-third of all new BIs or technology centres in Germany specialised in one or a few complementary sectors (Schwartz & Hornych, 2008).

Finally, in Germany, the culture of evaluation is quite strong - the ADT, for instance, encourages its members to self-evaluate their performance on the aforementioned four specific goals or quality standards. In order to arrive at quantitative metrics, ADT has devised a scoring system based on some 75 criteria sub-divided into four groups which represent the four major goals of technology centres / incubators. Incubators are asked to evaluate themselves against each of the criterion on the basis of a ten-point scale. The scores are then aggregated to give an overall score. Apart from its use for self-evaluation, this classification is also used by German authorities to determine eligibility for grants and other forms of government assistance (Centre for Strategy & Evaluation Services, 2002).

Predictably, results of self-evaluation are always quite positive; to this affect Schwartz (2008)<sup>6</sup> stresses that results are communicated to the public by the incubator management, policy makers or local authorities (e.g., local development agencies) not only to demonstrate the success or effectiveness of those publicity funded policy initiatives, but also to vindicate the financial support granted by cities, municipalities or other stakeholders.

Academicians, however, in their evaluations of the German incubation industry produce results which paint an altogether different picture. To illustrate, two different evaluations have been conducted in the past by German academicians. The first focuses on the overall impact of the incubation industry where the “success” of incubation has been analysed in terms of the main goals of incubators, as seen by their respective managements (Sternberg et al, 1997). Whilst the second aimed to test

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<sup>6</sup> Also see Schwartz's (2008) commentary on ADT's assessment of post-graduation survival rates

incubation impact by studying the graduation dynamics and survival rates of client firms (Schwartz, 2008). The major findings of these two evaluation exercises are discussed below:

Tamásy (2007) reports the results of a comprehensive evaluation of technology-oriented business incubators in Germany which was undertaken by Sternberg et al (1997). Sternberg et al's (1997) investigation included 1,021 businesses and 108 technology-oriented business incubators and reports on a number of aspects of German incubators. According to Tamásy (2007), the study's findings suggest that business incubators *have not been instrumental* in promoting hi-tech start-ups, which in turn, brings into question the sustainability of the entire incubation industry. For instance, in Germany: (a) at least one-third of the firms in business incubators are active in low-value service sectors or commerce which negates the primary ethos of incubation activity i.e. promotion of innovative and hi-tech new ventures; (b) almost 20% of the firms that entered incubation programmes were more than 2 years old; (c) the motivation effect of business incubators has been quite low so far - only 3% of firm founders would not have started their businesses without the existence of incubators where a majority of firm founders took the support as an additional bonus.

Schwartz (2008) studied the survival or exit dynamics of German firms after leaving incubator facilities by examining the survival of 352 firms from five German BIs after their graduation (Schwartz, 2008). The findings of this study, somewhat, complement Sternberg et al's (1997) assertion that business incubators in Germany are not effective when it comes to ensuring the long term survival of new ventures. Schwartz (2008) concludes that in Germany, although, post-graduation survival rate amounts to 61.4%, however, nearly 30% of all firms graduating from incubators do not survive long-term beyond the supportive and protective environment that is provided by incubation programmes. This is in stark contrast to the findings of ADT, where official data puts the closure rate of firms to less than 10%, which seems quite satisfactory bearing in mind the failure rates of innovative start-ups in general (Glaser, 2005).

The most interesting aspect of Schwartz's (2008) analysis reveals the presence of a high-risk period that confronts graduates within the first years after their graduation from the BI. This high-risk period for graduate firms starts with incubator exit and lasts approximately until the third year post exit. About 20% of graduated firms do not survive this period and more than half of post-graduation closures occur within this time. Therefore, a generally applicable policy prescription is made, that since firms that graduate from BIs are confronted with a variety of severe problems that might have a negative impact on subsequent firm development - incubator management should prepare the leaving graduated firms for the process of graduation.

A final study by Schwartz & Göthner (2009) sheds some light on the question of how to identify the most effective incubator within a specific BI population. For this purpose, they use the "Preference Ranking Organisation Method for Enrichment Evaluation" (PROMETHEE) to compare five technology-oriented BIs in Germany. Schwartz & Göthner (2009) argue that there is no generally accepted set of incubator evaluation criteria which can deem incubation 'success', therefore, for inter-incubator comparisons, multiple criteria must be included along with incubatee-level indicators. Although Schwartz & Göthner (2009) do produce a ranking based on their criteria, they admit that there are weaknesses regarding the method as well as the criteria used in this analysis. This occurred primarily due to the vague knowledge in incubation research concerning the most appropriate evaluation criteria.

In conclusion, it is evident that there is a lack of studies that explore the internal incubation process in the German milieu. Schwartz (2008) suggests, in the context of evaluation, that it is necessary to determine the decisive incubator-specific support components (e.g., networking opportunities, managerial support) that contribute to the long-term survival of incubatees – in other words, *processes*. Therefore, studying the internal process of incubation is also necessary for effective evaluation research.

## 2.3 Italy

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Just like in the case of Germany, a lack of studies available in the English language created some hindrance in developing an outlook of incubators-incubation in Italy. However, with the recent publication by vonZedtwitz & Grimaldi (2006), reviews of all significant past research by public and academic bodies on the incubation environment of Italy becomes readily available. These studies (listed in the vonZedtwitz & Grimaldi's bibliography) along with a number of UN and other Italian local agency reports in the English language remedy the issue of the reliability and validity of the outlook thus presented.

Italy is a very interesting case when it comes to entrepreneurship and SME policy. On the one hand, propensity towards entrepreneurship is especially high in Italy (Blanchflower & Oswald, 1999) and small firms account for a very high share of total employment, approximately 73% (Kozak, 2007); on the other hand, Italy exhibits poor performance in the hi-tech domain and the birth of new SMEs is heavily concentrated in low-tech and mature sectors (Colombo & Delmastro, 2002). According to Colombo & Delmastro (2002) Italian high-tech entrepreneurs, in general, are less educated and have less prior sector-specific working experience than their other European counterparts.

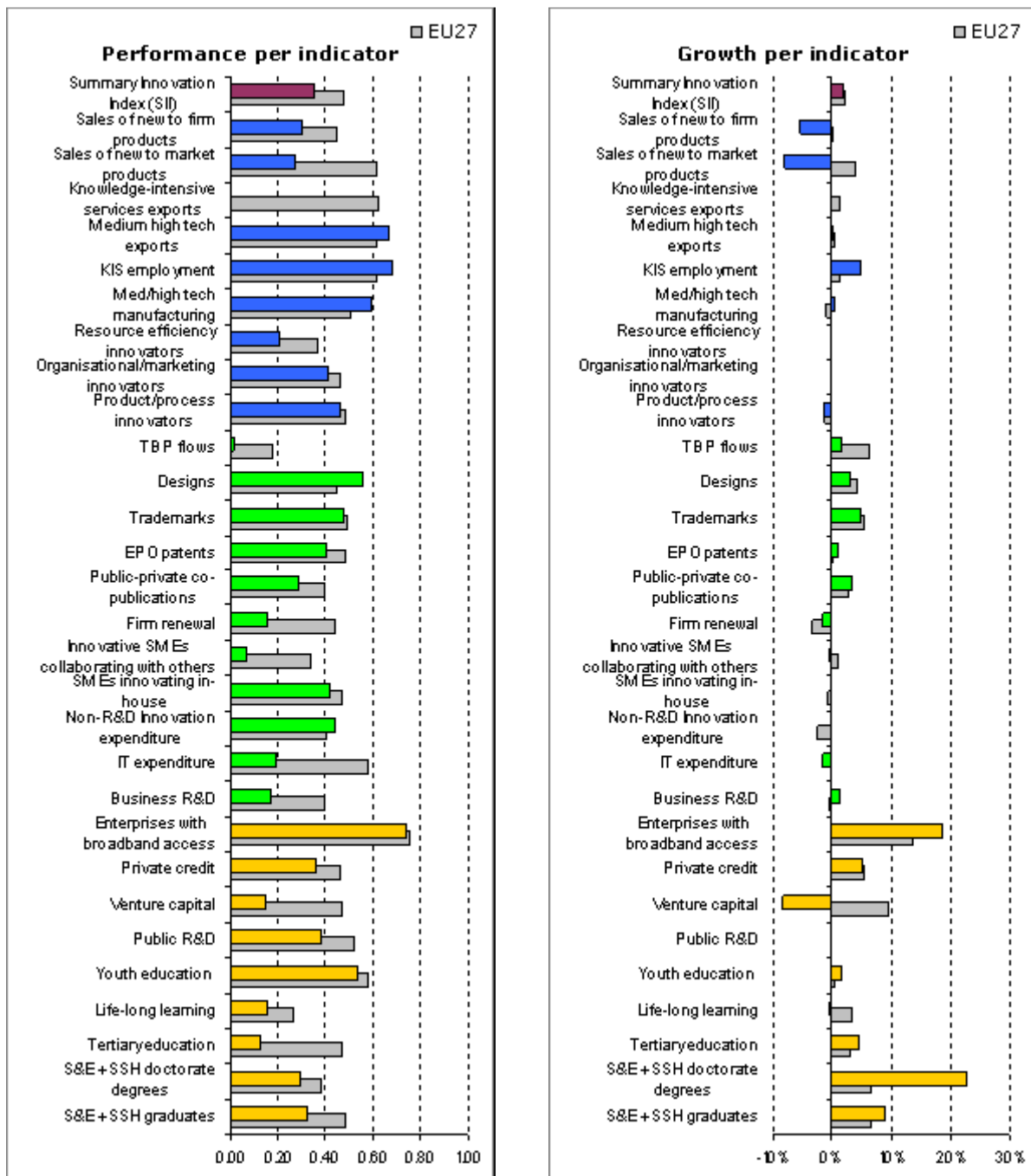
Furthermore, Italy's SII<sup>7</sup> score, which is below the EU27, and its ranking of 24 in the EU Innovation Scoreboard (UNU-MERIT & European Commission, 2007), makes it a *moderate innovator*, whilst UK, France and Germany remain *Innovation Leaders*. Thus, according to the EU Innovation Scoreboard, Italy's performance relative to the EU 25 has been somewhat discouraging. For instance, Business R&D Expenditure remains 'low' and Public R&D Expenditure is 'average'.

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<sup>7</sup> Summary Innovation Index – see <http://www.proinno-europe.eu/page/summary-innovation-index-0> - accessed Aug, 2011.

From the Italian Innovation Outlook (see Figure 3 below) it can be inferred that Italy has relative strengths in the Knowledge Creation and Intellectual Property dimensions of innovation where it is close to the EU average. However, EU analysts suggest that although Italy has a high efficiency in transforming innovation inputs into Intellectual Property outputs, it has, overall, *a lower efficiency in transforming such inputs into Applications Outputs* (PRO INNO Europe, 2011). Thus, the role of policy initiatives for SME development, such as business incubators, becomes more pronounced in the case of Italy, which is characterised by a rather inefficient national innovation system in comparison to other technologically more advanced European countries (Malerba, 1993). This could be, in part, due the fact that when compared to other European countries, SME promotion in Italy has only recently been considered a significant government policy objective (Centre for Strategy & Evaluation Services, 2002; Watanabe & Fukuda, 2006). Previously, due to the already strong presence of SMEs in the Italian economy, albeit in the traditional sectors, government policy focused on the development and evolution of large-scale enterprise instead. This is also evident from the relatively late development of Italy's incubation network.

Figure 3 – Italian Innovation Outlook (relative to EU27)  
(PRO-INNO Europe, 2011)



Business incubators in Italy were initially concentrated in steel closure areas and in economically lagging areas of the south. The first Italian incubator, the BIC Liguria was set up as a regional economic development catalyst in 1990 against a backdrop of industrial decline in the region of Genova (Grimaldi & Grandi, 2005). The incubator is situated in Genova's industrial zone, an area

that has undergone profound structural decline over the past 30 years. Since 2000, however, incubation has gained significant prominence at the level of government policy and is now seen as a useful tool for encouraging SME innovation and growth (Centre for Strategy & Evaluation Services, 2002; vonZedtwitz & Grimaldi, 2006). All Italian BICs are members of EBN, the European network for the promotion of the incubation<sup>8</sup>.

Prior to 2002, *Sviluppo Italia*, the Italian national agency for economic development and entrepreneurship promotion over saw the Italian incubation network. Since April 2002, the role of *Sviluppo Italia* has been taken over by BIC Italia Net. This agency is the association of Italian BICs and companies within their gambit and is as such the central coordinating body for business incubation in Italy now<sup>9</sup>. The Association reports 44 members as at Jan. 2010 on its website, a significant increase from 17 reported in 2002<sup>10</sup>. However, this figure of 44 Italian BICs ought to be treated with caution, since an earlier 2006 study reports a figure of 50 (vonZedtwitz & Grimaldi, 2006). This discrepancy may perhaps be due to “definitional ambiguity” (Hackett & Dilts, 2004a, pp. 59).

Grimaldi & Grandi (2005) and Grimaldi & vonZedtwitz (2006) have carried out empirical investigations in Italy to describe the pre-dominant local *models* of incubation. Grimaldi & Grandi (2005) identify four major incubator archetypes generally and then apply these archetypes or models using a number of characterising variables (such as institutional mission, industrial sector, location, market, incubation period, sources of revenue, services offered and so on) to a number Italian incubators to test the models’ validity. Their four models include: Business Innovation Centres (BICs), University Business Incubators (UBIs), Independent Private Incubators (IPIs), and Corporate Private Incubators (CPIs). They collapse their four incubator classifications

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<sup>8</sup> From the website of BIC Italia Net - <http://www.bic-italia.net/documento.asp?lingua=eng> (accessed July 2010).

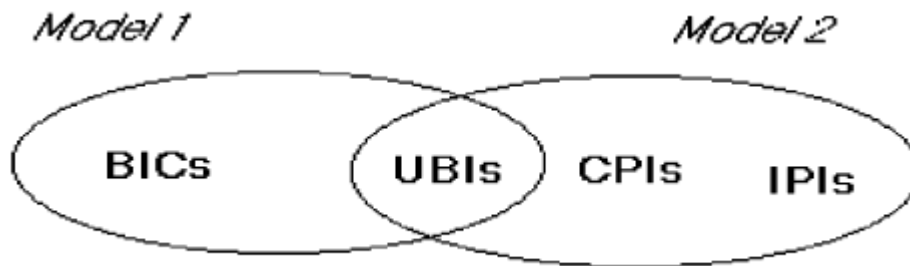
<sup>9</sup> From the website of the Italian Network for Innovation & Technology Transfer to SMEs which operates under the Italian Ministry of Economic Development and managed by the Italian Institute for Industrial Promotion - [http://www.riditt.it/page.asp?page=networks\\_national](http://www.riditt.it/page.asp?page=networks_national) (accessed July 2009).

<sup>10</sup> From the website of BIC Italia Net - <http://www.bic-italia.net/documento.asp?lingua=eng> (accessed July 2009).

into two major models, which they argue, are driven and shaped by the evolution of client company requirements and needs (see Figure 4 below).

*Figure 4 - The Two Incubating Models*

(Grimaldi & Grandi, 2005)



Their empirical work in Italy supports the hypothesis of two major incubator models i.e. not-for-profit government-owned and financed incubators at the one end whilst privately owned and commercial incubators on the other. Both these models, Grimaldi & Grandi (2005) argue, are differentiated on their ability to target different types of client firms. Such firms, each with its own objectives and requirements, fundamentally shape the structure of incubator models. In other words, a certain category of firms with associated attributes are suited more to a particular incubator model. Thus, BICs, with their capacity to reduce start-up costs, target small entrepreneurial initiatives which focus on local markets anchored to the old economy. Whilst, CPIs and IPIs, with their ability to accelerate the start-up process through the provision of high-value services attract highly promising hi-tech and knowledge-intensive entrepreneurial initiatives that promise aggressive growth in size and investment (Grimaldi & Grandi, 2005).

In subsequent work Grimaldi & vonZedtwitz (2006), extending the work of Grimaldi & Grandi (2005), focus on the relationships of incubator structure and incubator management practices in Italy. They conclude, commenting on the quality of service delivery of Italian for-profit and not-for-profit incubators, that the management teams of independent (or for-profit) incubators were generally more experienced, in comparison to government-owned or sponsored incubators, and were able to transfer competencies and



knowledge directly to their incubatees. Further, most team members of publicly-funded incubators do not possess the management and financial skills required to run new businesses. That said, however, Italian BICs generally have a very agile organisation, with a small number of employees (vonZedtwitz & Grimaldi, 2006).

Colombo & Delmastro (2002) argue that the differentiating aspect of incubation in Italy is how incubators provide incubation-related services to client firms. The provision of such services is through both self-administration and outsourcing, where there is greater recourse towards the latter. Therefore, a great deal of management effort is devoted to the coordination of activities and services performed by third parties rather than self-administration. Clegg (1990) suggests that this aspect of the organisation of firm activity is witnessed in other sectors in Italy also, such as fashion, where Benetton is thought of less as an organisation per se and rather more as organised network of market relations premised on complex forms of contracting made possible by advances in IT. Italy in this respect is unique where the Weberian bureaucracy is replaced by 'systemation' – the new trend towards merging all activities: managerial and productive, white and blue collar, design and marketing, economic and technical into one single interactive system (Clegg, 1990).

Perhaps the most comprehensive study of incubators-incubation in Italy was undertaken by Colombo & Delmastro (2002). The researchers, who claim that their research was the first-of-its-kind, evaluated Italian incubators in terms of their impact on fostering the establishment and growth of new technology-based firms (NTBFs). For this purpose, they compared a sample of 45 Italian independent NTBFs that were located in a technology incubator with a matched sample of 45 similar off-incubator firms. This comparison was done in terms of age, sector of activity and geographical location. The results are very interesting; overall, firms in incubators showed higher growth rates than their off-incubator counterparts. Firms located in incubators perform better in terms of exploiting sophisticated technologies, show an aptitude towards engaging with international R&D programmes and are eager to develop

collaborative arrangements, especially with universities. Most importantly, on-site firms find it easier to get access to public subsidy. With these findings Colombo & Delmastro (2002) conclude that incubators are in fact an important element of the Italian national innovation system and contribute to the survival and growth of NTBFs.

The success of Italian incubators in contrast to evidence from Germany<sup>11</sup> could be attributed to the fact that since Italy's hi-tech sector is underdeveloped when compared to other competing EU economies, due to market failures in the provision of essential inputs to new hi-tech firms, the presence of bridging institutions such as incubators may be relatively more beneficial (Colombo & Delmastro, 2002; Grimaldi & vonZedtwitz, 2006). However, another, more simpler, explanation could easily be that incubators in Italy are somewhat better at *incubating* than their German counterparts. Unfortunately, there is presently no research available to either confirm this argument or to shed further light on how Italian incubators' venture creation processes work. Clearly, through further research on the incubation process, there is immense opportunity in developing cross-national best practice models to encourage learning and adoption.

## **2.4 Comparing & Contrasting Germany & Italy**

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Internationally, incubators are set up and operated in a variety of dynamic environmental and institutional contexts (Aernoudt, 2004; Aerts et al, 2007; Carayannis & von Zedtwitz, 2005; Grimaldi & Grandi, 2005). As it has been shown in the cases of Germany and Italy, due to variance in national-level technology policy, the aims and objectives as well as the institutional make-up of incubator fields varies widely. Along with national policies, initiatives and policy linked to incubators-incubation have also been launched at the EU-level which influence the member-states' technology policies and innovation systems in different ways. Thus, in Europe, the focus and agenda for incubation is for the most part set by government policy (Aernoudt, 2004).

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<sup>11</sup> *ibid.* See previous section.

It is quite tempting to construct a comparative matrix of the major differentiators that distinguish incubators-incubation in Germany and Italy. This exercise, however, is not easy since it remains unclear as to what ought to be compared and contrasted. Is it aspects such as incubation policy frameworks, incubation models or typologies, incubator characteristics, the nature and structure of the internal incubation process, incubator impact and performance, or a combination of these? By simply comparing and contrasting incubation policy or the organisation of the incubation process, the more fundamental questions of 'why' country-specific differences exist, or why one country's incubator-incubation environment using similar evaluation criteria, outperforms another, will remain only partially answered. The above aspects exist as distinct strands of research not an intermeshed analysis. Arguably, a research exercise which integrates these strands within a national context has the potential to unveil the existence of unique 'national systems of incubation'.

In recent times, several comparative studies have been published [see for instance Autio & Klofsten (1998); Tamásy (2001); and Abetti & Rancourt (2006)], however, to-date there is a lack of agreement and also systematic evidence on the presence of such a 'nationally-embedded system of business incubation' in tune of a 'national legal system' or 'innovation system'. Thus, a question arises, what can or ought to be compared when conducting a holistic cross-country analysis of incubators-incubation, beyond general characteristics? Further, in what ways will our understanding of incubators-incubation improve when them through the national systems approach?

Since the analysis of the above paradox is beyond the scope of this review, Table 1 below presents a broad-based comparative overview of incubators-incubation in the two reviewed EU member states - Germany & Italy:

Table 1 – Broad-based Comparison of Incubators-Incubation in Germany & Italy

	Germany	Italy
<b>Historical Underpinnings</b>	A relatively long incubation tradition. Major growth occurred following the reunification in 1990. Due to restructuring of the region's economy, large non-competitive industrial plants ceased operations and were replaced by a combination of new local businesses and inward investment. Incubators served to boost regional competitiveness.	Initially concentrated in steel closure areas and in economically lagging areas of the south. The first incubator was set up in 1990 but it was a decade later that incubation gained significant prominence at the level of government policy with high levels of political and financial support. Now incubation is seen as a useful tool for encouraging SME innovation and growth
<b>Estimated Incubator Population</b>	400	44-50
<b>Central Coordinating Agency</b>	<i>Arbeitsgemeinschaft Deutscher Technologiezentren</i> or The German Association of Innovation, Technology and Business Incubation Centres (ADT) – established 1988	BIC Italia Net – established 2002. All Italian BICs are members of the EBN
<b>Models / Typologies</b>	<ol style="list-style-type: none"> <li>1. 'Gewerbezentrum' or business incubator (BI)</li> <li>2. "Technologie- und Gründerzentrum" or technology and founder centre (TC)</li> <li>3. 'Gründerzentrum' or Technology orientated incubators</li> </ol>	<p>Researchers in Italy have shown a lot of interest in incubator models. Grimaldi &amp; Grandi (2005) and Grimaldi and vonZedtwitz (2006) have carried out empirical investigations to describe the pre-dominant local models of incubation. They argue that the models are driven and shaped by the evolution of client company requirements and needs. Five pre-dominant models emerge:</p> <p><i>Not-for-Profit</i></p> <ol style="list-style-type: none"> <li>1. Business Innovation Centres</li> <li>2. University Business Incubators</li> </ol> <p><i>For-Profit</i></p> <ol style="list-style-type: none"> <li>3. Independent Private Incubators</li> <li>4. Corporate Private Incubators</li> <li>5. Virtual Incubators</li> </ol>

<b><i>Incubation Process</i></b>	There is a lack of studies that explore the internal incubation process in the German milieu. Research results do not point beyond incubation objectives and incubator services. German scholars recognise this discrepancy and point out, especially in the context of evaluation research, that it is necessary to determine the decisive incubator-specific support components (i.e. the incubation process) that contribute to the long-term survival of the incubates.	Although no studies make the study of the internal incubation process their major focus, nevertheless, an interesting aspect of incubation in Italy is the culture of outsourcing the provision of incubation-related services to third-parties.
<b><i>Results of Evaluation</i></b>	<p>Incubator evaluation research has attracted most attention in Germany. Like in the case of the UK, evaluation results, those that impact incubation policy, are compiled by incubator managements, policy makers or local authorities to demonstrate incubation success.</p> <p>Two comprehensive evaluations have been undertaken by academicians - Sternberg et al. (1997) and Schwartz (2008). The studies conclude: incubators have not been instrumental in promoting hi-tech start-ups nor are they effective when it comes to ensuring the long term survival of new ventures.</p>	Colombo & Delmastro (2002) compare a sample of 45 Italian independent NTBFs that were located on a technology incubator with a matched sample of 45 similar off-incubator firms. Overall, on-incubator firms show higher growth rates and perform better in terms of exploiting technology, R&D, building linkages with universities and find it easier to get public subsidy.

## 2.5 Discussion

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The purpose in this chapter was to scrutinise background literature on the incubator-incubation phenomenon and to use this analysis to define the research problem being identified in this thesis. Towards this end, studies from various streams of incubator-incubation research were placed in a relevant geographic context and reviewed in the previous sections. This review has shown that there is a great deal of researcher emphasis on incubator evaluation-type research; most published literature emanating from these states focuses on this area. The problem with such research is that the 'real' and 'true' impact of incubators, as it has been suggested by some past researchers, can not be gauged in any simplistic manner (Roper, 1999; Sherman, 1999; Tamásy, 2001; Rudy, 2004; Sofouli & Vonortas, 2007; Tamásy, 2007). Incubators are very useful 'packaged programmes' for the curbing of entrepreneurial risk and the promotion of new ventures (Hongyi et al, 2007; Hughes et al, 2007; Benson, 2008; Cooper & Park, 2008; Ndabeni, 2008), however, they are also highly sophisticated when it comes to management, service delivery and evaluation (Sherman & Chappell, 1998).

Hackett & Dilts (2004a, pp. 56) in their systematic literature review of published incubator-incubation research suggest that: "it is clear that the economic development perspective has influenced the field of published business incubation studies". This overemphasis has been recognised as an issue by scholars who acknowledge that the development of knowledge in the area has followed a somewhat skewed trajectory. Some streams have received an inordinate amount of attention whilst there has been little or no development in other areas. This has led to a discursive and heavily compartmentalised knowledge body with weak inter-stream linkages (Hackett & Dilts, 2004a, Phan et al, 2005).

To illustrate the above point, Hannon & Chaplin (2003, pp. 862), commenting on the state-of-research in the incubator-incubation area, suggest that "the focus is now shifting away from incubators towards *incubation* (italics added) through an enhanced understanding that the underlying processes of incubation may be far more critical for achieving accelerated firm growth than incubator infrastructure". Hackett & Dilts (2004a, pp. 73) frustrated with a lack of focus on the part of incubator-incubation

researchers take Hannon & Chaplin's (2003) suggestion a step further and recommend that "to facilitate a focus on incubation process studies, a moratorium on incubator facility configuration studies should probably be imposed".

The urgent need to progress knowledge on the incubation process has led to the development of the present research project. The research presented in this thesis goes a few steps further by including the study of incubators' normative environment and structural properties – two dimensions entrepreneurship researchers Russell & Russell (1992) highlight as essential dimensions for understanding the entrepreneurial process or life-cycle. Taken together, the three facets of processes, norms and structure complete the triad organisation theorists recommend as important to developing an understanding of organisational functioning (Meyer & Rowan, 1978).

Developing a rich knowledge-base on the internal processes, norms and structure of incubation is important for a number of reasons: first, in *explaining the variation in incubation outcomes* – previous research shows that there is no universal formula for incubation "success". The problems associated with determining incubation "success" are: (a) some incubators (of a certain type) in particular regions are simply more successful on a certain set of criteria than their counterparts in other regions – it cannot be explained why; and (b) definitions of "success" and "criteria for success" also vary widely depending on the aims and objectives of the evaluating agency. Hackett & Dilts (2004a; 2008) simplify this problem by suggesting that by any definition incubation "success" must mean the production of a sustainable new enterprise at the end of the incubation period; and logically this basic criterion ought to be linked to "how incubators incubate"<sup>12</sup>. The logic here is quite simple: the better incubators are at *incubating* the more likely it is for their clients to be "successful". Therefore, if there is an understanding around them impact of the various

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<sup>12</sup> It is acknowledged that production of a sustainable new enterprise at the end of the incubation period is not the only criteria for incubation "success". We know from the literature that incubator programmes have other goals which are weighed in equally important terms such as internal incubator network formation (Lichtenstein, 1992), incubator-industry network and incubator support services network density (Nowak & Grantham, 2000; Hansen et al, 2000), incubator manager and incubatee relationships (Rice, 2002; Sherman, 1999; Udell, 1990; Autio & Klofsten, 1998), incubator effectiveness (Sherman & Chappell, 1998) and incubatee selection process (Kuratko & LaFollette, 1987; Merrifield, 1987). Hackett & Dilts' (2004a; 2008) definition, however, is all-encompassing, for in the post incubation sustainability of any new firm, all the aforementioned criteria / variables are likely play an important role.

combinations of the incubation process's base components on client firms it is likely that our grasp on *incubating* "successfully" would increase.

Second, in *explaining the variation in performance across incubator types in a national and cross-national context* – past research has shown that incubation performance varies considerably when compared at a number of levels including (a) between different types / models of incubator organisations in a national / regional context; (b) between models prevalent across national / regional boundaries; and (c) even across similar models prevalent in a national / regional context. There is a lack of a theoretically grounded basis for explaining this variation in incubator performance. This dearth in theory can be attributed to a lack of (a) knowledge on the incubation process in general since logically one of the most important contributing factors to the variation in incubator performance has to be *incubation practices*; and (b) studies with a comparative design to compare and contrast incubation practices to identify which practices at what types of incubator organisations contribute to performance variation. Thus, it is foreseeable that research that investigates and contrasts the incubation process across different incubator models will make a useful contribution and help in answering the questions "why incubation practices differ widely across (and also in between) models" and "why / which certain practices seem to make a greater impact than others".

Third, in *developing new theory* – focusing on the processes, norms and structural properties of incubators will draw attention to the underlying causes and best practices of new venture creation in an incubator environment. This, in turn, should lead towards new theories of business incubation. In developing new theory multiple research methods will be required and it would be important to draw from frameworks prevalent in other domains; such as those used to explain phenomenon associated with new venture formation and development and organisation theory.

And the fourth significant factor is *relevance to policy and practice* - despite the fact that bodies such as the NBIA<sup>13</sup> and UKBI<sup>14</sup> have noted on many occasions that the incubation process is much more important than the incubator facility (UKBI, 2004;

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<sup>13</sup> National Business Incubation Association, based in the USA, is the largest representative body of business incubators in the world.

<sup>14</sup> UK Business Incubation is NBIA's counter-part in the UK.



NBIA, 2008), the extent of what is known about the incubator-incubation phenomenon is limited almost exclusively to the incubator facility (Hackett & Dilts, 2004a; 2008). Hackett & Dilts (2004a; 2008) argue that as interest in entrepreneurship continues to grow, so is increasing an interest in methods for increasing the likelihood of entrepreneurial success and preventing entrepreneurial failure. Accordingly, the development of models of the incubation process represents an opportunity to conduct incubator-incubation research that is likely to be of interest to a much broader spectrum of researchers and practitioners.

Thus, developing a more sophisticated and nuanced understanding of the incubation process is imperative for inter-linking various streams within the area and also to progress knowledge in an apparent stalemate where researchers seemed to be locked in cyclical debates<sup>15</sup> and some of the more fundamental questions are not receiving due attention. In this research, an attempt has been made to address these problems.

In the next chapter previous incubation process-related literature is critically analysed to identify knowledge gaps and areas for further research. Selected studies are placed in a number of conceptualisations and critically reviewed which helps in highlighting theoretical and methodological weaknesses. A new approach is also developed for investigating the topic further.

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<sup>15</sup> Compare for instance the conflicting results of Colombo & Delmastro (2002) and Tamásy (2007) using similar methodologies investigating the impact of incubators in Italy and Germany respectively.

## The Business Incubation Process: A Systematic Literature Review

### Outline

In the previous chapter, the problem being investigated in this research was identified: that there is a need to progress knowledge on the channels of interaction internal to the incubator including its processes, normative environment and structural properties that impact upon both incubatee survival, and “success” upon graduation. In other words, it is important to develop a deeper understanding of what is actually taking place inside the alleged “black-box” of the incubator that adds value to clients and other stakeholders. Following on from this, the objective in this chapter is to critically analyse previous incubation process-related literature for identifying knowledge gaps and to propose directions for further research. This objective is achieved through a systematic approach where a selection criteria is used to classify and critically review 23 relevant studies. These studies are categorised into six major conceptualisations that describe the predominant views on incubation held by previous researchers. The conceptualizations include (1) incubation as a mechanism for new venture creation; (2) incubation as a mechanism for resource allocation; (3) incubation as a socio-political game; (4) incubation as a co-product of incubator-incubatee dyads; (5) incubation as an outcome of network behaviour; and (6) incubatee selection as a predictable and controllable process. The review highlights challenges within extant research, suggests areas previous researchers have ignored and identifies avenues for future research. The chapter ends with a critical reflection on the meta-theoretical foundations of previous research, highlights the reasons why our knowledge on the incubation process is under-developed and lays the foundation for developing a new theory around a *mechanisms-based* conceptualisation of the incubation process.

### 3.1 Introduction

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Researchers and practitioner groups have presented numerous definitions and descriptions of the incubation process over the last number of years<sup>16</sup>. It is, however, generally agreed that incubation encompasses the provision of management guidance, technical assistance, technology support services, assistance in obtaining financing and consulting tailored to young growing companies in incubator organisations<sup>17</sup>. A mix of all, or a combination of, these services, at times with differing terminology, is advertised by incubator organisations in a 'menu' of facilities provided to client firms.

In addition, as a necessary component, incubation also includes access to appropriate rental space, flexible leases and business support facilities such as common areas, cafeteria, conferencing, reception desk, photocopying, internet, courier and other services. Therefore, critical to the incubation process, alongside mentoring or developmental assistance is the provision of the above 'infrastructural facilities'. When both of these are provided together, they comprise the system that Hackett & Dilts (2004a) refer to when describing what incubators do. This 'system' in total, is the incubator's 'technology'. The incubator's technology-processes are developed and carried out by the incubator management, and offered both in the incubator premises and through a network of outside contacts (Merrifield, 1987).

In the literature, at a theoretical level researchers conceptualise incubation in different ways. For instance, incubation is often described as, or assumed to be, a process of mentoring designed to nurture young entrepreneurial firms to grow rapidly in a controlled environment, grooming them to acquire skills to reduce prospects of failure once they cease to be incubatees (Campbell et al, 1985; Sherman, 1999; Rice, 2002; Hackett & Dilts, 2008). Alternatively it has been defined as a process of brokering in which the incubator is a node in a wider network of stakeholders and institutions, enabling the flow of resources to and from young firms to outside and unconnected sub-groups, thereby, fostering mutual trust, awarding credibility to the new firms and

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<sup>16</sup> For a comprehensive listing of definitions see Hackett & Dilts (2004a)

<sup>17</sup> Compiled from the definitions presented by the UKBI and NBIA-USA.

building legitimacy in transactions (Smilor, 1987; Markley & McNamara, 1995; Hansen et al, 2000; Lendner & Dowling, 2003; McAdam & McAdam, 2006).

Arguably, differences in incubator models, from an incubation process standpoint, ought to result in different forms of *incubating* or differences in the combinations, intensity and proportions of services offered by incubator organisations. It is being suggested in this thesis that inter-model differences diminish when it comes to their internal processes since in order to qualify as an incubator, any model must capture the original *ethos* of business incubation in its incubation delivery mechanisms. To illustrate, the goal of Campus Incubators is “to support the creation and growth of its client firms during the start-up years through value-added contributions - the incubation process” (Mian, 1997, pp. 257). This definition, in essence, of what incubators do (*incubate*), is the same when university campus-based incubators are compared with community enterprise centres, not-for-profit hi-tech incubators or corporate incubators. Furthermore, an analysis of descriptions of incubators set up in different countries around the world such as the UK and Ireland (McAdam & McAdam, 2008), Finland and Ukraine (Abetti & Rancourt, 2006), Sweden (Löfsten & Lindelöf, 2002) and Germany (Schwartz & Hornych, 2008) do not reveal any major differences in terms of what they are meant to do and achieve.

When examining the literature chronologically, six conceptualisations of the incubation process become evident through a number of means; *first*, via the theoretical lens researchers use for data analysis, for instance, social network theory, dyadic theory or the resource based view; *second*, via the conceptual constructs linked to specific bodies of literature (such as the new venture creation literature) to develop definitions and / or models; and, *third*, via the philosophical implications of new theoretical conclusions such as the line of argument a game or rational choice theorist would use. These conceptualisations are as follows:

1. *Incubation as a mechanism for new venture creation* - a step-by-step / staged process that awards legitimacy, opens network access and heightens community support for entrepreneurs.
2. *Incubation as a mechanism for resource allocation* - a mechanism of awarding a stock of tangible and in-tangible resources to client firms that results in, in addition to other benefits, client firm growth.
3. *Incubation as a socio-political game* - a socio-political mechanism of creating an environment and perception of reduced risk and security within a bounded physical space.
4. *Incubation as a co-product of incubator-incubatee dyads* - a process of co-producing developmental assistance in independent incubator-client dyads.
5. *Incubation as an outcome of network behaviour* - a system of increasing client firms' network density.
6. *Incubatee selection as a predictable and controllable process* - a process of selecting "weak but promising" firms for incubator induction.

These different conceptualisations reflect the variety of philosophical and theoretical viewpoints that exist within the incubator-incubation research community. While these conceptualisations are not necessarily mutually independent, they are employed as classifications of convenience in order to facilitate a more insightful discussion of the literature.

The major aim in this chapter is to identify knowledge gaps, major trends in the literature and researcher attitudes towards the topic. This is done via a systematic literature review. In conducting this review, the study selection criteria, the review's methodology and style of organisation has been adopted from Hackett & Dilts's (2004a) seminal systematic review of incubator-incubation literature. Replicating Hackett & Dilts's (2004a) robust approach adds a degree of rigour to the present review.

The chapter is organised as follows: first, the methodology employed in identifying and selecting articles for review along with the selection criteria is presented. Second, the selected articles are reviewed along the six conceptualisations described above. Third, several challenges are identified in extant literature and a new way forward is suggested to progress this research. Specifically, it is noted that a large majority of researchers have not made the study of the business incubation process their exclusive priority and the meta-theoretical lenses previously employed are not ideally suited to the study of social 'processes'. The chapter concludes by emphasising that there is a lack of a business incubation process model that unpacks the process's variables and its relationship with incubators' internal normative environment and structural properties.

### **3.2 Methodology for Identifying Articles, Selection Criteria & Exclusions**

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Initially, the type of material to be included in the review was kept very broad which included articles from scholarly journals, books and book chapters, dissertations, government publications, policy reports and conference papers. Online academic databases hosted by the University's Library Services were extensively used for searching and accessing soft copies of the above categories of base material. Business Source Premier, SAGE Journals Online, ScienceDirect, SpringerLink and Web of Science were key resources. Google Scholar proved to be highly effective also, especially when tracing very specific material. Save for a few old publications, all material was readily available in softcopy format. Using these databases, articles and other publications, were (a) exported to an online bibliography management software, *RefWorks* -; (2) downloaded, mostly in a 'pdf' format; (3) downloaded files were renamed for easy recall; (4) the material was read; and, finally (5) saved in relevant folders according to classification in relevant conceptualisation. This virtual 'filing cabinet' along with the *RefWorks* software became the primary means of organising and tracking base material. A number of conference papers and articles pre-dating the 1990s had to be accessed via the University library in hardcopy form. These were filed separately.

Reading and writing remained a simultaneous exercise where new leads from the accumulated literature were explored, such as via citations in text and bibliography reviews. The journals which published the most prominent articles were further searched using a number of key words for more relevant material. A number of special reviews, especially the ones published by the *Journal of Business Venturing*, were very helpful. When reasonably confident that all extant articles on the incubation process had been identified and retrieved, their listing was checked against the bibliography of Hackett & Dilts (2004a) and a bibliography created by the National Business Incubation Association (NBIA) in 2007<sup>18</sup> that lists all (peer-reviewed, non-peer reviewed and popular press) articles related to incubation in order to ensure as far as possible that the entire population of articles on the incubation process had been collected.

The articles considered for review appear in the following journals: *Policy Studies Review*, *Technovation*, *Journal of Business Venturing*, *Economic Development Review*, *International Entrepreneurship Management Journal*, *Journal of Technology Transfer*, *Long Range Planning*, *American Journal of Small Business*, *International Small Business Journal*, *IEEE Transactions on Engineering Management*, *Research Management* and *Academy of Entrepreneurship Journal*.

The review has been limited in several ways. First, the coverage of literature is confined primarily to the incubation process. Although the locus of the incubation concept is the nexus of forces involving new venture formation and development, new product conceptualisation and development and business assistance, each of which has an established body of research, to expand the scope of the review beyond research explicitly focused on incubation would make it impossible to complete given the constraints of this research. Second, although practitioner literature has influenced academic research, the review is centered on academic literature, except in cases where practitioner literature has proven especially influential and has some intrinsic academic validity. Third, an effort is made to include studies with an empirical component and those that employ a rigorous research methodology. Finally, only those studies have been included which have been published in recognised peer-reviewed journals.

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<sup>18</sup> Available from: [http://www.nbia.org/resource\\_library/bibliography/](http://www.nbia.org/resource_library/bibliography/) - accessed in March, 2009.

Selecting the most relevant studies out of the available pool was done via a process of elimination which qualified or disqualified articles based on the above criteria. The first criterion was especially very strictly adhered to: studies' relevance and overall focus on the *incubation process* (as opposed to other areas in incubator-incubation research). To explain this point, Sarfaraz A. Mian – who is a prolific incubator-incubation researcher - his work on University Campus Incubators (Mian, 1994a; 1994b; 1996, 1997) was not included. Overall, the focus of Mian's research is on assessing the effectiveness of Campus Incubators on the growth of technology-oriented client firms. He has also looked at the role of the university in nurturing technology clients in Campus Incubators. The research is indeed pioneering for its time, however, is not as relevant to this review since the internal process of incubation at Campus Incubators is not investigated<sup>19</sup>. Other studies are prescriptive pieces directed at policy makers for promoting the concept of business incubation in developing countries<sup>20</sup>. Some studies which did seem relevant were reviewed<sup>21</sup>, but were ultimately not included since they were not published in a peer-reviewed journal.

Another work, Greg A. Lichtenstein's unpublished doctoral thesis titled "The significance of relationships in entrepreneurship: A case study of the ecology of enterprise in two business incubators" (Lichtenstein, 1992), was also quite relevant and impossible to ignore; however, it too is not being included in this chapter. This is

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<sup>19</sup> In Mian (1997) for instance, building on his earlier case study-based work on university campus incubators; three categories of variables are proposed that could be used to assess the effectiveness of campus incubators: (a) performance outcomes, (b) management policies and their effectiveness, and (c) services and their value-added. Of these, the category 'management policies and their effectiveness' is presumably most closely related to the internal process of incubation. Mian uses four variables including (1) goals, structure, and governance; (2) operational policies; (3) financing and capitalisation; and (4) target markets to assess the effectiveness of incubator management policies. As per the definition of incubation proposed, if we look at the two aspects Mian gauged which come closest to what incubation truly is (under 'goals, structure, and governance') "the quality of management support received by the tenant firms in helping to solve their problems" and "the extent of incubator service usage" it becomes clear that not much light shed on what went on inside campus incubators. Although the research is pioneering for its time, but Mian admits that "the framework did not fully account for the micro-level internal NTBF creation processes" (Mian, 1997, pp. 280).

<sup>20</sup> For instance, Lalkaka (2002) and Abetti & Rancourt (2006) present a number of case studies each which are country-specific situation analyses of campus incubators and attempt to gauge their impact on technology transfer and regional economic development. Both these studies seem to be directed at policy makers promoting the concept of business incubation; there is no discussion on how incubators incubate. Lendner and Dowling (2007) have also perused an evaluatory agenda where they use an exploratory survey to assess the impact of university campus incubators' main goals, organisational structure and business strategies on the development of tenant firms. Karatas-Ozkan, Murphy, & Rae (2005) aimed to improve the understanding of the formation and effective management of incubators in the UK. They interviewed incubator managers at four campus incubators to highlight contextual constraints and opportunities which work to shape and re-shape incubator programs. They were not really interested in understanding the nature of the internal process of incubation for which they would certainly have had to take into account the views of client firms.

<sup>21</sup> For instance, Rustam, L. & Ping, H. 1987. *Nurturing Micro Enterprises and Technological Innovation through the Business Incubation Process*. Paper presented at Guangzhou Seminar on Small and Medium Enterprises: Technology Policy Issues and Options, November 1987. New York: United Nations Centre for Science and Technology for Development.



due to two major reasons: first, the material is unpublished and Dr. Lichtenstein confirmed in email correspondence that he did not publish journal papers from his doctoral work instead producing a number of practitioner focused books; second, critically reviewing an entire doctoral thesis in this chapter, given its constraints, was not practical and reviewing just portions of it did not seem rigorous, therefore, his research will be drawn upon and reviewed in the relevant analysis section instead as part of the reflective literature review process.

Arguably, theoretical work on social networks and new venture creation is relevant to the study of the incubation process, however, it is excluded from this review since a number of articles included draw extensively on the Network and Social Capital theories [e.g. Bøllingtoft & Ulhøi (2004); Tötterman & Sten (2005) and Hughes et al (2007)] and the new venture creation literature [Campbell et al (1985); Smilor (1987); Hisrich (1988); and Peters et al (2004)]. Through a critical examination of these studies, a discussion around the usefulness of the network and venture creation literature to the study of the incubation process becomes possible. This discussion appears in the sections on 'incubation as an outcome of network behaviour' and 'incubation as a mechanism for new venture creation'.

Thus, 23 articles (3 non-empirical and 20 empirical) were selected. It was felt that 23 articles was a sufficient-enough number considering that Hackett & Dilts (2004a) in their systematic review of the entire incubator-incubation area with five different research orientations (where process studies were merged with 'incubatee development' studies) had a total of 35. Appendix - A presents a chronological listing of all the reviewed articles and Table 2 below highlights the conceptualisation of incubation the articles present, their selection rationale and context:

Table 2 – Selected Articles' Selection Rationale & Context

No.	Article & Conceptualisation	Selection Rationale	Research Context
<b>Incubation as a mechanism for new venture creation</b>			
1	Campbell et al (1985)	One of the earliest articles on incubators; describes the business incubation process and presents a model of the incubator.	<ol style="list-style-type: none"> <li>1. Practitioner Study Quantitative with survey</li> <li>2. Incubation as a business development process consisting of four mutually exclusive components: (1) diagnosis of needs; (2) selection and monitoring; (3) capital investment; and (4) access to expert networks.</li> <li>3. Emphasis on the problem of locating potential entrepreneurs suitable for incubation.</li> </ol>
2	Brooks (1986)	An important early article which presents a staged conceptualisation of the incubation process. The process is seen as transcending the walls of the physical incubator facility.	<ol style="list-style-type: none"> <li>1. Practitioner Study</li> <li>2. Incubation is the process of heightening community support for the entrepreneur; hence, it is a process that ought to transcend the walls of an incubator to include all incubators within a community working communally to incubate nascent firms.</li> <li>3. The primary components of the incubation process include the incubator support network, the pooled support services and a university linkage.</li> <li>4. Incubation as a two-stage process where at the first stage start-ups enter an "economic growth incubator" in order to gain access to primary support components. At the second stage, with greater maturity, they can move into a "real estate incubator" which provides office space and shared services.</li> </ol>
3	Merrifield (1987)	First published study that focuses on an important component of the incubation process: client selection.	<ol style="list-style-type: none"> <li>1. Practitioner study.</li> <li>2. Only those firms that are "weak but promising" should be admitted whilst the firms that cannot be helped through business incubation and those that do not need incubation, should be screened.</li> </ol>
4	Smilor (1987)	One of the first published studies to have a strong empirical component; highlights the impact of incubator ownership on the incubation process.	<ol style="list-style-type: none"> <li>1. Practitioner Study Triangulation with data from national survey, interviews, analysis of case studies, and observation</li> <li>2. Incubation as a process of opening new network access while controlling a set of assistive resources: "secretarial support, administrative support, facilities support, and business assistance".</li> </ol>
5	Hisrich (1988)	Verifies Brooks (1986) – see no. 2 – conceptualisation of an incubator without walls and the incubation process as spatially dispersed across various 'incubating' institutions.	<ol style="list-style-type: none"> <li>1. Case study with triangulation.</li> <li>2. Incubation is seen as one component of an integrated strategy to promote intrapreneurship. Others being venture capital exchange, intrapreneurship center, innovation center, small business development center, student / education / entrepreneurship development center.</li> </ol>

6	Weinberg et al (1991)	Prolific incubation researchers; this is a seminal publication building on and collating the results from a number of previous studies by David Allen – one of the study's co-authors; also first to bring a human relations perspective to incubation research.	<ol style="list-style-type: none"> <li>1. Triangulation with secondary data from multiple practitioner-oriented case studies (incubator programme evaluations)</li> <li>2. Their model views incubation as a cooperative process between the incubator, its clients and field-level partners. Incubation occurs within the internal and external interorganisational fields that connect these entities in a network that channels the flow of resources to and from incubating firms to entities in the environment.</li> </ol>
7	Peters et al (2004)	Useful article since it draws on new venture creation literature and discuss the entrepreneurial process inside incubators.	<ol style="list-style-type: none"> <li>1. Mixed methods research design with secondary data analysis using published statistics and face-to-face interviews</li> <li>2. Focus on the impact of the services offered by incubators, namely infrastructure, coaching and networks, on the graduation rates of the respective incubators' clients.</li> <li>3. They suggest that if a deeper understanding of the entrepreneurial process, incubation strategies and approaches can then be designed to facilitate the entrepreneur at critical junctures with tangible resources and other forms of support.</li> </ol>
<b><i>Incubation as a mechanism for resource allocation</i></b>			
8	McAdam & McAdam (2008)	Useful article which uses the Resource-Based View (RBV) to study the relationship between stages of growth of new ventures inside incubators and incubator resource consumption.	<ol style="list-style-type: none"> <li>1. Exploratory and longitudinal multiple case study with primary data from interviewing, non-participant observations and informal discussion</li> <li>2. Incubation is not a static process or simply a menu of services. The nature of incubation changes according to (a) the varying resource needs of the client firm over the duration of the incubation period; and more importantly (b) as it becomes clear from the comparative nature of their research, the client firm's industrial affiliation drives aspects of resource needs.</li> <li>3. There are a number of stages in the growth of the entrepreneurial hi-tech firm where each successive stage represents increasing levels of (a) complexity in firm coordination, control and strategy and; and (b) the need for additional resources.</li> <li>4. High-tech firms' propensity to make use of the incubator resources and support increases as the lifecycle stage of the firm increases.</li> </ol>
9	Patton et al (2009)	A unique study in that it looks specifically at a number of aspects that strengthen the incubation process at hi-tech university incubators.	<ol style="list-style-type: none"> <li>1. Case study of a high tech university incubator.</li> <li>2. Incubation is seen as a process by which business assistance is deployed. The timing of such deployment is derived from a tacit understanding of the founder and associated business proposal that the incubator director develops.</li> <li>3. The emphasis is on the importance of the incubator manager and client relationship.</li> </ol>

10	Todorovic & Moenter (2010)	Latest article that studies an important aspect of the incubation process; using the Resource-Based View the article looks at what incubator resources are most valued by client firms.	<ol style="list-style-type: none"> <li>1. Qualitative study based on 30 in-depth interviews.</li> <li>2. The incubator must provide a resource that the client firm cannot find elsewhere. Once the incubator client firm relationship reaches a point where the only resource it is providing is the subsidy of physical space, then the incubator space can be better utilised by another client firm.</li> <li>3. No evidence was found to suggest that certain industry sectors have one emphasis as opposed to the other.</li> </ol>
<b><i>Incubation as a socio-political game</i></b>			
11	McAdam & Marlow (2007)	Study is based in an Irish empirical setting; the internal dynamic of a business incubator (linked to a university) is explored to suggest dis-advantages that may arise as a result of incubator placement.	<ol style="list-style-type: none"> <li>1. Longitudinal in-depth case study using qualitative data. collected via interviewing, participant observation and informal discussion</li> <li>2. Critical of the incubator's role in the establishment of management teams and awarding credibility to client businesses.</li> <li>3. Mental notions of credibility change as the firm matures with incubator placement as initially being perceived as a valuable mechanism of achieving greater levels of market integrity. However, in later years, residing in an incubator premises was, according to entrepreneurs, perceived as amateurish, vulnerable and inexperienced.</li> </ol>
12	Evald & Bager (2008)	A unique piece of research since it looks at venture team activity inside 'corporate incubators' – which remain quite understudied; the study focuses on political rivalries within venture teams.	<ol style="list-style-type: none"> <li>1. Longitudinal research design with triangulation. Both qualitative (interviews) and quantitative (questionnaires) data collected in two rounds spread over two years.</li> <li>2. Due to competing priorities and objectives between high-tech venture teams, incubator managers and corporate managers, is open to discreet political games. These political games tend to become institutionalised patterns of rivalry and power struggle, trapping leaders of venture teams.</li> </ol>
<b><i>Incubation as a co-product of incubator-incubatee dyads</i></b>			
13	Rice (2002)	A significant study which for the first time describes incubation as occurring within independent co-production dyads.	<ol style="list-style-type: none"> <li>1. Triangulation with multiple case studies where data was collected via both a structured questionnaire and in-depth interviews</li> <li>2. The readiness of the entrepreneur to engage in co-production of business assistance impacts the incubation process outputs</li> <li>3. Rice overturns the implicit assumption in previous research which assumes the incubator to be the initiator and orchestrator of incubation whilst the incubatee as the passive recipient. Instead, according to Rice, incubation occurs in an inter-dependent 'co-production dyad' between the incubator manager and the incubating firm.</li> </ol>

14	Warren et al (2009)	Study looks at the knowledge acquisition processes of client firms in the incubation process.	<ol style="list-style-type: none"> <li>1. Case study of a hi-tech university incubator.</li> <li>2. Describe incubation as a process of knowledge acquisition by client firms. The process is seen as two-staged: (a) knowledge gained through the incubator director; and (b) knowledge gained via external networks.</li> <li>3. A tipping point occurs when clients begin to wean themselves away from the Director and start to leverage social capital themselves.</li> </ol>
<b><i>Incubation as an outcome of network behaviour</i></b>			
15	Bøllingtoft & Ulhøi (2005)	Only article found which uses ethnography to investigate the functioning of a new 'networked incubator' model.	<ol style="list-style-type: none"> <li>1. Qualitative with ethnography.</li> <li>2. Focused on the mechanisms connected to individuals and their relations with each other and (ii) mechanisms related to the construction of the incubator.</li> </ol>
16	Tötterman & Sten (2005)	The article uses Social Capital Theory to focus on how business incubators can support entrepreneurs.	<ol style="list-style-type: none"> <li>1. Triangulation with multiple case studies where data was collected via both a structured questionnaire and in-depth interviews.</li> <li>2. Incubators facilitate the creation of entrepreneurial networks and the higher the firm network density in an incubator the greater the level of client satisfaction with incubator services.</li> <li>3. Business incubators should carefully consider what kind of tenant mix and industry focus would most effectively stimulate the existence of synergies and commitment among tenants.</li> </ol>
17	McAdam & McAdam (2006)	Useful qualitative study that looks at entrepreneurial networking within a technology incubator in Ireland.	<ol style="list-style-type: none"> <li>1. In-depth longitudinal study using semi-structured interviews.</li> <li>2. Incubator placement enhances the development of entrepreneurial networks which provide support during the vital stages of firm foundation.</li> <li>3. Networks have a key role in facilitating the design and implementation of firm growth strategies.</li> </ol>
18	Hughes et al (2007)	Relevant study which looks at an important aspect of incubation process - client networking behaviour inside incubator organisations.	<ol style="list-style-type: none"> <li>1. Quantitative with survey</li> <li>2. Physical space and the company mix of an incubator play an important role in increasing the network dynamic of an incubator.</li> <li>3. Incubation outcomes can be classified and predicted based on the network behaviour of client firms.</li> </ol>
<b><i>Incubatee selection as a predictable and controllable process</i></b>			
19	Lumpkin & Ireland (1988)	Builds on Merrifield's (1987) – see no. 3 – work that new firms or incubatees can be rationally selected from a pool of available options. Very rigorous methodology and analytical process employed.	<ol style="list-style-type: none"> <li>1. Quantitative with Survey</li> <li>2. Screening practices and emphasis differs between different groups of incubators.</li> <li>3. Specific characteristics of incubator archetypes influence the way they select and incubate nascent firms.</li> </ol>

20	Hackett & Dilts (2004b)	Very relevant article; for building new theory on the incubation process, the article assess the appropriateness and fit of numerous theoretical frameworks; explicit theorisation on client selection using the Real Option lens.	<ol style="list-style-type: none"> <li>1. Theoretical paper.</li> <li>2. Real Options theoretical reasoning is used to map the incubation process. They suggest that incubatee selection is the creation of an option whilst subsequent resource infusions and monitoring and assistance are option exercises.</li> <li>3. The performance of any incubation programme is a function of and positively related to (1) incubatee selection performance, (2) monitoring and business assistance intensity, and (3) resource munificence.</li> </ol>
21	Aerts et al (2007)	Important study that looks at the client selection processes of European business incubators using a wide ranging survey.	<ol style="list-style-type: none"> <li>4. Quantitative with Survey</li> <li>5. Incubators can be categorised according to their screening profiles: (1) financial screener, (2) team screener, (3) market screener, and (4) balanced screener.</li> <li>6. Incubator screening practices vary across European nations and Europe's screening emphasis as a whole differs considerably from the US. Whereas, in the US, financial criteria dominates screening, in Europe the more 'soft' criteria to evaluate the management team and market fit are employed.</li> </ol>
22	Bergek & Norrman (2008)	Study looks at an important component of the incubation process - client selection.	<ol style="list-style-type: none"> <li>1. Quantitative with secondary data from incubator application forms.</li> <li>2. Any incubator selection strategy would use criteria to assess either the 'business idea' or the 'entrepreneur / management team'.</li> <li>3. What really differentiates any incubator selection strategy is either the flexibility or strictness in the <i>application</i> of assessment criteria.</li> </ol>
23	Hackett & Dilts (2008)	Important article which operationalises the Real Options framework proposed in Hackett & Dilts (2004b) to investigate the client selection process.	<ol style="list-style-type: none"> <li>1. Quantitative with Survey.</li> <li>2. Real Options theoretical reasoning is used to map the incubation process. They suggest that incubatee selection is the creation of an option whilst subsequent resource infusions and monitoring and assistance are option exercises.</li> <li>3. The performance of any incubation programme is a function of and positively related to (1) incubatee selection performance, (2) monitoring and business assistance intensity, and (3) resource munificence.</li> </ol>

Presented next is a review of the above 23 articles placed in six different conceptualizations. Organising the review along conceptualizations makes it possible to extract overall findings and major lines of argument which in-turn helps in identifying knowledge gaps and, in a number of cases, the meta-theoretical implications for the development of new theory in the area.

### **3.3 Thematic Review of Selected Studies**

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#### ***3.3.1 Incubation as Mechanism for New Venture Creation***

Campbell et al (1985); Smilor (1987); Brooks (1986); Hisrich (1988); Weinberg et al (1991) and Peters et al (2004) – studies included in this conceptualisation - draw on the new venture creation and entrepreneurial process literature and make advances in three areas. First, a number of attributes are ascribed to the idea of incubation including: (i) a process of awarding credibility and legitimacy to new firms; (ii) a process of opening new network access while controlling a set of assistive resources; (iii) a process of heightening community support for the entrepreneur; (iv) a cooperative process between the incubator, its clients and field-level partners. Second, they describe a number of mutually exclusive components or stages of the incubation process such as: (i) diagnosis of needs; (ii) selection and monitoring; (iii) capital investment; and (iv) access to expert networks. Finally, typologies or models are proposed such as: (i) not-for-profit; (ii) university-based; (iii) corporate; (iv) high-tech, and these are compared and contrasted on the basis of a number of characteristics ascribed to the model's particular method, or style of incubation.

In the first of the above three advances, while it is useful to propose incubation's attributes for definitional purposes, these do not on their own help us understand *how* the process unfolds to either award credibility, open network access or heighten community support. The other two advances pose problems of their own; first, in conceptualising incubation as a step-by-step / staged process – this is usually an instrumentalist description of 'what incubators ought to do' which does not show 'how incubators function', since in the latter, theoretical models must present a picture of internal management practice and the normative and structural milieu that allows incubator organisations to perform its functions. These aspects of incubation are

undoubtedly impacted by both the micro-level context of human relations, and the wider macro-context of regional economy, public policy, entrepreneurship culture and other environmental drivers.

Figure 5 - Smilor's (1987) framework

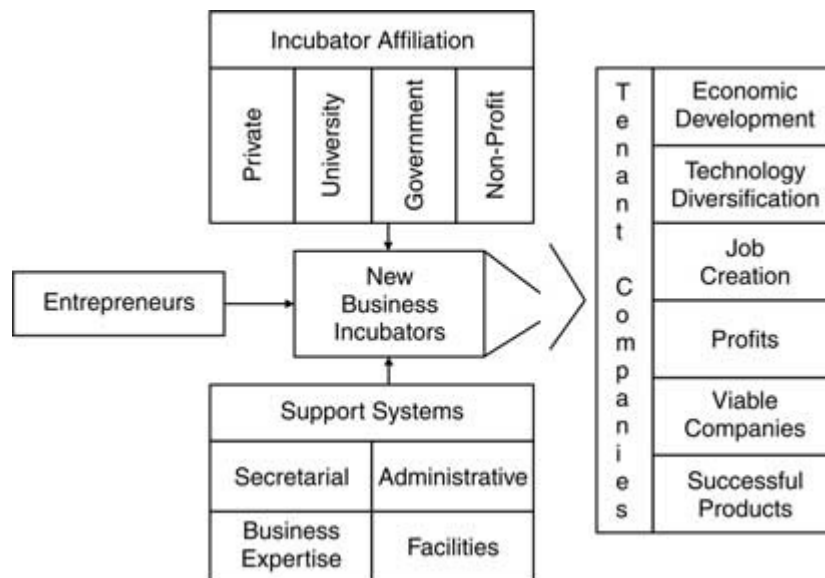
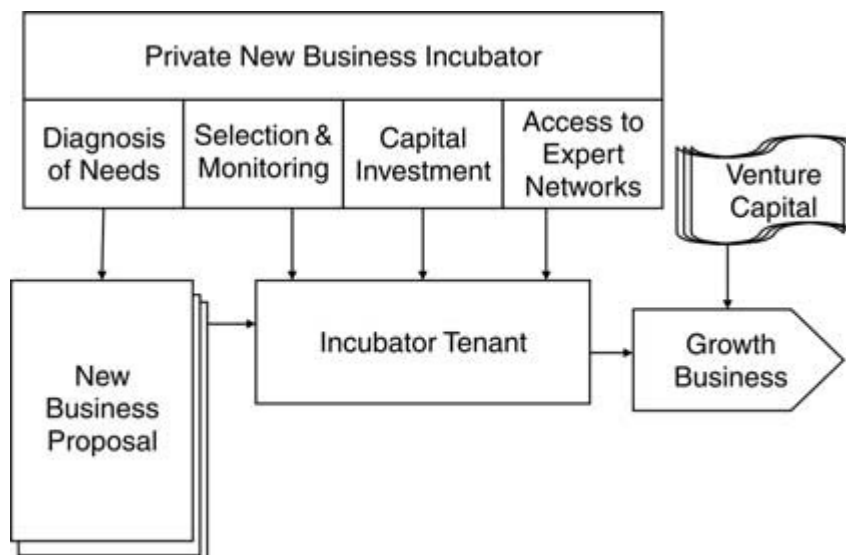


Figure 6 - Campbell et al's (1985) framework



Second, research which highlights incubator archetypes and associated attributes of incubation practice, is divorced from contextual variables and by many researchers' own admission, not really applicable to any one incubator organisation. Arguably, any



particular style of incubation is dependant on a myriad of subjective, dynamic and context-bound attributes and behaviours of incubator managements, as well as a particular client-mix. Thus, using this logic, no two corporate, university-based, high-tech incubators or any other incubator archetype could possibly have anything in common.

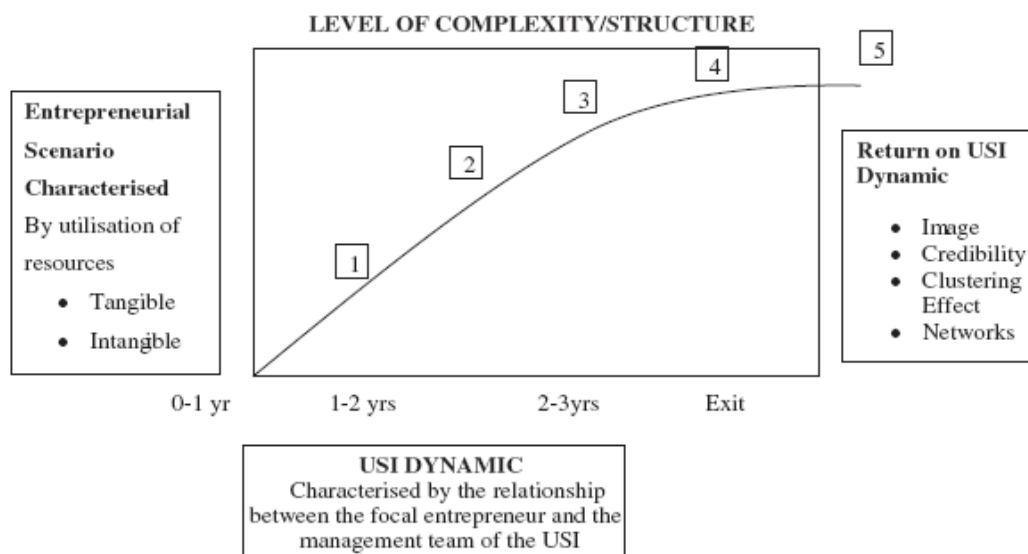
It seems as though previous researchers have ignored what Gartner (1985) has identified as key to understanding the new venture creation process. Gartner (1985) suggests that any new venture is a gestalt of variables from four dimensions: (a) individual(s)-the person(s) involved in starting a new organisation; (b) organisation – the kind of firm that is started; (c) environment – the situation surrounding and influencing the new organisation; and (d) new venture process – the actions undertaken by the individuals) to start the venture. Therefore, no new venture creation can be comprehensively described, nor can its complexity be adequately accounted for, unless all of its four dimensions are investigated and an attempt is made to discover how variables from each dimension interact with variables from other dimensions.

The uni-dimensionality of previous researchers becomes quite clear with Peters et al's (2004) – the latest study in the theme – conclusion who attempted to test a model of incubation on three different types of incubators, for-profit, non-profit, university-based incubators. Based on findings, they concluded that their model is ineffective, in the sense that it could not fully explain the incubator's role in facilitating the new venture creation process. This failure can only be ascribed to an inappropriate understanding of the new venture creation 'gestalt'. Latest research on new venture creation (Lichtenstein et al, 2006; Davidsson & Gordon, 2010; Shepherd, 2011) re-affirms Gartner's (1985) view, therefore, further research needs more sophisticated research designs that trace the dynamics of incubators' internal venture creation processes in time, taking into account the impact of associated variables such as the role of the entrepreneur, the incubator manager, the client cohort, the internal normative environment, the external context and the structural properties of the incubator organisation.

### 3.3.2 Incubation as a Mechanism for Resource Allocation

Researchers in this stream (McAdam & McAdam, 2008; Patton et al, 2009; Todorovic & Moenter, 2010) theorise using the Resource-Based View (RBV) of the firm (Penrose, 1959). The incubator is seen as a mechanism of awarding a stock of resources to client firms without incurring substantial cost. Resources here are not just tangible resources, but other intangibles including proximity to markets, sources of knowledge (universities) and clustering effects similar to that of a Community of Practice. The impact of these resources on the client firm, it is argued, results in access to new knowledge, expertise and networks, ultimately leading to growth.

Figure 7 – Life Cycle Development with the University Science Incubator (McAdam & McAdam, 2008)



This is a very appropriate conceptualisation of incubation, after all, what is the real point of incubation but a system to make resources available in a cost effective and timely manner, to new firms. However, on deeper scrutiny, a number of problems emerge, especially regarding the classical assumptions behind the RBV. These assumptions, emerging from neo-classical economic theory, underline the real applicability of the RBV. For instance, on the issue of exchanges between the firm and its environment, the RBV places primary emphasis on economic as opposed to social or political exchanges. Further, it assumes rationality and views organisational

actors as rational beings assessing choices and making decisions which maximise their self-interests (Fahy, 2000). These assumptions have not only been challenged by behavioural economists in the past but also researchers in the discipline of entrepreneurship and small business (Bernheim & Stark, 1988; Karra et al, 2006).

Furthermore, the basic logic behind the RBV is for the firm to develop a sustainable competitive advantage (SCA) allowing the earning of economic rents or above-average returns. RBV suggests that to achieve SCA, firms must come into the possession of certain key resources, that is, resources having the characteristics of a “value, barrier” to duplication and appropriability. To achieve SCA firms must effectively deploy these resources. This then is an issue of strategic choice i.e. the firm's management identifying, developing and deploying key resources to maximise returns.

The RBV would dictate a three-tiered (and interlinked) role of incubators: ‘how’ to help client firms develop SCA and superior performance; ‘what’ are the characteristics and types of advantage-generating resources; and ‘influencers’ of strategic choices by client firm managements. It is suggested that the role of incubators lies in the second tier only i.e. in identifying firm resource needs and aiding in resource deployment. Here a problem is encountered; McAdam & McAdam (2008) found that the most crucial factor determining the ability of firms to use incubator resources is an ‘effective management team’. Thus, is an incubator organisation designed to infuse resources to build effective entrepreneurial teams? As McAdam & McAdam show through their review of past literature, effective team building is mostly dependant on personal capabilities and personality traits – aspects seemingly beyond the scope of incubator organisations to practically / tangibly influence. This problem brings into question the appropriateness of the RBV for studying incubation simply as mechanism for resource allocation.

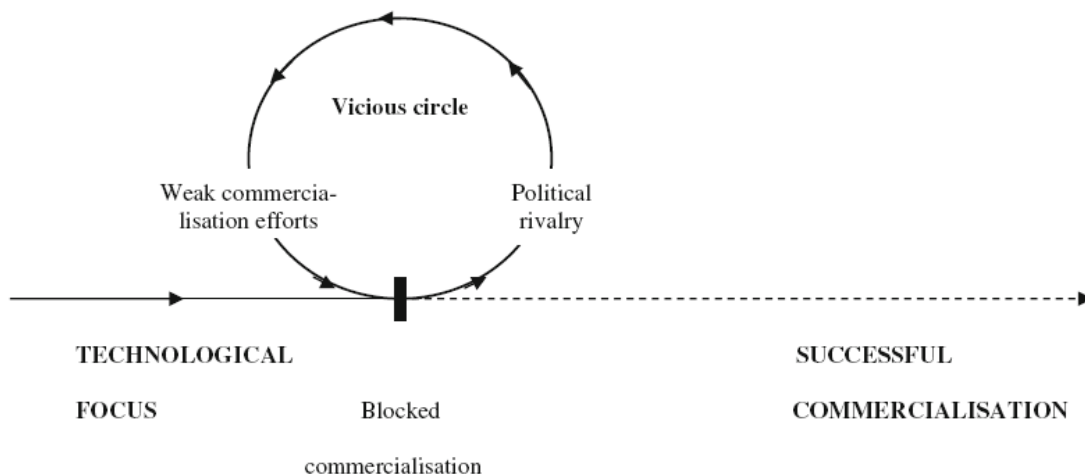
For developing an understanding of the client firm’s capacity and willingness to absorb resources and varying resource needs it would be important to consider variables of the internal environment and the external context, such as markets served or the nature of the relationship with the incubator manager. Arguably, in a scenario where relationships are strained, irrespective of absorptive capacity,

resource availability or requirement, consumption would ultimately be effected (Patton et al, 2009). For incubation researchers, therefore, it is important to delve into the context of a particular incubation environment, and to unearth micro processes and institutionalised patterns governing the rules of incubator-client firm interaction.

### 3.3.3 Incubation as a Socio-Political Game

Incubation in this stream is conceptualised in game theoretic terms. Researchers pick up a number of themes previously ignored in the incubation discourse, including those that deal with the disadvantages of incubation (McAdam & Marlow, 2007) and political rivalries (Evald & Bager, 2006). Investigations based on rich qualitative approaches reveal the presence of power struggles, shifting coalitions, self-interest, secrecy, lying and entrepreneurs trying to hide the fact that their businesses are based in incubators. The role of incubators is then to create a collaborative culture by reducing political rivalries and self-interest. Researchers in this stream suggest or imply a certain inevitability when it comes to disharmony and political tension in an incubation setting. This is due to close physical proximity of firms with comparable attributes involved in similar lines of business. Another important contributor is alleged to be the multi-tiered structure of incubators with competing stakeholders leading to shifting organisational objectives and priorities.

Figure 8 – Vicious Circle of Commercialisation at Corporate Incubators (Evald & Bager, 2008)



Research in this stream is exploratory in nature where findings come from a single unit of analysis – the client firm. Arguably, when scrutinising the negative aspects of incubators, the views and experiences of the incubator management ought to be analysed alongside client views. Therefore, since the voice of the incubator management is entirely missing, the relevance and generalisability of the research's results becomes slightly problematic.

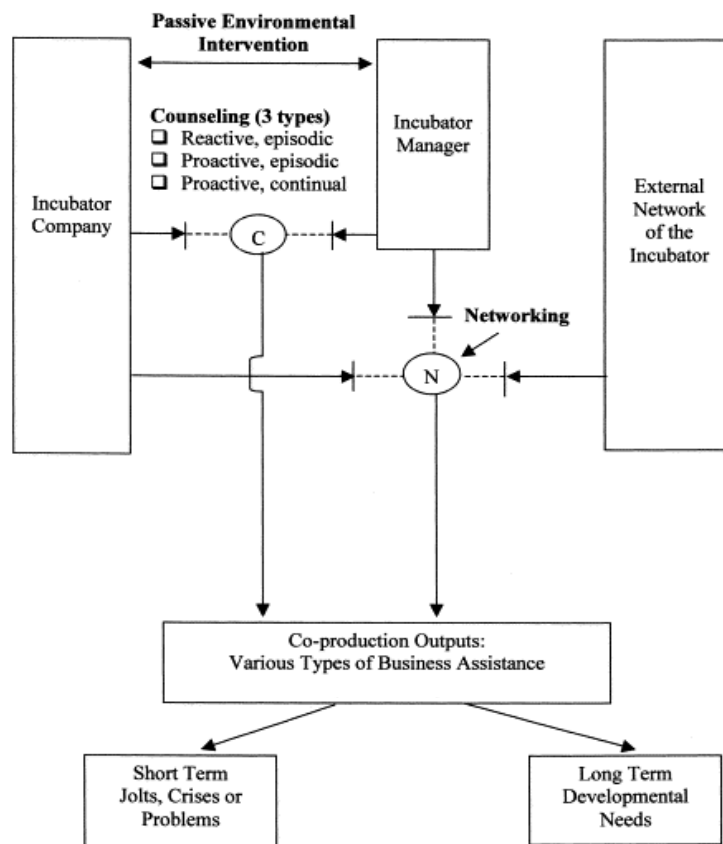
Nonetheless, this stream showcases interesting research from a policy standpoint and further extends our own theoretical underpinnings that incubation is primarily a socio-political mechanism of awarding legitimacy and perceptions of reduced risk and security within a bounded physical space. By way of further research, it would be interesting to study the mechanisms which may reduce levels of self-interest and entrepreneurial conflict. Another area would be to see if a higher level of entrepreneurial conflict is inherent to either (a) certain client-types such as ICT firms or bio-technology firms or (b) certain types of incubators such as specialist incubators where the mix of firms is focussed on a particular industry or sector.

### **3.3.4 Incubation as a Co-Product of Incubator-Incubatee Dyads**

Not many studies fall into this category (Rice 2002; Warren, et al, 2009), but from the standpoint of the research presented in this thesis, this particular approach to studying incubation, though faced with a number of difficult methodological challenges, is the most fruitful and 'closer-to-ground'. It is argued that incubators and entrepreneurs operate in an inter-dependent 'co-production dyad' where business assistance is co-produced between the incubator manager as the *regular producer* and the incubator company as the *consumer producer* [(Rice, 2002) - see Figure 9]. This is a very intuitive approach, to argue that the readiness of the entrepreneur to engage in co-production of business assistance impacts the incubation process outputs. Such mutual co-production of incubation assistance is primarily driven by the nature of the relationship between the incubator manager and the entrepreneur.

Figure 9 - A model of co-production in business incubators

Rice (2002)



Researchers in this theme argue that by customising co-production to fit the readiness profiles of entrepreneurs, incubator managers can enhance the aggregate impact of co-production on their portfolios of incubator companies. This is the aspect most ignored in previous research on mapping the incubation process and business incubator performance evaluation. Previously, the focus of incubator evaluation has been on measuring the effectiveness of services delivered to client firms or to match incubator missions or goals with targeted outputs (Allen & McCluskey, 1990; Markley & McNamara, 1995; Sherman & Chappell, 1998; Colombo & Delmastro, 2002; Bhabra-Remedios & Cornelius, 2003; Wynarczyk & Raine, 2005; Lendner & Dowling, 2007). However, such an approach neglects a fundamental constituent of the incubation process, the clients and their valuation of the usefulness of incubation to firm development and growth. What Rice's work has done is that it laid the foundation for future more client-centric incubator assessments (Abduh et al, 2007; Hughes et al, 2007) .

This conceptualisation of incubation overturns an important assumption in previous research; that the incubator is the initiator and orchestrator of incubation, whilst the incubatee is a passive recipient. Instead this approach views incubation as occurring in an inter-dependent 'co-production dyad' between the incubator manager and the incubating firm. Thus, the ideal level or unit of analysis to investigate the incubation process ought to be the incubator manager-firm (or entrepreneur) dyad.

Arguably, the quality, quantity, frequency, intensity, scale, scope and ultimately the output of incubation are all dependant on a variety of relationship specific factors in the dyad. Therefore, researchers should have proposed the conditions and variables that would promote the development of effective dyadic relations. Further, research in the area must aim to understand triggering behaviour in the incubator-client dyadic co-production unit and investigate the impact of dyadic norms and incubators' structural properties on how incubation process evolves and unfolds in time.

### ***3.3.5 Incubation as an Outcome of Network Behaviour***

Researchers in this stream attempt to show the impact of internal and external network connections on incubatee development and growth (Tötterman & Sten, 2005; McAdam & McAdam, 2006; Bøllingtoft & Ulhøi, 2005; Hughes et al, 2007). There are a number of interesting findings from this stream; first, the physical space and the company mix of an incubator play an important role in increasing the network dynamic of an incubator. In other words, it is suggested, that two aspects promote active client networking inside incubators (a) some unique aspects of the architectural design and configuration of the incubator space, and (b) the type of companies inducted – some types of companies network more readily than others. Researchers, however, don't go any further, therefore, there is no understanding of what types of design attributes promote active networking and what types of companies more readily network and the underlying reasons for such behaviour.

Second, researchers discuss the importance of internal networks, as opposed to external, in incubation success. Drawing from network and social capital theory (Podsakoff, et al, 2000) researchers agree that incubators facilitate the creation of entrepreneurial networks. They argue that a very useful indicator for gauging the

quality of incubation is firm 'network density', i.e. new and live network nodes that client firms create as a result of the strategic involvement of the incubator management. Arguably, the higher the network density, the greater the client satisfaction with incubator services. The assumption here is that the more firms network, the more likely it is that they will 'succeed' post-incubation. However, according to recent research, the argument that networking opportunities between client firms leads to synergies, R&D agreements and innovation, does not hold (McAdam & Marlow, 2007; Evald & Bager, 2008). Further, research assumes that networking is an activity that incubating firms actively engage in on their own initiative. This is not always the case since common organisational values, leadership behaviours and other factors can significantly impact firm and individual network behaviour (Podsakoff et al, 2000).

Therefore, there is no apparent settlement on the issue of internal firm networking – does networking promote firm development and increase chances of post-incubation success and if it does then in what way and under what specific conditions? Investigating this question becomes quite critical since, higher levels of networking, it is suggested, results from a variety of factors, which may be beyond the influence of incubator managements, such as proximity, initial personal assessments and entrepreneurs' personality match.

### ***3.3.6 Incubatee Selection as a Predictable & Controllable Process***

According to Hackett & Dilts (2004a), little effort has been devoted to unpacking the individual variables or components associated with the incubation process. Most work carried out in the above area is generally restricted to examining the one component of selecting incubatees (Merrifield, 1987; Kuratko & LaFollette, 1987; Lumpkin & Ireland, 1988; Allen & McCluskey, 1990; Aerts et al, 2007; Bergek & Norrman, 2008). This is perhaps due to the fact that tenant screening is considered to be the most important component of the incubation process (Kuratko & LaFollette, 1987; Mian, 1994a; Colombo & Delmastro, 2002; Peters et al, 2004). The six studies in this category make a straightforward case for the importance of tenant screening to overall incubation success [ including Merrifield (1987); Lumpkin & Ireland (1988); Hackett & Dilts (2004b); Aerts et al (2007); Bergek & Norrman (2008); Hackett & Dilts,



(2008)]. From the argument of economic rationality, the qualitative difference between incubation applicants must be taken into consideration. As such, only those firms that are “weak but promising”, or in other words, those that have a compelling business case but lack resources should be admitted whilst firms that cannot be helped through business incubation and those that do not need incubation, should be screened (Hackett & Dilts, 2004b)

*Figure 10 – Incubatee Selection Matrix: Bergek & Norrman (2008)*

<b>Selection strategies</b>	Survival of the fittest	Picking the winners
Idea-focused selection		
Entrepreneur-focused selection		

The importance of selection performance is also important. One underlying assumption researchers make is that once a firm’s ‘attractiveness’ and ‘fit’ to incubator strategy are established, ‘success’ is likely to follow. However, irrespective of the most ideal incubatee selection system, outside variables such as the efficacy of the incubation process, changing firm capability, external national, regional and local factors and competence amongst a host of other factors impact considerably on ‘success’ (Sherman & Chappell, 1998).

Researchers suggest that new firms or incubatees can be rationally selected from a pool of available options by employing either ‘selection criteria’ (based on the attractiveness and fit of firm proposal to incubator strategy), or CSFs (critical success factors for firm marketplace success). There is a problem, however, with this assertion; it is not possible to develop a universally applicable set of CSFs or the capabilities firms ought to develop for marketplace success. This is because there are considerable differences between incubators, their client firms and the markets they service; therefore, any useful CSF assessment has to be specific to the context of a particular incubator. Furthermore, screening practices also differ between different

groups of incubators. Specific characteristics of incubator archetypes influence the way they select and incubate nascent firms.

Ultimately, it is suggested that selection like other forms of organisational decision making is highly unpredictable (Cohen et al, 1972; Heimer & Stinchcombe, 1999). The incubatee selection decision is neither rational nor controllable for two main reasons: (a) the selection decision eventually lying with a single individual and his / her perceptive judgment, and (b) the decision making process itself being unpredictable and ad-hoc. Further research must look at the selection process more closely and to draw from the latest research in the heuristics and biases tradition to un-earth the social and cognitive processes that work to facilitate the client selection process and the context in which these processes occur.

To summarise and distil the main arguments made in this section a synthesis table is presented below. This table presents the weaknesses found in previous conceptualisations of the incubation process and further research directions for developing new theory in the area. The analysis is ultimately used to develop the nine research questions which are explored in this research<sup>22</sup>.

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<sup>22</sup> *ibid*, see Table 4 in Chapter 5..

Table 3 – Conceptualisations of Incubation, their Weaknesses & Further Research

	<b>Outline of Conceptualisation</b>	<b>Weaknesses</b>	<b>Further Research</b>
<b>Incubation as a mechanism for new venture creation</b>	A step-by-step / staged process that awards legitimacy, opens network access and heightens community support for entrepreneurs.	A lack of understanding of new venture creation as a gestalt of a number of dynamically interacting variables.	Trace the dynamics of incubators' internal venture creation processes in time, taking into account a gestalt of variables including the aspirations of the entrepreneur, the incubator manager, the client cohort, the internal normative environment and the structural properties of the incubator organisation.
<b>Incubation as a mechanism for resource allocation</b>	A mechanism of awarding a stock of tangible and in-tangible resources to client firms that results in, in addition to other benefits, client firm growth.	The base assumptions of the resource-based view have been overturned.  The most crucial factor determining the ability of firms to use incubator resources is an 'effective management team', developing such a team is, arguably, beyond the remit of incubation.	A crucial factor for resource consumption is the quality of relationship between the incubator and client. Research must unearth micro processes and institutionalised patterns governing the rules of incubator-client firm interaction.
<b>Incubation as a socio-political game</b>	A socio-political mechanism of creating an environment and perception of reduced risk and security within a bounded physical space.	Voice of the incubator management is entirely missing, therefore, the relevance of results is problematic	The important role of the incubator manager in reducing self-interest and entrepreneurial conflict has been ignored and needs further investigation.
<b>Incubation as a co-product of incubator-incubatee dyads</b>	A process of co-producing developmental assistance in independent incubator-client dyads.	Unit of analysis ought to be the incubator-client dyad.  A lack of focus on relational variables that would boost co-production efficacy.	The conditions promoting the development of effective dyadic relations and incubation triggering behaviour. It is also important to study the impact of dyadic norms and incubators' structural properties on how the process unfolds.

<p><b>Incubation as an outcome of network behaviour</b></p>	<p>A system of increasing client firms' network density.</p>	<p>No understanding of what types of design attributes increase network density.</p> <p>No real understanding on what types of companies more readily network, and why.</p> <p>Networking opportunities do not always lead to benefits for clients.</p> <p>Incorrect assumption that clients actively engage in networking on their own initiative at homogenous levels across the board.</p>	<p>In what ways and under what conditions is networking amongst client firms promoted?</p>
<p><b>Incubatee selection as a predictable and controllable process</b></p>	<p>As a process of selecting "weak but promising" firms for incubator induction.</p>	<p>Selection performance is just one (not the only) of a myriad of factors contributing to clients' post-incubation 'success'.</p> <p>Nearly impossible to correctly identify critical factors before-hand for future market place success.</p> <p>Client selection like other organisational decision making processes is rarely rational.</p>	<p>Researchers should draw from work in the heuristics and biases tradition to un-earth the social and cognitive processes that work to facilitate the client selection process and the context in which these processes occur.</p>

### 3.4 Discussion and Conclusion

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Overall, the literature review indicates that most research in the area is descriptive in nature, and not explanatory. In other words, researchers have not fully delved into the “process-oriented” nature of incubation. This view is supported by Hackett & Dilts (2004b) who suggest that most frameworks from organisational and social theory utilised in the past are not fully concerned with the true nature of incubation – a social process that enables human action. What seems to be missing is explanatory theory describing the underlying social or other (such as financial or legal) mechanisms that enable human action and behaviour in the context of incubation (Hackett & Dilts, 2004b).

Why has the above been the case? A number of previous literature reviews in the area (Hackett & Dilts, 2004a; Phan et al, 2005) highlight how research has progressed by adopting and adapting theory and models from other disciplines, especially economics and public policy. Previous reviews also highlight the diversity of disciplinary foundation in the area, however, such diversity does not automatically lead to a diversity of underlying meta-theoretical assumptions within an area (Burrell & Morgan, 1979; Gergen, 1994). Thus, without a rich meta-theoretical debate to distil the sub-textual essences that exist at the very core of the incubator-incubation discourse, it is unlikely that radically new research agendas would gain currency. Such debates have taken place in other areas of the social sciences, such as small business and entrepreneurship (Grant & Perren, 2002), strategic management (Alvesson & Deetz, 2000) and information systems (Gallagher & Webb, 2000) and have led to the consideration of the meta-theoretical foundations of competing discourses.

Therefore, to lay the foundations for a paradigmatic debate in the incubator-incubation area, a meta-analysis was conducted (see Appendix - B). This analysis presents a critical reflection on the ontological, epistemological and methodological foundations on the 23 studies reviewed in this chapter. This was done by analysing researchers’ philosophical worldviews, preferences for types of research questions and research designs, and the nature of their empirical and theoretical conclusions.

Arising from the above analysis, two important conclusions can be drawn: *first*, most published incubation literature falls within the functionalist rather than the interpretive paradigm. The analysis here simply suggests that the zeitgeist of research in the leading articles in the incubator-incubation area is functionalist in orientation where positivist methodologies and methods have remained dominant. Therefore, the current body of research helps us understand the “what” aspects of the incubation phenomenon through a number of empirical and normative descriptions of the factors or variables that researchers believe constitute the process. This is problematic since according to Hackett & Dilts (2004a), if the area of incubator-incubation research is to advance forward in a theoretically meaningful manner then our attention must turn from “what” – type research questions and lists of descriptive factors to “how” and “why” and “in what context” (“who” “where” and “when”) these factors are interrelated. Such an anti-positivist approach should help in the development of more adequate explanatory theory.

Had interpretivism been the dominant paradigm in incubator-incubation research, our understanding of the phenomenon may have been entirely different since the questions researchers would have thought important to investigate would have been entirely different. As a result, the methods employed would have been different and in turn what would count as knowledge about incubation would have been different. Rather than attempting to build rational models of incubation, incubator classifications, predicting incubatee outcome-states or assessing impact, interpretive researchers would view and research incubation differently - as a social process that is contextually sensitive, subject to changes triggered by internal events or shifts in the external environment and is politically charged with competing agendas and objectives. Research questions would attempt to understand the phenomenon through the meanings that people assign to the process and focus on the full complexity of human sense making as the process unfolds. Thus, interpretive methods of research in incubation would aim to understand the context in which incubation occurs, and the processes whereby incubation influences and is influenced by its context.

The *second* conclusion drawn from the meta-analysis was that alongside functionalist meta-theoretical agendas, close scrutiny reveals the presence of instrumentalist ideals guiding incubation scholars’ research designs (see Appendix - B). This

becomes apparent from the some of the research questions that have been investigated in the past<sup>23</sup>. Instrumentalists regard theories not as attempts to describe the world but as *instruments for making predictions*. For the instrumentalist then, a theory is empirically adequate if it makes accurate predictions or *all of its observable consequences are true* (Eldridge, 1998, pp. 67). Thus, the “black-box’ analogy is an appropriate one for instrumentalism. The researcher inserts (intrinsically value-free) information regarding observed background conditions into a model black-box and the box then generates predictions regarding what one will ultimately observe (Newberry, 2007). Of no concern, therefore, is the *mechanism* inside the box – it can be anything “as long as it works”. There is no particular requirement that the black-box and its mechanism depict the way the world really is. Indeed, “the mechanism is only an instrument, depicting the world is not its purpose” (Bird, 1998, pp. 125).

The problem with “black-box” conceptualisations is that researchers fail in stipulating the *mechanisms* linking the *explanans* and *explanandum* - the real causes, antecedent events or necessary conditions impacting process dynamic. Put another way, in order to explain the relationship between two observed entities ‘A’ and ‘B’, we search for a mechanism ‘M’, which is such that on the occurrence of the cause of input ‘A’, it generates the outcome ‘B’. The search for mechanisms means that we are not satisfied with merely establishing systematic co-variation between variables / events / entities; rather a satisfactory explanation requires we are also able to specify the social ‘cogs and wheels’ that have brought the relationship into existence in the first place. Hence, a mechanism can be seen as a systematic set of statements that provide a plausible account of how ‘A’ and ‘B’ are linked to one another (Hedström & Swedberg, 1998).

The instrumentalist’s focus on inputs-outputs without any real concern for *mechanisms* is precisely what Hackett & Dilts (2008) lament. They conclude that in order to truly understand incubation there is need to move away from “black-box” approaches designed to simply predict incubation outcomes to understanding how incubation works in practice. No doubt, the prediction of incubation outcomes is an

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<sup>23</sup> For example: what are the core services of start-up incubators, and how can they be managed best? (vonZedtwitz & Grimaldi, 2006); what role does the incubator play in supporting the new firm in its development as represented by the lifecycle model? (McAdam & McAdam, 2007); what is the role of incubators in the entrepreneurial process? (Peters et al, 2004); and how business incubators can support entrepreneurs, in their efforts to build up networks for the benefit of their own company, by focusing more on social capital? (Tötterman & Sten, 2005).

important aspect of interest to both researchers and practitioners / policy-makers, however, the lack of models that can make accurate predictions is clear testimony that value- and context-free black-box approaches are simply not enough.

In conclusion, there has generally been a lack of theorising in the area of incubation research which is explained by an over reliance on instrumentalism. In this chapter, it is being suggested that if *processes*, *norms* and *structural properties* are to be analysed, then a new mechanisms-based approach is warranted. Such an approach is developed in the next chapter and would be concerned with the sort of questions that have escaped careful scrutiny in the past: for example, how are the incubator and client firm linked?; how is incubation assistance triggered?; what are the conditions that will promote incubation activity?; and what is the relationship between the variables associated with the incubation and aspects of incubators' internal normative environment and structural properties. The mechanisms lens helps in the development of a new seventh conceptualisation of incubation that includes a definition as well as base assumptions.



## Studying the Business Incubation Process: *A New Mechanisms-Based Conceptualisation*

### Outline

It has been demonstrated following the literature review that due to a lack of debate on the meta-theoretical foundations of previous research, when studying the incubation process, scholars in the past have not considered its true *processual* nature and have ignored the importance of incubators' internal normative environment and structural properties. This has resulted in narrow 'black-box' conceptualisations which lack explanatory power. In this chapter, it is proposed that using the social mechanisms lens would allow a more nuanced and sophisticated understanding of incubation to emerge. Three different theoretical outlooks for studying social mechanisms are assessed. These are the rational choice, practice-action and pragmatist traditions. It is shown that both rational choice and practice-action traditions are not wholly compatible with what this research aims to achieve, and that the pragmatist worldview offers the most appropriate language, constructs and meta-theoretical worldview with which to analyse the incubation process. Applying Gross's (2009) theoretical model, a new seventh conceptualisation of the incubation process is developed (in addition to the six identified in the previous Literature Review chapter). Incubation as a social mechanism would consist of interlinked actors solving problem situations through the mobilising of more or less habitual responses. Based on this view, the focus of further research enquiry will be on uncovering *why* and *how* the parties in incubation develop predictable responses to certain problem situations through the habits of cognition and action. Such an approach, it is believed, will allow for the development of new knowledge that is both connected with the spirit of previous researchers and also addresses the inevitable knowledge gaps left behind due to an over-reliance on functionalism and instrumentalism.

## 4.1 Introduction

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Hackett & Dilts (2004b) have undertaken a comprehensive review of extant frameworks employed in past incubator-incubation research in their application to the incubation process. They have also assessed a number of other frameworks (those which, according to them, are yet to be deployed by researchers) that could possibly offer deeper insight. This review provides a very useful starting-point for assessing the viability (or otherwise) of a particular theoretical outlook in its application to incubation.

Hackett & Dilts (2004b) briefly describe and attempt to operationalise (in the context of incubation) behavioural theories, economic theories (neo-classical economic reasoning and transaction cost economics), the resource- and knowledge-based views, the dynamic capabilities perspective, agency theory, institutional theory, structuration theory, scaffolding theory, social network theory and finally the real options theory from the domain of financial economics. They conclude that the application of only a few of the above theoretical frameworks may add to our existing knowledge. They made a case for using the *Real Options* theory and in Hackett & Dilts (2008) applied options theoretic reasoning to incubation. By their own admission, empirically, Real Options was not fully successful in developing powerful and elegant explanatory theory on the nature of the incubation process and in predicting incubation outcomes.

It is clear that Real Options, the aforementioned theoretical frameworks and the dominant perspectives in the six conceptualisations presented in the literature review<sup>24</sup> are not wholly adequate for explaining incubation's *processual* dynamic. This is primarily because these frameworks are not concerned with the study of social *processes* or *mechanisms* like incubation. It is suggested that mechanisms-based theorising can help us understand incubation's true nature.

What is meant by mechanism-based theorising? Social mechanisms are “sometimes-true theories that provide an intermediary level of analysis in-between pure description and storytelling, on the one hand, and universal social laws, on the other”

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<sup>24</sup> Bar, to an extent, Incubation as a Process of New Venture Creation

(Coleman 1964, pp. 516). If a regression tells us about a relation between two variables – for instance, if you turn the ignition the car will start - mechanisms based reasoning would require that one lifts the bonnet, take apart the machinery inside and show *how* (Davis & Marquis, 2005). Mechanisms describe “a set of interacting parts—an assembly of elements producing an effect not inherent in any one of them. A mechanism is not so much about ‘nuts and bolts’ as about ‘cogs and wheels’—the wheelwork or agency by which an effect is produced” (Hernes 1998, pp. 74).

The self-fulfilling prophecy is a good example of a social mechanism: an initially false definition of a situation evokes behaviour that makes it become true (e.g., a run on a bank, widespread adoption of an innovation, collective action). Davis & Marquis (2005) give a number of other examples including: framing (the use of metaphors and symbols that organise perceptions of issues and cue courses of action by linking problems and actions to prevailing cultural conceptions), translation (how ideas that diffuse are modified and implemented to work in specific local contexts), bricolage (recombining elements, often borrowed from other contexts, to create a new configuration of social activity), commensuration (the institutional process by which entities become comparable and thus competitors, as firms in an industry), and evangelism (the reverse of diffusion, where adopters or their agents eagerly spread organisational practices). There are many more examples, but these should give a sense of the shape of the domain.

Davis & Marquis (2005) suggest that mechanism-based theorising can aspire to *explain* but not *predict*. We may be confident that actors will respond to particular pressures, but uncertain what direction any response may take. This means that it may be possible to explain afterward but not predict prospectively. The point is not to accumulate findings about what is generally true about organisations — this proves to be a fruitless endeavour — but to use organisational mechanisms to explain social phenomena.

Hence, for incubation researchers, a mechanisms-based investigation would be concerned with, for instance, how are the incubator and client firm linked, based on what relational variables, how do these variables impact the link between the incubator and client firm and as to how does the structure of the incubator contributes

to maintaining the incubator-client link? Such a meta-methodological outlook and approach is missing, and is needed to encourage deeper, more direct and fine-grained explanations.

In the following sections, an outline of the theoretical framework being adopted in this research is presented along with a new *mechanisms-based* conceptualisation of the incubation process. This is done by first discussing the two perspectives of studying social mechanisms – *rational choice* theory and the *practice-action* tradition. The discussion and eventual analysis reveals that both these traditions have a number of weaknesses when it comes to studying social mechanisms. Next, the merits of the pragmatist approach to studying social mechanisms is highlighted. This leads to a new mechanisms-based conceptualisation of the incubation process which provides a new definition and highlights the basic assumptions underlying studying *incubation as a social mechanism*.

## **4.2 Theoretical Perspectives for Studying Social Mechanisms & their Weaknesses**

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Social mechanisms have been conceptualised in various ways. According to Gross (2009), broadly speaking the explanation and extrapolation of social mechanisms has fallen into two major strands of work: the rational choice tradition and the body of work under the rubric of practice-action theory (existentialism, structural Marxism and anthropological structuralism; and building on other developments including phenomenology, ethnomethodology and work on “rule following” (inspired by Wittgenstein et al.)). Although a huge of contribution has been made by both of these strands, these lines of work on their own do not present a complete picture of social mechanisms.

Ultimately, when it comes to rational choice theory or its variants, relatively few scholars agree that such models offer empirically or theoretically adequate descriptions of social action (Green & Shapiro, 1994; Somers, 1998; Archer & Titter, 2000). This has also been duly noted in the critique of the rational conceptualisations of the incubation process presented in the previous chapter (see section 3.3.6). Proponents of rational choice theory (especially those outside the ‘bounded

rationality' framework) conceptualise rationality as a more or less equally available cognitive capacity and that individuals act rationally (or for the very least reasonably) in light of clear and coherent beliefs and desires (about maximising self utility).

Sociological theorists have a problem with this rather bounded view of human cognition and action. They argue that different forms of rationality appear at different historical moments and come to be distributed unequally across social structures. Smesler (1998) holds that ambiguity rather than clarity has wide applicability in social life and Swindler (2001) maintains that the logical coherence of individuals' beliefs is the exception rather than the rule. While rational choice theorists hold the belief that individuals (armed with beliefs and desires) step out of the flow of action to evaluate their options, compete means and make logical decisions, social theorists note that such moments are empirically rare, tend to take place in artificial settings and often involve a post-hoc / hind-sighted justification of goals once one or the other selected means are embarked upon. Finally, rational choice approaches that emphasise norm directed nature of action, assume that most action is motivated in some way. Many sociological theorists would argue that socially learned *habit* rather than *norm* is the major cause of human behaviour (Gross, 2009). Needless-to-say, not all theorists in the rational choice tradition are subject to these criticisms.

Theorists in the second stream relevant to social mechanisms have argued that *social practices* – not discrete actions – should be the focus of social research. To such theorists practices are seen as constitutive of social life in numerous domains and historical settings. Practices are generally conceptualised as forms of doing or ways of acting and interacting that appear within particular communities or groups; they depend on shared pre-suppositions and assumptions; often have a significant material dimension; and unfold in individuals' lives as a result of the active, creative and somewhat sub-conscious impacts of individuals' pre-suppositions and assumptions, embedded in the context of sociobiographical exigencies. Practices conceptualised as such, are at the heart of Bourdieu's theory of social fields (Bourdieu, 1990), Giddens's theory of Structuration (Giddens. 1984), Knorr-Cetina's investigations of the "epistemic cultures" of sciences and modern society (Knorr-Cetina, 1999), Ortner's efforts to reground anthropological understandings of culture (Ortner, 1984) and Sewell's (2005) contributions to historiography.

Scholars of social practices have by no means ignored causality. Although embracing the notion of the active, knowledgeable, culturally interpretive agent found in earlier humanistic traditions (such as Symbolic Interactionism), contemporary theorists such as Ortner and Lareau depart from the anti-determinism that often characterises such approaches by showing the impact of patterned iterations of practice as the basis for the reproduction of social structures (Ortner, 1984; Lareau, 2003). Yet, as Gross (2009) argues, the direct production and reproduction of social structures by means of practices is only *one* kind of causal effect that may interest social scientists – what about the nature of other causal processes (whose impact remains unclear) that build on and intersect with social practices? In such a scenario, empirical research will find itself deprived of sophisticated action-theoretical foundations given that few in the practice-based tradition address social mechanisms.

The way forward ought to be an approach that embraces the action and practice oriented spirit of the incubator-incubation discourse but at the same time moves away from black-box formulations of the incubation process. Therefore, in the next section, the usefulness of conceptualising incubation as a social mechanism through a pragmatist world-view rather than rational choice or practice theoretic is presented.

### **4.3 A Pragmatist View of Social Mechanisms: How is it superior to the competing Rational Choice & Practice-Action Views?**

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Within the incubation discourse, the impact of functionalism and instrumentalism on the nature of our understanding has been discussed in the previous chapter and in more detail in Appendix - B. It has been shown that incubator-incubation scholars have been advocating a move towards developing a more sophisticated understanding of the phenomenon by investigating more “how” and “why” type questions.

Achieving this aim is conveniently possible in a pragmatist philosophy. Scholars regard pragmatism as an *interpretivist approach* (Benton & Craib, 2001; Bjørn, 2004) that is not committed to any one system of philosophy and reality, the focus is on the research problem and all available methods to derive knowledge about the problem (Creswell, 2009). According to Creswell (2009), pragmatism awards a number of

advantages to researchers. Individual researchers have a freedom of choice where they are free to choose the methods, techniques and procedures of research that best suit their needs and purposes. Pragmatist researchers look to the *what* and *how* to research based on intended consequences; they do not see the world as an absolute unity but rather they believe that research is contextualised. A pragmatist will allow for more flexibility and “open doors to multiple methods, different worldviews, different assumptions as well as different forms of data collection and analysis techniques” (Creswell, 2009, pp. 11) in an attempt to explore the implications of context.

For this research, it is envisaged that the methodological flexibility inherent in a pragmatist worldview will be helpful in unlocking the “black-box” of the incubation process. Attention is now turned to assessing the usefulness of pragmatism over rational choice theory (and its variants) and perspectives from the practice-action tradition. As discussed earlier, these would be the two other theoretical worldviews that could potentially shed light on the proposed study of incubation when conceptualised as a social mechanism.

There are at least five ways in which pragmatism differs from and is superior to rational choice theory. First, pragmatism does not equate problem solving with the maximisation of utility. The kinds of problems of concern to pragmatists range much more widely and include all difficulties humans or collective actors face in life. Second, pragmatists insist that problem situations are always interpreted through cultural lens – even rationality. Third, pragmatists argue that much action is habitual and typically involves no conscious weighing of means and ends. Fourth, pragmatists maintain that instrumental rationality, when it does appear, is a kind of habit developed historically and is deployed in a situational context. Finally, as assumed in most rational choice models, means and ends are not always given priority over action – action is often disconnected from this instrumental rationality and is initiated on its own allowing actors to become attached to problem solutions they could not have imagined previously. Thus, Pragmatism draws neither explicitly on the common-sense notion of means-end rationality of Max Weber nor on the more rigorous conception of rational choice theory. Rather it suggests different rationalities existing in different contexts with many different means-ends chains, varying from situation to situation (Whitford, 2002).

Some may argue that in the above form, pragmatism is close to practice theory, so why not prefer the latter? There is one crucial difference. Practice theorists, such as Bourdieu, tie their analyses of practices to questions of social-structural production and reproduction, which have not been a major concern for scholars working in a pragmatist framework. Bourdieu would view most lines of activity as connected to actors' interests in leveraging themselves into favourable positions in multidimensional social hierarchies, and thus as tied to the maintenance or transformation of those hierarchies. Placing far too much emphasis on the strategic dimensions of action, practice theorists like Bourdieu become far too reductive at the level of action. As critics of Bourdieu have pointed out (Alexander, 1995), this analytic reduction is as problematic in its own way as rational choice theory is in its.

As Gross (2009) points out, although pragmatist understandings of social action were not designed to account for social structure production-reproduction, it is able to better accommodate the diversity of action and practice unlike practice theorists such as Bourdieu. This is so because Bourdieu's work does not see practices impacted by relatively autonomous identity commitments, variables disconnected from broader social structural positionings or the sheer force of tradition or institutionalisation. Nothing in a pragmatist approach would deny that some practices are closely associated with the reproduction of the social structures of inequality, however, the fineness of the model at the meso- and macro-levels gives it the range and flexibility lacking in other approaches.

Therefore, the pragmatist worldview offers the most appropriate language, constructs and the meta-theoretical worldview with which to analyse social mechanisms. In the following section, Gross's (2009) 'pragmatist theory of social mechanisms' is used for developing a new conceptualisation of the incubation process – based in mechanisms reasoning. To the best of knowledge, this is the first application of Gross's general theory to a conceptual and empirical problem.



#### 4.4 Conceptualising Incubation as a Social Mechanism using Gross's (2009) 'A Pragmatist Theory of Social Mechanisms'

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There is much confusion regarding what exactly is a social mechanism. A number of conceptualisations have appeared in recent years, which describe (1) mechanisms as not necessarily observable; (2) mechanisms as observable processes that do not require the positing of motives; (3) mechanisms as lower order social processes; (4) mechanisms as triggerable causal powers; and (5) mechanisms as transforming events (Hedström & Swedberg, 1998; Gross, 2009).

Gross's view of a social mechanism is a "systems explanation", consisting of the specification of the time and place of some event, structure or process within a larger set of interdependent variables. Mechanisms are described as events that alter relations among some specified set of elements. They come in three varieties: (a) cognitive mechanisms – operating through alterations of individual and collective perception; (b) relational mechanism – which alter connections among people, groups and interpersonal networks; and (c) environmental mechanisms – which exert influences on the conditions affecting social processes. There is emphasis here on time and place, in particular to ways in which social mechanisms can incorporate institutions, understandings and practices that have accumulated historically.

This view not only accommodates the base-line assumptions of previous conceptualisations, but is also sufficiently broad to accommodate points of significant epistemological and methodological disagreement. Applying this definition to the incubation process results in a view of incubation that is quite distinct from the various conceptualisations discussed in the present thesis's literature review. Thus, defined, incubation is: *a more or less general sequence or set of social events or processes initiated from inside an incubator organisation analysed at a lower order of complexity by which (in certain circumstances) some cause X tends to bring about some effect Y in the realm of incubator manager-client social relations. This sequence may or may not be analytically reducible to the actions of the parties in incubation, may underwrite formal or substantive causal processes, and may be observed, unobserved or in principle unobservable.*

Although, it may seem that the above definition is quite reductive, in that it merely places emphasis on causal factors impacting the nature of X-Y relationships; under the pragmatist lens, however, it is much more: the search for mechanisms is the search for historically embedded deep causes operating in variable combinations, circumstances and sequences with consequently variable outcomes.

What should be the primary points of analysis (or the factors that bring about the causal relationships) when analysing social mechanisms? For Gross (2009), people's responses to certain situations are limited by a repertoire of behaviours to which they have exposure and that seem suitable to the problem at hand. Thus, according to him, social mechanisms can be understood as chains of actors, problem situations and habitual responses, coming together with varying degrees of efficacy with the assumption that a novel response to the actors' problem would emerge. Our aim should then be to uncover the nature of such chains: the types into which they maybe classified, the actors involved in their operation, the habits employed by such actors and their origins, the circumstances in which the mechanisms operate, their interconnection with other mechanisms and their causal effects.

Gross's view on mechanisms has more to do with meaning and the ability of humans to interpret their situations in a culturally appropriate way than it does with identifying universals, in other words, it is an *interpretive* approach. This requires that we grasp how the relevant individual and/or collective actors (organisations such as incubators) understand and make assumptions about the situations before them and act on the meaning derived, helping thereby to enact the mechanism. Actors face problem situations and respond in habit-bound and culturally mediated ways. This suggests that actors are positioned in cultural systems from which they derive the understandings and assumptions, therefore, meanings and beliefs. This implies that mechanisms cannot be adequately understood without an analysis of such assumptions i.e. a project of cultural interpretation. In a way, Gross is proposing that cultural habits are *the* social mechanisms.

To make sense of causal mechanisms operating at multiple levels of analysis, Gross distinguishes among habits and identifies three kinds:

1. *Individual cognitive-affective habits* – habitual ways actors have of understanding and responding emotionally to situations in general, resulting from their psychosocial experience or their biological endowments / propensities.
2. *Individual behavioural habits* – deriving primarily from individual and social experience, these involve the disposition to enact specific behavioural routines when actors are faced with particular kinds of problem situations.
3. *Collectively enacted habits* – ways that groups of actors have of working together to solve problems.

Therefore, from Gross's standpoint, incubation as a social mechanism would be *composed of chains or aggregations of actors confronting problem situations and mobilising more or less habitual responses*. The 'mechanism' would be the nuts and bolts processes by which cause and effect relationships inside the incubator organisation impact the associated (internal and external) actors' habitualised responses to problem situations. This characteristic of the approach alongside two other elements: the centrality of meaning derived from cultural dispositions and the focus on human creativity and habit alternating to solve new and emerging problems, gives this view of incubation distinct leverage over previous conceptualisations.

To understand incubation "S" (the social mechanism), we must examine the individual and collectives actors  $A_{1-n}$  involved in the input-output *I-O* relationship. For each, our goal would be understand *why* and *how*, when confronted with problem situation  $P_n$  and endowed with habits of cognition and action  $H_n$ , along with other resources, response  $R_n$  becomes the most likely. Incubation S will, therefore, consist of all the relations  $(A_{1-n} | P_n | H_n | R_n)$ , that in aggregate or sequentially, bring about the *I-O* relationship.

For example, suppose we are interested in the relationship between 'client propensity to engage in incubation' and 'incubation meta-approach or ethos' when considering low-to-medium technology firms. These firms are based a mixed-use incubator organisation operating in an economic environment of stagnating or negative growth with a lack of public policy support for non-hi tech firms. Several kinds of actors,

problem situations and habitual responses make up this mechanism, but a pragmatist approach might concentrate on understanding how certain habits of thought and action are employed by both incubator managers and clients where certain client firms are coded as 'incubation favourites' in terms of their level of interest in pursuing incubation, potential need for strategic developmental assistance, industrial affiliation and a personal history, thereby, giving rise to an incubation system that allocates resources on perceptive judgement and not rationalised client assessments. Aggregated across mixed-use incubator organisations, such an *A-P-H-R* is the mechanism of incubation resource allocation.

In conclusion, this new conceptualisation of the incubation process suggests that it works on the basis of interlinked actors solving problem situations through the mobilising of more or less habitual responses. On this basis, the focus of future research enquiry would be in uncovering *why* and *how* the parties in incubation develop predictable responses to certain problem situations through the habits of cognition and action.

The value of the new conceptualization is ultimately an empirical question. Since the publishing of Gross's article, cross citation databases have been checked to see if other researchers deployed Gross's proposed framework to investigate social mechanisms. It seems to date this has not yet been undertaken and the research presented in this thesis is the first attempt at such an investigation. It is believed that a conception of incubation in the manner proposed by Gross will result in more clearly specified, and very likely a more robust explanatory account of the process.

## **4.5 Conclusion**

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The purpose in this chapter was to present the outlines of a coherent theoretical framework to inform further empirical investigation on the incubation process. This has resulted in a new conceptualisation of incubation which suggests that the process works on the basis of interlinked actors solving problem situations through the mobilising of more or less habitual responses. The focus in this research will, therefore, be on uncovering *how* and *in what ways* the parties in incubation develop

predictable responses to certain problem situations through the habits of cognition and action.

In the next chapter, a research design is proposed for studying the new mechanisms-based conceptualisation of the incubation process developed in this chapter. It is kept in mind that the choices of ontology and epistemology have a direct influence on the choice of the theoretical framework, which in turn impacts the methodological choices considered. The meta-theoretical assumptions guiding the proposed enquiry are clarified, and the key objective of the research is presented. A rationale is then developed for studying the incubation process via the comparative qualitative multi-site case study approach, followed by the presentation of a detailed case study protocol and a discussion on the measures taken to ensure the reliability and validity of findings. Finally, an elaboration on the data analysis and presentation techniques utilised is explained.

**Outline**

In this chapter, in order to study incubation through the new mechanisms-based lens, a research design is proposed. Gross's (2009) recommendation, whose theory of social mechanisms has provided the foundations for the new conceptualisation, influenced the development of an inductive, interpretivist and qualitative approach. A number of rationales are presented for carrying out the proposed investigation through the comparative multi-site case study. The bulk of the chapter presents the case study protocol which includes details on the overall case strategy, the research site selection approach and criteria, the process of negotiating access and a clarification on the unit of analysis. The section on 'research questions' is used to refer back to the findings of the literature review and proposals for further research to outline the process of the development of the nine research questions. These questions, linked to gaps in knowledge left behind in previous literature, contribute towards meeting the main research objective which is to carry out an investigation of the incubation process and incubators' normative environment and structural properties. In order to collect data to answer the research questions, the methods and processes adopted are clarified. Operating within the confines of the case study methodology, semi-structured interviewing, non-participant observation and secondary data sources assisted in data collection. An example of how an interview transcript was coded is included at Appendix – D. Analysis and interpretation of qualitative data is immersive and requires a rigorous intellectual effort; the approach and process for categorising, coding and inferring-from raw data is explained and the emanating most significant themes presented in the analysis chapters are listed. The chapter ends with a description of the data presentation techniques adopted which includes reference to a table in the appendices that indicates the frequency of respondent data use (see Appendix – E).

## 5.1 Introduction

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The research presented in this thesis is a study of the process of incubation, incubators' internal normative environment and structural properties – aspects which allow incubator organisations to function and to meet their objectives. As already outlined in the Introduction chapter, the following is proposed as the research's primary objective:

“to investigate the normative environment, internal mechanisms and structural properties of incubator organisations for the purpose of identifying key elements that positively influence the development of new enterprises”.

This aim will be achieved by tracing the development process of incubation relationships (between management and client firms) - from pre-incubation, selection, induction and onwards to graduation. It is proposed that this tracing of the development of incubation relationships will assist in the identification of the key variables that impact the “nature”<sup>25</sup> and “success” of incubation in a given context. By breaking down the complex social phenomenon (the incubation process) into its component parts, it will become possible to analyse how aggregations of actors (involved in incubation) employ *habits* to *resolve problem situations* (in culturally mediated ways) and bring about *systematic effects* (in the incubation environment). Of these habits, it is envisaged that some would have a positive, whilst others would have a negative, influence on the relative “success” of incubation relationships.

One major potential contribution of the research therefore, will be new explanatory theory to assist in the understanding of the behaviour of incubation parties under certain conditions, and such behaviour's impact on the relative success of working relationships in an incubation setting.

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<sup>25</sup> By “nature” it is meant the key social mechanisms by which cause and effect relationships taking place inside the incubator organisation that are of moral, economical, political and intellectual importance come about.

## 5.2 Nature of Research Methodology

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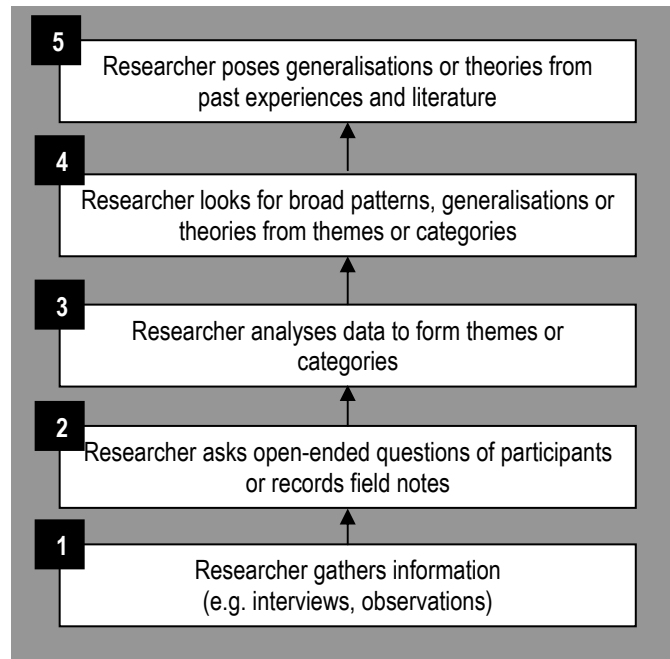
An important question to ask at this stage is: what should be the broad elements of the research strategy which could facilitate the empirical investigation? The assumptions about incubation developed in the previous chapter have ontological implications, and these directly influence the methodology and research techniques employed and the conceptual framework in which the research is conducted.

Alvesson and Skoldberg (2000) suggest it is generally accepted that the selection of a research paradigm is based on the complexity of the research area and the researcher's world-view. For the proposed investigation in this thesis, an approach is needed that allows for key patterns to emerge from which further theoretical development could occur (Gill & Johnson, 1997). This would require immersion in the research subjects' world (Shaw, 1999) - incubator organisations in the case of this research. Further, these assumptions would hold true in an *interpretive* organisational research strategy using *qualitative* data and *inductive* methods of analysis (Burrell & Morgan, 1979; Blaikie, 1993; Strauss & Corbin, 1990; Denzin & Lincoln, 1998). This strategy can be accommodated in an ontological worldview which recognises the presence of multiple realities. Lending credence to this choice is Gross (2009, pp. 375) himself who recommends an "inductive and qualitative approach" to the study of social mechanisms.

Allied to the notion of induction, is the idea that contributions to theory are made *posteriori*, in other words, theory development is the *end point* in this research. The logic of the inductive process requires first, the building from data, broad themes which then lead to a generalised model or theory. Following Creswell (2009), the research strategy (see Figure 11) began with the gathering of detailed information via fieldwork and then the categorisation of this information into themes using coding, the researcher's experiences and existing literature on the topic. These themes were then developed into broad patterns or theories. Owing to the lack of literature focused on the incubation process for developing explanatory theory, ideas and concepts are drawn from a variety of researchers and cited in the analysis chapter as a way of confirming and theoretically grounding the research's findings and conclusions.



Figure 11 – The Inductive Logic in a Qualitative Study  
(Creswell, 2009)



Given the research's *raison d'être*, the 'how' and 'why' – type formulation of research questions and the general time and resource limitations of a doctoral project; case study research provides the necessary methodological framework for a reliable and in-depth investigation of the internal process of incubation. In-line with the pragmatist spirit driving this research, the case method is ideal when the outputs of research consider practical real world implications via a holistic and in-depth investigation (Feagin et al, 1991).

### 5.3 The Case Method and its Relevance to the Project

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Case study research is a methodologically flexible approach to research design that focuses on a particular case – whether an individual, a collective or a phenomenon of interest. It has been referred to as a “paradigmatic bridge” because it is not assigned to a fixed ontological, epistemological or methodological position (Rosenberg & Yates, 2007). Thus, such a methodology is able to accommodate the philosophical worldview adopted for this research.

Over the years, the case method has gained popularity in the small business and entrepreneurship area as well as with incubator-incubation researchers. Perren &

Ram (2004) for instance have published a study to show the impact of the case method in small business and entrepreneurial research (Perren & Ram, 2004). A number of researchers in the recent past have adopted the case study for investigating various aspects of the incubator-incubation phenomenon where explicit (case-based) methods have been utilised for establishing the parameters of the research, analysis of data and presentation of findings (Lichtenstein, 1992; Autio & Kloftsen, 1998; Greene & Storey, 2004; Abetti & Rancourt, 2006; Hongyi et al, 2007; Evald & Bager, 2008; Schwartz & Hornych, 2008). Other research such as McAdam & Marlow (2007) and Bøllingtoft & Ulhøi (2005) based on a single-site ethnography and multi-site qualitative mixed methods respectively, may be categorised as case studies by some methodologists.

Yin (2009) has identified a number of important components of case study research which should be planned carefully prior to the empirical / data collection phase of a project. These components as they are relevant to this research are discussed in the following sections.

## **5.4 Designing the Research: Elements of the Case Methodology**

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### ***5.4.1 Case Study Strategy***

Stake (1995) has classified cases into three categories (1) intrinsic; (2) instrumental; and (3) collective. He noted that it is sometimes difficult to categorise a case as one or the other type. Researchers often have multiple research interests, and thus engage in both intrinsic and instrumental case research simultaneously. The key, he suggests, in both, is the opportunity to learn and shed light on the research problem (Stake, 1995).

The “instrumental case study” appears to be the most suitable considering the objectives and requirements of this research. Here the case itself is secondary to understanding a particular phenomenon, therefore, the focus will remain on the ‘incubation process’ rather than a particular ‘incubator organisation’ enacting that process.

For instrumental case research, the focus of the study is known in advance and designed around established theory and methods. The instrumental case is selected carefully to ensure that fruitful findings pertaining to the research aims and questions will be revealed. These important conditions have been considered in the design of this research. Stake (1995) also suggests that qualitative methods are best aligned with the philosophical underpinnings of the instrumental case, where researcher, participants and readers play a role in reconstructing experience. Data analysis relies upon *careful coding* with a focus on aggregate instances in the analytical write-up. The focus is on the specifics related to the research questions rather than on the complexity of the case.

Another important aspect of the case study strategy was the use of multiple cases so as to maximise the opportunities for learning through cross-case comparison. The approach of using multiple cases for a comparative analysis has a number of advantages over single case studies. For instance, only a comparative approach can help in identifying the internal organisational principles that are specific to particular types of incubator organisations. Comparative analyses allow for prescriptive learning, such as looking at what management techniques or approaches can be transferred across models. Finally, comparative studies bring more rigour to research allowing the testing of generalisations such as dominant management models and techniques<sup>26</sup>.

According to Yin (2009), when using multiple cases, case selection must lead to either (a) the prediction of similar results (*a literal replication*); or (b) the development of contrasting results but for predictable reasons (*a theoretical replication*). The difference between these two logics is quite important. Whereas, a *literal replication* can explain the conditions under which a particular phenomenon is likely to be found, a *theoretical replication* can explain the conditions when it is *not* likely to be found. Thus, for individual cases, the research write-up should indicate *how* and *why* a particular result was demonstrated (or not); AND why certain cases were predicted to have certain results, whereas other cases if any, were predicted to have contrasting results.

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<sup>26</sup> Issues relating to generalisability of case study findings are discussed later in the chapter in the section on Reliability and Validity.

In this research, the aim of the multiple case selection strategy was to compare and contrast results or *theoretical replication* – or to explain the conditions under which incubation mechanisms will be uniquely associated with a particular type of incubator organisation.

#### **5.4.2 Case Selection Approach & Criteria**

A look at Irish Government reports and websites on the local incubation environment containing information on different types of incubator models, their geographical location, contact person and details provided the necessary base information for case selection. Appendix – C presents an overview of incubators-incubation in Ireland including dominant models, coordinating agencies and details on some evaluation efforts. This overview provides a useful context for this research allowing the reader to visualise the incubator-incubation landscape in Ireland.

The project's empirical scope has been restricted to two major cases or incubator organisations. There is some debate between case study methodologists on how many cases ought to be included in a multiple-case design. Eisenhardt (1989), for instance, suggests that an appropriate number of cases for selection is between four and ten where the rationale for opting for the upper-end is provided by Perry (1998, pp. 791) who argues “with fewer than four cases it is difficult to generate theory with much complexity and its empirical grounding is likely to be unconvincing”.

The above view, which seems to be suggesting that the case methodology is "microscopic" because it "lacks a sufficient number" of cases, is forcefully rejected by Hamel et al (1993). They argued that the relative size of the sample whether 2, 10, or 100 cases does not transform a multiple case into a “macroscopic” study. The goal of the study should be to establish the parameters, and then should be applied to all research. In this way, even a single case could be considered acceptable, provided it met the established objective (Tellis, 1997). Blaikie (2010) also supports Hamel et al's (1993) and Tellis's (1997) view and argues that “just how many cases are used in multiple case designs will depend on the complexity of the phenomenon and the conditions under which it occurs” (pp. 191). To illustrate these points with extreme examples, consider Vaughan (1990) who undertook a case study of the NASA Space

Shuttle Challenger's disaster and Weick (1993) who studied the death of 13 men in the Mann Gulch fire, (made famous in Norman Maclean's *Young Men and Fire*). A multiple case strategy would be meaningless in the above studies since it would be literally impossible to find similar cases and to replicate results. Hence, the notion of 'appropriateness of sample size' (as Eisenhardt and Perry seem to be arguing for) is not as relevant to case study research. These reasons are augmented by the fact that there is precedent; a number of incubator-incubation researchers in the past have used two cases, for example Lichtenstein (1992), Autio and Klofsten (1998) and McAdam & McAdam (2008).

There were a few criteria for the selection of case organisations:

*First*, since the aim was theoretical replication two *different* types of incubator organisations had to be selected. In Ireland, as discussed in Appendix - C, four different incubator models are prevalent – community enterprise centres, university campus incubators, not-for-profit government sponsored incubators and cluster incubators<sup>27</sup>. In terms of numbers, 'community enterprise centres' are most prevalent followed by 'campus incubators'. One exemplar organisation out of each of these two dominant categories was selected. Needless-to-say, as discussed above, issues relating to representativeness and sampling do not apply to qualitative case study research.

*Second*, the sites were to be considered (by the wider enterprise development community) to be important or dominant examples in their respective categories. This could be by virtue of age, scale and scope of activities and accomplishments to-date.

*Third*, the sites were to be officially designated as 'business incubators' and not science, technology or business parks. *Finally*, the sites were to allow reasonable access for an extended period of time for the purposes of the research.

For the twin case strategies of *analytic generalisation* and *theoretical replication*, results from two cases would suffice.

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<sup>27</sup> It is contestable whether this category actually fits the precise definition of an incubator. The Irish government, however, chooses to categorise a number of its programs as "cluster incubators".

### **5.4.3 Negotiating Access**

Researchers often experience difficulties with the negotiation of access into organisations for the purpose of data collection (Buchanan et al, 1988). This is particularly common when the data required is sensitive in nature (Koosimile, 2002). Negotiating a workable level of access proved to be a very challenging task. The approach strategy was clearly thought out prior to initial contact. This usually consisted of the researcher's supervisor making an introductory phone call, followed a face-to-face meeting to clarify the research's aims and objectives. An offer for a management report with recommendations for process efficiencies based on international best practice was also made. During these meetings, two documents were handed over to clearly explain the nature of the research, its benefits and the outcomes. These documents also highlighted elements of research ethics and confirmed the confidentiality of findings and anonymity of all participants involved.

Six different incubators in Dublin City were approached during early 2009. Incubator managers seemed generally suspicious of researchers and were reluctant to open doors. This may be due to the present research agenda in incubators-incubation, i.e. evaluation of incubation outcomes. At every stage of communication, it was clarified that the project's objectives were to understand and make sense of how incubation works in practice and in no way was there any intent to conduct an 'evaluation'. Ultimately, however, the researcher was often seen as a third-person wanting to scrutinise internal operations very closely. This attitude from the target community, and the qualitative case study methodology with its requirements of immersion in the research setting, created a special challenge in gaining access.

With some effort, substantial access was finally negotiated with two incubator organisations who met the aforementioned criteria. These organisations, for the reasons of anonymity, have been dubbed *DublInc* and *IncuWorks*. The case work was conducted linearly with *DublInc* as the first case studied during March - August, 2009 followed by *IncuWorks* during September, 2009 - January, 2010. The increased amount of time dedicated to the first case helped in refining data collection strategies, emerging categories and to match patterns with initial themes and propositions. Further details on these organisations are presented in the next chapter.

#### **5.4.4 Unit of Analysis**

In the study of incubators, a number of levels of analysis have been considered in the past; which, according to Hackett & Dilts (2004a) are: (1) entrepreneur (individual); (2) incubator manager (individual); (3) incubatee (group / firm); (4) incubator (firm); (5) community (local); and (6) incubation (industry). This list was initially extended in this research project to include the 'Incubator Manager's Office' (IMO), since, the incubation process is facilitated by not only the single individual incubator manager, but several other members of the incubator management, including business advisors, the facilities officer, trainers and members of the Board of Directors (McAdam & McAdam, 2008).

Initially, two units of analysis were used: the 'IMO' and 'client firms'. Here the rationale was that significant differences between these two units exist due to power distance, the aims of their individual roles as well as the distinct operating principles between the two life-worlds. Thereby, rich information could be analysed in a more organised and meaningful way.

However, during the course of analytical work it became clear that the unit should be the 'incubator (firm)' since it was found that incubation is co-produced through the mutual agency of both the IMO and client firms working together. Analysing their life-worlds separately was stripping away some of the richness and depth from the analysis. This was avoided by juxtaposing the two life-worlds under a single unit of analysis – 'the incubator' – which captured the gamut of involved actors and the patterns of their interaction and allowed the investigation of the internal normative environment and structural properties of the two selected case organisations in a cohesive-integrated manner.

#### **5.4.5 Research Questions**

According to Stake (1995), it is sometimes assumed that fieldwork in case study research is just keeping a sharp eye and being open to new impressions. Open minds and sharp eyes are indeed important, however, good case study research depends on discipline. One needs to think through, in advance, some of what may

come to pass. For some it will pass too quickly or too subtly to notice. Perhaps the most difficult task of the researcher is “to design good questions; research questions that will direct the looking and the thinking enough but not too much” (Stake, 1995, pp. 15).

In Blaikie’s (2010) view, it is not necessary to state aims or objectives in a case research design. Research questions provide a better way of expressing what a research project is trying to achieve. Therefore, for this research, a number of questions were formulated which helped in breaking down the research task into a number of feasible areas which could then be pursued independently (if required) depending on the feedback emerging from the case work. It is felt that without adequately framed research questions, some of the methodological rigour demanded of the instrumental case study would have been lost.

As already outlined, the research questions used to address the main research objective emanated from the findings of the literature review presented in Chapter 3. The literature review has been instrumental in identifying weaknesses in previous conceptualisations of incubation, and for recommending areas for further research (ref: Table 3 - Chapter 3). Table 4 below shows the way these research recommendations have been developed into a number of research questions:



Table 4 – The Link between Literature Review & Research Questions

Further Research Recommended based on Weaknesses in Extant Literature	Associated Research Question(s)
Trace the dynamics of incubators' internal venture creation processes in time, taking into account a gestalt of variables including the aspirations of the entrepreneur, the incubator manager, the client cohort, the internal normative environment and the structural properties of the incubator organisation.	<p><i>How are the various stages organised in the development of incubator manager and client firm relations?</i></p> <p><i>What are the various strategies of dyadic co-production?</i></p> <p><i>How do the structural properties of incubators impact on the organisation and orchestration of the incubation process?</i></p> <p><i>How does the internal normative environment impact on the organisation and orchestration of the incubation process?</i></p>
A crucial factor for resource consumption is the quality of relationship between the incubator and client. Research must unearth micro processes and institutionalised patterns governing the rules of incubator-client firm interaction.	<p><i>What is the nature of the relationship between the incubator organisation and client firm?</i></p>
The important role of the incubator manager in reducing self-interest and entrepreneurial conflict has been ignored and needs further investigation.	<p><i>In what ways does the incubator manager's leadership style impact on co-production efficacy?</i></p>
The conditions promoting the development of effective dyadic relations and incubation triggering behaviour. It is also important to study the impact of dyadic norms and incubators' structural properties on how the process unfolds.	<p><i>How is incubation triggered in a dyadic setting?</i></p>
In what ways and under what conditions is networking amongst client firms promoted?	<p><i>How does Client-Client interaction within the incubator organisation take place?</i></p>
Researchers should draw from work in the heuristics and biases tradition to un-earth the social and cognitive processes that work to facilitate the client selection process and the context in which these processes occur.	<p><i>How are new firms inducted for incubation?</i></p>

Following Creswell (2009), an effort has been made to keep the research questions neither too broad nor too narrow. In their present form, it is believed that they adequately capture and also limit the scope of research. Taken together, they will contribute towards achieving the aim of this research which requires an in-depth investigation of the incubation process and incubators' internal normative environment and structural properties.

Needless-to-say, since the analytical approach adopted for this research is inductive, the role of the proposed research questions is to act as useful guides, starting points and parameters only rather than as strict boundaries to prove or disprove hypothesis as is usually the case in positivist / scientific research (Brody et al, 1993). Therefore, as expected, field exposure and initial investigations based on the research questions led the researcher into a number of new, interesting and useful directions, which could not be envisioned at the stage where the initial research questions were developed<sup>28</sup>. To illustrate, due to field exposure when the two units of analysis ('IMO' and 'client firms') changed to the 'incubator', it drove the investigation in a number of new directions including: why some IM-Client relationships are more effective than others?; what impact does the IM's personal incubation style have on IM-Client relations?; how is an incubation event triggered?; how is the incubation relationship impacted by client background and qualifications?; and so on.

Thus, the research questions were not meant to exhaustively capture the scope of the research nor was the analysis undertaken in a sequential / linear way to "answer" the questions. Certainly, a serious effort has been made to address the proposed questions adequately but given the complexity and the relatively unexplored nature of the phenomenon under study, "answers" appear in different sub-sections of the analysis chapters and across thematic areas. The final Discussion & Conclusion chapter, however, has been organised around the research questions to demonstrate how these have been ultimately 'answered'.

#### ***5.4.6 Data Collection Methods***

Based on the new conceptualisation of incubation presented in the previous chapter, the overall question which the researcher attempted to address, prior to the commencement of fieldwork, was: what can one reasonably expect to find when studying a complex multi-actor mechanism like incubation and developing an understanding of the internal normative environment and structural properties of incubators? Previous literature was not very helpful in awarding methodological clues, hence, it was felt that a more cautious two-staged approach would be suitable. During the first 'testing-waters' stage, at both case organisations, data was initially collected

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<sup>28</sup> Research questions were developed based on weaknesses identified in the extant literature.

through a period of observation and conversation with the incubator manager (IM) and other members of incubator staff along with some business founders (herein after referred to as ‘clients’). Table 5 below shows the areas covered with the IM initially:

*Table 5 – Initial Areas Covered with the IM*

<b>Incubator Management</b>	<ol style="list-style-type: none"> <li>1. What is the nature of your work?</li> <li>2. What is the official policy on pre-incubation?</li> <li>3. How do you select clients? What is the process?</li> <li>4. Is there is a prevalent structured system of client management and monitoring?</li> <li>5. What is your relationship with a particular client (A) like? How do you gauge their resource needs?</li> <li>6. How do you initiate an incubation project with a particular client(A)?</li> <li>7. Are all clients equal when it comes to incubation intensity or is there a difference from client to client?</li> </ol>
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This ‘testing-waters’ stage enabled the researcher to formulate a picture of the incubator; its objectives, the personnel involved and its operations within its context. Initial information was also collated from secondary data sources including annual reports and strategy documents relating to the incubator and client application forms on file.

This stage allowed a greater sense of awareness to develop which facilitated stage two: ‘data collection’. It was felt that, considering the scale and scope of the research, and the context of the case organisations, data collection was going to take an extended period of time. Hence, as per the agreement reached with the case organisations, data was collected over a period of approximately six months at each case organisation during weekly visits. A variety of qualitative methods were deemed appropriate including: observations recorded in a field journal; digitally recorded transcriptions of semi-structured interviews; notes taken during interviews; notes taken at the end of the day on overall feelings and emerging patterns recorded in a diary and documents produced or sourced from participants as well as from secondary data / literature sources.

The bulk of the data collection was via semi-structured interviews. This method was deemed appropriate for a number of reasons: *first*, the interview was used since it was felt that the best way to get into the ‘lived’ experience of a respondent who has experienced an important issue, is to enable that individual to narrate that experience.

The semi-structured interview is ideal when the researcher is interested in the person's cognition, emotion, and behaviour as a unifying whole rather than as independent parts to be researched separately (Kvale, 1983). *Second*, since the kind of data sought included the descriptions of the research participants' life-worlds with respect to interpretation of the meanings, the semi-structured interview provided the appropriate levels of flexibility and conduciveness to facilitate the disclosure of "heartfelt views and values" (Gubrium & Holstein, 2001, pp. 57). Third, due to the nature of enquiry, given the constraints of other methods such as surveying or participant observation, the semi-structured interview offers the maximum opportunity for complete and accurate communication of ideas between the researcher and respondent (Cannell & Kahn, 1968). Finally, as it will be shown in the following paragraphs, there was a need to develop rapport and trust with the respondents with repeat interactions where there was a need to cross check / correlate / further elaborate on information from other interviews. In such a scenario, semi-structured interviews offer advantages over structured or un-structured interviewing.

It was kept in mind that interviews have certain weaknesses and over the years methodologists have critiqued this particular research method on issues such as consent, attitude towards participants, power, culture and confusion between research interview and therapy (Nunokoosing, 2005). In addition to issues of epistemology, interviews can be subject to biases including those induced both by the respondent (faulty memory, exaggeration, mis-understanding, courtesy bias and group influence), and the interviewer (desire to help the respondent, reactions to responses, failure to follow adequate questioning techniques) (Yin, 2009).

The above criticisms are valid, yet proponents of the interview method have presented robust rebuttals. Amidst this ongoing debate, however, interviews remain popular as the most widely used method of generating data in qualitative social research (Nunokoosing, 2005) and the "most important form of data collection in case study research" (Gillham, 2000, pp. 65). Ultimately, it is important for a recognition to develop that interviewing is a "craft" (Kvale, 1996, pp. 105) or a "skill" characterised by a quality of naturalness (Gillham, 2000, pp. 4). It is in the use of the self, of relationship building, of acute awareness of the flow of conversations, of a sensitive awareness of the interviewer's theoretical and professional position, and of his or her

research questions that qualitative data of high quality are constructed in the interview. The skilled, embodied interviewer uses his or her person to communicate with people to create stories (Nunkoosing, 2005). No matter how much one learns about interviewing, it is one's own personal resources that breathe life into the technique and, in a way, take over from it (Gillham, 2000). Therefore, no interview can be totally bias free (Kvale, 1996) because human beings at any given point in time cannot be totally bias free (Cain & Detsky, 2008). Unacknowledged bias may entirely invalidate the results of an interview enquiry, however, a recognised bias or subjective perspective may come to highlight specific aspects of the phenomena investigated, bring new dimensions forward, contributing to a multi-perspectival construction of knowledge (Kvale, 1996). The researcher made significant efforts to reduce any potential biases by remaining neutral i.e. neither leading the interviewees nor asking value-laden questions, seeking clarifications, cross checking facts, using projective techniques or indirect questions that dealt with socially sensitive subjects and keeping a strict code of confidentiality to build rapport and trust.

A research plan was drawn up in coordination with the IM (the point of contact) which contained scheduling details on a series of semi-structured, face-to-face interviews with both clients (business founders) and members of the incubator organisation. The purpose of these interviews was to obtain an understanding of participants' perception of the incubation process, how it unfolded for their firm and the internal normative environment of the incubator. With support from the IM, emails were sent to clients to confirm the schedule. In addition to interviews, the research plan identified a number of up-coming 'incubation' events.

Each interview with clients lasted between 30 to 45 minutes and the process was informed by Patton (2002). The interview began with broad, open-ended questions and as the interview progressed focus was turned to more specific areas. The questions were a mixture of factual questions relating, for example to the age of the founder or the turnover of the business; and open-ended questions relating, for example details on recent 'incubation' activity and relationship with the IM and other clients (see Table 6 below for an initial interview guide). The intention was to let the subject tell his / her 'story'. The interview guide was used to check that all relevant areas were covered and to follow-up on any omitted area. The weakness here is that

the subject's story may be only tangentially, and not directly, related to the issues explored (Patton, 1990). For instance, in some cases subjects had a lot to say on their firm's pre-incubation or post-incubation strategy but not a lot on their induction or specific instances of interaction with the IM. The interview guide, with questions relating to specific areas of interest, was used to guide the subject back onto more directly relevant or unexplored areas.

*Table 6 – General 1<sup>st</sup> Interview Guide*

<b>Client Firms</b>	<ol style="list-style-type: none"> <li>1. Describe early days when making your application.</li> <li>2. Recall any initial experiences with incubator management?</li> <li>3. Describe the application process.</li> <li>4. What was the settling-in period like?</li> <li>5. What were your interactions with the incubator management like in the early days?</li> <li>6. What were your interactions with other clients like?</li> <li>7. Do you think there has been a change in the nature of your interactions with the incubator management?</li> <li>8. How will you describe your relationship with the incubator manager?</li> <li>9. What do you think about the culture and nature of work here? What sort of a description comes to mind?</li> <li>10. During the past 2-3 months do you recall any interactions with the incubator manager?</li> <li>11. Are you working on any projects with the incubator manager?</li> <li>12. Any areas where you would want the involvement of the incubator manager?</li> </ol>
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In addition to semi-structured formally arranged interviews, more informal exchanges during numerous chance encounters with clients also occurred, for instance, at the incubator's cafeteria or at the reception. Any notable points arising out of these discussions were duly recorded in a field diary. This diary was also used to record observations and to chronicle thinking, feeling, experiences and perceptions throughout the research process. In addition, a field log was also utilised providing a detailed account of the ways time was spent when on-site.

During each visit, in addition to the scheduled face-to-face interviews with clients and other members of the incubator organisation, there was an up to 30 minute meeting with the IM also booked. The strategy here was to obtain the perceptions from both parties associated in incubation which facilitated cross checking the validity of any assertion made against other interviews and secondary data sources.

An iterative approach was employed to categorise data into meaningful categories or 'codes' which were then used to investigate any possible links between categories and to investigate differences between participants. Obtaining the perceptions from both parties in the incubation process allowed the juxtaposition of information relayed and the cross checking of the validity of any assertion made against other interviews and secondary data sources.

The development of the semi-structured interview was an iterative process; in the first instance a baseline set of questions were designed for clients; developed in consultation with the IM utilising past observations and discussion. With a number of clients, based on subsequent discussions with IM, further interviews were scheduled. Question sets for these subsequent interviews were developed utilising the initial question set and information gathered from previous interviews, hence, were quite specific to the particular client being interviewed. The interview protocol, therefore, started with a client interview followed by a separate interview with the IM to discuss each client individually. At the end of the research process one final semi-structured interview was held with the IM.

By interviewing clients first, detailed information about the business, the management team, the types of network accessed and their perception of how the process had progressed could be gleaned. This information was then used to inform the development of the question sets employed in subsequent interviews with the IM. The final interview at the end of the research with the IM allowed the investigation of issues that had arisen from the empirical data, the review of any discrepancies in the accounts of the two parties in incubation, and provided the IM with an opportunity to place the findings in the context of the strategic direction of the incubator.

Although the approach utilised provided a holistic picture of the incubation process in the case sites, both an advantage and disadvantage of this was the large amount of data generated. Great detail was achieved but the analysis and organisation proved to be a very time consuming process. Conducting 30-40 interviews per site, and writing up a number of pages of text notes per interview resulted in a very large amount of information to sort through for analysis. Yin (2009) challenges the assumption that individual interviews should be "written up" at all, believing that the

more relevant task is to demonstrate converging evidence from various sources and to document such convergence (and divergence). Therefore, in repeat interviews, in a number of cases, only hand written notes were taken.

To summarise, Table 7 below presents an outline of the data sources, and the amount of data collected (including interviews recorded and transcribed), and Tables 8 and 9 present details on the interview subjects at *Dublnc* and *IncuWorks* respectively. For *Dublnc* background data on clients was collected but to ensure anonymity at their request details such as date of inception, precise nature of the business, annual revenue, growth figures during incubation and other details are not disclosed. Background data on clients has been scrutinised to look at emerging patterns which have been matched with the second case. For *IncuWorks* (Table 9) it should be noted that due to privacy concerns and the proprietary or sensitive nature of client work, it was agreed that no questions relating to firm size and team composition, annual revenue, growth projections and precise nature of technology (including that which was under development) would be asked. In both cases, as much background details are included as were permitted.

A client numbering system is developed which places *Dublnc* clients in the range of 1-20 and *IncuWorks* clients in the range of 21-39. This allows the tracing of specific quotes used in the analysis chapters back to particular respondents.



Table 7 – Data Sources & Amounts

Method	Purpose	Data Collection Instances	
		Dublnc	IncuWorks
<b>Non-participant observation of IM-Client and Client-Client interactions</b>	To understand relational dynamics, networking behaviour, power politics and collaborative strategies to solve problems.	<ol style="list-style-type: none"> <li>1. Selection interview</li> <li>2. Two pre-incubation meetings</li> <li>3. A corporate meeting between the IM and several clients</li> <li>4. A meet-and-greet networking event</li> <li>5. Corporate trade show</li> <li>6. Information interaction at the reception and cafeteria</li> </ol>	Informal IM-Client and Client-Client interaction at an award ceremony, a seminar, in the cafeteria, reception and corridors
<b>Interviews</b>	To understand participants' perception of the incubation process, how it unfolded and the internal normative environment.	Total 37 interviews conducted and audio recorded; 31 transcribed <sup>29</sup>	Total 28 interviews conducted and audio recorded; 24 transcribed
<b>Secondary data</b>	To formulate a picture of the incubator; its objectives, the personnel involved and its operations within its context. Initial information was also collated from secondary data sources including annual reports and strategy documents relating to the incubator and client application forms on file.	<ol style="list-style-type: none"> <li>1. Incubator annual reports</li> <li>2. Websites of the incubator and client firms</li> <li>3. Strategy documents relating to the incubator</li> <li>4. Client application forms on file</li> <li>5. Client promotional material.</li> </ol>	<ol style="list-style-type: none"> <li>1. Incubator annual reports</li> <li>2. Websites of the incubator and client firms</li> <li>3. Strategy documents relating to the incubator</li> <li>4. Client application forms on file</li> </ol>

<sup>29</sup> All interview transcription was done by the researcher.

Table 8 – *DublInc* Interview Subjects

<i>Incubator Management</i>	<ol style="list-style-type: none"> <li>1. Enterprise Manager</li> <li>2. Previous Enterprise Manager</li> <li>3. A member of the Board of Directors</li> <li>4. Enterprise Officer</li> <li>5. Facilities Assistant</li> <li>6. Receptionist Support Staff</li> </ol>			
<i>Clients</i>	Industry	Nature	Team Size	Stage
Client 1	Energy / Power	Design	>5	Year 3
Client 2	Energy / Power	Equipment Manufacture	>5	Year 3
Client 3	Energy / Petroleum	Project Management	4	Year 4
Client 4	General	Social Entrepreneur	3	Year 3
Client 5	General	Medical Diagnostics	2	Year 1
Client 6	General	Bespoke Stitching	4	Year 1
Client 7	General	Health / Therapy	1	Year 4
Client 8	General	Consulting & Training	4	Year 4
Client 9	Food	Web Portal	1	Year 3
Client 10	Food	Processing & Sales	1	Year 2
Client 11	Food	Processing & Sales	1	Year 1
Client 12	Food	Processing & Sales	1	Year 1
Client 13	Construction	Recruitment	1	Year 2
Client 14	Insurance / Energy	Consulting	2	Year 2
Client 15	Software	Sales	1	Year 3
Client 16	Hi-Tech / Knowledge	Consulting	3	Year 1
Client 17	Publishing	Design / Printing	2	Year 4
Client 18	Property	Management	2	Year 3
Client 19	Optical	Web sales	2	Year 1
Client 20	Optical	Testing / Sales	4	Year 4
Ex-Client	9.5	Internet & Web Dev.	5	-

At *DublInc*, a total of 20 firms participated out of the 25 that were based there. Two of the five who chose to not participate were either using the premises for storage or as a satellite office only. Two were unreachable on multiple occasions although they agreed to participate. One refused due to time constraints.

Table 9 – IncuWorks Interview Subjects

<b>Incubator Management</b>	<ol style="list-style-type: none"> <li>1. Director</li> <li>2. Manager Enterprise Development</li> <li>3. Manager Communications</li> <li>4. Manager Technology Transfer</li> <li>5. Facilities Manager</li> </ol>				
<b>Client</b>	<b>Industry</b>	<b>Nature</b>	<b>Route</b>	<b>Occupancy</b>	<b>Stage</b>
Client 21	ICT	Consulting, design, testing	Spin-in	Incubation	Year 2
Client 22	ICT	Product design	CCDP	Desk Space	Year 1
Client 23	ICT	R&D	Spin-out	Associate	Extended
Client 24	ICT	Internet technologies	Spin-in	Incubation	Year 3
Client 25	ICT	Internet technologies	CCDP	Incubation	Year 1
Client 26	ICT	Internet technologies	Spin-in	Associate	Year 3
Client 27	ICT	Misc.	Spin-in	Desk Space	Year 1
Client 28	ICT	Software Development	Spin-in	Desk Space	Year 1
Client 29	ICT	Internet technologies	CCDP	Associate	Year 1
Client 30	ICT	Internet technologies	Spin-in	Incubation	Year 2
Client 31	Telecom	IP Commercialisation	Spin-in	Incubation	Year 1
Client 32	General / Hi-tech	Consulting	Spin-in	Desk Space	Year 1
Client 33	General / Hi-tech	Consulting	Spin-in	Incubation	Year 1
Client 34	Bio-Tech	Fuel	Spin-in	Incubation	Year 2
Client 35	Bio-Tech	Engineering R&D	Spin-out	Incubation	Year 3
Client 36	Bio-Tech	Clinical trials, drug testing	Spin-out	Incubation	Year 3
Client 37	Bio-Tech	Drug Testing / Development	CCDP	Associate	Year 1
Client 38	Bio-Tech	R&D	Spin-out	Incubation	Year 2
Client 39	Bio-Tech	Clinical R&D	Spin-in	-	Graduated

\* Columns in this table differ from Table 8 due to differences in the types and quantum of information made available at the two case organisations.

At *IncuWorks*, out of a total of 26 firms, 19 agreed to participate in the research. In all cases business founders were interviewed. To follow-up on feedback received from the IM on particular details arising from client interviews, in two cases, follow-up interviews were conducted over the telephone.

During the course of the research, participants shared intimate details about their own businesses and their employees, their experiences with the incubator manager and other client firms, and the incubator managers provided on a number of occasions inside information (based on trust) about their Boards, client firms and other members of the incubator management team. It has been agreed with all the participants that all necessary precautions will be taken to ensure that should any of the research participants or members of the public (especially fellow incubator-incubation researchers / practitioners / policy makers) read this document, in no way should they be able to even roughly gauge where the research was conducted and “who said what about who”.

## 5.5 Issues of Research Rigor

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### 5.5.1 Validity & Reliability in Qualitative Research

Validity and reliability are concepts often used in physical and social sciences to gauge the quality of measures used to analyse a phenomenon. However, it must be kept in mind that “*reliability and validity are tools of an essentially positivist epistemology* (Winter, 2000). Since this research is based on an interpretivist and qualitative approach, the traditional meaning of reliability and validity from the quantitative researcher’s perspective needs modification.

Reliability in qualitative research is conceptualised as *trustworthiness, rigour, authenticity, credibility* and *quality* (Golafshani, 2003). Whereas, validity, as one of the strengths of qualitative research, is based on determining whether the findings are accurate from the standpoint of the researcher, the participant(s), or the readers of an account (Creswell & Miller, 2000). Thus, the criteria for judging a qualitative study differ from that of quantitative research. These criteria rest on the notion of ‘believability’ or ‘plausibility’, which in turn is based on coherence, insight and instrumental utility (Eisner, 1991) and trustworthiness (Lincoln & Guba, 1985) achieved through a process of verification rather than through traditional validity and reliability measures.

In the following sections, a number of issues are discussed relating to validity and reliability in qualitative research and a number of case study-based strategies are presented for achieving rigour in the research presented in this thesis.

### 5.5.2 Achieving Validity & Reliability - 1: Triangulation

The main way to achieve validity and reliability from the qualitative researcher’s perspective is to eliminate bias and to increase the researcher’s truthfulness of a proposition about some social phenomenon through triangulation (Golafshani, 2003). Triangulation in this case is defined as “a validity procedure where researchers search for convergence among multiple and different sources of information to form

themes or categories in a study” (Creswell, 2000, pp. 126). For case-based research, Yin (2009) recommends a number of triangulation strategies:

1. *Data source triangulation*, when the researcher looks for the data to remain the same in different contexts;
2. *Investigator triangulation*, when several investigators examine the same phenomenon;
3. *Theory triangulation*, when investigators with different view points interpret the same results; and
4. *Methodological triangulation*, when one approach is followed by another, to increase confidence in the interpretation.

For this project, *data source triangulation* was employed i.e. evidence from multiple cases is utilised (Denzin, 1984). The basic premise is that theoretical testing through the replication of findings from two cases (rather than one) will allow the possibility of *analytic generalisation*. This approach is often considered more compelling, and the overall study is, therefore, regarded as being more robust (Herriott & Firestone, 1983; Yin, 2009).

### **5.5.3 Achieving Validity & Reliability - 2: Validity Strategies**

Allied with the concept of triangulation are strategies which Yin (2009) recommends for ensuring *construct, internal* and *external* validity.

For ensuring *construct validity*, Yin suggests using multiple sources. For this study multiple sources of evidence have been used including interviews, observations and documents. In addition, a number of other measures as per Creswell’s (2009) recommendation were employed to enhance the notion of construct validity:

1. Using rich, thick descriptions to convey findings. This description may transport the reader to the setting and give the discussion an element of shared experience.
2. Clarifying the biases brought to the study, This self-reflection creates an open and honest narrative that will resonate well with readers.
3. Presenting negative or discrepant information that runs counter to the themes or the notion of falsification.

4. Spending prolonged time in the field. In this way, an in-depth understanding of the phenomenon under study is developed. This helps in conveying detail about the site and the actors involved, thereby, lending credibility to the narrative account.
5. Peer examination – the researcher's supervisor and second reader served as peer examiners. In addition feedback was received through the presentation of papers at international conferences.

*Internal validity* refers to the identification of a causal relationship, whereby, certain conditions are shown to lead to other conditions as distinguished from spurious relationships (Yin, 2009). In identifying a causal relationship an investigator may conclude that such a relationship exists between  $x$  and  $y$ . The threat to internal validity emerges when this conclusion is reached without due regard to some third factor that may actually have caused  $y$ . More broadly, the problem associated with case study research in this context is cause-effect inferences.

Yin (2009) suggests that to overcome this problem some relevant questions ought to be posed, for instance, is this inference correct? Is the evidence convergent? Does it appear to be airtight? In this research, through a process of triangulation it was possible to identify facts. As each interview was conducted more information was acquired which was triangulated with other interviews and observational and documentary data, thereby, exposing the original information as either correct or incorrect. In addition, internal validity can also be achieved through the specification of "unit of analysis".

*External validity* amounts to knowing whether the results from the case are generalisable to some wider phenomenon. According to Yin (2009), the problem of generalisation associated with qualitative case study research has been due to the simplified understanding of the concept where it is generally assumed that a sample of cases has been drawn from a larger universe of cases. Thus, the incorrect terminology "small sample" arises, as though a single-case study were a single respondent. Yin argues that the confusion arises when one is unable to differentiate between 'analytic generalisation' and 'statistical generalisation'. He refuted this criticism by clearly differentiating analytic generalisation from statistical. In statistical generalisation, an inference is made about a population (or universe) on the basis of empirical data collected about a sample (such as via surveys). In analytical

generalisation, previously developed theory is used as a template against which to compare the empirical results of the case study, in other words, the investigator is striving to generalise a particular set of results to some broader theory (Yin, 2009).

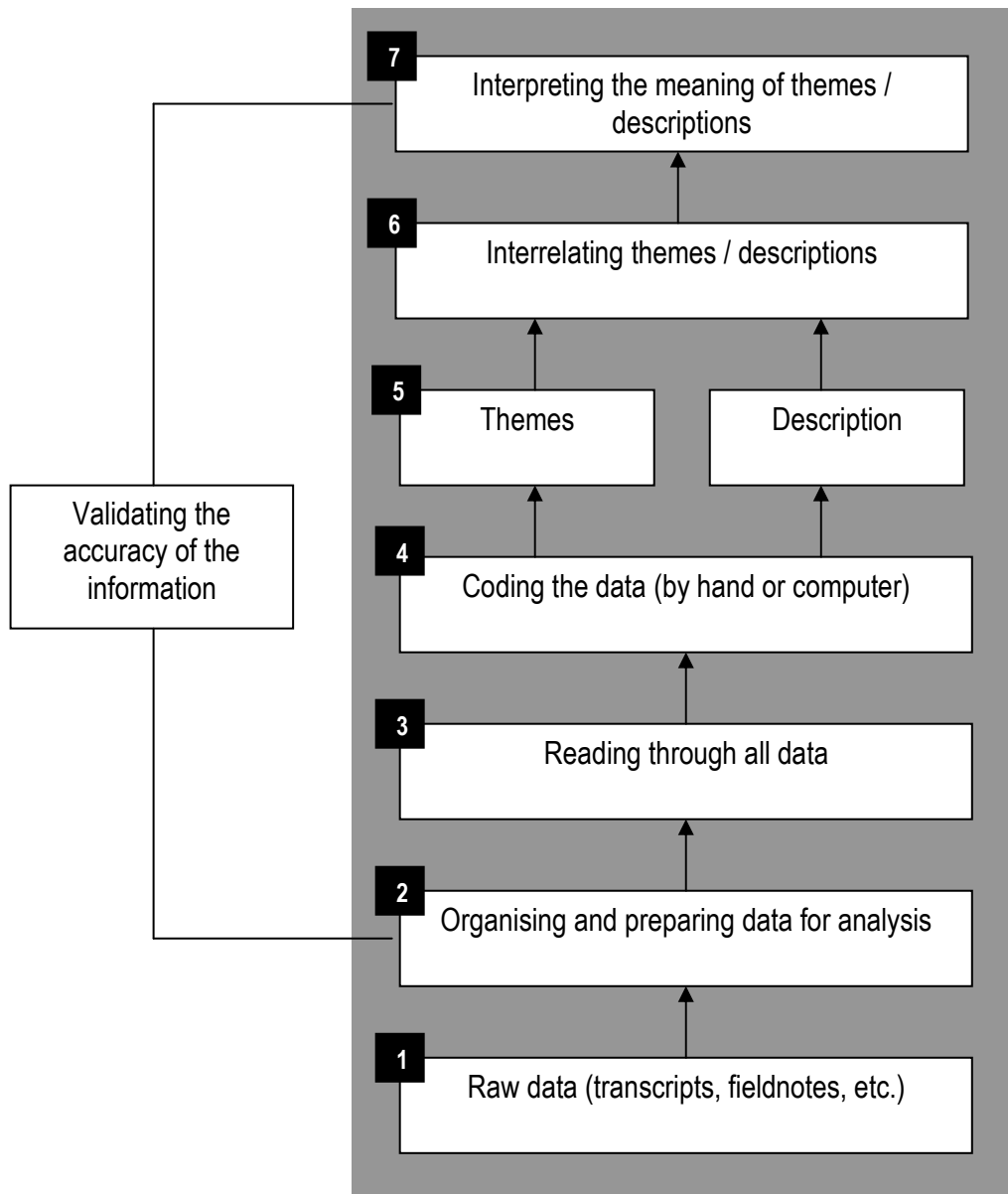
The criticism against case studies in this area mostly relates to single cases (which is not the case with this research since multiple cases have been used). Furthermore, as per the adopted philosophical and theoretical approach - generalisation of results is made to *theory* rather than *populations* i.e. analytical generalisation. Multiple cases strengthen research results by replicating patterns, thus, increasing confidence in the robustness of theory.

## **5.6 Analysis of findings**

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Data analysis is one of the least developed components of the case study approach (Stake, 1995). Essentially, during the analysis phase the researcher needs to rely on experience and the literature to present the evidence in various ways, using various interpretations, since statistical analysis is not necessarily used (Stake, 1995; Yin, 2009). The analysis process itself is iterative or cyclical and proceeds from more general to more specific observations (Palys, 1997; Silverman, 2000). Therefore, data analysis can begin informally during interviews or observations and continue during transcription, when recurring themes, patterns, and categories become evident. To give the analysis process a degree of structure, an approach recommended by Creswell (2009) was adopted (see Figure 12 below). Although the resulting scheme suggests a linear, hierarchical process, it was much more interactive in practice. Various stages were interrelated and not always visited in the order presented.

Figure 12 – Data Analysis Procedure adopted from Creswell (2009)



The analysis process commenced once interview transcripts, field journal and diary notes were typed up and available in digital format. The first task was formatting and high level categorisation (case organisation-wise) of the ‘raw’ data to facilitate reading and reflection. All raw data was then printed and read three times which increased the researcher’s overall familiarity with the respondents and helped in the mental recollection of key incidents. Salient points were underlined and brief comments were made to assist with the next stage which involved the coding of data and the identification of key structures.



Coding is a procedure of organising the text of raw data from data sources such as transcripts, journals and diaries and discovering patterns within that organisational structure (Auerbach & Silverstein, 2003). In other words, coding is a category system that allows all of the data to be categorised systematically and a code is a label in that system attached to a section of text to index it as relating to a theme or issue in the data which would have been identified as important to interpretation (Patton, 2002). Patton (2002) suggests that developing codes is like constructing an index for a book or labels for a filing system. He suggests that one looks at what is there in the data and then gives it a name or a label. The challenge is to ensure that the categories are *internally homogeneous* and *externally heterogeneous*. This means that everything in one category must hold together in some meaningful way, and that the differences between categories need to be bold and clear. An example of how a transcript was coded is at Appendix – D.

In developing the coding scheme Auerbach & Silverstein's (2003) criteria was kept in mind. They suggest that a coding scheme must be (a) mutually exclusive – each segment should fit into one category only (unless one can justify placing certain segments in more than one category); (b) exhaustive – every example has to fit somewhere; and (c) meaningful – to be useful, the system must have social significance, relevance, and meaning. In order to develop a coding scheme along this criteria, first, interview transcripts, interview reflections and diary notes were re-read and a draft or trial structure was developed. Next, text was extracted for cataloguing in the various defined codes in the trial structure. This led to the development of new codes and the collapsing of others. As a result, the following hierarchical organisation emerged, with groups of similar codes clustered together to produce more general higher-order codes:

- 1.0 IM's views on the role
  - 1.1 What does incubation mean?
  - 1.2 What is the role of the IM?
  - 1.3 Management of competing priorities
  - 1.4 Triggering strategies
  - 1.5 Personal incubation style
  - 1.6 General views on client motives
  - 1.7 Ground rules
- 2.0 IM's Dealings with senior governing authority
  - 2.1 What is the organisation's identity?
  - 2.2 Boundaries
  - 2.3 Purpose of the Board
  - 2.4 Board and IM relationship
  - 2.5 Strategic priorities
- 3.0 IM's Dealings with third party service providers
  - 3.1 Reasons for outsourcing
  - 3.2 Decision priorities: In-house vs. out-source
  - 3.3 Vendor selection approach
- 4.0 Incubation activity - prospective clients: Dyadic view
  - 4.1 IM-Prospective client A
  - 4.2 IM-Prospective client x
- 5.0 Incubation activity - existing clients: Dyadic view
  - 5.1 IM-Client 1
  - 5.2 IM-Client n\*
- 6.0 Critical incidents of incubation activity: Dyad and Triad View
  - 6.1 Incident 1
  - 6.2 Incident x
- 7.0 Client views and experiences with other clients
  - 7.1 General views on being around clients
  - 7.2 Process of getting to know other clients
  - 7.3 Conflict
  - 7.4 Relationship: Respondent-Client 1
  - 7.5 Relationship: Respondent-Client n\*
- 8.0 Client perceptions on incubation
  - 8.1 How did they learn about incubation
  - 8.2 What does incubation mean to them
  - 8.3 Motivation to pursue incubation
  - 8.4 Process of taking up space
  - 8.5 View on the incubator's staff ability to *incubate*
  - 8.6 Relationship with incubator manager
  - 8.7 Ground rules
  - 8.8 Value of developmental assistance: general courses and trainings
  - 8.9 Value of developmental assistance: specific assistance
  - 8.10 Value of infrastructural supports
  - 8.11 General views on developmental assistance
  - 8.12 Reasons for not engaging with IM
- 9.0 IM's Dealings with ex-clients
  - 9.1 Graduation dynamics
- 10.0 Selection process
  - 10.1 IM view
  - 10.2 Client view
- 11.0 Incubator History
- 12.0 IM Strategic plans
  - 12.1 Promotional strategy
  - 12.2 Incubation services
  - 12.3 Specific strategy for Client 1
  - 12.4 Specific strategy to deal with Client x

\* n = 39

The major codes gave a good overview of the general direction of interviews, whilst lower-order codes allowed for very fine distinctions to be made within the case (Creswell, 2009). It also became evident that some codes were descriptive requiring little or no analysis of what was meant. For instance, in the transcript of an interview with an entrepreneur, a third-tier code was defined to identify the points in the text where the 'incubator manager' or 'other clients' are mentioned (such as under 5.1 and 7.1 above). Other codes were more interpretive and therefore harder to define, for instance, an entrepreneur's feelings about the mismatch between expected and actual incubation scope (such as 8.0 above). Further, Miles & Huberman (1994) point out that transcriptions often erase context along with some crucial non-verbal data. To ensure that data on proxemics, chronemic (pace of speech, length of silence), kinesic (gestures, body movements) and paralinguistic (voice pitch, volume) was captured, transcripts were adequately labelled to highlight silences, tonality and so on. Important audio recordings were re-listened to in order to clarify distinctions between 'what was said' and 'what was meant'.

The final phase of the analysis was interpretation of the coded data. Jones (1985) suggests that qualitative data analysis involves processes of creativity and interpretation that are difficult to make explicit. This is because the inductive interpretation of qualitative data is a process of abstracting from the immense detail and complexity of coded raw data those features which are most salient for the research purpose, building understanding from thick descriptions, discovering patterns, making inferences, prescribing meanings, revealing causality and dealing with contradicting results (Dey, 1993). This required careful and rigorous intellectual work and was probably the most challenging aspect of the research. The interpretive work involved making a clear distinction between what the data said (*descriptive data*) and what the data meant (*researcher interpretation*). Therefore, prior to interpretive analysis the data was clearly formatted in a descriptive way, making reference to field journal and diary notes. This presentation of data helped the researcher "ground" the interpretive analysis in the actual data collected. Linked to the research objective and questions, this interpretive *sense-making* exercise led to the development of the 16 thematic areas presented in the following chapters. These thematic areas (presented below) were organised into categories that, as per the

research objective, present an analysis of the incubation process and incubators' normative environment and structural properties:

A) Relationships: Major dependent Variable

The Nature of IM-Client Relations

Inside the IM-Client Dyad: Understanding Co-Production's Value

Client-Client Interaction

Impact of Client-Mix on Client-Client Interaction

The Impact of Physical Layout on Client-Client Interaction

Client-IM-Client Interaction

Client-Third Party Interaction

B) Normative Environment

The Incubation Ethos

Base Bonds of the Dyadic Relationship & the "Incubation-Click"

The Triggers of Incubation: Stealth, Subtle Indicators & Heuristics

C) Structure of the Incubation Process

The Three Strategies of Incubation Co-Production

Other Elements Impacting Dyadic Strategy

Incubation Stages Experienced by Client Firms

Pre-Incubation, Pre-Selection & Selection

The Nature and Range of Co-Production Developmental Assistance

D) Structural Properties of Incubators

The Nature of IM Work & the "De-Coupling" of Incubator Structure

De-Constructing the IM's Role: Leadership & Organisational Culture

Uncertainty in the Incubation Environment

A key component of the interpretive approach was "replication" for comparison between the two cases. Here the primary focus was on the overall pattern of results and the extent to which the observed patterns (from the first case) matched a predicted one (in the second case). The approach was to examine the first case for a pattern and, if found, look to see if it is found in the second case. If the pattern was

not found, the original set theme was re-examined. If identical results were predictably obtained over both the cases, then a literal replication was achieved. If different results are obtained in the two cases, but for predictable reasons, then theoretical replication was achieved.

Finally, since case study data analysis is, by nature, argumentative, it was therefore critical that the developing arguments were clearly spelt out, and competing hypotheses and evidence be considered which could disprove the primary lines of argument. In comparing the empirical data to more than one theory a more potent analysis could be performed. For example, a rival theory about the dualistic or subjective nature of incubation would be that it is rational and objective. In case studies, however, the best rival theory is not one that simply discounts the target theory. Therefore, rival theories were developed which acknowledged that IM and clients can work together effectively despite major or minor differences in expectations and delivery; that not all client firms value incubation assistance even if its high quality; that although Client-Client interfacing is useful as a socialisation exercise its use as an incubation mechanism is highly limited. Rather than discounting the target theory entirely, the use of rival theories helped in probing much deeper, helping unearth root causes and the impact of norms and contextual variables.

## **5.7 Display of Research Data**

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The main focus in qualitative research is the data itself, in all its richness, breadth, and depth. When all is said and done, the *quality* in a qualitative research project should be based upon how well the researcher has performed at collecting and presenting quality data. Therefore, it is important that every effort is made to feature collected data in the analysis.

The data collected for this research was in the form of text. There were two categories of text data: (a) statements made by the research respondents which were recorded and transcribed; and (b) observations of various events, meetings and other significant episodes made by the researcher and subsequent descriptions of these recorded in a case diary. A number of techniques have been used to display the

textual data in the analysis chapters, including using (a) direct quotes from the respondents displayed in an indented, italic and within quotes (“”) paragraph; (b) case / critical incident histories and backgrounds which were recorded (sometimes from more than one source and then collated) and displayed in a grey shaded and bordered / outlined box; and (c) to present the output of two or more conversations with a single individual, a single easy-to-follow narrative is produced which is also displayed in a grey shaded and bordered / outlined box. At Appendix – E a table is presented which highlights the frequency with which data from particular client respondents are quoted in the research.

Out of several logics defined by Conostas (1992) the *Narrative Logic* was used in presenting data i.e. data are arranged with an eye for storytelling. The Narrative Logic requires researchers to plot out the data in a fashion which allows transition from one exemplar to another, like narrators arranging details in order to best relate the particulars of a story (Conostas, 1992). An effort has been made to enrich the analysis with as much textual data as possible to give a voice to the “other” – the participants of the research, to allow them to tell their own story in their own words.

In conclusion, this chapter has been instrumental in clarifying the research’s philosophical approach, strategy, unit of analysis and describing in detail the methods and processes of data collection, analysis and presentation while ensuring rigour through attention to the criteria of validity and reliability in qualitative research. The next chapter presents non-analytical background details of the two case organisations studied. These are included in order to provide an overall context for the following four analytical chapters that address the research objective and questions.

**Case Descriptions***Background | Structure | Services | Clients | Incubation Policy***Outline**

Ellet (2007) recommends that case study data analysis should commence after sufficient background and contextual details on the case(s) are presented. Therefore, the purpose in this chapter is to acquaint readers with the case organisations' history, structure, client mix and incubation approaches. The case descriptions have been collated using primary interview data as well as secondary sources including websites and annual reports. To ensure anonymity, exact dates, names and genders have not been disclosed. These details are presented with a minimum level of interpretation and should aid in the visualising of incubation activity at the case organisations. The main aim is to give readers sufficient contextual and background information on the two case organisations. This in turn will help in relating to the researcher's interpretation of case data presented in the following four chapters.

## 6.1 DubInc

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### 6.1.1 Historical Perspective

*DubInc* was established in the mid-1980s as a result of a decision at a large public meeting organised by a local community in Dublin. The community met to decide on options to remedy the significant problem of unemployment in the area. The answer at the time was proposed by a visiting foreign consultant and backed by a number of public-spirited local businessmen. The idea came from the US, where local volunteers offered their expertise to unemployed people, helping them become entrepreneurs. The suggested vehicle was an 'Enterprise Centre' which would be set up to supply offices, work space and communal secretarial services. It was agreed that the initiative's key objective would be 'job creation' and 'community revitalisation'. To assess the viability of the idea, a steering committee and a number of sub-committees of local business people was established to look at local business opportunities, investigate sources of funding, to carry out a survey of the unemployed and so on.

As a result of this background work, the local community agreed that an Enterprise Centre must be set up to:

1. Help young people, unemployed persons and others to establish their own businesses
2. Assist small businesses already in existence to expand and provide further employment

To initiate the project, a Board of Directors was set up comprising prominent business people who lived locally<sup>30</sup>. A strategically located premises in the locality was identified. This building had been lying vacant for a number of years under the ownership of a Bank (which had taken over the property due to a loan default). A significant loan was negotiated with the Bank on the personal guarantees of the Board members. The premises needed considerable refurbishment to make optimum

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<sup>30</sup> These original members remain on the Board of *DubInc* until this day.



use of space. Since there were no local precedents available<sup>31</sup>, the decision on internal design was based on what the Board assumed would be the needs of their business clientele. Based on the advice available at the time, the Board decided to convert the premises into small units of 100 sq. feet each, with two larger units of 500 sq. feet each. Initially the dividing walls between the units were just 6 feet high, to facilitate internal communication and bonding, however, in later years due to privacy and noise-related concerns the design was changed from an open plan space to self-contained units. A coffee shop, reception area and a display area were also part of the design. A refurbishment was carried out in mid-1990s through the help of the Irish government which added a conference room, improved the reception area and resolved a number of other internal architectural problems.

Funding for the Centre came from a combination of initiatives. Since there was no government-based mechanism, funds were raised through the issuance of ordinary shares. This allowed local residents to become real shareholders in the initiative. In addition, the project was financially backed by local business people. Fund raising events such as a marathon, barbeque, and door-to-door collections also contributed. Although, a number of government schemes have been tapped into over the years for working capital (such as staff salaries), these have been intermittent.

The Centre started its operations under the guidance of a Manager (who held the position until 2008). It was established as a company limited by guarantee, however, in the late 80's in order to avail of a government funding scheme, the Centre changed its legal status to a charitable trust (provident society). This remains its legal status to-date.

It took exactly one year after the idea was proposed to open the doors for business. The first five projects included manufacture of soft furnishings, sign-writing, kitchen cabinets, home and commercial care and servicing and repair of motor vehicle clutch and transmission systems. The initial service portfolio available to both clients housed in the facility, and individuals and businesses located in the local area included:

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<sup>31</sup> It is claimed that *DublInc* was the first community run Enterprise Centre in Ireland and helped in diffusing the concept across the country.

1. A pool of local volunteers with expertise in business-related disciplines providing professional advice. This was also available via a drop-in service where advice was available on unemployment, business projects and available government assistance for new ventures.
2. Secretarial and telephone answering services.
3. As a space for students to gain work experience.
4. Offering incubation workspace which could be rented at very nominal rates.
5. A register of unemployed people in the area which could be used as hiring directory.
6. A business address and telephone answering service.
7. Photocopying.
8. An evening start-your-own business course (attendance at which became a necessary condition for tenancy).

Monthly Board meetings helped set direction and focus on finance, premises, staffing, client profile, new project development, customer service issues, occupancy rates and associated issues (for instance, clients staying too long) and so on. By the end of 1980, the Centre housed 24 new small businesses who employed approximately 80 people. In addition, the Centre had placed a further 90 people in employment in the local area. By 2009, approximately 250 businesses had been through the Centre with a 70% success rate and 700+ jobs created.

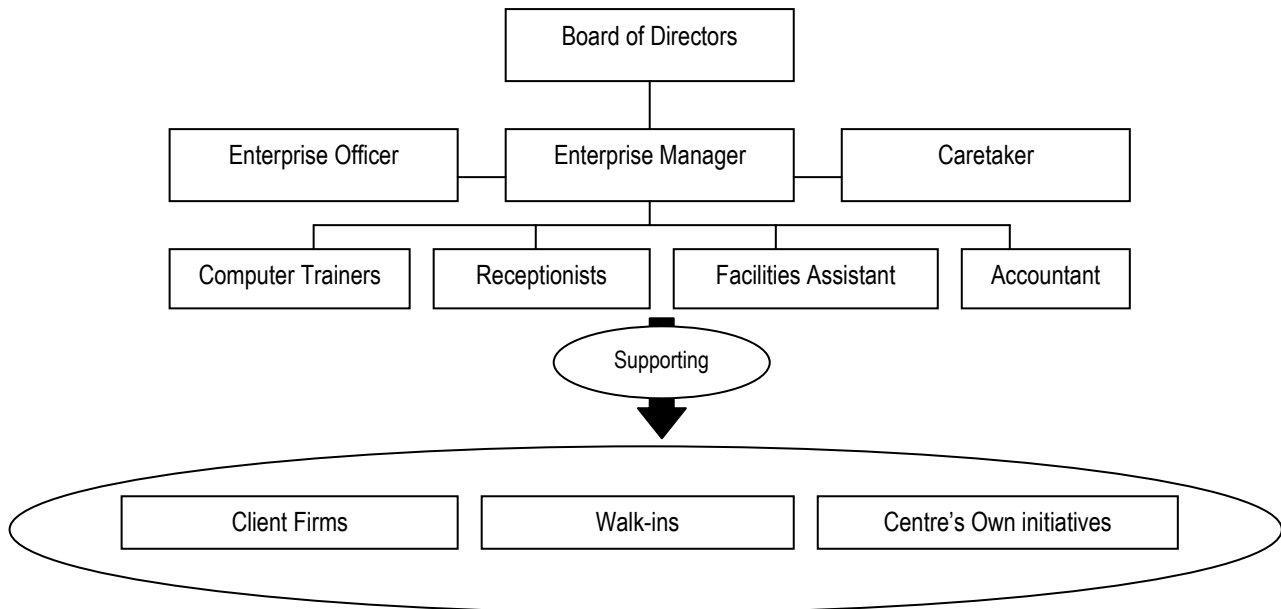
From this initial base, the Centre has evolved significantly in terms of its client-base, range of services and consolidation of ownership and management. The Centre's present organisation structure, service portfolio, client base and management policies are discussed in the following sections.

### **6.1.2 Organisational Structure & Division of Labor**

The Centre has eight staff members who provide advisory and administrative support to client businesses. In addition, they also perform duties relating to the running of *DublInc*. Although hierarchical relationships do exist, the general environment was more 'family-like' or communal. The Board of Directors was the apex governing body mandated to provide managerial oversight and to set new policies. The Enterprise

Manager<sup>32</sup> holds a seat on the Board. Figure 13 below roughly describes the organisational structure:

Figure 13 – *Dublnc Organisational Structure*



The Centre's staff had varied roles and job descriptions. This flexibility was required to ensure that the organisation remains competitive, economically efficient and lean, responds quickly to changing environmental conditions and was able to provide services as per the needs of its clients and the wider community. For instance, the Manager, as the overall in-charge of the facility, wears a number of 'hats': a main point of contact for incubation-related activity including client screening, monitoring, assistance and graduation; lead facilitator for the *First Friday* business orientation session; the individual responsible for preparing and filing funding proposals; overseer of a number of revenue generating community out-reach programmes and administrative supervisor (which would include addressing any staffing concerns, facilities management, planning for expansion, audit coordination and organising and participating in Board meetings). The Manager's most pressing concern was financial sustainability and ability to meet short, medium and long term financial targets. In this respect, although the organisation was legally a charitable trust, in true essence it was governed and managed like a for-profit corporation. Alongside tenancy-related revenue from incubation clients, the Manager had to develop other reliable streams to

<sup>32</sup> Referred to as the *Dublnc* Incubator Manager (IM) in the forthcoming chapters.

ensure there were financial resources available for budgeted fixed and working capital expenditure.

During the course of the research several members of *Dublnc* staff were interviewed, a few on multiple occasions. These included the Enterprise Manager, the previous Enterprise Manager, a member of the Board of Directors, the Enterprise Officer, the Facilities Assistant and Receptionist Support Staff.

### 6.1.3 Service Portfolio & Revenue

The services offered by *Dublnc* can be categorised in a number of ways: according to their various types of clients; the type of service itself (such as infrastructural or advice-based or a combination); whether they were free or charged; whether they were exclusive to a particular category or available across the board and so on. Table 10 presents a general snap-shot:

Table 10 – *Dublnc* Service Portfolio

<b>Services applicable</b>	<b>Clients Types</b>	<b>Incubation</b>	<b>Outreach Programme-Based</b>	<b>Walk-in</b>
<b>Developmental</b>				
28 fully serviced* incubation units (3 food units)		✓	-	-
One-to-One Business Advice & Guidance		✓ free	-	✓ free
Assistance with business planning		✓ free	-	✓ free
Assistance with funding applications		✓ free	-	✓ free
Business network meetings		✓ free	-	✓ free
<b>Training</b>				
Computer training courses		-	✓	✓
Start-your-own business course		✓	✓	✓
Monthly business orientation sessions		-	-	✓ free
<b>Infrastructural</b>				
Wireless broadband		✓	-	✓
Fax facilities		✓	-	✓
Courier and mail handling		✓ free	-	✓
Secretarial service		✓ free	-	✓
Training / conferencing facilities		✓ free	-	✓
Computer training facility		✓	-	✓
Parking		✓	-	-

\* This includes fire insurance, reception service, security, caretaking, waste disposal

The two significant revenue streams for the Centre were rentals paid by incubation clients and the array of training courses offered. The training courses were offered to designated members of the local community with support from a government agency.

A part of the course's cost was subsidised by the government agency. Similarly, subsidy was also made available through another government agency for the start-your-own business course. Revenue was also generated via ad-hoc schemes which the government announces from time-to-time, for instance, the Centre recently made a successful application to the Enterprise Ireland Innovation Vouchers scheme. However, these did not form a part of the Centre's usual income.

As of 2010, the Manager was in the process of submitting an infrastructure grant request for the expansion of the Centre to accommodate an adjacent building and to redesign internal facilities more efficiently (note: the building was not purpose built for incubation, its original purpose was entirely different, which presents, to this day, many challenges when it comes to efficient utilisation of space and a set up friendly to incubation activity).

#### **6.1.4 Client Base**

A diverse mix of clients was based at *DublInc* with a range of backgrounds, industry exposure, experience and business models. Clients at *DublInc* can be categorised in a number of ways: based on their industrial affiliation; nature of business (for-profit vs. non-governmental organisation; consulting vs. food processing); their stage in the incubation process; by the size of the firm (in terms of financial growth and company valuation); by the number of employees; business model (B2B vs. B2C), legal / corporate structure and so on. Therefore, there is no one best way to categorise, it would depend on the purpose of the categorisation. In Table 11 below all those clients who participated in the research are categorised along a number of dimensions:

Table 11 – Dublin Client Mix

<b>Client</b>	<b>Categories</b>	<b>Industry</b>	<b>Nature</b>	<b>Team Size</b>	<b>Incubation Stage</b>
Client 1		Energy / Power	Design	>5	Year 3
Client 2		Energy / Power	Equipment Manufacture	>5	Year 3
Client 3		Energy / Petroleum	Project Management	4	Year 4
Client 4		General	Social Entrepreneur	3	Year 3
Client 5		General	Medical Diagnostics	2	Year 1
Client 6		General	Bespoke Stitching	4	Year 1
Client 7		General	Health / Therapy	1	Year 4
Client 8		General	Consulting & Training	4	Year 4
Client 9		Food	Web Portal	1	Year 3
Client 10		Food	Processing & Sales	1	Year 2
Client 11		Food	Processing & Sales	1	Year 1
Client 12		Food	Processing & Sales	1	Year 1
Client 13		Construction	Recruitment	1	Year 2
Client 14		Insurance / Energy	Consulting	2	Year 2
Client 15		Software	Sales	1	Year 3
Client 16		Hi-Tech / Knowledge	Consulting	3	Year 1
Client 17		Publishing	Design / Printing	2	Year 4
Client 18		Property	Management	2	Year 3
Client 19		Optical	Web sales	2	Year 1
Client 20		Optical	Testing / Sales	4	Year 4

Background data on clients was collected but to ensure anonymity at their request, details such as date of inception, precise nature of the business, annual revenue, growth figures during incubation and so on are not being disclosed. Background data on clients has been scrutinised to look at emerging patterns which have been matched with the second case.

The participating clients, as it is evident from the table above, represent an array of industries, business models and stage in incubation which led to a very rich dataset. Furthermore, two clients graduated during the duration of the research whilst three clients were inducted via different pre-incubation and selection routes. One client after an intense period of pre-incubation chose to not proceed.

Finally, most clients were operating as sole proprietors or partnerships. Only a handful of clients were incorporated as private limited companies.

### **6.1.5 Incubation Policy & Practice: Formal Mechanisms**

Prospective clients were attracted through a number of mechanisms. These included advertising on letting websites and other advertising media, signage, word-of-mouth and via the orientation sessions and courses. *DublInc* employs a number of systems to screen, induct, facilitate and graduate clients. The selection procedure commences after a prospective client makes initial enquiries and inspects the premises. The first step in the process was the completion of an Application Form, which was essentially a summary business plan. Table 12 below highlights the various pieces of information that *DublInc* requests of prospective new clients:

*Table 12 – DublInc Incubation Unit Application Form*

1	Details of the Promoter.
2	Details of the Business (such as name and legal structure).
3	Space required.
4	A brief description of the nature of the business.
5	Has trading commenced? If so when?
6	Number of employees.
7	Relevant qualifications / training.
8	Experience relevant to the project.
9	Who are your customers?
10	Where are they based?
11	How will you sell your product / service?
12	Who are your main competitors?
13	Why will a customer choose to buy your product or service?
14	Location – Explain why the work unit is essential for your business now.
15	Who will be responsible for business administration i.e. book keeping, sales, PR etc.?
16	Estimate employment potential for the next 2 years
17	Estimate Year 1 and 2 income and expenditure.
18	List your start-up expenses.
19	How will these costs be financed?

After the submission of this information, it was reviewed by the Enterprise Manager and shared with a member of the Board (the assessors). Next, an interview was scheduled between the applicant and the assessors. This was a fairly comprehensive interview, the purpose of which is to establish:

1. Whether the prospective client's business idea is viable in the ongoing market scenario and whether it had growth potential.
2. Whether the prospective client is suitably qualified, experienced, motivated and has an agreeable demeanor.
3. Whether the prospective client has the ability to pay rentals on time.
4. Whether the prospective client is likely to remain in the Centre for an extended duration.
5. Whether the prospective client will remain committed to the community-oriented *Dublnc* ethos.

The prospective client was made aware of any concerns or further data needs during the interview and was asked to address these in due course. The prospective client was also given a formal brief on the background and ethos of the Centre. No information on developmental assistance related services were routinely mentioned at the interview stage. Information on these was available on the Centre's website and promotional material.

The next stage was the communication of the assessors' decision after which a 'Licence Agreement' was signed which formalises the relationship. This agreement, in the case of *Dublnc*, was more or less like a standard commercial tenancy agreement. The salient features of this contract were:

1. An agreement on the licence fee or monthly rental
2. The specification of the deposit
3. The term of the licence (which was a maximum of 4 years 9 months)
4. The licensee's obligations relating to house keeping
5. The Centre's housekeeping obligations
6. The procedure for termination (notice period of 1 month)

None of the incubation related developmental assistance and the other free or separately paid for services were mentioned in the Agreement. Once the contractual formalities were complete, the client was handed over keys to the premises and assistance was provided in settling down. The office spaces come equipped with basic furnishings, network / internet and telephone connections. Kitchen units were



fully fitted to comply with commercial standards and as such were ready to be used immediately.

No formal mechanisms were in place for client monitoring during the term of the licence. Similarly, for incubation-related developmental assistance, formal procedures to initiate contact and to log progress and activity were absent. Needless-to-say, both client monitoring and developmental assistance were conducted keeping in view client requirements. These were managed on an informal basis, the principles of which are discussed in the next chapter.

By and large, only in-house resources (in terms of sector knowledge and technical expertise) were utilised for incubation-related developmental assistance. As the research period was coming to end, the Centre began a process for implementing an 'incubator management' software which was to act as a mechanism for introducing more structure to incubation activity at *DublInc*.

Graduation ought to be defined as the instance when a client successfully (i.e. meeting most or all pre-set and agreed targets) completes the incubation period (Schwartz, 2008). At *DublInc*, however, any client who left the Centre due to any foreseen or unforeseen reason and irrespective of the completion of the term of the licence was counted as a graduate. Graduation involved either party serving the other with a notice for the termination of the License a month in advance. Assistance was provided to help the client move which included advising on other available space in the area and evaluating and advising on post-incubation business strategy.

## 6.2 IncuWorks

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### 6.2.1 Historical Perspective

*IncuWorks* is based at a prominent Dublin university. Prior to its establishment in the early part of this decade, its functions were carried out by a Campus Innovation department. This Department was set up in the late 1980s to tie the University's scientific and other technological research to the commercial world's requirements. Due to the University's changing priorities and increased focus on innovation, technology transfer and commercialisation of scientific research, extensive plans were drawn up for a new entity which would spearhead initiatives towards the accomplishment of these priorities.

This new entity was to be a public-private partnership with the University providing a part of the capital whilst the remaining was to come from private investors. Investors were chosen to bring an appropriate mix of expertise and experience to support the initiative. Funding was raised in a number of phases and came from prominent institutions in the banking, financial services and technology sectors. The remaining funds were contributed by Enterprise Ireland and the University. Under the shareholders agreement the incentive offered to investors was the opportunity to hold a small shareholding (% commensurate with the amount of the investor's contribution in proportion to the total investment) in all companies that were, in the future, going to be set up at *IncuWorks*.

The old Campus Innovation department (which also used to run a small incubation facility) was re-branded as *IncuWorks* and was officially inaugurated two years later (in the early 2000s). The entity, although a part of the University, is quite autonomous with its own Board of Directors that determined the organisation's strategic focus. Its corporate status remains as a department of the University. The Board consists of representatives from all the original private investors, Enterprise Ireland and the University. The Board had been mandated to function under the broad strategic outlook of the University's innovation strategy. This strategy had three main objectives:

1. To maximise the impact of the University's knowledge and expertise.
2. To foster a culture of innovation and entrepreneurship at the University.
3. To build the critical social and corporate partnerships for a knowledge economy.

*IncuWorks'* primary function was to further these strategic objectives. This was spelled out in its own vision statement: "to become an international leader in the commercialisation of research and other knowledge-intensive activity for the benefit of the economy and society". Its scope of activities were grouped into four major areas:

1. Promoting a Culture of Innovation and Entrepreneurship at the University to increase the focus of its scientists and researchers towards commercialisation.
2. Managing Technology Transfer by identifying and capturing the intellectual property arising from the University's research programmes. *IncuWorks* was also responsible for implementing the University's policies on intellectual property.
3. Supporting Start-ups from the early feasibility stage through to business development, growth and investment.
4. Building Partnerships and bridging the gap between academic research and industry. Building national and international relations with industry and with the knowledge transfer network was also an important element of *IncuWorks'* commercialisation strategy.

A very experienced member from *IncuWorks'* predecessor department was appointed as a Director, assisted by other qualified supporting staff. The staff members were on the University's payroll; however, their performance was assessed under the targets set by the Board. The staff at *IncuWorks* was suitably qualified with adequate levels of commercial experience to engage successfully with both the University's research community and the commercial world.

The physical facility was located within the University confines in an up-market area of Dublin city with close proximity to the city centre, bookshops, banks, restaurants, sports and other facilities. In addition, the general area was serviced by residential

and industrial estates. The facility was located in a completely re-designed and restored mansion. This mansion was the center piece of the *IncuWorks* complex with a number of other attached buildings. The complex was bright, airy and open with high-quality shared and circulation spaces. The layout had been designed to encourage formal and informal interaction amongst the client firms.

Since its inception, *IncuWorks* had been recognised both locally and internationally through a number of awards as a high quality and effective organisation. It is claimed that *IncuWorks'* clients have created well over a 1000 high-quality jobs and the total investment and realisation in University spin-out companies, over the past decade, was more than €200 million. Other accomplishments include facilitating the acquisition of one its incubation clients for a multi-million euro value, a large amount of revenue generated for the University from the commercialisation of research, supported 50 start-ups, incorporated over a dozen University spin-outs, 100s of invention disclosures and a large number of priority patent applications and licence agreements. On a yearly basis, *IncuWorks* organises 100s of networking and other informational / commercial events and hosts its own innovation awards.

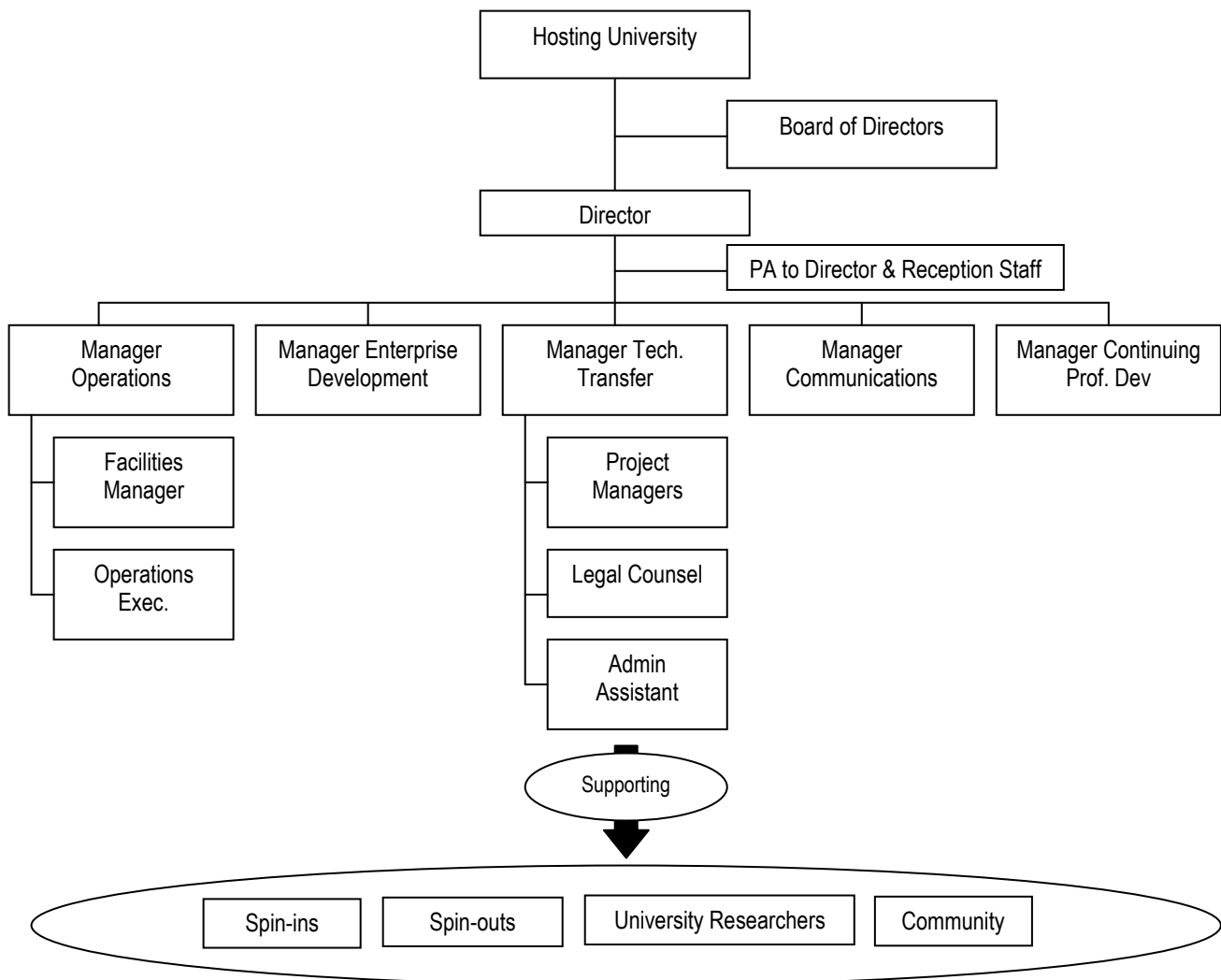
In addition, it had taken over the running of the University's Campus Company Development Programme (CCDP) and runs a variety of training courses in association with its commercial partners for the benefit of client firms, the University's researchers and other outside partners.

Initially, *IncuWorks'* name, logo and other promotional material did not carry the University's name. It was thought that by branding the entity as completely autonomous a signal would be conveyed emphasising its true commercial focus. However, very soon the Board found out that building a separate brand for the type of work and at the scale being envisioned would take much longer and would consume a lot of resources. Instead, the Board agreed that leveraging the University's established reputation and image was the best way forward, thus, *IncuWorks* own logo was abandoned and its name was appended with the University's.

## 6.2.2 Organisational Structure & Division of Labor

The initial staff complement of only a few members shortly increased to 15 professionals responsible for overall leadership, operations, enterprise development, technology transfer and intellectual property protection, communication and PR, continuing professional development, facilities management and administration. Due to the technical demands of *IncuWorks*' four areas of activity, staff members work in a compartmentalised, yet well coordinated hierarchy. Line and reporting relationships were very well defined and salaries and other benefits follow the University's standard scales and HR policies. Figure 14 roughly describes the organisational structure:

Figure 14 – *IncuWorks* Organisational Structure



Administrative functions such as financial management and human resources were carried out through the University's own departments. Facilities maintenance such as janitorial services, heating, landscaping, lighting and ventilation were also provided via the University's contractors and billed to the University. This led to a significant reduction in non-essential administrative load. Furthermore, the organisation was very well funded and did not have large recurring overheads such as bank loans, rental, salaries and facilities maintenance costs. This resulted in the staff having very well defined roles and responsibility areas. They were able to perform their specific functions without the expectation of being pulled into other areas of work.

Supporting the Enterprise Development function was a powerful outside network of individual experts and specialist firms. *IncuWorks* had organised this network through the assistance of its private sector investment partners to offer legal, financial, corporate, marketing and other advisory services free of charge or at subsidised rates to incubation clients.

### **6.2.3 Service Portfolio & Revenue**

*IncuWorks* offers a vast array of services in its four strategic areas of operation (departments). An exhaustive listing of services will not be instructive since they were flexible and tailored to suit the needs of a particular client. A number of services overlap across departments and may not be directly relevant to incubation; however, *IncuWorks'* four strategic areas were inter-related and mutually impacting which necessitates a certain degree of elaboration. Table 13 presents a general snap-shot:

Table 13 – IncuWorks Service Portfolio

Strategic Area	Service	Description
<b>Enterprise Development</b> <b>&amp;</b> <b>Promotion of an Entrepreneurial Culture</b>	Occupancy Options	<ol style="list-style-type: none"> <li>1. 14 desk spaces</li> <li>2. 42 incubation units ranging from 50 sq. feet to 210 sq. feet</li> <li>3. 6 fully equipped bio-incubation or 'wet-lab' laboratories (1115 sq. feet)</li> </ol>
	Infrastructural Supports	<ol style="list-style-type: none"> <li>4. 24/7 access, ample car parking and security</li> <li>5. Dedicated server room</li> <li>6. Free Microsoft software for start-ups</li> <li>7. Permanent large boardroom</li> <li>8. Numerous seminar and meeting rooms of various sizes</li> <li>9. Reception services</li> <li>10. Wireless network</li> <li>11. Café with external deck</li> </ol>
	Developmental Assistance 1 – Enterprise Development Advice	<ul style="list-style-type: none"> <li>- Feasibility study</li> <li>- Business plan development</li> <li>- Company formation</li> <li>- Access to sources of finance and investment</li> <li>- Business growth advice</li> <li>- Introductions to potential investors (individual introductions to VCs and business angels)</li> <li>- Introductions to business advisors (legal, financial, tax, marketing, etc)</li> <li>- Collaboration with MBA programme projects</li> </ul>
	Developmental Assistance 2 – Monthly 1-to-1 Advice Clinics (some facilitated by IncuWorks' investment partners)	<ul style="list-style-type: none"> <li>- Legal</li> <li>- Finance and Tax</li> <li>- Marketing</li> <li>- Sales</li> <li>- Intellectual Property</li> </ul>
	Developmental Assistance 3 – Regular Workshops & Training Sessions	Through a dedicated Manager responsible for continuing professional development. Organised were various business planning and development workshops for knowledge intensive start-ups
	Developmental Assistance 4 – Facilitated linkages to research at the University	Via twinning, matching, introductions and other facilitation mechanisms
	Developmental Assistance 5 – Networking Opportunities	Through the participation in networking events, local and international competitions, workshops and other events.
	Developmental Assistance 6 – Media Exposure	Through a dedicated Communications and PR manager who helps promote client businesses and achievements in local and international press and other media.
	Developmental Assistance 7 – Campus Company Development Programme	This was a nine-month, part-time enterprise support initiative designed for researchers and academics. It comprises a mix of practical training and consultancy support including 12 half-day workshops, one-to-one advice and consultancy meetings, and a series of networking events. The aim was to assist prospective entrepreneurs in the establishment and development of knowledge-intensive enterprises to commercialise

		the output of their research and innovative ideas. The Programme helps participants in defining and developing their innovative ideas and preparing a detailed business plan
	Developmental Assistance 8 – Innovation Awards	These were established to highlight the University's commitment to innovation. The Award was presented annually to an individual, company or organisation in recognition of excellence in, contribution or commitment to innovation or in recognition of success achieved in the commercialisation of the University's research or other intellectual activity.
<b>Technology Transfer</b>  <b>&amp;</b>  <b>Building Partnerships</b>	Services for University Researchers	<ul style="list-style-type: none"> <li>- Support for researchers with regard to IP considerations for funded research projects</li> <li>- Preparing research contracts, non-disclosure and material transfer agreements</li> <li>- Assisting researchers in identifying intellectual property and completion of invention disclosure forms</li> <li>- Performing due diligence on completed invention disclosure forms</li> <li>- Searching patent databases in association with researchers</li> <li>- Developing strategies for protection of intellectual property</li> <li>- Preparing patent filings in association with patent agents</li> <li>- Developing and implementing commercialisation strategies to exploit University IP</li> <li>- Sourcing of licensees and marketing of inventions</li> <li>- Drafting and negotiating of licence agreements</li> <li>- Meeting contractual obligations including the timely reporting of newly discovered intellectual property to the relevant state agencies.</li> </ul>
	Services for Industry	<ul style="list-style-type: none"> <li>- Development of co-operation with the industry and business community.</li> <li>- Point of contact for companies seeking information and advice on licensing and other commercial opportunities and partners for collaborative research.</li> </ul>

*IncuWorks'* revenue came from only one major source: client rentals. Rental pricing was competitive and based at par or slightly below existing commercial letting rates in its vicinity. Another policy was the retention of minor shareholding in all client firms, irrespective of whether they were spin-ins or spin-outs. The exact % shareholding and the share category was not standardised (or disclosed), it depended on negotiations. According to information provided to the researcher by both the *IncuWorks'* management and client firms, dividend income was negligible.



## 6.2.4 Client Base

*IncuWorks* attracts clients in the hi-tech sector and its support programmes were designed for their unique requirements. During the research period, 26 ventures occupying 37 units were housed at *IncuWorks*. Since its inauguration, 16 companies have graduated. Clients fall into a number of categories based on their occupancy option and their route to incubation; whether they were spin-outs, spin-ins or come from the CCDP.

There were several occupancy options: desk space client; incubation client (including bio-tech / wet-lab); associate client (virtual clients) and CCDP clients. The strict definition (according to *IncuWorks*) of spin-out was any firm that had been set up in collaboration with a department of the University and was actively involved with the University's research. Whereas, all other clients were considered spin-ins, irrespective of whether they were set up by ex-students or ex-staff. Definitions, however, remain flexible, actual relationships were much more nuanced. The CCDP, for instance, was open to both members of the University and to interested and competent individuals from the outside. In Table 14 below all those clients who participated in the research are categorised along a number of dimensions:

Table 14 – *IncuWorks* Client Mix

Categories Client*	Industry	Nature	Status / Route	Occupancy Type	Stage
Client 21	ICT	Consulting, design, testing	Spin-in	Incubation	Year 2
Client 22	ICT	Product design	CCDP	Desk Space	Year 1
Client 23	ICT	R&D	Spin-out	Associate	Extended
Client 24	ICT	Internet technologies	Spin-in	Incubation	Year 3
Client 25	ICT	Internet technologies	CCDP	Incubation	Year 1
Client 26	ICT	Internet technologies	Spin-in	Associate	Year 3
Client 27	ICT	Misc.	Spin-in	Desk Space	Year 1
Client 28	ICT	Software Development	Spin-in	Desk Space	Year 1
Client 29	ICT	Internet technologies	CCDP	Associate	Year 1
Client 30	ICT	Internet technologies	Spin-in	Incubation	Year 2
Client 31	Telecom	IP Commercialisation	Spin-in	Incubation	Year 1
Client 32	General / Hi-tech	Consulting	Spin-in	Desk Space	Year 1
Client 33	General / Hi-tech	Consulting	Spin-in	Incubation	Year 1
Client 34	Bio-Tech	Fuel	Spin-in	Incubation	Year 2
Client 35	Bio-Tech	Engineering R&D	Spin-out	Incubation	Year 3
Client 36	Bio-Tech	Clinical trials, drug testing	Spin-out	Incubation	Year 3
Client 37	Bio-Tech	Drug Testing / Development	CCDP	Associate	Year 1
Client 38	Bio-Tech	R&D	Spin-out	Incubation	Year 2
Client 39	Bio-Tech	Clinical R&D	Spin-in	-	Graduated

\* Client nos. continue from Table 11 to give each client respondent a unique identifier

Due to privacy concerns, permission was not given for meeting clients in their own incubation spaces. Furthermore, due to the proprietary or sensitive nature of their work, it was agreed that no questions relating to firm size and team composition, annual revenue, growth projections and precise nature of technology (including that which was under development) would be asked.

The participants represented a fair representation of the *IncuWorks* client base with different incubation stages, routes to incubation and occupancy arrangements. Two clients (spin-outs) were in the pre-incubation stage participated whilst one graduated spin-in client (out of several who were contacted) agreed to participate.

### **6.2.5 Incubation Policy & Practice: Formal Mechanisms**

*IncuWorks* had a number of channels to attract prospective clients. The spin-in vs. spin-out ratio was nearly 50:50. Spin-ins were primarily attracted via word-of-mouth and referrals from in-house or graduated clients. Some advertising on letting websites and other advertising media was also done. A steady stream was also ensured via activities on University campus such as awareness events, workshops and other meet-and-greet functions. The CCDP with its approximately 15 participants per year also contributes, with a few converting to desk space or incubation clients.

*IncuWorks* had a formalised client screening, inducting, incubating and graduating procedure. For spin-ins, just like in the case of *DubInc*, the selection procedure commences after a prospective client makes initial enquiries and finds the premises suitable. Spin-outs were University researchers and academics. They were usually quite aware of the facility and its role through their personal networks or the CCDP. Irrespective of whether a prospective client was spin-out or spin-out, formal procedures for induction remain the same.

The first step in the process was the completion of a Unit Application Form. This Form had two versions, one for desk space and the other for an incubation unit. There were subtle differences between the two. The Incubation Unit Form requests much more 'business plan' oriented details and requires a number of banking and trade references (desk space applicants only need to service one banking reference).

Another difference was the requirement for a defined legal / corporate structure for incubation unit applicants, whereas, this was not expected of desk space applicants. The two Application Forms are compared in Table 15 below:

*Table 15 – IncuWorks Desk Space & Incubation Unit Application Forms*

Desk Space	Incubation Unit
Short biography for each promoter	<ul style="list-style-type: none"> <li>- Registered Company Address</li> <li>- Registered Company Number</li> <li>- Name and registered company number for any associated companies / subsidiaries</li> <li>- Short biography for each promoter</li> <li>- Company Shareholders &amp; Amounts</li> <li>- Company Directors</li> </ul>
Date of Incorporation	Date of Incorporation
University Shareholding to date (if applicable)	University Shareholding to date
Start Date	Preferred Option (Lab / Office Unit):
Requirement (in months)	Space Requirement: <ul style="list-style-type: none"> <li>- Preferred Unit</li> <li>- Date Required</li> </ul>
Relationship with University (if applicable)	Relationship with University: <ul style="list-style-type: none"> <li>- Include potential to benefit from University expertise, resources, facilities</li> <li>- Include potential for employment for University graduates</li> </ul>
Project Description: <ul style="list-style-type: none"> <li>- Background</li> <li>- Knowledge based dimension to project</li> <li>- IP ownership</li> <li>- Business proposition</li> <li>- Investment to date and potential to attract investment</li> <li>- Any environmental implications of business operation</li> <li>- Potential market</li> <li>- Management structure / management team (short biographies of each team member)</li> </ul>	Project Description (attach business plan). Include: <ul style="list-style-type: none"> <li>- Background</li> <li>- Knowledge based dimension to project</li> <li>- Key features of science / technology</li> <li>- Product development needs (if applicable)</li> <li>- IP status / ownership. In which legal entity is the IP vested?</li> <li>- Business proposition</li> <li>- Projected major milestones for the next 12 months</li> <li>- Funding requirement / Investment to date and potential to attract investment</li> <li>- Environmental implications of business operation</li> <li>- Potential market</li> <li>- Management structure / management team (short biographies of each team member)</li> </ul>

Provide a trade / personal banking reference	References (2 required from industry sources)  Personal banking reference where company is not trading
Deposit amount	Company expectations of <i>IncuWorks</i>
Agreement to document entitled "Desk space – Services, Charges, Terms and Conditions"	

The Desk Space and Unit Application forms (described in Table 15) reveal *IncuWorks*' important priorities when it comes to screening clients, including:

1. *University shareholding.* The University retaining a certain % (usually small) was a mandatory requirement in all incubation clients. This rule may or may not apply (on the management's discretion) to desk space clients. However, when desk space clients upgrade to incubation clients, then they must agree to University shareholding.
2. *The relationship of mutual benefit a client will develop / maintain with the University.* For incubation clients, it was important to demonstrate (a) how they plan on utilising the University's knowledge and other resources for the development of their business; and (b) whether they will create opportunities for the employment, internships or training of the University's graduates.
3. *The focus on the knowledge dimension of prospective clients.* This was to develop a pool of similar companies. *IncuWorks* strategy was to strictly attract firms with a hi-tech and intellectual property dimension.

Desk space clients were usually not interviewed because of their prior affiliation with *IncuWorks* (through the CCDP for instance). For spin-in and spin-out incubation unit clients, interviewing was a requirement. This interview was scheduled after the submission of their Unit Application Forms. These were reviewed by the Enterprise Manager and the Director (the assessors). In this interview, the assessors would attempt to establish a number of things:

1. Whether the applicant firm had some intellectual property or was in the process of protecting it.
2. Whether the applicants (and their management team) were capable and motivated.
3. Whether the business had the potential to raise capital (VC or other angel investment).
4. Whether the applicants have a clear strategy for engaging with the University.
5. Whether the applicants actually need incubation assistance (and how much).
6. Whether the applicants will contribute to the *IncuWorks*' community.

The interview or a series of interviews (depending on the outcomes of the first interview) was conducted by the Director, the Incubator Manager and one member from the Board. During this interview the proposed new client was allowed to make a formal presentation or 'pitch'. The interviewers' aim was two-fold; first, to ascertain the degree of alignment between *IncuWorks*' goals, vision, mission and services and the proposed new client's short to medium term strategic goals and possibilities of contribution to *IncuWorks*' reputation, and second, to assess the probability of the proposed new client's survivability post the incubation period.

Once the applicant satisfies the assessors, the next stage was to sign a formal contract and for the prospective client to pay a deposit. Information on developmental assistance related services was made available and also discussed during the interview. The contract was more or less like a standard commercial tenancy agreement but with a number of modifications / additions. The salient features of this contract include:

1. An agreement on the monthly fee
2. The specification of the deposit
3. The term of the licence (which was a maximum of 4 years 9 months)
4. Fee escalation clause
5. The Contractee's obligations relating to house keeping
6. The Contractor's housekeeping obligations
7. The procedure for termination (notice period of 1 month)
8. The Contractee's obligation to report regular progress
9. The availability of (implied free-of-charge) developmental assistance-related services (mentioned in an annex of the contract)

Both Desk Space and Incubation units come equipped with basic furnishings, network / internet and telephone connections. Wet-lab / Bio-Tech units were fully fitted to comply with stringent health and safety and other standards.

Incubation-related assistance was offered through one formal mechanism: the 6-month review of client firm progress. This was a formal due-diligence / appraisal of client progress as per the goals and targets agreed with the Enterprise Manager<sup>33</sup> (in the previous appraisal). Clients were required to furnish a summary report and participate in a meeting to report progress. Specific problem areas were identified where the Enterprise Manager and associated network of contacts could provide assistance. During these meetings client feedback was sought for the type of activities / services that *IncuWorks* ought to offer in the future.

Free-of-charge development assistance-related services such as the 1-to-1 advice clinics, workshops, trainings, networking events and PR were widely advertised for clients' benefit (if they chose to avail). Graduated companies were kept notified of *IncuWorks'* activities and invited to events and other ceremonies. They were also advertised on *IncuWorks'* websites. Graduates had the option of retaining a virtual office at very nominal rates. Assistance was available to help the clients, once their incubation terms of a maximum of 4 years 9 months were over, to move to new premises.

### **6.3 Summary: Comparative Overview of *Dublnc* & *IncuWorks***

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Table 16 presents a bird's eye view of the two case organisations. This comparison is meant to be non-analytical based on factual data. The case selection strategy, discussed in the previous chapter, employed theoretical replication rather than literal replication i.e. the development of contrasting results but for predictable reasons, thus, emanating differences between the two organisations are instructive; however, the reasons behind the differences and resulting impacts on organisational structure and incubation strategy are discussed in the chapters that follow.

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<sup>33</sup> Referred to as the *IncuWorks* Incubator Manager (IM) in the remainder of the thesis.

Table 16 – Overview of DubInc & IncuWorks

<b>Case Orgs</b>	<b>DubInc</b>	<b>IncuWorks</b>
<b>Aspect</b>		
<b>Background</b>		
<i>Established</i>	Mid-1980s	Early 2000s
<i>Funded by</i>	local community	Private corporations, Irish Govt. & University
<i>Building Background</i>	Converted from an un-utilised building meant for recreational purposes	Largely purpose-built facility
<i>Accomplishments</i>	250 graduates since inception 70% success rate 700+ jobs created	Less than 20 graduates since inception Not claimed 1000 high-quality jobs Total investment and realisation in University spin-out companies - €200 million+
<i>Client Focus</i>	Mixed-use	Hi-Tech knowledge intensive
<i>Original goals</i>	<ol style="list-style-type: none"> <li>1. Help young people, unemployed persons and others to establish their own businesses</li> <li>2. Assist small businesses already in existence to expand and provide further employment</li> </ol>	<ol style="list-style-type: none"> <li>1. Promoting a Culture of Innovation and Entrepreneurship at the University</li> <li>2. Managing Technology Transfer by identifying and capturing the intellectual property arising from the University's research</li> <li>3. Supporting Start-ups</li> <li>4. Building Partnerships and bridging the gap between academic research and industry</li> </ol>
<b>Structure</b>		
<i>Apex body</i>	Board of Directors	Board of Directors
<i>Leadership</i>	Centre Manager	Director
<i>No. of Staff</i>	8	15
<i>Hierarchy</i>	Informal, flexible, need-based	Structured, defined roles
<i>Administration</i>	All admin functions performed	Administrative links with University
<i>Management</i>	Lean, corporate principles	Public-Private Partnership
<b>Services</b>		
<i>Occupancy options</i>	28 (including 3 food units) approx. 100 sq. feet each, with two larger units of 500 sq. feet each	<ol style="list-style-type: none"> <li>1. 14 desk spaces</li> <li>2. 42 incubation units ranging from 50 sq. feet to 210 sq. feet</li> <li>3. 6 fully equipped bio-incubation or 'wet-lab' laboratories (1115 sq. feet)</li> </ol>
<i>Developmental</i>	<ol style="list-style-type: none"> <li>1. One-to-One Business Advice &amp; Guidance</li> <li>2. Assistance with business planning</li> <li>3. Assistance with funding applications</li> <li>4. Business network meetings</li> <li>5. Start-your-own business course</li> </ol>	<ol style="list-style-type: none"> <li>1. Enterprise Development Advice</li> <li>2. Monthly 1-to-1 Advice Clinics</li> <li>3. Regular Workshops &amp; Training Sessions</li> <li>4. Facilitated linkages to research at the University</li> <li>5. Networking Opportunities</li> <li>6. Media Exposure</li> <li>7. Campus Company Development Programme</li> <li>8. Innovation Awards</li> </ol>

<i>Infrastructural</i>	<ol style="list-style-type: none"> <li>1. Wireless broadband</li> <li>2. Fax facilities</li> <li>3. Courier and mail handling</li> <li>4. Secretarial service</li> <li>5. Training / conferencing facilities</li> <li>6. Computer training facility</li> <li>7. Parking</li> </ol>	<ol style="list-style-type: none"> <li>1. 24/7 access, ample car parking and security</li> <li>2. Dedicated server room</li> <li>3. Free Microsoft software for start-ups</li> <li>4. Permanent large boardroom</li> <li>5. Numerous seminar and meeting rooms of various sizes</li> <li>6. Reception services</li> <li>7. Wireless network</li> <li>8. Café with external deck</li> </ol>
<i>Revenue</i>	Client rentals, trainings, ad-hoc government schemes	Client rentals, dividend and other income from shareholding in client firms
<b><i>Clients</i></b>		
<i>Participants</i>	20	19
<i>Sectors</i>	Food, Energy, Power, Consulting, Software, ICT, General	ICT, Telecom, Bio-Tech, Consulting
<i>Routes</i>	Local community	Spin-in, Spin-out & CCDP
<b><i>Incubation Policy</i></b>		
<i>Selection Process</i>	Application form > interview	Application form > interview
<i>Screening Focus</i>	<ol style="list-style-type: none"> <li>1. Business idea is viable in the ongoing economic scenario</li> <li>2. Suitable background and qualifications</li> <li>3. Ability to pay rentals on time</li> <li>4. Likely to remain in the Centre for an extended duration.</li> <li>5. Commitment to the community-oriented ethos.</li> </ol>	<ol style="list-style-type: none"> <li>1. Intellectual property or is in the process of protecting it.</li> <li>2. Applicants and team capability</li> <li>3. Business had potential to raise capital</li> <li>4. Clear strategy for engaging with the University.</li> <li>5. Need for incubation assistance</li> <li>6. Contribution to <i>IncuWorks'</i> community.</li> </ol>
<i>Contract</i>	Standard tenancy agreement	Standard tenancy agreement + the mention of development assistance and the requirement to monitor progress



## Findings from Case Studies - I

### *Relationships: The Key Dependent Variable*

#### 7.1 Introduction

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In this chapter, it is shown that a dynamic inter-change exists between the parties involved in incubation, and it is through these ties or relationships that incubation activity is facilitated. The overall purpose is to unearth intricacies of human relations, behaviour and action which provide the incubation process's normative foundations. According to Aaboen (2007) there are three categories of incubation relationships - internal, semi-internal and external. *Internal ties* include those between clients and their business developer; between clients; and between clients and other business developers. *Semi-internal* include those between clients and business networks; between clients and external financing; between clients and graduated clients; and between clients and the affiliated university. And, *external ties* include those between clients and customers; and between clients and other actors. Aaboen's categorisation is indeed comprehensive, however, it is also subjective and based in the geographical context of the case organisation she studied. Incubators in Sweden (where Aaboen conducted the research) and Germany show different structural and organisational attributes to incubators in the UK and Ireland<sup>34</sup>. For instance, in Sweden there are a number of "business developers" employed by the incubator and client firms are assigned one; these business developers have no role in incubator corporate management. This is not the case in Ireland – there is usually one Enterprise Manager or Incubator Manager looking after the entire portfolio of client firms assisted by an outside network and usually this manager would have a degree of corporate incubator management-type duties also. Further, in contrast to the Swedish environment, existing clients' linkages with graduated clients were virtually non-existent.

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<sup>34</sup> *ibid*, see Chapter 2 for a comparative analysis of country incubator-incubation environments.

Lichtenstein (1992) has also looked at the broad patterns of interactions which facilitate incubation; including interactions among entrepreneurs, between entrepreneurs and the incubator manager, between entrepreneurs and outside individuals associated with the incubator and interaction between entrepreneurs and other incubator staff. This scheme, it is believed, presents the most meaningful and relevant incubation relationships, therefore, following Lichtenstein (1992) in this chapter the IM-Client, Client-Client, Client-IM-Client and Client-Third Party relationships are analysed. Whilst the focus of both Lichtenstein (1992) and Aaboen (2007) was on identifying instrumental benefits of good relationships and on improving the understanding of the factors that lead to an increased exchange of resources, the aim in this chapter is different: it is to highlight the significance of norms, written and un-written rules and the role of subtle aspects of human behaviour in the development of incubation relationships.

## 7.2 The Nature of IM-Client Relations

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Overall, the main theme emerging from the case data is that incubation occurs within the backdrop of the nature human relationships. The following quotes demonstrate a range of views and beliefs held by the incubation parties on the significance of perceived relational quality on willingness to engage in incubation-related developmental assistance. The quotes also highlight the value that client firms attach to the IM's involvement in their growth and development<sup>35</sup>:

*[IncuWorks IM] "...My academic background and doctorate helps build a rapport with our clients, especially spin-outs, because they feel that I can emphatically understand the unpredictable process of commercialising scientific research..."*

*(Client 4) "...I think it makes a big difference if the IM is emphatic, experienced and has good contact...there is a need to build trust and rapport without which I don't think there will a chance to move forward...here I suppose the IM needs to come across as interested and proactive...otherwise how would we know..."*

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<sup>35</sup> Refer to Chapter 10 – section 10.3 for a number of other relevant quotes.

*[Client 27] "...Relationships are good...the IM takes an interest in the growth of the firm, introduced us to other clients and has helped us identify customers...this a good benefit..."*

*[Client 7] "...There is a lot of trust and rapport between us and XYZ (the IM)...it definitely easier to work with people with whom you are on friendly terms..."*

*[Client 28] "...I have never felt any unease in approaching the IM or other staff here...we can talk whenever needed...but it is quite rare that I'd approach the IM with a business problem because we have our own network and there is a lot of support from the parent company..."*

*[Client 23] "...We have been here for over 3 years now but the relationship with ABC (IncuWorks Director) goes back to over a decade and it was because of this history that it became just natural for us to locate here..."*

*[Client 16] "...The relationship between us and the Centre is sticky...I feel they don't consider clients as proper customers...there is a need for a bit more professionalism...I would not treat my customers like the Centre treats its clients..."*

Following Rice (2002), it is argued that incubators and entrepreneurs operate in an inter-dependent 'co-production dyad' where business assistance is co-produced between the incubator manager and client firm. Rice's approach is quite intuitive, that the readiness of the entrepreneur to engage in co-production of business assistance impacts the incubation process's outputs. Such mutual co-production of incubation assistance is primarily driven by the nature of the *relationship between the incubator manager and the entrepreneur*, the aspect this section will focus on.

Relationships form the very basis of how aspects of incubation are communicated, delivered and signalled, and consequently how these are received, accepted and internalised. The quality of client relationships with the IM and vice-versa determine the very nature, intensity, frequency, scale, scope and ultimately the output of incubation. These relationships are forged from the time a prospective client

expresses an initial interest to become a member of the incubator organisation, to subsequently when the client moves in, and then over a period of time, is ready to move out.

Besides Evald & Bager (2008) and McAdam & Marlow (2007), the impact of relational quality on the incubation process has not received much attention. This aspect of relational quality and dynamics is dealt with extensively in the Relationship Marketing literature. Leading researchers in the area assert that for gaining competitive advantage and superior financial performance, it is imperative that firms (and their managers) identify, develop, and nurture an efficiency and effectiveness enhancing portfolio of relationships (Lages et al, 2009; Cannière et al, 2010; Davenport & Early, 2010; Watson & Johnson, 2010). Theoretical models in the area are used to predict consumer (or partner) behaviour in a repeat buying (or doing business) context. Relationships are assumed to be economic in nature and working on commercial principles, such as loyalty to a particular brand or franchisor-franchisee relations.

When it comes to incubation, the interesting departure here is that the IM-Client relationship is not “strictly business”, though undoubtedly legal and contractual obligations form the very basis of the bond. These are purposefully layered-over by the language and signals of fraternity and kinship. The setting of such a norm reinforces the idea that the IM is not simply a commercial landlord interested in deriving rental income. In fact, the IM has to go to some lengths to shed this image of the commercial landlord, and to replace it instead with an image of a keen stakeholder genuinely interested in the development of client business, despite, in many cases, having no real financial stake. In the words of the two IMs:

*[Dublnc IM] “...As an organisation our aim is to enable employment creation in the local community...this requires working with people and offering the sort of services they can't get in a standard tenancy. As businesses come in here, they see the difference and ease between starting up here versus taking up an office or work unit with a commercial landlord. Quite a few of our clients don't want to leave at the end of their licence term because of the environment we have created and all the extra facilities they have, free from headaches...”*

*[IncuWorks IM] "...We have a multi-faceted role, on one end of the scale are commercial landlords, in the middle you would have managed office spaces and on the other end...I suppose...science and technology parks. At IncuWorks we go much beyond what science parks have to offer. The clients we select come with a set of expectations, yes I agree there is a bit of a gap there, but to really understand what incubation and research commercialisation is about in practice, they need to experience it and become a part of our community...once they are inducted we tend to work with them individually...for some it takes considerable effort and a while to understand where this facility is in terms of tenancy and enterprise support..."*

In order to understand the IM-Client relationship, there is a need to understand the nature of the dyad. Georg Simmel's work is quite instructive in this regard. He describes dyads as "super-individual societal units", wholes composed of only two participants where there is a greater individualisation of their members than larger groups do (other things being equal). In the dyad, there can be no majority which could outvote the individual. Simmel observes that a dyadic relationship differs qualitatively from all other types of groups in that each of the two participants is confronted by only one another and not by a collectivity. Since this type of "group" depends only on two participants, the withdrawal of one would destroy the whole (Wolff, 1964). In his own words: "A dyad depends on each of its two elements alone - in its death though not in its life: for its life it needs both, but for its death, only one. This fact is bound to influence the inner attitude of the individual toward the dyad, even though not always consciously nor in the same way. It makes the dyad into a group that feels itself both endangered and irreplaceable, and thus into the real locus not only of authentic sociological tragedy, but also of sentimentalism and elegiac problems" (Wolff, 1964, pp 124).

Thus, the dependence of the whole on each partner is obvious; in all other groups duties and responsibilities can be delegated, but not in the dyad, where each participant is immediately and directly responsible for any collective action. Because each partner in the dyad deals with only one other individual, who forms a unit with him, neither of the two can deny responsibility by shifting it to the group; neither can they hold the group responsible for what he has done or failed to do.

Simmel described a number of elements that form the core of the dyadic relationship: a common fate or enterprise; an agreement of “secrecy”; triviality or an immediacy of interaction; and intimacy or what each of the two participants gives or shows only to the one other person and to nobody else (Wolff, 1964, pp, 125-127). These elements tie the dyadic parties in a manner that is very different to groups of three or more. The notion of the secret, in modern times, can be denoted with ‘confidentiality’ and must be an important given in an incubation setting (McAdam & Marlow, 2007). Similarly, practitioner researchers in the past hinting at the need for ‘immediacy of interaction’ and “intimacy” between IM-Client relations (Garvey et al, 2009).

By incorporating Simmel’s core elements, IM-Client dyadic relations come quite close to modern day coaching and mentoring relationships. We find that theorists on coaching and mentoring also stress on the relevance of Simmel’s core elements of coach-coachee and mentor-mentee relationships. They, however, add a further three elements including “trust”, “commitment” and “active involvement” as important relational elements (Garvey et al, 2009, pp 19) – all of which, conceptually, also apply to IM-Client incubation relations.

### **7.3 Inside the IM-Client Dyad: *Understanding Co-Production’s Value***

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Co-production involves a joint effort between two parties, such as a coach-coachee, mentor-mentee or IM-Client, who jointly determine the output of their collaboration. The unique issue here is the involvement of the “consumer” in the production of the output. Contrary to being passive recipients as in most situations, in a dyadic co-production situation, the efforts of the consumer are central to the production of the dyadic output. The producer or initiator alone cannot determine the quality or the quantity of the output (Parks et al, 1981).

There are a number of examples from the public services where consumer-producer co-production is essential. For instance, the output of an educational programme is “learning.” When students are not actively involved in the process, any university, however good the professors or the facilities, will be ineffective in imparting useful knowledge. Similarly, the democratic process would be ineffective if citizens did not

turn out to vote and a city government's solid waste management programme would not function if households did not cooperate.

The co-production logic also applies to incubation. Incubation's basic purpose is to help entrepreneurial ventures start up, survive, and succeed. Towards this end, the parties in incubation (the IM and entrepreneur) engage in co-production to compensate for the firm's gap in knowledge, competencies and resources. Co-production in the short-term gives clients the capacity to deal with momentary crises and other shocks. In the long-term, it is meant to help client firms develop the knowledge and competencies and accumulate resources necessary to achieve autonomy from the co-production partner and to become sustainable as an economic entity. Rice (2002) gives the following illustrative example: in order to resolve any internal crises an entrepreneur would need to invest resources from the firm's stock. If the entrepreneur's stock of resources is insufficient and inadequate to address the crisis, (s)he will turn to the incubator manager to contribute the missing resources. If the incubator manager is unable to contribute, there would be no co-production. Similarly, the incubator manager may be prepared to invest resources in resolving a crisis faced by the entrepreneur, but if the entrepreneur refuses to engage, there is no co-production of business assistance targeted at the crisis.

In order for co-production to be effective, there are a number of assumptions which must hold true:

*First*, as mentioned above, the entrepreneur must be willing to engage in co-production activity.

*Second*, both parties must contribute resources for an effective resolution of a problem at which co-production is directed.

*Third*, the IM must have sufficient capacity in terms of general and domain specific knowledge.

*Fourth*, clients selected for incubation must have the potential to benefit from co-production or have substantial challenges to overcome to grow out of the start up / survival mode.

And *fifth*, and quite importantly, the clients must actually benefit from co-production. Lichtenstein (1992) proposes that entrepreneurs receive three types of benefits through work with the IM: psychological, instrumental and developmental. Each entrepreneur focuses on different benefits and recognises that their importance changes over time. Lichtenstein's three benefits are valid and corroborated by data from the case work. In terms of psychological benefits and moral and support, clients at the case organisations expressed its importance in a number of ways:

*[Client 3] "... It is quite comforting to be here when you don't know from one day to the next if you're going to make it..."*

*[Client 22] "...There is a feeling of camaraderie and collegiality here which makes a big difference..."*

*[Client 32] "...There are people here you can talk to without being judged...you see others besides your own employees all the time...which is a good pressure release valve..."*

*[Client 37] "Moral support is hard to quantify...it is intangible but it is tremendously valuable..."*

*[Client 12] "...A good working environment makes you feel good and it gives you a boost...because when you are emotionally down and all that, its much harder to perform..."*

Instrumental benefits relate to the *business* of doing business. They can take the form of increased sales, lowered costs, enhanced capabilities and reduced risk. Most of the benefits incubation awards come from sharing or borrowing resources, sharing information and receiving advice on decisions – which results in lowered costs and



reduced risks. Clients at the case organisations expressed the importance of these benefits:

*[Client 13] "...The contacts and introductions by the manager have been quite valuable, these are people and organisations we did not directly know..."*

*[Client 31] "...Being in the facility has been helpful on many different levels...the location especially has awarded us great credibility and visibility..."*

*[Client 17] "...Interactions and discussions with others makes you think in a better way...this is much better in terms of reducing risk when you relied purely on your own resources..."*

*[Client 25] "...XYZ (the IM) has introduced us to a number of contacts who have run companies bigger than ours...they have been there and done it...so their back stopping is quite valuable..."*

Incubation provides opportunities for clients to receive developmental benefits<sup>36</sup> such as opportunities to observe others (pooled interdependence), to ask as well as answer questions (sequential interdependence), and to discuss issues interactively amongst themselves. Clients at the case organisations expressed the ways in which they valued developmental benefits:

*[Client 7] "...The First Monday is good forum to ask questions and to simulate situations...the responses I get...when I share them with other people in the company they do get genuinely surprised..."*

*[Client 1] "...You get chances to make mistakes and ask the sort of questions you wouldn't be able to in a real world scenario..."*

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<sup>36</sup> Development is not to be confused with technical assistance; whereas, technical assistance is a service that has an assigned value and can be purchased, development for entrepreneurs is to know when they need such services, how to acquire them and how to use them for their gain.

*[Client 26] "...I have learnt a number of things just observing and talking to other clients...simple things like delivering an effective and convincing performance during a presentation..."*

Both the IM (the regular producer in the co-production dyad) and client firms (the consumer producers in the co-production dyad) bring their own unique knowledge, resources and experience to the dyadic relationship. The power balance, however, is relatively tipped towards IMs since the real purpose of business incubation is to allow client firms to take advantage of the greater knowledge, experience resource munificence of the IM. Extending Rice's (2002) work, it is suggested that although entrepreneurs have much to gain from engaging in co-production activities, the extent to which they engage in co-production and their perceptions of the value of such engagement is varied. The co-production experience is unique to an incubating dyad and the variance in levels of IM-Client engagement is impacted by, according to Lichtenstein (1992), nine different variables: (1) the types of business; (2) the personal characteristics of entrepreneurs; (3) the stage of their firm's development; (4) space or social distance; (5) the existence and design of forums; (6) the presence of a critical mass of firms; (7) norms and attitudes; (8) the actions of key individuals within a network (in this case, the incubator manager); and (9) time. A further four variables are proposed to augment Lichtenstein's list of nine; and the impact of these in the development of relationships has been emphasised time and again by previous researchers: (1) dyadic history; (2) psychological compatibility and degree of vision commonality; (3) IM leadership style; and (4) trust. Taken together, it is argued, from a practice standpoint, a system can be developed to effectively select and pair IMs with clients with a view to increasing the chances of building positive incubation relationships.

#### **7.4 Client-Client Interaction**

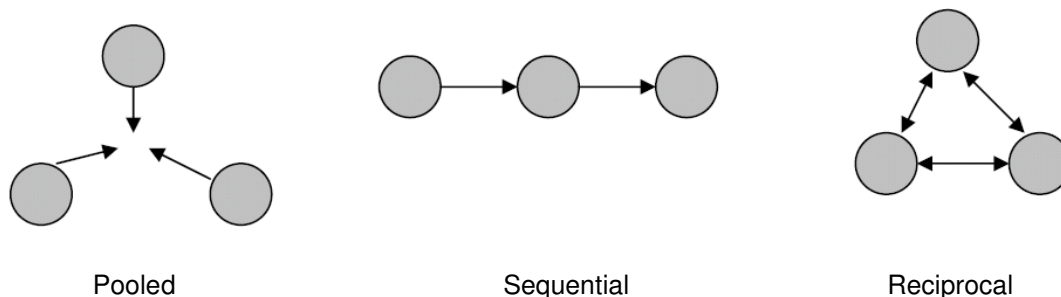
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Of late, the role of incubators in promoting different types of client interpersonal contact has been highlighted where it is suggested that co-location of incubator clients with other young and growing firms provides benefits (Hansen et al, 2000; Peters et al, 2004; Bøllingtoft & Ulhøi, 2005; McAdam & McAdam, 2006). Co-location, besides creating opportunities for *tangible* economic activities, it is suggested, can

also create *intangible* benefits such as facilitating informal networking activity allowing client firms to become familiar with each other and form a distinct support network for sharing resources, knowledge, motivation and counselling (McAdam & McAdam, 2006).

Lichtenstein (1992) suggests that co-location of client firms can also create benefits due to three types inter-dependencies: pooled, sequential or reciprocal (see Figure 15). Pooled interdependence is created when two or more individuals come together to share inputs or outputs to greater advantage than any one person could achieve alone. The purchase of group insurance is an example. In sequential interdependence, individuals directly interact in series, each performing a different, complementary function and then passing the work on to the next participant. Assembly line production exhibits this form of relationship among the various parts. Reciprocal interdependence involves back and forth interaction and feedback between individuals engaged in a joint effort. Brainstorming sessions and group efforts are two examples.

*Figure 15 – Type of Interdependencies*  
(Lichtenstein, 1992)



Client interpersonal contact can take a number of forms including: (1) clients maintaining only a superficial social contact with other clients; (2) clients becoming friendly associates socialising inside and outside the incubator without being involved in inter-trading or other business collaborations; (3) clients becoming inter-trading partners involved in direct economic exchange of goods and/or services; (4) clients coming together in dyads, triads or groups for 'agglomeration economies' (Keeble & Wilkinson, 2000) - such as jointly bidding for large contracts; and (5) clients

interacting for the purposes of 'collective learning' (Moulaert & Gallouj, 1993) i.e. coming together for enhancing capacity for learning, sharing and creation of new knowledge.

Some practitioner literature suggests that the above forms of client interpersonal contact may not necessarily yield real economic or inter-trading benefits beyond social support (UKBI, 2006). The research is based on client feedback about interpersonal contact and may allude to the fact that perhaps clients themselves do not seem to value the *intangible* benefits associated with co-location, a point that is also confirmed from some of the client quotes in McAdam & McAdam (2006).

It is proposed that the amount of interpersonal contact among clients has the potential to both *positively* or *negatively* affect client attitudes, beliefs and behaviour towards their own work, the incubator organisation and their ability and willingness to engage with other clients. On the one hand, more client interpersonal contact can provide opportunities to share thoughts, feelings and values - as a result, clients may develop friendships, resolve interpersonal conflicts, share knowledge, work together for mutual gain and receive high levels of interpersonal feedback:

*[Client 28] "...this is our third year here and I have to say that we have made some good friends with whom we will keep in touch with after we leave..."*

*[Client 24] "...had it not been for the other companies here, I honestly think we would not have done as well...just being able to talk and bounce ideas off of other people is in itself invaluable..."*

On the other hand, higher degrees of Client-Client contact can also adversely affect the quality of client interpersonal relationships and the ability of clients to effectively do business. This is due to issues such as lack of privacy and demands on time and other resources for engaging in activities that do not directly benefit client business.

[Client 20] “...some of the guys here are quite competitive you know...one of our staff members wanted to join a company here and we were not very comfortable with this, had he been not been a core technical person...it would have been okay I suppose...”

[Client 39] “...we do a lot of sensitive work and are very time poor...and the staff usually have no time to socialise...”

For this research, it is assumed that Client-Client interaction is largely beneficial and a real possibility if adequately moderated; however (and this would be the research's contribution), it does not occur to a high degree due to a number of barriers. Barring the work of McAdam & McAdam (2006), few researchers delve into the real dynamics of Client-Client interaction, its various categories, levels and outcomes. Thus, in the sub-sections that follow two important aspects are explored which impact the development of strong Client-Client relations (i.e. those that yield economic or other benefits to both parties).

#### **7.4.1 Impact of Client-Mix on Client-Client Interaction**

An incubator's *client mix* is thought to have an important impact on Client-Client interaction and subsequent relationships, in other words, whether incubator policy encourages or discourages a *similar client base*. The assumption here is that the chances (and incidents) of Client-Client interaction would be high when clients are similar i.e. share sectors, markets, have similar customers and staff expertise (McAdam & McAdam, 2006; Schwartz & Hornykch, 2008).

The two case organisations differed in their policy on the nature of client mix. *DublInc's* policy focused on a diverse client mix where no two businesses were to be completely alike. In their experience businesses operating with the same client base introduced unhealthy competition, thereby, negatively impacting the environment of the incubator. To this effect, the IM stated:

*[DubInc IM] "...there are businesses here that are in the same market but are quite different from each other...I think its just not fair to someone starting up in this community...which is already quite small...to face competition from the very start. We had a few problems in the past with clients complaining about price undercutting and the like...we did not really investigate these incidents because the complaints were not very serious but now the Board is quite clear on this...we cannot have two very similar businesses..."*

*IncuWorks* on the other hand believed in a sectoral focus and strategically selected clients to be from the bio-tech, ICT or closely related sectors (the organisation's focus areas). The rationale for this policy was that a similar client base allowed the pooling of resources, encouraged knowledge and experience sharing and promoted the development of a community that shared a common purpose. The IM gave another important reason for the two (bio-tech and ICT) sector strategy:

*[IncuWorks IM] "...it makes our life here simpler because with clients who share common problems and have similar resource needs we can be much more effective and focused...which I don't think will be possible with clients coming from a very wide range of sectors...even with bio-tech and ICT we are pushed to capacity because of their specialist requirements..."*

One would imagine that with *IncuWorks'* strategy of a similar client mix, Client-Client interaction would be higher in comparison to *DubInc*; however, the analysis reveals a slightly counter-intuitive scenario. Although incidents of Client-Client interaction (for the purpose of doing business together) were generally rare at both case organisations, no extraordinarily high levels were reported at *IncuWorks*. In fact, *DubInc* clients were able to recall more incidents of Client-Client interaction than *IncuWorks'* clients:

*[Client 10] "...X (another food sector client) and I make a very natural collaboration...we both love the food business but in different ways...we are not competitors because of the ways in which we earn our incomes...moreover we have different types of expertise, experience and background...(gender ref. removed) gives me business and I return the favour...[pause]...a lot of it has to do with how our personalities have clicked..."*

*[Client 17] "...Yeah I have done some work with clients here...I have kept flyers at the reception which helps...I am here to do business you know and all companies here need to get designing and printing of some kind done from time-to-time...there is a small captive audience here for me but not major volumes..."*

*[Client 19] "...The guys down at XYZ (another client) are great, we spoke once in the coffee dock about a software program they had purchased but were having trouble with its implementation...they didn't know I was in the software business...so I gave them my card and didn't think that they were going to get in touch...but they did and I got some work...I didn't do it for free you know but it was also not a complete favour either...all in all a good experience..."*

One reason cited by *IncuWorks*' bio-tech clients for being cautious about Client-Client interaction was the desire to guard sensitive intellectual property. The bio-tech clients displayed more concern about this aspect; perhaps due to their greater reliance on IP when compared to ICT clients. Further, Bio-Tech clients felt that the nature of their work was more R&D-focused which did not require much Client-Client co-production<sup>37</sup>:

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<sup>37</sup> It is also instructive to note that by the time Bio-Tech clients felt they were ready to form commercial alliances; their maximum allowed time in the incubator was up. Perhaps there is a need for incubators then to re-assess the incubation period for certain types of technology-based start-up firms, generally believed by the incubator 'community of practice' to be a maximum of three to four years.

*[Client 36] "...We meet other clients at the coffee shop...there is informal chat and we give each other tips and leads...but we have not considered a serious collaboration because of no real need at this point...we are working on sensitive and proprietary technology that we plan to licence out...when that stage arrives...it would be more sensible to consider commercial alliances..."*

*[Client 38] "...We would like to develop more collaborative relationships but the nature of our work and all the confidentiality and non-disclosure agreements we have signed make this quite difficult..."*

The ICT clients on the other hand were open to establishing open relationships with similar clients:

*[Client 27] "...I have worked with another desk space client here, we sit right across from each other and I know him through the CCDP...we traded solutions...(gender ref. removed) helped me with programming and I gave my input in (gender ref. removed) site's interface design..."*

*[Client 21] "...It is always great to have people around who are at a similar stage as you are...we have worked with companies here in the past and if the opportunity presents itself in the future we would like to work again...there is certainly rapport and mutual respect..."*

Overall, at *IncuWorks*, only seven incidents of meaningful Client-Client contact were recorded – all of which were between ICT firms. Therefore, it seems that policy-makers need to re-assess their views about the advantages that specialist campus-based hi-tech incubators offer – there is potential for greater Client-Client collaboration in some areas whilst such potential is negligible in others.



#### **7.4.2 The Impact of Physical Layout on Client-Client Interaction**

A factor impacting Client-Client interaction is the *incubator organisation's physical layout and infrastructure* – an element which has been touched upon by Bøllingtoft & Uihøi (2005) and McAdam & Marlow (2007); however, generally speaking this area has been largely neglected by both academic researchers and practitioners. 'How to' manuals and books by industry organisations such as the UKBI and NBIA have not brought forth any in-depth analysis on incubator physical design – the area which demands the most financial investment. It is felt that incubation researchers need to explore the broader question of what would be an ideal design that would promote the meta-ideals behind the concept of incubation, one of which would certainly be encouraging the development of a cohort of client companies working together to gain competitive advantage.

Numerous studies have explored the role of the physical layout of work spaces on human behaviour, attitude and perceptions (Bitner, 1992). Lichtenstein (1992) suggests that physical space directly affects the probability, frequency, quality, intensity, costs and speed of interaction. According to him, studies indicate that the probability of two people communicating at least once a week drops from 98% at a separation distance of 2 metres to 6% at 50 metres. Further, research in environment and behaviour, social psychology, ergonomics, and organisational behaviour suggests that the physical setting can influence levels of satisfaction, productivity, motivation and interpersonal contact of the users of the space such as workers and customers (Oldham & Rotchford, 1983; Klitzman & Stellman, 1989; Bitner, 1992; Lee & Brand, 2005; Robertson, et al, 2008; Aries et al, 2010).

The closest researchers can get to exploring the impact of incubator physical design on Client-Client interaction is by drawing ideas from research on similar spaces, such as offices. However, caution must be exercised since incubators are not like traditional office spaces based in commercial real estate. The general principles of commercial office design do not necessarily promote business interaction, in fact designs favour client privacy much more. For example, Oldham & Rotchford (1983) conducted pioneering research in the area of office design and worker interaction but their focus was physical design aspects impacting worker interaction *within* offices,

they were not concerned with features that promoted *firm-to-firm* interaction. They suggest four general characteristics of design – openness, density, architectural accessibility and darkness<sup>38</sup> - that influence the amount of interpersonal contact amongst staff. Upon scrutiny these four characteristics do not fully apply to an incubator / Client-Client context but nonetheless (in the absence of other meaningful frameworks) provide a useful analytical scheme to categorise the feedback from the two case organisations.

In the discussions with the two IMs (in the case of *IncuWorks* the Facilities Manager also), several aspects of design were suggested as being important to the core team involved in setting up the facilities. A number of common aspects were thought to enhance the incubation experience of clients and to facilitate the role and objectives of the incubator. However, the design ethos and its evolution at the two case organisations differed. For instance, back when *Dublnc* was set up, incubators were virtually non-existent in the Country, therefore, for the core team there was no model to follow when it came to a design ethos. The *Dublnc* IM felt that due to the lack of site options and resources available at the time of setting up the facility, the core team took the decision of using and improving whatever infrastructure was already available rather than commissioning a purpose built facility. *Dublnc*, thus, started operations in a building that was originally designed for an entirely different purpose, where there was no semblance whatsoever between the two organisations' aims. This, in the IM's view, led to a sub-optimal facility:

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<sup>38</sup> Openness - refers to the overall openness of the office, more specifically, to the ratio of total square footage of the office to the total length of its interior walls and partitions. If square footage is kept constant, then offices with few interior boundaries are considered more open than offices with many walls and partitions.

Density - refers to the number of square feet available to an employee in the office. Offices are dense to the extent that a large number of employees work in a relatively small area or space.

Architectural accessibility - refers to the extent to which an employee's individual workspace (e.g., desk) is accessible to the external intrusions of others.

Darkness - refers to the overall darkness of the office setting. Illumination levels and wall colours would contribute substantially to this dimension. Thus, dark offices are here defined as those that have both low levels of illumination and dark-coloured walls (Oldham & Rotchford, 1983).

*[DubInc IM] "...As you know this building was the old XYZ...we knocked down a number of walls and added a whole new floor to accommodate a maximum number of units...over the years we have made modifications but the truth is that there is not much else we can do to improve the aesthetics and other facilities in the building unless we start greenfield..."*

DubInc's view on client interaction from the start was positive. The IM narrated that the initial thinking of the core team was to create an integrated and transparent community of new clients inside the building. Therefore, initially, the internal layout of the facility included plasterboard partitions which did not go all the way up to the ceiling. This meant that the facility's 'openness' and 'architectural accessibility' were quite high. Since the initial approach was also to create as many units as possible in order to accommodate the maximum number of unemployed residents, the facility's 'density' was also high due to narrower corridors and closely spaced units. Further, the original design of the building did not have many windows and this could not be corrected in the renovations, therefore, levels of 'darkness' were also generally high due to a lack of natural lighting with many units without any windows looking to the outside.

According to the IM, clients did not prefer this initial layout due to a number of reasons: (1) lack of privacy - especially when other clients could overhear phone and other conversations in a unit; (2) a concern about security since the units had no doors; and (3) distraction from own business affairs because of too much interaction with other clients – the *negative* scenario described by Oldham & Rotchford (1983). Due to these reasons, within a few years of inauguration, the plasterboard partitions were replaced with ceiling high concrete walls and the units were provided with lockable doors (without windows to look inside). These changes did address the clients' concerns but at the cost of reducing opportunities for Client-Client interpersonal contact and impacting perceptions about the dense and dark layout of the facility. A number of clients expressed this:

*[Client 2] "...It sometimes gets quite claustrophobic sitting here all day without a window...but there is no distraction and I can focus on my work..."*

*[Client 5] "...Don't get me wrong, the facility is great for our purposes but if you compare it with some of the more modern buildings that are coming up it does look a bit cramped and out-of-date..."*

*[Client 6] "...If you have clients over then as you can imagine it is very difficult to have a private meeting with all the other staff members in the same unit...meeting rooms would have been very handy..."*

However, there was a flip-side also where a few clients preferred the layout attributes and stated:

*[Client 15] "...I prefer my own space and privacy because of the nature of my work...when the door is shut and the engaged sign is displayed we do not get disturbed...because in filming, background noise and someone just walking in is not something desirable...the people next door are also quiet and hardly have any visitors...which makes this place perfect for my work..."*

*[Client 11] "...I don't know about the rest but my unit (food) is very good, I park my van outside and can bring in supplies or quickly load up for deliveries...because of exhaust and fumes etc. you the know the unit is a part of the building but also not a part because I have my own access and do not go through the main reception...maybe this is why I don't know many people here...I have only gotten to interact with X (another food sector client) because the IM introduced us..."*

Apart from layout attributes, it seems that physical proximity also has the potential to enable (or conversely breakdown) client interpersonal contact i.e. clients socialising with their immediate neighbors or other clients in close vicinity on the same floor of the building. This aspect has also been discussed by Bøllingtoft & Ulhøi (2005). It was found that clients were mostly in touch with their immediate neighbors on the same floor. A number of clients who moved offices to different floors lost their initial

contacts, were unable to form similar relationships with their new neighbors and expressed concern on becoming slightly isolated:

*[Client 9] "...Apart from our immediate neighbors, I would not know anyone on the floors above...maybe if I went upstairs to the cafeteria there would be an opportunity but the place is too small so I take my lunch in the office..."*

*[Client 18] "...I was in one of the smaller units on the floor below...as a one man team it was good enough but then ABC (the partner) decided to come in full-time and we needed more space...so XYZ (the IM) moved us to this unit... I have been here for a year now and I don't know anyone on the floor...got along well with the lads on the 2<sup>nd</sup> floor but now we are out of touch..."*

The experience at *IncuWorks* was somewhat different when it came to layout planning. The Facilities Manager narrated that in order to define the parameters and facilities requirements of *IncuWorks* a team of senior personnel including the Director, the Facilities Manager (who was a qualified and experienced engineer) and a few members from the University's old commercialisation department was set up. This Team was assisted by an external 'Incubator Consultant' who had a lot of experience in advising in the area of physical incubator design. The Team worked with a firm of architects to create, in the words of the Facilities Manager, "*a world class facility based on the latest thinking and technological and physical facilities*".

The existing building which was acquired for housing *IncuWorks* was substantially modified and upgraded with modern fittings including a whole new wing, wide corridors, meeting rooms, conferencing facilities, communal areas, large central cafeteria, server room, wireless networking and so on. For the Team, client interaction was considered important from the very onset and the brief to the architects incorporated a number of ideas that would facilitate interaction, however, at the same time steps were taken which were to give requisite levels of privacy and to minimise distraction.

To elaborate on the above, all doors to individual units provided a good level of soundproofing, privacy and security but were also fitted with windows so passer-bys

could peer inside without intruding. To this effect, the Facilities Manager stated, “*We wanted transparency and the ability to show visitors what was going on in the building.*” This feature created ‘openness’ and helped in lighting the corridors naturally. Another feature was the location of the cafeteria – by creating a large communal place in the ‘heart’ of the building where all clients, members of the incubator management and visitors passed by in order to access other areas in the building, the chances of interpersonal interaction were thought to increase but in an informally in a communal space. Spaces were also created for facilitating formal working meetings between clients; meeting rooms of various sizes were added which were equipped with projection and other equipment. Separate wings were created to house clients in similar areas: such as bio-tech, ICT or desk-space; with the idea that clients in similar lines of business and stages were more likely to interact for business reasons.

Finally, a number of design aspects balanced client needs for security and controlled access and the incubator core team’s desire to not give an impression of *IncuWorks* being (in the words of the Facilities Manager) “*a locked down prison like some other government buildings*”. To ensure security: first, there was a single access point into the building via the reception area where all visitors were required to sign in; and second, access to units was controlled by restricting access to individual wings and then to individual client units via swipe card-controlled doors. Thus, no unauthorised access was possible into client units, however, the rest of *IncuWorks*’ facilities remained easily accessible due to the way the building was laid out, which was quite convenient (from the core team’s point-of-view) when conferences and other events open-to-public were held.

Setting up layout attributes to promote Client-Client interaction requires a trade-off between requirements of client privacy and minimum distraction and the incubation ideal of creating a well integrated and communally benefiting client cohort. It also seems that designs that diverge from any trade-off ‘balance’ to become either ‘privacy-minimum distraction’ or ‘transparency-integration’ focused also have the potential to appeal to a sub-section of a client population making the eventual choice

quite subjective. Therefore, in order to reach the ‘design ideal’, it seems, a balance must be negotiated between incubator priorities and client preferences<sup>39</sup>.

Thus, certain universal aspects of physical design do promote interpersonal contact, but the debate which was introduced initially on whether high levels of interpersonal contact amongst incubation clients is a necessary requirement of incubation, or indeed beneficial to the development of all types of client businesses, is still very much ongoing.

## 7.5 Client-IM-Client Interaction

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Researchers believe that Client-Client interaction increases in the format of Client-IM-Client interaction, in other words, when the IM plays the role of a broker in facilitating Client-Client interaction (Bøllingtoft & Uihøi, 2005; Tötterman & Sten, 2005; Hughes et al, 2007). It is suggested that client interaction and inter-trading would improve if incubators were to proactively facilitate the process through different mechanisms – acting as the intermediating ‘third party’ (UKBI, 2001, UKBI, 2006). While in network analysis this attention to a ‘third party’ in acting as a bridge between unconnected nodes or networks, and the opportunities for advantage as a broker is relatively new, it has, in fact, a long history, going back, in particular, to the work of the Georg Simmel – whose theory on dyads informs this research’s theoretical base. The difference here is that with the addition of the IM as the broker, the Client-Client dyad turns into a Client-IM-Client *triad*, whose dynamics are quite different.

Georg Simmel argued that triads are a fundamental unit of sociological analysis and that the three actors in a triad may allow qualitatively different social dynamics that cannot be reduced to individuals or dyads. For example, among three parties A, B, and C, party A may have a dyadic relation to C but also may have an indirect relation

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<sup>39</sup> Although from the research it would seem that the balance was somewhat reached at *IncuWorks* and that *Dublnc* was lagging, however, the words of the *Dublnc* IM made the following statement regarding the organisation’s apparent infrastructural deficit:

*[Dublnc IM] “...Our facilities need to be viewed in context...we are a true community organisation that is self-sustaining, our clients are micro to small enterprises working in traditional sectors whose needs are different to HPSUs...I believe that the package we offer with all the extras which the clients only realise once they leave by the way...and at the price we do is very competitive...”*

to C through B. Party B (as a broker) may then serve to alter the strength or the nature of the relation between A and C, such as solidifying an alliance or mediating a conflict. If A and C do not interact directly, party B may *broker a transaction between them* due to this intermediary position. Thus, the role of the broker is an important one in bringing together two previously disconnected or weakly connected individuals.

Ronald Burt has extended Simmel's work considerably and suggests that brokers realise economic benefits from connecting disconnected actors, they are *tertius gaudens*: the laughing third who benefits by exploiting asymmetric resource flows and contests for control (Burt, 2004). The important role of brokers in transferring knowledge across groups or bringing together diverse sets of knowledge to create new knowledge or to enable action is well documented. For instance, DiMaggio (1992) describes Paul Sachs's role as a broker in establishing the Museum of Modern Art in New York and Hargadon & Sutton (1997) discuss how Edison and his colleagues brokered their knowledge of electro-magnetic power from the telegraph industry, where they first worked, to transfer ideas that were new to the lighting, telephone, phonograph, railway, and mining industries (Hargadon & Sutton, 1997; DiMaggio, 1992).

Further, Burt (2004) also extracts from the literature many empirical examples which highlight the contribution of brokerage behaviour and the filling of structural holes to increased organisational learning, absorptive capacity, creativity and higher performance. Burt's (2004) own study of several hundred managers in a large company showed that there were numerous opportunities for brokerage, and managers were rewarded for brokerage in the sense that compensation, positive performance evaluations, and promotions were disproportionately given to managers who brokered connections across structural holes. Therefore, a question to pose is what sort of brokerage behaviour by the IM can facilitate Client-Client interaction leading to benefits for all parties including the broker?

The two case organisations differed in their belief on the efficacy and real value of incubator brokerage behaviour. The IM at *DublInc*, due to a number of 'failed' attempts in the past, felt that attempts by an incubator to bring clients together was a fruitless exercise due to a lack of interest and initiative by clients:



*[DubInc IM] "...We started several activities to get clients together, like the Monday coffee morning and client presentations at lunch...but there was no interest and hardly anyone showed up...so the activity sort of died out..."*

Nonetheless, the IM expressed that if in some way clients did become interested and took an active part, there is a possibility that they could benefit. To foster client inter-linkages and trading, the incubator had a bulletin board facility at the reception area which the clients were encouraged to use. In addition, to generate more interest, the IM had recently re-themed the bi-monthly client presentation lunch event by inviting guest speakers.

The *DubInc* clients had their own views on why Client-Client inter-linkage was weak:

*[Client 8] "...I think people would feel more comfortable if the environment were more informal...like going out to the pub for a few drinks..."*

*[Client 17] "...The timings just don't suit me, being a [parent] (gender ref. removed) of...I can't do lunch or early morning because I need to drop off and then pick up the kids from school..."*

*[Client 14] "...I understand that meeting other clients in the building can be good for a bit of craic but our business has little in common with anybody else's so what are the chances of doing business together..."*

*[Client 13] "...there is no proper place to sit down here and have a conversation privately..."*

The above quotes perhaps highlight a number of factors that are inherent in mixed use incubation facilities that may discourage Client-Client interaction. However, despite *DubInc's* allegedly weak role as a broker, informal groups and working friendships amongst clients lead to a number of professional engagements and exchanges of products / services. As the quality of the inter-personal relationship dictated the nature of incubation in IM-Client dyads, this also occurred between Client-Client exchanges. Clients gave the impression that the greater the perception

that there was a mental-match and bond based on mutual respect, trust and collegiality, the greater the likelihood that the linkage would yield mutual benefit and repeat interaction.

*IncuWorks'* case was slightly different when compared to *DubInc* in that the organisation had a continued and deliberate policy of fostering Client-Client co-production through the IM's active intervention. To this effect, the IM stated:

*[IncuWorks IM] "...We want to create an environment where clients can learn and help each other...for example we have a number of monthly events and other opportunities for clients to meet with each other formally...there is also the cafeteria which is designed to be in the heart of the building and is the centre of all activity...I come here daily and see clients networking, if there is a new inductee I make sure he or she is introduced to everyone...naturally some clients are more prone to networking than others but our effort is to try and encourage the activity as much as possible..."*

*IncuWorks'* ICT clients held generally positive views about the potential for Client-Client inter-linkage. An incident where the IM facilitated the formation of a consortium of a number of clients (Clients 23, 29 and 30) to bid for a large public sector contract is instructive:

When one client wanted to bid for a large ICT contract but only had the technical expertise to undertake just one of its aspects, the IM got a number of other ICT clients involved. The IM felt that by forming a consortium to bid collaboratively for the contract there was a greater chance of winning the bid on technical grounds. The IM surveyed the client base and chose a number of prospects who in the IM's opinion had the required technical expertise, necessary resources and capacity to deliver the remaining aspects of the contract requirements. The selected clients were first approached face-to-face and when they expressed interest, formal details and technical requirements of the bid proposal were shared. The IM coordinated the construction of the technical and financial proposals and added in a component highlighting *IncuWorks*' input (in the form of physical and computing facilities). In this manner, the IM, took an almost lost client opportunity and turned it into a useful example of incubators encouraging client co-production. The IM was in the best position to judge client capabilities and to act as a 'well meaning and trustable broker'. This led to a successful bid submission and the successful 'image building' of *IncuWorks* to outside agencies.

The above incident describes an event that brought clients together in an activity by a broker (the IM) with the intention of building 'agglomeration economies' (Keeble & Wilkinson, 2000) and 'collective learning' (Moulaert & Gallouj, 1993). This is a concrete example of the way the IM can play an important role in boosting Client-Client interaction by bridging gaps in knowledge and expertise for clients.

The logic here is quite simple, if the IM has relationships with all clients and with other resourceful outside entities, which the client base does not, then the information the IM derives from those relationships gives him/her an advantage. As a result, since the IM is seen as a trustable and selfless agent, (s)he is in a unique position to broker information between clients and to facilitate client-client interaction. However, is this the only type or level of brokerage behaviour possible or are there other more significant levels?

In order to shed light on the above question, an understanding must be developed of the different levels of information arbitrage through which a person (the broker) could create value. Burt (2004) suggests a number of levels which fit in quite neatly with the

IM's role and work. The first basic level is to make people on both sides of a structural hole<sup>40</sup> aware of interests and difficulties. The second level is transferring best practice where people familiar with activities in two groups are more able, than people confined within either group, to see how a practice in one group could create value in the other. Such brokers also know how to translate the practice into language understandable to the target group. Synthesis is an advanced level of brokerage. The idea here is that people familiar with activities in two groups are more likely to see new beliefs or behaviours that combine elements from both groups.

We can see that the example of IM brokerage behaviour described above is close to the first level. However, the role of the IM as a broker can go beyond building client consortia; for example transferring best practice and linking up clients with other entities / individuals that are dis-similar to themselves – the latter fact having been stressed upon by incubation researchers as being quite important in building social capital (Hughes et al, 2007; Bøllingtoft & Ulhøi, 2005; Tötterman & Sten, 2005). To this effect, the *IncuWorks* IM stated:

*[IncuWorks IM] "...we have an environment here of continuous learning...I cannot be expected to be an expert in all aspects of hi-tech firm development, so I must rely on our senior clients who too are constantly learning...we try to transfer this learning to our younger clients through workshops and expert sessions..."*

Empirical research on clusters can also be drawn upon to make a strong case for the usefulness of linking up clients to dis-similar entities. For instance, research on bio-tech clusters attributes 'growth in revenue' and 'number of patents granted' to the extent to which a company had multiple kinds of alliance partners at start-up. Companies with a heterogeneous mix of alliance partners enjoyed faster revenue growth and a dramatic advantage in obtaining patents (Baum et al, 2000). In the context of *IncuWorks* and its bio-tech client base, active brokerage behaviour by the IM can, therefore, lead to a number of potential advantages: the linkup up for instance of its spin-out bio-tech clients with unrelated outside agencies which can potentially

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<sup>40</sup> Structural holes can be strategically filled by connecting one or more links to link together other points (Granovetter, 1973).

increase the impact of commercial spin-out activity and the IM acting as a trusting “middle man” to transfer skills, knowledge and best practice.

*[IncuWorks IM] “...I see one of my key roles here as research commercialisation...and this requires that spin-out clients most of whom are serious academics and scientists...be introduced to the commercial world of consultants, financiers and potential licensees...we try to do this as effectively as possible and our performance shows that this approach works...”*

## **7.6 Client-Third Party Interaction**

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The IM-Client dyadic process can also transcend the boundaries of the incubator organisation (both physical and virtual). This is not a universal rule but the incubation environment seems to have fairly distinct boundaries at the initial stages of the process, where resources are channeled to the client firm from within the physical confines of the incubator and the personal capacities of the IM (Aaboen et al, 2008). However, as the process and the dyadic relationship mature, and the resource needs of the incubating firm become more sophisticated, boundary-level fragmentation starts to occur. In other words, a stage arrives in the dyadic process that in-house incubator / IM resources become insufficient or not-specialised-enough to meet the precise needs of a particular client firm.

Therefore, depending on the nature of the dyadic relationship and the client’s particular resource needs, the IM at some stage (in order to meet client resource needs) needs to move beyond his / her own capacity and incubator resources to channel incubation from specially organised and incubator-affiliated ‘expert individuals / groups / consultants’, ‘resource partners’, ‘trainers’ and ‘business mentors / coaches’. Extrapolating and analysing the Client-Third party dynamic is important since expert groups, specialist consultants and other resource partners have over the years become integral components of ‘good’ incubation programmes and are highly recommended by industrial bodies as important arrangements to

increase chances of *incubation success*<sup>41</sup>. Together with the IM, these third parties form a sort of incubation eco-system.

To understand Client-Third Party relations is to explore the question how (and on what grounds) do incubators establish which actors must be integrated into the organisational hierarchy and which actors must be dealt with via market mechanisms (such as contracting) when setting up resource pools for servicing client firms? The concept of 'boundaries' will help us shed light here; boundaries are a central phenomenon in organisation theory and the area has been shaped significantly by transaction cost economics (TCE) and related exchange-efficiency perspectives (Santos & Eisenhardt, 2005). Coase's (the father of TCE) insight was that the boundaries of firms are determined by the transaction costs of coordinating production under imperfect information; these costs may mean that it is economically efficient to include certain activities within the firm than to subject them to market exchange (Coase, 1937) – the market and firm being TCE's two governance mechanisms.

This insight has been subsequently fleshed out and refined by later theorists and what has emerged is an improved understanding of the mechanisms that impact choice of governance form or where the organisational boundary must be drawn. The argument goes that the choice of governance form is determined by the comparative performance, particularly transaction cost and production cost efficiency, of alternative forms. Transaction costs encompass the costs of negotiating, monitoring, and enforcing contracts that arise directly from opportunistic behaviour (Klein et al, 1978; Williamson, 1985) or from difficulties in measuring the goods or services being exchanged (Demsetz, 1988). Transaction costs also typically encompass the management costs associated with internally governing these exchanges. Production costs include the direct costs of producing and delivering a product or service and may reflect differences in scale or production capability.

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<sup>41</sup> For instance, the NBIA advises its members to "develop stakeholder support, including a resource network that helps the incubation programme's client companies and supports the incubator's mission and operations" ([http://www.nbia.org/resource\\_library/best\\_practices/index.php](http://www.nbia.org/resource_library/best_practices/index.php)).

The choice of governance structure would depend on the option that maximises performance through the *minimisation of transaction and production costs*. This “governance efficiency” conception when applied to organisational boundaries (Williamson, 1985) suggests that all organisational transactions (production, marketing, supply chain management and so on) should undergo an assessment of the make-or-buy choice to minimise governance costs (Madhok, 1996; Demsetz, 1988; Williamson, 1985). A boundary decision is, therefore, the choice of whether to conduct a particular transaction inside the organisation or through a market exchange on the outside. Given this view; organisational boundaries are managed in an atomistic way through the accumulation of independent make-or-buy decisions to arrive at an ‘optimal’ trade-off that balances organisational transactions in an ‘economically rational and efficient’ way.

Both case organisations seemed to have adopted an optimal (economically efficient) strategy for offering their service portfolios to client firms. *IncuWorks*’ service portfolio in comparison to *DubInc* was significantly broader with a number of specialist advisory services and other opportunities for clients to acquire specialist skills. Offering a number of such specialised services was beyond the professional and technical capacities of its existing staff complement. Therefore, the management strategy to achieve an efficient balance between services offered in-house vs. those offered through outside parties involved strategically selecting and including at the Board level the sort of investment partners whose services client firms were likely to use. Such partners included specialist service providers such as accountants, tax and legal attorneys, IP advisors, marketing and advertising agencies and so on. Board membership and investment partnership effectively aligned *IncuWorks*’ goals with its third-party service providers, thereby, incentivising their active involvement<sup>42</sup>, thereby, eliminating the need for formal contracting (and associated monitoring costs) and creating no additional cost overheads (such as professional fees) for *IncuWorks*.

Clients were kept regularly informed of the services available through *IncuWorks*’ partners. The partners conducted monthly advice clinics or “surgeries”, where they met clients face-to-face to discuss potential or existing problems and dispensed free

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<sup>42</sup> If *IncuWorks*’ clients share value went up (as a result of or otherwise the intervention and assistance of external stakeholders) then the value of the Board members’ shareholding would also increase.

(no obligation) professional advice in brief 30-45 minute time slots (which could be booked in advance). The initial advice was indeed “free and no obligation”, however, for further more in-depth and regular consultation, the partners had an agreement with *IncuWorks* whereby a special subsidised rate was offered to client firms. Thus, the strategy was optimal - it effectively positioned *IncuWorks* as a “Centre of Excellence” due to co-branding with its partners at no additional cost, the client firms enjoyed good deals on professional advice (which they would not have gotten in an open-market scenario) and the partners got ready access to potential clients.

At *Dublnc*, the situation was slightly different, the management felt that due to the nature of its client base, specialist IP, marketing, legal and other forms of professional advice were not in high demand. Although the scale of the firms at *Dublnc* was comparable to those at *IncuWorks*, their level of sophistication and scope of activities was different. The client firms at *Dublnc* (in contrast to *IncuWorks*) were operating in well established and traditional sectors where, over the years, the “rules of the game” had become fairly well established, thereby, reducing uncertainty associated with conducting the affairs of business and the need for costly specialist professional advice. In situations where professional advice was needed in well established sectors, recognised and well organised membership-based industry institutions and other participatory bodies had adequate resources and mechanisms. Therefore, a majority of client firms, as they informed the researcher, did not have a regular retainer with professional service providers, since they were not really needed due to the free or highly subsidised availability of high quality advice.

The areas where the *Dublnc* IM felt most of its client base needed specialist advice were raising finance, accounting, marketing / PR and tax. Client feedback generally corroborated the above view – degrees of emphasis on particular areas obviously differed. A few clients felt that they needed IT / website-related assistance in addition to the above areas, which when mentioned to the IM (making the clients anonymous), suggested that the management was aware of this demand, however, beyond general internet set up-related assistance, *Dublnc* did not have the internal resources to assist clients with IT.



In order to meet the assistance requirements of the client base, the IM suggested that an adequate level of expertise was available in-house and that between the IM and the Enterprise Officer, requisite levels of knowledge, qualification and experience was available to cater to clients' advisory needs. Since the research agenda was not 'evaluatory' in nature, no attempt was made to gauge client firms' opinion on whether the management was 'good enough', however, clients on their own did not bring up any concerns (which does not necessarily mean that they were 'satisfied').

*Dublnc* had just one outsourced service provider, an ex-client who provided technical IT 'hot desk' and 'on-site' assistance. This service provider was interviewed and a number of interesting details were revealed:

An ex-client had initially lobbied for internet facilities at *Dublnc*. At the time, being most qualified, this client was officially sanctioned by the *Dublnc* management to set up the internal network infrastructure and to negotiate internet access and related technology (whether ISDN, DSL, Cable or Microwave) through an external internet service provider. The initial plan was to provide wireless internet access inside the facility; however, due to the restrictive design of the building, many sections had poor reception. Therefore, the individual went to some lengths to set up and install network cabling in addition to wireless routers. The result was a complex network serviced by an array of routers, hubs and switches connected to a microwave internet dish, whose technical layout and potential / known 'problem areas' (in the absence of technical drawings) were known to only the individual – the ex-client - who set it up. This situation had led to a difficult stalemate between the ex-client, *Dublnc* and the existing client base. Whenever a network / internet problem was reported by clients, *Dublnc's* only recourse was to call upon its ex-client - the only individual who (presumably) knew how to fix the problem. This was done under the pre-text that any technical glitches were under some 'assumed' warranty because money had changed hands. To the ex-client, however, *Dublnc* was not a very serious client because the work that was put in was done more like a favour and informally (on a cost-to-cost basis) and that each time a call was placed for network servicing, it took substantial time and energy to resolve without any expectation for remuneration. Both parties were tied due to dependence on the one hand and a feeling of personal affinity and history on the other (the ex-client having gotten a first break into business at *Dublnc*). Neither of the two parties initiated any plans to develop a permanent and comprehensive solution to the problem. This resulted in a general client disapproval of *Dublnc's* internet facilities, which although had improved over the years, still from time to time, caused client distress.

The above scenario highlights that outsourcing via third party contracting has the potential to lead to losses in quality, control and productivity. According to TCE, the solution to such a problem is 'vertical integration' (Williamson, 1994) - a style of ownership and control where companies share a common owner and each member of the hierarchy produces a different good or service, and the products combine to satisfy a common purpose. For *Dublnc* then, hiring the ex-client or purchasing the ex-client's business would be an optimal strategy (assuming this was possible – but unlikely in the real world considering the amount of investment *Dublnc* would need to make). Whether or not this strategy was indeed 'optimal' would be based on management prioritisation: the question presumably being: would offering improved internet performance have the potential to significantly boost the ability of clients to pay rentals (which they were doing anyway irrespective of internet problems due to highly competitive rates) and ensure a steady stream of new prospects (which also did not seem to be a problem)?

Economists might argue that vertical integration could create opportunities for 'economies of scope' i.e. using the ex-client for other 'revenue generating' managerial tasks which may offset the additional working capital expenditure. The reality of the matter is that *Dublnc's* eventual strategy, its rationalisation and political evolution, was best known to its governing body (the Board), and for outside parties (such as the researcher), it is nearly impossible to re-create here by isolating precise chains of causality without falling into traps such as the 'hindsight bias' (Kahneman et al, 1982).

In conclusion, in the context of incubators, offering an extended portfolio of services requires that the incubator management subject each extended service to the essential make-or-buy assessment i.e. an examination of the economic and other efficiencies gained or lost if a particular service is offered via in-house resources or through an outsourced supplier. Offering services that are beyond the knowledge / technical capacities of an incubator's existing in-house staff pool would mean additional capital / working-capital expenditure on specialised human assets, increased costs of governance and higher degrees of information load on the hierarchy; but on the other hand, offering such services through third parties in order to off-load the above costs would mean a loss in control (over quality and impact) and taking the risks of a potential "hold-up" (due to human asset specificity), the supplier

going out of business and security and confidentiality issues. Ultimately, the optimal strategy would be subjective to the assessment that a particular incubator management arrives at taking into account client needs, and the most viable (managerially speaking) and economical approach in meeting those needs.

## **7.7 Concluding Remarks**

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From the analysis presented in this chapter, it becomes evident that in certain dyads and triads, the incubating parties can develop a more durable cognitive / relational match. The quality of this match determines the scale, scope, frequency and ultimately the effectiveness of the dyadic incubation process. The key to understanding why certain dyads are more successful at enabling incubation activity is to develop an understanding of the factors that lead to more durable dyadic and triadic bonds.

Without the voluntary and active participation of client firms, the mechanisms that facilitate dyadic co-production would break down. In order to improve the chances of client participation, the IM must build high quality client relationships to facilitate dyadic co-production. Underpinning IM-Client relations are a number of sub-contextual, unwritten and often unsaid expectations and rules which define the dyadic parties' role and incubation behaviour. Bypassing, neglecting, overlooking or breaking these rules and mis-managing expectations are several of the factors leading to a breakdown in incubation relationships, eventually leading to a slowing down or an altogether halting of developmental co-creation.

The analysis in the chapter also makes a number of contributions to the debate on influencing client 'agglomeration economies' and 'collective learning' – aspects of social capital. Findings from the research highlight that Client-Client interaction can be of several types, and each of these types of interactions has the potential to both positively and negatively affect client attitudes, beliefs and behaviour towards their own work, the incubator organisation and their ability and willingness to engage with other clients. Thus, the assumption that social capital will automatically increase as a result of an increase in client interpersonal contact is a flawed notion. It is not as simple to increase social capital as some researchers in the past assume. A variety of

psychological factors related to human experience, cognition and decision-making would need to be scrutinised in order to determine the ideals which are likely to promote the development of positive social capital.

Findings also suggest that the client-mix of university campus incubators should be carefully managed. Clients should be adequately screened according to their industry and area of expertise, because in certain industries and types of business activities, there are more opportunities for forming mutually beneficial relationships than in other sectors. In areas where there is less potential for the development of meaningful Client-Client relations, the IM's brokerage behaviour has the potential to boost interpersonal contact. The analysis suggests that active brokerage behaviour by the IM that facilitates the connection of clients in consortia for facilitating joint bidding for large compartmentalised contracts, or linking up clients individually or in groups to unrelated outside agencies, has the potential to enhance client cooperative behaviour leading to tangible economic benefits.

In the next three chapters, analyses covering the three key areas of investigation proposed in the research objective are presented: the normative environment, internal mechanisms and structural properties of the case organisations. In Chapter 8 which follows here, the nature and properties of the case organisations' internal normative environment is first explored.

## Findings from Case Studies - II

### *Norms & Triggers*

#### 8.1 Introduction

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In the previous chapter the focus was on ‘relationships’ - a *meta*-organising principle which provides a normative structure within which incubation activity is organised. In this chapter the analytical focus is turned to the first aspect of the overall research objective, that of the internal normative environment. A number of important *macro*-level mechanisms which enable IM-Client incubation activity are explored. These provide the rules under which the parties in incubation interpret their respective roles, develop social bonds to channel resources and trigger developmental assistance activity. It is shown that incubation activity occurs within the confines of an *ethos* or a set of guiding beliefs and ideals manufactured by the incubator’s apex governing body. An incubator’s *ethos* provides answers to questions relating to organisational identity, the incubator’s role in the wider community and most importantly its own definition of what incubation is or ought to be. These in turn define the IM’s priorities which then impact the incubator’s *incubation* delivery mechanism.

Ethos elements create the normative environment within which IM-Client incubation activity occurs; hence, aspects of this environment which include the nature of, often, hidden and unsaid rules, biases and assumptions are explored. These aspects of the normative environment influence a “click” or mutual IM-Client meeting-of-the-minds. Some IM-Client dyads develop a positive incubation “click” based on a number of variables, thereby, enhancing the possibility of dyadic co-production, whilst in other dyads the flip-side scenario of the negative “click” occurs; within such dyads incubation activity (once again based on a number of variables) either slows down or halts altogether. The variables which promote the development of the positive and negative “clicks” are also explored.

Finally, within those dyads where a positive “click” has developed, a host of variables can *trigger* events or incidents of incubation activity. Such triggers are discussed, and it becomes evident that trigger factors include a variety of unpredictable and untraceable variables along with a number of ‘effort economising’ heuristics deployed by clients.

## **8.2 The Incubation *Ethos***

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An important aspect that influences the real aims and objectives of incubation is the *ethos* manufactured by the apex governing body of the incubator organisation. The research found evidence for the presence of an incubator-specific “macro-level approach” to incubation. This approach or “incubation ethos” is impacted by a number of factors. The most important of these is the incubator’s apex governing body’s (usually the Board of Directors) self classification of incubator-type or answers to questions such as: what sort of an incubator are we?; what do we wish to accomplish?; and, how will we meet our short and long term targets? Thus, irrespective of external labels ascribed to particular incubators, there exists an independent, and at times divergent, system of meaning and classification internal to the incubator organisation.

The Board of Directors (BoD), where a member of the management usually holds a position (the IM in case of *DubInc* and the Director in case of *IncuWorks*), from time to time negotiate and agree on what their organisational identity is. Organisational participants have a need for some stability of meaning which comes through organisational identity. It influences how individuals interpret issues and take action (Dutton & Dukerich, 1991). Organisational identity determines what the participants’ ‘true’ purposes are and what sort of management decisions they ought to be taking in order to accomplish management strategy and goals (Kjærgaard, 2009).

Though a number of key general principles may be held sacrosanct, ultimately there is no fixed organisational identity. Depending on internal and external demands, the BoD or key participants, through changes in management policy, decide on levels of flexibility in policy and practice, thereby, changing internal and external perceptions of organisational identity (Brickson, 2005).

The resulting changes in organisational identity impact upon incubation *ethos*. For instance, at a recent meeting of the *Dublnc* BoD:

An important agenda item related to a re-assessment of what, in principal, the incubator organisation really stood for. It was agreed, that *Dublnc* was a 'business incubator' and not a 'community enterprise centre'. Thus, it was necessary that those clients, who were located in the facility for more than four years, would be asked to, with caution and sensitivity (adhering to community-oriented principles), move on to other premises. Through this change in meta-approach, the BoD, in aligning with standard incubation practice, solved a potentially problematic legal issue related to clients gaining increased rights under the commercial tenancy act after a period of residency beyond 4 years 9 months.

In addition to organisational identity, the client-mix or the incubator's preference to either have similar clients (in terms of industrial / technological orientation) or to have a wider array of clients (involved in mostly unrelated lines of business) should also, arguably, have an impact on incubation *ethos*. Logically, the developmental assistance needs of similar clients should be simpler to cater to (with specialised expertise, networks and resources) than those clients whose businesses are in unrelated sectors (McAdam & McAdam, 2008). Servicing similar clients would mean less physical and personnel resources and greater degrees of flexibility in delivering incubation and monitoring progress.

As discussed in the previous chapter, the above logic was found reversed. Developmental assistance at *IncuWorks* with relatively similar clients was much more comprehensive, structured and organised which required greater resources. One reason for this resource munificence could be that *IncuWorks* was relatively well-funded in comparison to *Dublnc*. However, a more plausible rationale is the specialised developmental needs of hi-tech firms which operate in turbulent markets with technology whose real commercial impact cannot be accurately predicted (unless tested over a period of time). In contrast, clients at *Dublnc* were operating in less turbulent markets and conventional sectors and encountered business problems that did not require highly specialised expertise for resolution. Thus, incubation *ethos*

is impacted by the client mix's degree of specialisation and the ensuing need for specialist developmental and infrastructural assistance.

The ethos elements of "organisational identity" and "client mix" impact incubation's "normative delivery mechanism". This mechanism tends to follow a general rule. Such a rule, in the case of *Dublnc*, was one of an "open-door policy to incubation":

*[Dublnc IM] "...As you can see my office is at the very front of the building...I see everyone who comes in and they see me, it is a very open and transparent culture here...clients and I usually greet each other in the mornings, they know my door is always open should they need any help...but it is not our policy to go knocking on clients' doors asking them if they need my help..."*

Under this rule, the IM carries the complicated identity of a helpful and watchful equal (not mentor or superior), conveniently reachable for advice in times of need but whose advice (although to be taken seriously) is to be accepted on a voluntary basis and not to be considered a final verdict due to a lack of the IM's real / tangible stakeholderhood and legal liability.

The *Dublnc* IM is also to be seen as a commercial landlord when it comes to facilities management and associated ground-rules:

*[Client 16] "...We have had a number of...how should I put it...flash points with XYZ (the IM)...we were of the view that since this is a community enterprise centre...there would be greater degrees of flexibility in terms of last minute room bookings or using vacant units...but this is not the case and it goes to show that XYZ runs this place like a landlord rather than a manager of a community centre..."*

At the same time, however, the IM is also seen as someone who is flexible and understanding when it comes to the case of those clients who, for reasons beyond their control, are unable to meet their obligations to the incubator (in the words of the *Dublnc* IM):



*[DubInc IM] "...Rent holidays or deferred payments is a facility we offer to all our clients...we are also quite flexible when it comes to utilities and water tax..."*

This is treated as a general rule only, since a particular client's perceptive judgment of the IM is entirely dependant on the nature of the dyadic relationship.

The "open-door policy to incubation" acts as a convenient filter to sift through those clients who genuinely feel they need the IM's guidance and assistance, and those who: (a) deceptively signal need at the time of application and then do not engage much in co-production activities; (b) those that entered the facility genuinely thinking that they would engage with the IM but for a variety of reasons (some of which could relate to incubation ethos) chose not to; and (c) those that both the IM and particular client recognise do not need developmental assistance. Through this policy the IM economises on time, resources and effort and is able to maintain her/his complex identity.

The IM, under the open-door ethos, has to maintain a very fine balance when it comes to, on the one hand, engaging in developmental assistance with the above categories of clients and, on the other, ensuring the financial sustainability of the incubator organisation. For instance, at *DubInc*:

A client at the pre-incubation stage (Client B), although having signed the tenancy / licensing agreement and paid the required deposit, did not move in as their business plan and funding proposal were incomplete. The IM provided focused assistance to Client B in terms of reviewing the Client's business plan, advising on necessary changes, holding brain storming sessions and using contacts to move the client's funding application along. Client B on a number of occasions expressed gratitude for the IM's tangible assistance, however, was not making serious progress towards physically taking up tenancy. Thus, the IM, came to a critical threshold point, where the cost of time and input to Client B versus the likelihood of that client becoming a 'real' and paying client were weighed. In keeping with the IM's identity and incubation-ethos, the IM created a very positive scenario of genuine concern, and through a colleague, who conducted a financial assessment of Client B's business, convinced the would-be entrepreneur that the idea was not ready for implementation. The process was helped along by the IM's own judgment of the Client's state-of-entrepreneurial-readiness. The IM came to believe, after picking up information from subtle indicators (such as the Client's life-partner not showing support by either visiting the new unit or phoning), that Client B was not really ready for what the IM believed were the risks and responsibilities of entrepreneurship. The point of departure between the IM and Client B was cordial since the Client felt, according to the IM's assessment at the time, quite agreeable to the idea of not going into business.

The prevailing incubation delivery mechanism at *IncuWorks* was different. In addition to the issues outlined above, there were a number of other elements impacting ethos. The incubation meta-approach there was found to be more "proactive" where there was a constant and urgent concern for client progress. The IM had two sets of clients to engage with and had developed, in a way, two "alter identities" for engagement with them. One set of clients included the University's spin-out companies. Due to the IM's academic qualifications and work experience, such clients considered the IM an "insider" who understood the complex nature of developing IP and commercialising university research. The one challenge here for the IM was to shed the "insider" image just about enough to show knowledge and expertise of the "outside" or the commercial world. In the words of a spin-out client when asked about why it was felt that the IM was (or was not) suited to the role of *IncuWorks'* IM:

*[Client 34] "...We are still working on the final elements of our patent application and have not as yet moved in, however, IncuWorks has been a great help, they have advised and encouraged us...we receive invitations to attend various presentations. A colleague of mine has also been going to the CCDP classes. They have been assisting but IP commercialisation can be a long and difficult process...[goes into describing the process]...I know X (the IM) has worked at...so with a...background...I suppose [gender ref. removed] is quite experienced and useful..."*

The spin-in clients had a different set of expectations when it came to IM skill set. The IM's predominantly spin-out related expertise, although respected, was not (in some cases) considered directly relevant to the sort of areas where the ICT-based clients especially needed most assistance (such as expert domain, technical and market knowledge). For instance one client stated:

*[Client 31] "...a lot of the events here have something to do with IP and patent protection for the science and technology sector...especially bio-sciences...but as an IT company, we can't really take out patents, software is subject to copyright law...I don't think that there is much in-house knowledge on accounting, tax and the channel to market and supply chain issues that IT companies face..."*

The IM was keenly aware of this deficit and met this through external resources such as the experts' panel and by encouraging Client-Client incubation. To some clients, this made *IncuWorks'* real focus the commercialisation of the hosting University's research:

*[Client 30] "...My impression is that most speakers, events and panel experts here are university research focused especially bio-tech. For us as an IT company, marketing and other strategic planning support is not to say unavailable but maybe not as well developed..."*

The “proactive incubation approach” at *IncuWorks* was not found to be a blanket and completely homogenous mechanism. There were degrees of “proactivity” when it came to client engagement. This was based on a variety of influencing factors relating to client category, entrepreneur experience and abilities, the incubator’s capacity to effectively and economically offer developmental assistance (to certain clients it was nearly impossible to do so due to their highly specialised nature) and the IM-Client “meeting-of-the-minds”.

Thus, in both cases there is evidence of an incubation ethos which is a macro-level mechanism governing IM-Client, Client-Client, Client-IM-Client and Client-Third Party relations and the ways in which the parties respond (together or separately) to norms, values and identities.

### **8.3 Base Bonds of the Dyadic Relationship & the “Incubation-Click”**

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An assumption being made in this research is that there is significant variability in the responsiveness of entrepreneurs to engage in incubation activities. It is suggested that this variability is related to the nature of IM-Client relations. IM-Client relations are at a number of levels, including a person-to-person relationship between the IM and client entrepreneur(s), or a business-to-business relationship between the incubator organisation and client firm. In the management of IM-Client relations, a myriad of IM-Client identity-related aspects including those that deal with personality, background and experience work to create, what is being called, a state of positive “incubation-click”:

*[Client 4] “...why do we work so well with XYZ (the IM)?...I suppose we have really clicked...you know when there is rapport, we share a common goal and I can see (gender ref. removed) is genuinely interested in our business...I can’t see myself working with someone I don’t get along with on a personal level...”*

The “click” that the above client describes is a state where both the incubator manager and a client develop a mental bond based on a number of key elements which come across as important variables. These variables are presented below along with a cross section of quotes from respondents:

First, a shared awareness by both the IM and entrepreneur of the firm's gaps in knowledge, competencies, and resources.

*[Client 2] "...we had a number of meetings with XYZ (the IM) on our funding proposal...it is quite important that this goes through at this stage...and both of us are now on the same wave length..."*

*[Client 29] "...I have not participated in a business plan competition before...it is great for public relations and the prize money is very welcome...and yeah XYZ's (the IM) input is invaluable...I can see (gender ref. removed) has a lot of experience..."*

Second, a mutual willingness to engage in incubation activities.

*[DubInc IM] "...There is really not much you could do with a client who doesn't ask for assistance or doesn't need it...we try to engage with them but it is not our policy and nor in our interest to....(pauses to think)...I suppose to impose ourselves where clearly no help is needed..."*

*[Client 26] "...The sort of support we need at this stage is very focused and requires a lot of sector expertise and contacts...I am not sure that we can get this here..."*

Third, a recognition that the IM (and associated networks) can help fill the knowledge, competency and resource gaps.

*[Client 12] "...I know XYZ (the IM) has been able to help a few other clients here with government grant applications...cash flow is likely to become a serious issue for us so this is something that must work on..."*

*[Client 10] "...For me it was difficult to imagine all that goes into writing up a business plan...you know for the bank loan...I really value XYZ's (the IM) input, (gender ref. removed) knowledge and expertise in the food sector is really helping put it all together..."*

Fourth, the capacity of the IM to commit sufficient time in order to implement the breadth of incubation activities and to achieve a level of intensity required for impact.

*[DubInc IM] "...Would like to spend more time with clients but as you can see I wear a number of different hats..."*

*[IncuWorks IM] "...My role here is quite well defined...there are annual targets to be achieved and clients' performance influences my KPIs..."*

There is a flip-side scenario to the "incubation click". Clients may subliminally signal, or even overtly communicate, no particular need for developmental assistance. This could be due to a number of factors such as:

*First*, entrepreneur confidence in personal abilities.

*[Client 32] "...I have substantial experience working in the industry which is why my clients value my advice...consulting is a very peculiar field...it is about clients being convinced of your technical and professional abilities...so I don't really see how IncuWorks can help..."*

*[Client 11] "...I have a fixed daily routine...I come in 7, prepare the fish and leave it to cure...then on with the deliveries for the day...back in the afternoon, prepare the catering orders and then close shop at 6 or sometimes 7...this has been working and there is growth...but it is slow..."*

*Second*, allied to the above is a summary image of the IM as not competent enough to advise.

*[Client 15] "...they don't really have expertise on web-based marketing here, yeah for regular products and services I could go for advice to the IM but I doubt that there will be any point in raising the question of search engine optimisation downstairs..."*

*[Client 25] "...We are working on content management and data mining systems...from a core technical standpoint I don't think XYZ (the IM) can be expected to be of much assistance...there are other areas where I see (gender ref. removed) involvement..."*

*Third*, uncertainty about what particular business related problems to bring to the IM's knowledge. This could be due to the perceived risk of either a negative self-image, or disclosing business details to a third-party. For the client, uncertainty about engaging with the IM could also be due to a lack of awareness that the IM is actually capable of solving a particular business problem and / or the client's own assessment of their business problem's worthiness of the IM's time.

*[Client 34] "...when we were starting off there were all sorts of teething issues...strategy was more a day-to-day sort of thing for the first year or so...then things settled down..."*

*[Client 20] "...A person starting up a business should be ready for the perils of entrepreneurship...you can never a 100% ready but I think you have self-confidence and a drive to make it..."*

*Fourth*, no genuine need for assistance, where a client does not really need incubation but chooses to locate in an incubator facility due to the non-developmental conveniences offered.

*[DubInc IM] "...One of the things we try to do in the selection interview is to judge why a client has applied...now consider the case of ABC (a client)...it is a special arrangement under circumstances which are not in (gender ref. removed) control..."*

*[IncuWorks IM] "Yes, there are a number of clients who don't participate as much in our workshops or make use of the surgeries...it takes a while for both us and the client to understand what it is that is required...and sometimes a hands-off approach is all that is needed..."*

In this negative ‘click’ scenario, the IM is faced with the peculiar task of judging the nature of the incubation relationship. The IM, usually with experience over the years, comes to this judgment in the first few meetings with a prospective client at the pre-incubation stage.

*[DubInc IM] “...I have worked at enterprise centres for a long time and with time and experience you can tell after a few months if a client will want to engage or not...if they stop and talk and that is more than a hello...that is a good sign...”*

There are also instances where a potentially *positive* “incubation click” turns into *negative* one. For instance at *DubInc*:

The IM through a chance conversation with a colleague from a public authority came to know of a client’s previous financial and legal history. This client was availing of rent holidays and was held in high-esteem due to linkages with the local community. The Client, according to the IM, had not highlighted past legal and financial problems, where such problems, could follow the client to *DubInc* (such as ‘pushy creditors’ or ‘angry landlords’), thereby, tarnishing *DubInc’s* organisational identity and reputation. As a policy, clients at *DubInc* were required to declare such details at the time of the selection interview. With this new knowledge, the nature of the dyadic relationship changed. The focus, rather than a tacit and positive awareness of client health, became more calculated, cautious and withdrawn. As per the IM’s assessment, the Client, despite past problems, had sufficient business turnover to meet financial obligations to *DubInc*. Ultimately, this issue was resolved through a formal process which took several months. During this time, according to information related by both the IM and Client, there was little or no developmental assistance-related co-production activity.

The “click” dynamic is also impacted by explicit and implied ground rules of client behaviour. A number of important written and un-written ground rules established at the very onset of the relationship by the IM act as the base-bonds for the dyadic relationship. For instance, at *DubInc*, a number of such stated and unstated ground rules acted as dictates to the dyadic relationship, these were hinted at by the IM:



*[DubInc IM] "...We are a community enterprise centre...we don't expect a lot from clients but the way this place is run is very much like a business, we have to ensure financial sustainability and that there is a positive level of engagement with the local community...it is made very clear to all clients that payment of their monthly rental is crucial...we try to keep them involved in our community outreach efforts and where there is the odd complaint or something which is against stated policy then we consult with clients professionally...a lot of hard work has gone into building our image and the Board takes this matter seriously..."*

Therefore, at *DubInc*, there are a number of normative expectations from clients:

1. Subscribing to the "community oriented spirit" of the incubator organisation;
2. Developing a disciplined and predictable pattern of monthly rental payment and payment of other overheads or taxes;
3. Adhering to standards of house-keeping set by the IM or facilities manager (such as not misusing common facilities); and
4. Adhering to generally accepted standards of conducting their business affairs (such as refraining from intense retail oriented activity so as not to disrupt the work of other clients).

At *IncuWorks*, in addition to the above, a number of other ground rules were also prevalent which were hinted to by the IM:

*[IncuWorks IM] "...When clients sign a contract with IncuWorks a number of things are clarified at the onset...it is important that there is participation in our 6-monthly review process...it is helpful in keeping everyone informed and creates an opportunity for us to step-in formally if there is a need...(a clarification is sought)...it is crucial that we assess whether there are opportunities for a spin-in to engage with the University, either in terms of a research collaboration or there maybe an opportunity for the University to licence out IP, sometimes it doesn't happen but a potential must exist...naturally, other elements cannot obviously be a part of contract but as stakeholders in client businesses there is an expectation here that IncuWorks is associated with hi-tech and leading edge work..."*

Thus, at *IncuWorks* it was expected that a client:

1. Participate in an active but voluntary basis in 6-monthly progress update meetings;
2. Demonstrate keenness to engage with the University, even if there were no immediate or tangible results;
3. Consider *IncuWorks* a true stakeholder and partner beyond the "business-like" relationship governed by the shareholder's agreement;
4. Avail of the free-of-cost developmental assistance-related services on offer; and
5. Subscribe to the organisation's "growth oriented" culture and contribute to its "Hi-Tech" identity.

The relationship dynamic rapidly changes when those clients, who in the IM's judgment, are found to overlook or break established ground rules. For instance, the following incidents at *DubInc* show changes in relational quality:

A very senior client (Client A) at *DublInc* started to use unlocked vacant units for ad-hoc meetings. The IM claimed that Client A, without making formal bookings, used the conference room at their leisure for long meetings. Another aspect of the Client's operations that particularly concerned the IM was their own foray into training, especially in areas where *DublInc* itself specialised. Client A on the other hand, as senior clients, felt that it was appropriate to use un-utilised facilities for business purposes. Thus, the IM-Client A relationship, due to a conflict of interest and the perceived negation of incubation ethos, became "business like". Opportunities for the parties to engage in developmental assistance, thereby, reduced due to diminishing trust and lack of confidence.

A new "very enterprising" client (Client C) was inducted at *DublInc* during the research period. Client B had moved to *DublInc* from another Enterprise Centre and had informed the IM that the previous tenancy was not being renewed. Under an informal understanding between Enterprise Centres in the Dublin region, it is encouraged that clients not be allowed to maintain units in different Enterprise Centres. Three incidents occurred in rapid succession which led to a downturn in IM-Client relations; first, the IM after a month of tenancy, found out that Client B had not given up the other unit. This was unacceptable to the IM and therefore Client B was urged to give up this unit. Client B on the other hand insisted that the other unit was not under (gender ref. removed) formal management and control but the firm's "silent" partner's. Under the terms of the tenancy, the IM did not have a legal provision to ensure that whilst its clients were doing business at *DublInc*, they did not maintain units at any other Enterprise Centre in the Dublin region. Next, Client B (based in the food unit) started to "test market" a number of new products to other clients in the building during lunch time. The IM encouraged this activity, however, when Client B distributed flyers to the public to attract more customers, the IM stepped in and had a "chat" with Client B. Essentially, the IM did not feel it was appropriate for retail clients to come inside the building to buy food. This, in the IM's view, would have tarnished organisational reputation and would have created disturbance for other clients. Finally, Client B, one day brought in hi-fi equipment and started to play "house music" (bass heavy club/dance tracks). In Client B's view playing music helped in pacing work activity, broke down the monotony of working alone and moreover, this was

always done in the past and was allowed in the previous Enterprise Centre. However, Client B once again had to have a “chat” with the IM and was urged to reduce the music’s volume. In the words of the IM:

*[DubInc IM] “...we don’t have any policy against playing music as long as it doesn’t interfere with the work of other clients...now we had a few complaints from XYZ (Client B’s neighbour) about this and it just doesn’t give a professional image to walk-in customers and people coming over for meetings with other clients in the building. If it was Bach or Beethoven it would be something else but this (makes club bass sounds) is something else altogether...”*

Therefore, due to these incidents, there was incongruence between Client B’s expectations and requirements and what the IM could allow and offer, in other words, a misfit between incubator and client strategy. Opportunities to engage in developmental assistance became scarce even though the IM being very well connected and an expert in the food sector, was expecting and expected to engage quite heavily with Client B. Eventually, after only 3 months of tenancy, Client B served a formal notice to move out.

The case at *IncuWorks* was slightly different. For instance, the screening process and induction criteria filtered out any clients with whom potential IM-Client conflicts-of-interest could develop. Due to a high degree of client involvement (or opportunities for involvement) in *IncuWorks*’ activities, ground-rules were constantly reaffirmed. This becomes evident in the words of a client:

*[Client 35] “...there is a lot going on here...we get emails almost on a daily basis...usually something is relevant to us...the advice clinics and the guest speakers are especially good...it’s stuff that is actually useful so we do get involved...it took us a good few months to figure out the culture here...which I think is meant to push us to achieve targets...”*

To conclude, the “click” between the IM and a particular client enables incubation activity, it reveals the true scale and scope of the level of assistance needed and the purposes of a client’s strategic motives for joining the incubation programme.

#### **8.4 The Triggers of Incubation: *Stealth, Subtle Indicators & Heuristics***

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A social relationship, such as the one between an IM and Client, naturally has a time dimension, forming; evolving and dissolving over time (Burt, 2000; Cummings & Higgins, 2006). An IM-Client relationship’s intensity changes in time from dormant to *active* when projects are mutually initiated. This initiation, which leads to the relationship status changing to *active*, can be triggered by either the IM or a Client.

In the case of *DubInc*, one way the IM triggers mutual projects is by sending out personalised emails informing clients of potential leads or sources of grant funding. In addition, the IM also creates “triggers” to engage with those clients who, according to the IM’s judgment, are either facing, or about to face, difficulties in doing business:

*[DubInc IM] “...Over so many years in this role I have developed a system of monitoring clients without giving the impression that they are being monitored...monitoring is not something that we here are meant to do in the strictest sense...the clients have not signed up for this...but naturally I am responsible for ensuring our financial sustainability and also to help clients keep buoyant...”*

From the above quote it becomes clear that the IM must ensure that clients remain stable enough to be able to meet their financial obligations to *DubInc*. The IM’s task is made quite complicated since there is little or no access to client financial data. Hence, the IM develops and relies on subtle *client-specific indicators* that ‘as a matter of coincidence’ allude to client business performance. Such a system of gauging client performance complements the nature of the complex and nuanced IM-Client dyadic relationship at *DubInc*.

Depending on the type of client business, the IM, through watchful awareness, is able to link specific client activities and behaviours with the overall health of their operations and if there is instability foreseen, the IM proactively attempts to trigger an episode of developmental assistance. For instance, the IM narrated an account of a particular client involved in waste-recycling:

*[DubInc IM] "...I did not see their truck move an inch from its parking space for three weeks and they were hardly getting any telephone enquiries...now for a business that depends on income generated by collecting recyclable waste...for them not moving their truck for so long and not getting any phone calls either...rings warning bells..."*

These subtle indicators triggered an event of developmental assistance. The IM called over to the client's office and had a "chat" about internal affairs, showed empathy, and offered advice and support in the form of deferred rental payments or rent "holidays".

Subtle client-specific indicators, apart from non-interventionist monitoring and helping the IM trigger incubation assistance, can also be used for negotiating with clients. For instance:

When a Client requested a rental holiday for an extended period the IM was able to effectively negotiate down the holiday time period on the basis of a subtle client-specific indicator – observations on the number of the Client's walk-in customers. With a large number of walk-ins, it was difficult for the IM to believe that the Client was facing financial difficulties.

The role of subtle client-specific indicators had little or no impact on triggering incubation activity at *IncuWorks*. This was due to higher levels of transparency due to regular disclosures of financial and operational performance during the 6-monthly review process. The IM did not have to use stealth to gauge whether the client was about to "go under". At the review meetings, any adverse circumstances that clients faced were mutually diagnosed in an open environment and strategies were discussed and agreed upon to counter negative impacts:

*[IncuWorks IM] "...The review meeting is not meant to be a monitoring exercise...we are very careful to not give that impression...we want to show client firms that IncuWorks is a real stakeholder and partner. During the meetings the clients make presentations about their progress and present plans for the next review period. Our effort is to see where we can contribute towards the realisation of their plans..."*

In fact, the review meetings were the greatest source of incubation triggers. For instance:

During one review meeting, it became clear that a Desk-Space client was struggling to meet the firm's cash flow requirements. The IM recommended that they work on entering several local and international competitions for innovative hi-tech firms where, as per the IM's assessment, the struggling Client had a chance of winning substantial prize money. This strategy for raising capital was agreed upon and the Client started to work under the guidance of the IM to prepare and submit documents and presentations according to the requirements of various competitions. The IM gave substantial input to the Client on preparing submission documentation. Due to this the Client firm was nominated for a high-profile EU level competition. The IM worked with the Client to hone the final presentation and to prepare for its delivery and subsequent Q&A. The IM went one step further and actually flew with the Client abroad to oversee the presentation delivery, to help make last minute adjustments and to provide moral and emotional support. This mutual agency led to the Client being placed in the Competition's top tier and not only winning substantial prize money, also benefited from press coverage, networking and general exposure. The IM was able to ensure that *IncuWorks* benefits from the hype and publicity associated with winning a high-profile competition.

Incubation is co-produced in a two-way process, therefore, some clients (not all), under certain conditions, also proactively trigger incubation activity. Each client has a unique attitude and a set of beliefs when it comes to seeking IM intervention and assistance which in turn leads to a number of "automatic solution-seeking behaviours". These behaviours or heuristics are programmed responses triggered when clients sense the build up of a business-related problem. The presence of

several types of programmed responses for triggering incubation developmental assistance were found, including:

1. When faced with a 'problem' which the client feels lies within the IM's area of expertise, the response, with other IM-Client relational factors considered "normal", is proactively establishing contact with the IM in the expectation of an efficient resolution to the 'problem'. The programming and response are altered when IM-Client relations (in the view of the particular client) are not "normal".
2. When faced with a 'problem' which the client cannot correctly judge to be lying within the IM's area of expertise, the response (once again relational normalcy being a necessary condition) is establishing a moderating contact in order to gauge IM response, attitude and resourcefulness. Levels of further engagement are based on the particular client's assessment of how the IM reacted.
3. When faced with a 'problem', whose resolution, the client knows to be within the abilities and resources of the IM but whose nature is deemed to be "personal" or an area where the client feels getting any assistance erodes pride / ego, the response here is to establish no IM contact for problem resolution.
4. When faced with a 'problem' whose resolution the client judges to be beyond the ability and capacity of the IM, the response is to establish no contact with the IM.

The above four types of programmed responses do not constitute an exhaustive list. However, there are a number of elements which remain constant as variables impacting whether client programmed responses lead to 'positive' or 'negative' triggering behaviour. These elements include:



1. IM-Client relational quality or whether the client judges his/her relations with the IM to be “normal”, “progressive” or “regressive”. Progressive and normal modes are likely to positively influence programming.
2. Client strategic motives for incubator placement - behavioural programming for a client who takes up space inside an incubator knowing that he/she does not really need or prefers any developmental assistance, is likely to be negative.
3. The nature of client ‘problem’ – this would be client’s own assessment of the problem’s appropriateness and could constitute the strategic weighing of the benefits or otherwise of engaging with the IM, whether the client judges the problem to be worth IM’s time or whether the problem is judged to be ‘personal’.
4. The client’s perceptual judgment of IM resourcefulness and likely attitude and response towards the problem.

Heuristics (such as those discussed above) work well under most circumstances, but in certain cases lead to systematic errors or cognitive biases (Kahneman et al, 1982). For instance, when a particular client at *DublInc* faced a problem related to a programming code bug in a sophisticated IT project, the Client’s automatic response was to disqualify the IM as a probable (and effective) solution provider due to a bias that the IM is not technically qualified in the particular technology platform in which the problem arose. When the same client faced problems in raising capital, due to a bias that the IM is an expert in the area, a quick and effective dialogue was opened impulsively in the hope of an efficient solution. The subsequent experience and outcome of this particular IM-Client engagement would then either confirm and strengthen or dis-confirm and alter the programmed bias.

Evidence of such “programming” was found in a number of other cases, for instance at *IncuWorks* a client stated (when asked for what particular problems would (s)he contact the IM):

[Client 15] “...they don't really have expertise on web-based marketing here, yeah for regular products and services I could go for advice to the IM but I doubt that there will be any point in raising the question of search engine optimisation downstairs...”

Incubation triggering mechanisms and dynamics are complex and our understanding is likely to remain limited because, methodologically, there is probably no viable strategy to capture the incubator's entire social environment in totality. What is observed and recorded is only a cross-section. Incubation can be triggered by totally random events such as hearsay, chance meetings and casual conversations between the IM (or other members of the incubator organisation) and a particular client at any point in time inside or outside the incubator organisation. Due to the inherent randomness of the triggering mechanism, questions relating to 'why a client chose to contact the IM to resolve a particular problem' or 'why the IM decided to pursue a particular client' are likely to remain, in the absence of empirical data, open-to-speculation. However, there is one unchanging certainty that will hold true in any incubation environment: IM-Client relational quality is the real denominator for developmental co-production quality (i.e. deep understanding, trust and mutual respect between two professionals).

## 8.5 Concluding Remarks

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In this chapter, it became clear that a mix of variables as well as internal and external conditions *trigger* incubation co-production. The main factor that has a high degree of bearing on these variables and conditions is the incubation *ethos*. This is a macro mechanism governing the various incubation relationships and the ways in which the parties in incubation respond (together or separately) to norms, values and identities. Alongside the impact of *ethos*, a second important factor is the incubation “click” or a meeting-of-the-minds between the IM and a particular client. The “click” opens channels for the co-creation of developmental assistance and its durability signals the true scale and scope of IM-Client engagement.

When the conditions for the “click” to occur hold true, dyadic co-production is triggered via a number of mechanisms; first, through the IM's 'watchful awareness' of

client activity that tangentially signals developmental assistance need; second, chance serendipitous encounters; third, structured progress review meetings; and, fourth, since dyadic co-production is a two-way process, under the influence of heuristical programming, through clients proactively approaching the IM.

The above understanding of incubators' normative environment is likely to contribute to the debate on why and how comparable incubation environments differ when it comes to co-production efficacy. It also goes some way to explaining why certain IM-Client dyads in a particular environment seem to quite actively co-create developmental assistance whilst others do not. Towards this end, it is argued that first and foremost there is a need to accept a more nuanced explanation for why differences in incubation co-creation efficacy exist. What the research in this thesis is suggesting is that incubation occurs within a complex mix of relational and normative variables related to human cognition and behaviour and without a better understanding (and appreciation) of these variables it is unlikely that approaches can be developed to effectively boost the level of developmental activity within any type of incubation environment.

In the next chapter, based on the second area of investigation proposed in the research objective, the internal mechanisms that facilitate incubation activity at the case organisations are analysed.

## Findings from Case Studies - III

### *Structure of the Incubation Process*

#### 9.1 Introduction

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In this chapter, the focus turns towards de-constructing the various facets of the incubation process. The themes presented explore (1) the strategies IMs employ for client engagement; (2) the way various stages in the process are organised; (3) the factors that influence the client selection decision; and (4) the relationship between the range of co-production developmental assistance services, on the one hand, and the characteristics of the client base and incubator corporate goals, on the other.

The research presented shows that due to client differences (in terms of behavioural attributes and nature of businesses), the IM resorts to using one of (or at times a combination of) three strategies of client engagement. What is demonstrated is how these strategies, along with the general needs of the client base and the pressures from the external environment, influence the way time and resources are devoted by the IM to the co-creation of developmental assistance. A staged model is presented which highlights that clients move through six stages after establishing initial contact with the incubator. Although each stage represents a logical progression towards the eventual aim of incubation, some clients skip entire stages, while for others any one particular stage may not apply.

An important stage in the incubation process relates to client pre-incubation, pre-selection and selection. The findings of the research presented in this chapter sheds light on a number of important aspects in this stage from the clients' and incubators'/IM's perspective. From the clients' perspective a number of aspects are discussed including the impact of client understandings and expectations from incubation, motivators for pursuing incubation and strategic motives for incubator

placement. From the perspective of the incubator and IM, an example of a client selection decision is used to highlight the role of both systematic information provided by the proposer as well as pre-conscious, intuitive and experiential processes in the client selection process.

The final theme highlights the differences between the overall approaches to delivering incubation developmental assistance in the two case organisations. A categorisation of the gamut of services available assists in providing an understanding of the nature and range of developmental assistance services which incubators can offer. This in turn allows an examination of the rate at which clients consume incubator resources and IM time.

## **9.2 The Three Strategies of Incubation Co-Production**

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A myriad of client-related factors working together influence the way an IM develops and deploys an initial client-specific *incubation strategy*. Such factors can be categorised into a number of areas including:

1. *IM-Client Rapport* – the IM-Client incubation “click”; the IM’s personal relationship with a particular client or knowledge of his/her background and vice versa;
2. *Client’s Personal Attributes* - industry experience and education, skills, personality and temperament, management style and so on; and
3. *Client Business Attributes* – industry sector, market potential and level of complexity.

The IM’s initial incubation strategy, lays down the meta-rules of subsequent IM-Client engagement. This strategy starts to evolve from the very first IM-Client meeting and solidifies with subsequent interactions during the pre-incubation, selection and induction stages. By then IMs, exercising their judgment and using accumulated experience, are able to develop an understanding of client needs, attitude towards co-production developmental assistance and strategic motives for incubator

placement. Although, the application form and formal interview add a rational dimension, ultimately it is perception, intuition and “gut-feeling” which drive the IM’s initial incubation strategy. In the words of *IncuWorks*’ Director:

*[IncuWorks Director] “...When we come across an applicant a number of questions tend to cross our minds...what help does he need, does he know himself what help he needs, why is he applying here, does he need to be here, will he become involved in our activities here, will he contribute to the culture of IncuWorks...you work on gut-feeling and instinct to try and work out a strategy to engage with the applicant...there is no right or wrong strategy, it is also not just based on first impressions...we keep an open mind and it naturally evolves...and in the process we learn...”*

Three possible incubation strategies were found that IMs adopted for incubation co-production. These strategies include:

1. *Dormant* – both the client and IM subliminally agree that incubation would be restricted to the client mostly availing of the infrastructural facilities of the incubator organisation. These would include besides shared services and facilities, subsidised rent and advantages associated with the location of the facility (e.g. proximity to markets, car parking and centrality of location). It was found that a number of clients at both *DublInc* and *IncuWorks*, chose the facility due to reasons unrelated to its core offering, that of incubation developmental assistance. A number of clients admitted that subsidised rent and flexibility in payment was the most attractive reason for them to apply and stay on. Other clients suggested that benefits accruing from shared facilities and the presence of other clients made *DublInc* a more feasible destination to do business than for instance a serviced office or a commercial property.
2. *Reactive Incubation Engagement* – this can be viewed as the “open door policy” to incubation. As a part of this norm, there is no structured form of assistance and oversight of client operations. The IM and client engage in developmental assistance in an episodic manner or as and when opportunities arise. Requests could come from clients, such as advice or assistance in dealing with a specific

problem such as a funding proposal, guidance on promotion / marketing, tax-related queries, or other perceived competence areas of the IM. The IM also signals the availability of developmental assistance via email bulletins and adhoc / impromptu conversations with clients. Arguably, this incubation strategy leads to the resolution of short term problems or crisis events in client businesses.

3. *Proactive Incubation Engagement* – This is the most intensive approach to incubation developmental assistance. It requires that a particular client and the IM agree on business progress goals and benchmarks, as well as a mechanism of IM oversight and monitoring. Periodically, the client and IM may develop particular projects to pursue together, such as network enhancement, new product development, raising capital and so on. With proactive engagement, it can be argued, that alongside short term problems, the long term developmental needs of the client would also be managed. Therefore, client resource consumption would be high in comparison to the previous two approaches.

Generally speaking, the first two of the above approaches were prevalent at *DublInc* whilst *IncuWorks* had a mix of the second and third. In the words of the two IM's:

*[DublInc IM] "...My door is always open, sitting here in full view of the Centre's entrance I can say hello and ask clients to come in for a brief chat as they go to their units. The culture here is very friendly but my approach is to let clients decide what their problems are and whether they need our help. I send out emails regularly to let them know of relevant activities, supports and events available at the Centre and through the Dublin Chamber, Enterprise Ireland and other state agencies. Those clients who genuinely feel they would benefit from the support available here approach us on their own..."*

*[IncuWorks IM] "...We have developed systems to encourage clients to actively participate in our support services. There has been a lot of investment and effort that has been into making these available, mostly free-of-cost or at highly subsidised rates. The half-yearly review and planning meeting allows us to develop a common understanding of what is required and what each party will do to contribute to accomplishing agreed targets. Our vision is to be seen*

*as a leading Centre of technology transfer and entrepreneurship in Europe...and we can only realise this if our clients clock substantial growth on a year to year basis. We bring in the sort of entrepreneurs who are driven to materialise double digit growth and set up hi-profile ventures...by combining their drive with our supports and facilities...the results are slowly emerging..."*

Incubation strategies are not blanket approaches applicable across the board; they are specific to a particular IM-Client dyad. The strategy can also shift from one to the other depending on changing circumstances (such as for e.g. external environmental pressures or a sudden break through at the client level such as an acquisition or investment offer) and evolving IM perceptual judgment. Furthermore, the IM's client-specific incubation strategy is effective in so far as that particular client decides to accept the approach and "play along".

Each dyadic co-production strategy has consequences for IM time and incubator resources. Infrastructural support does not place much demands, whereas, the Reactive and Proactive strategies, depending on the nature of the dyadic relationship and the client problem being addressed, could put substantial demands on IM time and incubator resources.

In the case of *IncuWorks*, the IM's role was dedicated to enterprise development. There were no major and obvious distractions due to the availability of dedicated staff for each of the four strategic areas of *IncuWorks*' operations. The key performance indicators for the IM were also related to client firm progress, creating direct ownership and responsibility by the compartmentalising of the role.

The case of *DublInc* was slightly different, the IM's role required the maintenance of a fine balance between time and resources dedicated to, on the one hand, the core "incubation co-production activities" and, on the other, to the non-core (but equally essential) "activities to ensure organisational sustainability" and "other non-incubation job requirements". The IM was faced with the task of managing the affairs of a highly complex organisation, where performance was evaluated on the accomplishment of organisational targets relating to financial sustainability, upholding of reputation and maintaining organisational identity. In the words of the *DublInc* IM:



*[DubInc IM] "...We have no ongoing government support, therefore, there is a lot of pressure here to ensure there is cashflow and reserves to meet our monthly financial obligations...I have to worry about paying staff salaries, utility bills and creditors at the end of each month for which client rentals are just not enough. If we did not concentrate on our trainings and community outreach programmes the Centre would not be financially sustainable..."*

Thus, the relative "role diversity" of the two IMs (low in the case of *IncuWorks* and high in the case of *DubInc*) has an impact on IM time and resource allocation to incubation.

### **9.3 Factors Influencing IM Time & Resource Allocation**

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Besides the three incubation strategies discussed in the previous section, there are a number of other elements that influence the allocation of IM's time and resources to incubation – a key aspect influencing the quality of co-production developmental assistance. One important element is the developmental needs of the client base. In the case of *IncuWorks*, due to the intensive support requirements of its hi-tech client base and the largely unpredictable market and industry spaces they occupied, the proactive strategy was the ideal approach. On the other hand, *DubInc's* client base was different, it was comprised of firms doing business in conventional sectors with well developed institutions; quite a lot of developmental assistance-type support was available through established industry associations and existing government schemes. Although the businesses were operating in a variety of sectors, the complexity of their problems was much lower than the problems faced by *IncuWorks'* clients. Since the range of client problems at *DubInc* could be easily grouped into a few categories only, the IM was able to substantially economise on time and resources using common routines. The nature and variation in client problems is discussed further in section 9.6.

The external environment, stakeholder priorities and the incubator organisation's financial health also impact the time and resources available to the IM for incubation co-production. For instance, In the case of *DubInc*, when the external economic environment became turbulent, a number of clients wound up operations and moved

out, others requested for rental holidays and enquiries for new units dried up. Overall, these circumstances had a tremendous impact on *Dublnc's* financial health. Therefore, it was agreed that the IM would dedicate time and resources to actively attract new clients, fill vacant units and stabilise cash-flow. This additional important and urgent task had an impact on the IM's ability to engage in co-production developmental assistance-type activities with the remaining client base.

*[Dublnc IM] "...As you can see we are quite hard-pressed these days, the recession has come down really heavily on SMEs and consequently to us...when it is a matter of survival, you go into basic instinct mode...we are doing some serious marketing these days, and I have to tell you, we have never had to do this much promotion before...we had 10-15 good enquiries every week...we had a waiting list, now we have units vacant and hardly any enquiries..."*

Unlike *Dublnc*, *IncuWorks* was relatively well protected from environmental turbulence and incubation strategy was influenced by a number of other factors such as the hosting University's priorities. The incubator was the prime implementer of the University's vision, mission and strategic plan related to the commercialisation of its science and technology research. Periodic meetings between *IncuWorks'* top management and the University's select committee on research commercialisation provided an active forum for knowledge sharing and progress appraisals. The University's interest in supporting the establishment of *IncuWorks* was clear: to help create and grow spin-out companies and to work with the University's researchers to identify, protect and licence technology. Almost all spin-out firms housed at *IncuWorks* were focused on the bio-tech sector, which shows the University's research priority also. As a consequence, *IncuWorks'* support programmes were set up with the purpose of progressing the University's research focus and commercialisation strategy. If these priorities were to change in any way, they would in-turn impact IM resource allocation strategy at *IncuWorks*. In the words of the Director:

*[IncuWorks Director] "...Tech. Transfer is our core business which includes trying to identify IP, protecting and licensing it and negotiating IP agreements with companies...we have all the support systems in place here for meeting our strategic goals"*

The factors that influence the allocation of IM time and resources to co-production are complex and nuanced. This allocation strategy is an evolving complex and in order to understand it better there is a need to develop a greater appreciation for random and unpredictable influencers that may in principle be observable or unobservable.

#### **9.4 Incubation Stages Experienced by Client Firms**

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The three incubation strategies discussed in section 9.1 influence a number of client-specific *stages* of incubation. Interestingly, strategic IM-Client interaction during the various *stages* of incubation influence the nature of the above incubation *strategies*. For instance, a prospective client with no previous rapport may engage with the IM at the *pre-incubation stage* and then build rapport thereby influencing *incubation strategy*. From the empirical data, no clear cut relationship was, however, apparent between "incubation strategies" and "incubation stages".

The idea of various stages in the incubation process was introduced in the mid-80s when the very first studies on the phenomenon were published. Process models remain popular to-date with incubator-incubation researchers breaking down aspects of the phenomenon with 2x2 matrixes and flow diagrams. One of the biggest problems with rational conceptualisations is that they layer over social complexity. Stage models are ideal for describing the processes that enable physical or chemical change, such as automated or semi-automated manufacturing where there is a high level of predictability (Cohen et al, 1972; Heimer & Stinchcombe, 1999). When it comes to the social world, however, which is characterised by high levels of randomness, they usually fail to present an accurate picture of what really happens on the ground.

For instance, the research data shows that the incubation stages a particular client experiences depends on a number of factors and that not all clients face the same types or number of stages. These factors include a client's own attributes, the strategic outcome of the IM's selection decision and the nature of the IM-Client dyadic relationship. Furthermore, even if one were to assume that a number of common stages do apply to all clients, there is still the matter of unequal progression. The empirical data showed no straightforward link between "client time spent in incubation" and "incubation stage". Thus, for some clients, progression is quicker, some skip entire stages whilst for others progression maybe slower due to completely unforeseen or unpredictable rare events.

Despite the above points, stage models are still useful and remain popular with management researchers. They are pragmatic, helping with broad-level planning and introducing structure and control mechanisms. Therefore, the following stage-wise model of the incubation process, as experienced by client firms, is presented:

1. *Initial contact* – leading to either pre-incubation or selection. How the initial contact is made is an interesting denominator in future IM-Client rapport and incubation strategy. In the case of client referrals, the referring individual and the context is important, as well as how that person was known to the IM. Previous IM-Client acquaintance, through either the community, colleagues or network membership, also creates greater IM-Client rapport.
2. *Pre-incubation* – leading to either selection, virtual incubation or termination. It was found that clients, based on their own unique circumstances, backgrounds, aspirations, experiences, relationships with partners and other factors, at times, chose to use the abilities of the IM strategically; for instance "free-riding" i.e. knowingly using IM time and resources to get free feedback on business plans or test market prototypes. At times pre-incubation clients knowingly ignore the available developmental assistance services because their strategic motives are to only avail of the economic benefits of incubation, such as subsidised rental.

3. *Selection* – facilitated by written policy and IM / selection committee intuition. Prospective clients are usually required to submit a written business plan or a summary plan which is followed by an interview. The client is then required to address the queries raised in the interview.
4. *Incubation Phase I – Induction* – This phase is initiated when the client signs a formal contract and pays a deposit. Housekeeping information and regulations are provided along with introductions to other clients in the building. IM-Client interaction is usually high during this phase. Based on the quality of the “incubation-click”, one of the three incubation meta-approaches is set as the norm for IM-Client developmental assistance-related interaction.
5. *Incubation Phase II – Institutionalisation* – Once a client becomes a part of the social fabric of the incubator, understands organisational culture and the normative mechanisms for engaging with other clients and members of the IM’s office, this client has then been successfully inducted and institutionalised as a legitimate member of the organisation.
6. *Incubation Phase III – Consolidation* – This is the phase during which IM-Client rapport reaches a point where projects are initiated to diagnose, tackle and resolve client business problems. Client business at this stage begins to effectively consume incubator-IM resources as a part of developmental assistance.
7. *Graduation* – A graduation mechanism sets the rationale for deciding when a client should venture out on its own. This phase commences prior to client exit from the incubator organisation where the client is consciously prepared to move out into the “real world”. The IM works with graduating clients to develop some surety that they will continue to grow in the community where they first started. Help may be provided in finding new accommodation, linkage with local chambers, assessing a potential location, meeting with estate agents and related activities.

Although the above model suggests a linear system of client progression, it must be noted that not all stages necessarily apply to all clients in an incubation facility, some clients may skip entire stages and still others may be 'outliers' or a type of client to which the model simply may not apply. Nevertheless, the model's seven stages more adequately describe what occurs, from a processual standpoint, starting at the point of initial client contact to graduation, than previous models do. The model is superior because it takes into consideration the perspectives of both the incubator and the client. Thus, the resulting multi-perspective scheme more adequately captures incubation's previously ignored relational and normative dimensions.

### **9.5 Pre-Selection, Pre-Incubation & Selection**

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A significant amount of incubation process-related research is dedicated to the client selection process, where researchers have described and compared various selection approaches and their aims (Kuratko & LaFollette, 1987; Merrifield, 1987; Lumpkin & Ireland, 1988; Allen, & McCluskey, 1990; Aerts et al, 2007; Bergek & Norrman, 2008). Why is client selection so important? This question was posed to both IMs, who had slightly differing views. The common points of agreement, however, were that by selecting those firms that actually need incubation assistance, those which from a strategic perspective are a good match between both the incubator's and firm's aims, and have a sound business proposition backed by a good team / proposer will ultimately have greater chances of "succeeding" post-incubation, thereby positively reflecting on incubator reputation.

The detailed selection criteria and a description of the formal selection system prevalent at the case organisations has been presented in sections 6.1.5 and 6.2.5. The impression that comes across in the case write-up is that new clients are rationally selected from a pool of available options by employing a number of "selection criteria" and a formal selection mechanism to assess (a) applicant fit with incubator objectives; and (b) critical factors for firm marketplace success. There is no denying that such criteria and formal mechanisms do exist but the process itself is far from rational, the criteria and selection mechanism are subjective and require much flexibility to be of any practical use.

Most clients went through the formal system, and their resulting experiences were quite different on aspects such as how they actually found out about the incubator organisation, their first visit to the facility and meeting with the IM, the subsequent reflection on available tenancy options, the process of filling out the application form, attending the interview, negotiating the terms of the contract and then being inducted into the organisation.

Most clients at *Dublnc*, although from the area and a part of the local community, were not really aware of the organisation's precise role and its history – aspects which have an impact on their overall pre-incubation, selection and induction experience. For instance, clients narrated:

*[Client 1] "...I always drove by here and I saw the building and the board but it never crossed my mind that it was a community enterprise centre, I mean it was on the board but you know you don't really think about it until one day I needed an office space and I thought...hhmmm...oh yeah there's Dublnc and I walked in one day and now here I am ..."*

*[Client 8] "...its funny how I have lived here all my life but I only found out about Dublnc through Daft (an internet property website)..."*

*[Client 18] "...I did know it existed and it had something to do with enterprise development but wasn't really sure of what that meant or how it was done..."*

The above pattern was somewhat repeated at *IncuWorks*, the difference lay in higher levels of awareness in spin-out clients; a large majority of spin-in clients though ended up at the facility serendipitously:

*[Client 33] "...I met XYZ (the Director) at a conference where I was giving a presentation...this was when I was at ABC building an innovation team... (gender ref. removed) told me about IncuWorks and what they did...this was my first introduction to enterprise development centres...but then cutting a long story short, when I was made redundant a few years later I was going through my visiting card index and XYZ's card just propped up, so I went and saw (gender ref. removed)..."*

From the clients' perspective, another factor that has significant impact on pre-incubation and selection (also on the later stages), is clients' judgment on what enterprise development or incubation meant in practice at the time prior to and during selection. Initially, this understanding is quite vague and fragmented; it is only through later experience and by engaging with other clients once inducted do they develop a clearer understanding. This *caveat emptor* "understanding" of what incubation was (to them), differed from client to client and depended on the nature of the IM-Client dyadic relationship and *fit* between client needs and the infrastructural and knowledge resources available at the incubator organisation. Therefore, it was possible that two entrepreneurs operating in the same sector would have a remarkably different understanding of what incubation was and whether it benefited them. This point is illustrated in the two quotes below by *IncuWorks*' clients:

*[Client 36] "...before and after? (respondent then makes a joke about weight loss products)...I guess I wasn't expecting much, I had most elements of my business plan well thought out, I was going to look after business development and my partner was responsible for the technical infrastructure...we do need help with funding and we discussed this during the interview...now ABC (the IM) did say we help with this but what does it actually mean "help"...what does it entail...this would be from a case-to-case basis...making the company worth investment would be my role...then what other help do I need?..."*



*[Client 38] "...I had a colleague of mine who did the CCDP send me here and he felt it was excellent and I'd say he was right...the advice clinics were too general and very basic but what we got in PR was beyond my expectation...we made a connection here with another company that was working with XYZ (IP consultants)...didn't know that we could use their services at those rates, so we are now in touch with them and it has been very useful all-in-all..."*

Clients' strategic motives for making applications to the case organisations also differed substantially. Our understanding of the selection process from the client's side is under-developed especially the understanding on what motivates entrepreneurs (from a strategic perspective) to choose an incubator organisation (out of a host of other options) to start-up and grow a business. A greater understanding of this factor should help incubator organisations with their marketing strategies and in designing their developmental assistance programmes. In addition, by understanding the true (and often hidden) objectives of why clients choose to locate in incubators, an understanding can develop of the areas where the true impact of incubators lies in the development of new enterprises.

It must be noted here that clients' initial agenda is likely to change once they gain experience in the incubation environment and understand the ways in which incubation benefits (or does not benefit) them. During the research two major categories of motivators were found – 'economic and infrastructural' and 'developmental'. For instance, when clients were asked to recall the reasons that were initial motivators for incubator location, those who were motivated by economic and infrastructural reasons often cited subsidised rental as the most important motivator followed by flexible lease, proximity to home, car parking, central location, proximity to markets, cafeteria, meeting rooms, and (in the case of *IncuWorks*) high quality building and prestigious brand image. Developmental motivators which were usually listed as advice and support, training, workshops and networking opportunities were rare at *DublInc* but more common at *IncuWorks*. As clients gained experience, in a number of cases, 'economic and infrastructural' motivators were swapped to 'developmental' and vice-versa. For instance, a client at *IncuWorks* stated:

*[Client 24] "...when were starting up...to be very blunt...it was the competitive rent that attracted us...you got one bill for everything and it was convenient...we thought we didn't really need much help so to say...but now the rent is at par with market rates...so if you ask us why we are still here...I'd have to say the culture of the place, it is very conducive to the work we are doing, we have done some great projects with ABC (the IM)...and would like to stay longer if possible..."*

For some *Dublnc* clients, 'economic and infrastructural motivators' changed to an entirely different category (rather than 'developmental') as strategic rationales for remaining in incubation: not really motivators but a mix of dependency and inconvenience avoidance. In the words of a client who was forced to graduate due to a new rule putting a cap on the tenancy period at 4 years 9 months:

*[Client 17] "...I have now been here five years...my clients know where I am based...my office is set up exactly the way I like it...I am paying the overheads I can afford...any more I won't make enough profit to warrant the investment I am making in time...so if you ask me... this is bringing about a big disruption in my life...but don't get me wrong here...I also understand that I need to move on from an enterprise centre..."*

Motivators for pursuing incubation also influence how clients strategically use the *free* pre-incubation period. The research shows that clients based on their own unique circumstances, backgrounds, aspirations, experiences, relationships with their partners and other factors, chose to use the abilities of the IM to either 'free-ride', ignore pre-incubation developmental assistance OR strategically make applications to avail the incubators' economic benefits whilst in the knowledge that they do not require incubation assistance. The case of the pre-incubation 'free rider' becomes evident from the following case at *Dublnc*:

A prospective client in the food sector was able to work with the IM for an extended period (around 10 weeks) improving the proposed firm's business plan, getting introductions to various agencies, developing a bank loan application and test marketing products to customers through the IM's contacts and references. This prospective client received an inordinate amount of pre-incubation assistance without signing any formal agreements or making a firm commitment to lease space. It was only after a considerable lapse in time, when the IM was fast reaching a state where there was a clear realisation that the cost of resource input was incommensurable with the perceived benefit, that the prospective client was urged to make a formal commitment. At this stage the prospective client decided to not make a formal commitment due to personal reasons.

The ongoing recession and the presence of vacant units (impacting incubator cash flow) may have caused the IM to pursue pre-incubation with this prospective client to its logical conclusion. It can also be argued that this prospective client received comparatively greater levels of pre-incubation assistance due to the IM's own interest in the food sector and the strong introduction the client received from one of the IM's industry peers. There may be some weight in these falsifying arguments, but ultimately the IM was acting within his/her mandate and would be obliged (under the *DublInc* ethos) to provide similar levels of assistance to any other client.

The tipping point in the selection process is the IM's assessment of a prospective client's application form and the subsequent interview. These two stages are a complex mix of intuitive and rational programming. The IM (as the assessor) has a programmed code for determining the suitability of a particular client based on what decision researchers call "attribute substitution" – a cognitive process occurring without conscious awareness. In Heuristic theory "attribute substitution" occurs when individuals are faced with a computationally complex and cognitively difficult problem, they deal with it by answering a simpler problem, without being aware that this is happening. In other words, cognitive complexity is dealt by the unconscious substitution of an easily calculated *heuristic attribute* (Kahneman & Frederick, 2002).

For example, stereotypes (or in the case of incubation “mental profiles of clients”) can be a source of heuristic attributes. Stereotyping is done due to bounded rationality – the idea that the rationality of individuals is limited by the information they have, the cognitive limitations of their minds, and the finite amount of time they have to make decisions (Simon, 1991). Social psychologists have frequently characterised stereotypes as energy-saving devices that serve the important cognitive function of simplifying information processing and response generation - they spare perceivers the ordeal of responding to an almost incomprehensibly complex social world (Allport, 1954; Tajfel, 1969; Bodenhausen & Lichtenstein, 1987; Anderson et al, 1990). Individuation, in its many guises, is a rather time consuming and effortful affair (Fiske & Pavelchak, 1986; Brewer, 1988). Stereotyping, in contrast, relies only on the execution of some rather rudimentary skills: most notably, the ability to assign people to meaningful social categories (Hamilton, 1979; Hamilton et al, 1990). Once achieved, this categorisation provides perceivers with a veritable wealth of stereotypic information.

In a face-to-face conversation with prospective new clients, judging motivation, professional reputation, suitability to incubation and ability to pay future rentals are much more computationally complex than judging their professional background. Therefore, if the IM develops a mental profile (or stereotype) about the relative chances of “well educated” and “local” applicants to “succeed” rather than less educated and non-local ones, these attributes might substitute for the more intangible attributes of motivation, reputation, suitability and rental payment ability. Thus, due to stereotyping, for the IM, any well educated and local new applicants may automatically qualify other desired attributes.

On the flip side, stereotyping is a form of experiential processing and although is highly efficient and adaptive in most circumstances, in other circumstances, it is error-prone and a source of maladaptive bias (Denes-Raj & Epstein, 1994). For example, in the case of *Dublnc*, when an “educated”, “refined” and “local” new client had trouble paying rent, the IM stated:

*[DubInc IM] "...I could never have guessed that a person of ABC's calibre would have old dead skeletons in (gender ref. removed) cupboard...(gender ref. removed) is pretty well educated and obviously good in what (gender ref. removed) does...we had to give (gender ref. removed) a chance because XYZ firm was in business in the community for some time..."*

At both case organisations, the selection interview had no set format. The IM was accompanied by either a member of the BoD (in the case of *DubInc*) or the Director (in the case of *IncuWorks*). Usually, only one representative from the applicant's team / firm was requested to appear before the panel. The researcher was allowed to observe one selection interview at *DubInc*; however, *IncuWorks* felt that the researcher's presence would breach their privacy policy. The panel, in both cases, attempted to judge the suitability of the applicant along a number of criteria. These criteria reflected the strategic "time-bubble" the incubator organisation was in. For example, during the time the research was conducted, Enterprise Centres, such as *DubInc* were faced with an inordinate amount of financial pressure due to increasing small business failures and low start-up rates, thereby, affecting rental income. Client firms faced pressures due to the ongoing recession affecting their ability to pay rentals and there were few new applicants to take up units left vacant by clients moving out (either shutting down operations, going into a hibernating state or down-scaling by working from home). Thus, selection criteria were relaxed to accommodate a number of real strategic challenges that the organisation faced. To illustrate, at *DubInc*:

A prospective client was leased space despite the fact that the business was not a start-up and that the proposer had considerable business experience already – factors which under "normal" conditions would have caused, under *DubInc's* standard client selection criteria, an application rejection. Selection criteria became more flexible for this particular client not only due to the external environment and the general lack of applicants, but also due to a somewhat incubator-client shared experience; the proposer was a member of the local community and was compelled to move due out of the old premises due to financial reasons.

This did not mean though that the general quality of client applicants was reduced (in the words of the *Dublnc IM*):

*[Dublnc IM] "...People walking through the door nowadays are serious business men, who have considered all their options because it is not easy to start-up and grow a business in such times...true quite a few might have been forced into starting up a business due to the massive amount of redundancies happening these days, but they are experienced and qualified professionals who had some business ideas but never really the opportunity...so redundancies in a rather unexpected and cruel way are fuelling new start-ups..."*

On the other hand, Campus Incubators, like *IncuWorks*, were put under pressure by their hosting Universities and through government institutions such as Enterprise-Ireland (who also sit on *IncuWorks*' board as investors) to work more efficiently to find and commercialise intellectual property, and to grow and move out at a quicker pace High-Tech Potential Start-ups (HPSUs). New technology policy targets placed a great emphasis on the number of new HPSUs created on a yearly basis and performing well on this indicator meant ongoing government policy-level support for *IncuWorks*.

From the above it becomes clear that selection criteria was not static but rather a changing complex which juxtaposes two facets of the applicant (a) "the soundness of the business idea" and (b) "the capacity of individual (proposer) / team to successfully implement the business idea" with (c) "inviolable incubator meta-principles (such as reputation, culture, ethos)" and (d) "the present strategic outlook / challenges faced by the incubator organisation". In other words, the interview panel is trying to judge the chances of the new applicant violating (more appropriately not augmenting) the incubator's meta-principles and whether the new applicant will contribute to the indicators through which the incubator's / IM's performance is judged.

Incubation researchers have often described the client selection decision as a rational process (as suggested at the beginning of this section). The empirical case work suggests otherwise. The selection decision is a complicated mix of rational and non-rational intuitive and experiential processes as suggested by the *IncuWorks*' director:

[IncuWorks Director] "...there is no way to tell if a person will make it or not, the cashflows and the business plan just tell one side of the story, in the end we just have to go with gut feeling and experience...I know it doesn't sound very scientific but its something you cannot explain too easily..."

The traditional view of human decision making has been that people make rational choices predicated on maximising pleasure or gains and minimising pain or losses. Over the past several decades, this rational model has been increasingly challenged from a variety of theoretical perspectives as well as on empirical grounds (Kahneman et al, 1982; Simon, 1991). Alternative perspectives assume that people process information in two different modes, one identified by terms such as *rational, analytical, deliberative, propositional, and extensional* and the other by terms such as *experiential, automatic, intuitive, narrative, and natural* (Denes-Raj & Epstein, 1994). The *rational system* is a deliberative, verbally mediated, primarily conscious analytical system that functions by a person's understanding of conventionally established rules of logic and evidence. Whereas, the *experiential system*, operates in an automatic, holistic and associationistic manner - represents events in the form of concrete exemplars, schemas inductively derived from emotionally significant past experiences and is able to generalise and to construct relatively complex models for organising experience and directing behaviour by the use of prototypes, metaphors, scripts and narratives (Epstein, 1990).

According to Epstein et al (1992), behaviour is guided by the *joint* operation of the two systems, with their relative influence being determined by the nature of the situation and the degree of emotional involvement. Certain situations (e.g., solving mathematical problems) are readily identified as requiring analytical processing, whereas others (e.g., interpersonal behaviours) are more likely to be responded to in an automatic, experientially determined manner. Holding such situational features constant, the greater the emotional involvement, the greater the shift in the balance of influence from the rational to the experiential system. The experiential system is assumed not only to automatically direct human behaviour, but also to automatically influence conscious human thought. To the extent that this is true, humans can respond rationally (in the sense of engaging their deliberative, rational system in an objective, unbiased manner) only to the degree to which they are aware of and can

compensate for their experientially influenced thoughts and response tendencies (Epstein et al, 1992).

Therefore, the selection system is guided by both a rational / analytical approach facilitated by the assessment of concrete matter-of-fact details provided by the proposer in the application form as well as pre-conscious, intuitive and experiential processes (such as stereotyping). The nature of the selection process explains how IMs can be influenced by non-rational variables while thinking that they have made an honest, unbiased evaluation of the proposer's business and personal attributes as well as other difficult-to-rationalise variables such as motivation, professional reputation, suitability to incubation and ability to pay future rentals. This system seems to work well in an unpredictable and complex environment with a huge variety in the types of clients and the nature of their businesses.

## **9.6 The Nature and Range of Co-Production Developmental Assistance**

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The available range and types of developmental assistance services vary with the type of incubator organisation and its objectives, funding situation and the needs of its client base amongst other variables. The basic purpose behind providing such services is to fill *knowledge* and *resource* gaps faced by client firms. *Knowledge gaps* may include a lack of capacity in risk management; raising capital; legal and intellectual property issues; finance; marketing; technology/product/service development; business planning; team building; and so on. Developmental assistance also fills client firm *resource gaps* such as the provision of testing equipment, certified food processing facilities, conferencing, computing and other infrastructural facilities. The incubator and its network may supply important contacts to fill these needs (Rice, 2002).

Exhaustive lists of developmental services have been put together by incubator industry associations such as the NBIA and UKBI and are available in their documents and websites. An incubator's "menu of services" is not static and tends to change due to experimentation and changing client requirements. In the words of the *IncuWorks* IM:



*[IncuWorks IM] "...We have a wide range of services to which we keep on adding. Others have become outdated over the years or when clients did not show interest we decided to withdraw them...we ask for anonymous feedback on some trainings and workshops but overall how clients respond to a new initiative is a good indicator of its value..."*

In the delivery of different items on the "menu" there also lie subtle differences between incubators. For instance, at *IncuWorks* "Enterprise Development Advice" was generally taken to mean a process of *mentoring*, whereas, at *DublInc* the similar "One-to-One Business Advice" was viewed as *coaching*. The fact that *DublInc's* Enterprise Officer had recently completed a business coaching certification somewhat corroborates the above assertion.

Mentoring and coaching, both requiring co-production, have a lot in common, but there are a number of important differences. Mentoring is a power free, two-way mutually beneficial learning situation where the mentor provides advice, shares knowledge and experiences, and teaches using a low pressure, self-discovery approach. The mentor is both a source of information / knowledge and a Socratic questioner (Garvey et al, 2009). Coaching is different and tends to focus on the achievement by coachees of a goal or specific skill. Methodologies for coaching are positioned away from the directive or the facilitative, and rest on accompanying clients within a dialogue that will allow emerging patterns and solutions to surface. Coaching lies out of the scale between mentoring and training on one end, and psychotherapy and counselling at the other (Garvey et al, 2009). Table 17 presents a snap-shot overview of mentoring-coaching differences:

Table 17 – Mentoring & Coaching Differences<sup>43</sup>

Mentoring	Coaching
Ongoing relationship that can last for a long period of time	Relationship generally has a set duration
Can be more informal and meetings can take place as and when the mentee needs some advice, guidance or support	Generally more structured in nature and meetings are scheduled on a regular basis
More long-term and takes a broader view of the person	Short-term (sometimes time-bounded) and focused on specific development areas/issues
Mentor is usually more experienced and qualified than the 'mentee'. Often a senior person in the organisation who can pass on knowledge, experience and open doors to otherwise out-of-reach opportunities	Coaching is generally not performed on the basis that the coach needs to have direct experience of their client's formal occupational role, unless the coaching is specific and skills-focused
Focus is on career and personal development	Focus is generally on development/issues at work
Agenda is set by the mentee, with the mentor providing support and guidance to prepare them for future roles	The agenda is focused on achieving specific, immediate goals
Mentoring revolves more around developing the mentee's professional abilities	Coaching revolves more around specific development areas/issues

From the table above, it becomes possible to link mentoring and coaching approaches with incubation strategies. *Dublnc's* reactive and episodic approach echoes coaching's nature with a set duration, focused agenda and achievement of specific targets. *IncuWorks'* proactive approach is, however, more in-line with mentoring with a focus on long term growth and development. However, there is much overlap and the boundaries are at best blurry. Whether the IM-Client dyadic relationship is one of coach-coachee or mentor-mentee, an important determinant of relational success is the IM-Client cognitive match or "incubation click".

In Chapter 6, the "menu" of developmental services offered by the two case organisations was presented, however, these lists did not capture in entirety the full range and extent of IM-Clients' co-production-related engagement. This fact becomes clear from the following categorisation:

<sup>43</sup> From the Coaching & Mentoring Network UK's website: [www.coachingnetwork.org.uk](http://www.coachingnetwork.org.uk) (accessed May, 2010)

1. *One-to-One Business Advice & Guidance* – either between an IM and a client or an outside expert and a client. In some rare cases, it can also occur (usually informally) between client to client. This is a very broad category and can include a whole array of advice relating to client problems that the IM can potentially resolve such as advice on finance, raising capital, HR, marketing, corporate governance and so on. *IncuWorks'* monthly advice clinics would also fall into this category.
2. *Project Conceptualisation and Management* – the IM-Client dyad can initiate and conduct business projects together where the aim would be to either resolve crises at the client firm or to instigate growth. These could include developing a funding proposal, preparing the client firm to enter a competition, developing a shareholding plan for a VC and so on. IM-Client projects tend to have more tangible outcomes, require much more intimate contact and IM involvement over a long duration. The media exposure facility and facilitated linkages to university research at *IncuWorks* would also fall into this category.
3. *Structured Non-Specific Training* – the CCDP, start-your-own business course, distinguished speaker series and other workshops / seminars would fall into this category, as well as would *IncuWorks'* trainings offered in alliance with various external bodies such as the Chartered Institute of Directors.
4. *Internal and External Networking* – both incubators facilitate internal and external client networking by arranging socialising events and introducing clients to established industry networks.

From the above it becomes clear that unlike infrastructural supports such as meeting and conference rooms, broadband connection and car park which are commonly available with equal levels of access to all clients, the benefits of developmental services to clients are subjective, unequally distributed and some are quite specific to an IM-Client co-production dyad.

A final point to make about the delivery of incubation services is that researchers in the domain of social capital and knowledge creation theory suggest that the 'novelty' value of a partner's knowledge relative to one's own depreciates over time (McFadyen & Cannella, 2004). Through this logic, incubation services would be co-produced on a diminishing rate, in other words, as clients mature in the process, it is likely that they will consume / require less resources.

A number of clients at both case organisations reported that initially their assistance / resource requirements were high and as time passed, their need for IM time and incubator resources reduced due a number of reasons including; *first*, a move towards self-sufficiency:

*[Client 21] "...We made our application to IncuWorks in 2008...at the time my partner and I were operating out of my living room with two laptops...but as we moved in there were a number of areas that we identified along with the IM in which we needed specialist advice and expertise. If we had to pay-by-the-hour for these, it would have been a huge drain on our finances. In a year or so, when our cash flow improved, we hired our own advisors and consultants..."*

*Second*, external investment can bring in greater financial resources, thereby, the reliance on IM time and resources may reduce:

*[Client 35] "...Our aim from the very start was to attract VC investment. For this we received a lot of help from the IM, who introduced us to several funds. We also worked together on preparing our business plan and presentation. Once XYZ (the VC fund) made the offer and came in we had the funding available meet our staffing requirements...yes I would say our interaction with the IM was not as intense but we kept in regular touch and consulted on and off..."*

Third, due to a building of client capacity:

*[Client 5] "...I didn't know much about business when I came across ABC (the IM), I have received a lot of help...you know just brainstorming and bouncing ideas off of each other. But I think as I have understood the XYZ business I feel more confident and don't go running to ABC (the IM) every time I have an issue..."*

Interestingly, for a number of clients resource requirements either did not change and in a rare case they increased. For instance, a client at *Dublnc* reported:

*[Client 3] "...I found ABC (the previous IM) quite formal and to-the-point, not that there was any problem...but you know what I mean...I didn't feel reassured enough to come forth and be open but when XYZ (the new IM) took over, things changed dramatically, XYZ was quite friendly and open, came to my office a few times and kept in touch...so yeah I did feel confident enough to start a few projects with (gender ref. removed)..."*

The above cases bring into question the notion of 'novelty' value of knowledge depreciating over time. The aspect of novelty (the unique set of IM knowledge set and resource base) had little to do with the reduction in client requirements for developmental intervention and specialist resources. The reduction in dependence that did occur was due to clients finding alternate channels for meeting their resource needs. The motives for seeking these alternate sources differed from client-to-client, but there was no case where a client reduced IM dependence due to a diminishing of 'novelty' value of IM skill set and resource base.

## **9.7 Concluding Remarks**

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In this chapter, it has been shown that the co-creation of developmental assistance occurs through one of three strategies: dormant, reactive and proactive. Each strategy signals the level of IM-Client relational quality, the positive or negative state of incubation "click" and clients' strategic motives for incubator placement. A dormant relationship where both the IM and client understand that only infrastructural non-

specific benefits of incubation are sought signals a relatively low quality of relationship at the professional level, a negative state of incubation “click” and client rationale for incubator placement as being purely economic. On the other hand a proactive strategy would signal the opposite, a high quality IM-Client personal and professional relationship, positive incubation “click” and client placement in the incubator due to a genuine need for developmental assistance. It must be noted, however, that the strategy adopted by the IM initially, based primarily on perceptual judgment, can change abruptly at any stage of the incubation process if the client chooses to change the relational dynamic. This could occur due to changes in client circumstances, shifts in the external environment or a serendipitous / chance encounter with the IM leading to useful new information which the client may wish to act on or pursue. Thus, incubation strategy is an evolving complex specific to an IM-Client dyad.

Seven stages have been identified in the incubation process from ‘initial contact’ to ‘graduation’. Previous models have not recognised how crucial the first stage of initial contact is to the overall process. The mechanism, circumstances and time frame under which IM-Client contact is made has tremendous bearing on future levels of rapport and incubation strategy. The credentials of the introducer (if there is one) also have influence. The likelihood of a proactive incubation strategy being setup would be greater if the client was introduced to the IM through the campus company development programme, the start-your-own-business course or a county enterprise board contact rather than through a random walk-in application.

Ultimately, during the client selection process, the IM (along with other involved stakeholders) is not only attempting to assess the likelihood of a prospective client’s post incubation “success” but also (quite importantly) whether the client genuinely needs developmental assistance, whether both parties would be able to develop an effective working ‘incubation’ relationship and the impact the client would have on other clients in the facility and the reputation of the incubator organisation. The clients bring open and hidden agendas but so do the IMs.

In the next chapter, based on the third area of investigation proposed in the research objective, the unique and interesting features of the case organisations’ structural properties are explored.

## Findings from Case Studies - IV

### *Emerging Themes on the Structural Properties of Incubators*

#### 10.1 Introduction

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The purpose of this chapter is to present three themes which draw attention to the status of incubators as truly unique hybrid organisations. According to Williamson (1991), hybrid organisations are neither markets nor hierarchies and have characteristics of their own. Ménard (2004), following Ronald Coase, stresses that there is a need to explain why hybrid organisations exist and what makes them viable substitutes to alternative modes of governance. He agrees with Coase that hybrids are not “strange forms”, rather, they are a major if not predominant mode of organising transactions and, therefore, economic activities. Hybrid forms are highly complex, which makes their study both challenging and stimulating.

Therefore, in this chapter attention is paid to a number of interesting *hybridising* attributes of incubators' structure. As suggested in the Introduction chapter – structure is seen as the "established pattern of relationships among the parts of the organisation" (French et al, 1985, p. 348). Of particular importance are the patterns in relationships and duties. These include themes of 1) integration (the way activities are coordinated), 2) differentiation (the way tasks are divided), 3) the structure of the hierarchical relationships (authority systems), and 4) the formalised policies, procedures, and controls that guide the organisation (administrative systems). Focusing on these themes helps to shed light on a number of interesting structural properties of incubators including de-coupling; mis-alignment of managerial incentives and aspects which introduce uncertainty, leading to information asymmetry, contracting complexities and alternative forms of organisation.

## 10.2 The Nature of IM Work & the “De-Coupling” of Incubator Structure

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The IM’s role as a manager and leader is multi-faceted and complex. When analysing the IM’s job description, two distinct areas of intervention become apparent; (a) the role as manager-leader of the incubator staff and organisation (corporate and physical); and (b) the role as a mentor-coach to incubation clients. The responsibility, accountability, incentives and rewards associated with these two areas are different, and the IM is usually on a tightrope in order to ensure that the allocation of energy and time to *corporate* vs. *incubation* activities is in accordance with the expectations set out by the incubator’s Board of Directors. For the IM, like any top-tier manager, meeting the Board’s expectations and achieving set targets is linked to compensation and promotion. Therefore, IM time allocation should be impacted by the way in which Board strategic targets are tied in with IM incentives.

The Board, however, are only able to effectively govern (and as a consequence evaluate) the IM’s *corporate* role, since associated outputs are usually in the form of tangible numeric indicators, such as % growth in revenue or implementation of a certain infrastructural upgrade scheme. Evaluating the IM’s *incubation*-related role is much more difficult to evaluate due to the problem associated with identifying and putting a measure on intangible indicators. For instance, the *DublInc* IM stated:

*[DublInc IM] ...Putting a dollar value on our work is unrealistic...I mean...how will the allocation of three hours of joint-planning time with an IT client be weighed in comparison to one hour of commenting on a food sector client’s business plan?...*

Thus, what is observed in the case of incubators is what organisational theorists term as “de-coupling” – the idea that the creation and maintenance of gaps between formal policies and actual organisational practices allows certain types of organisations to function. De-coupling has been observed in a variety of organisations, including educational organisations (Meyer & Rowan, 1978; Delucchi, 2000), corporations (Westphal & Zajac, 2001), government agencies (Lines, 2005), and social movement organisations (Elsbach & Sutton, 1992). In order to understand the reasons which



lead to de-coupling, the case of educational organisations is used to draw parallels with incubators.

Meyer & Rowan (1978) argue that when the scale of social activities expand, higher levels of coordination and control are required and that bureaucratic controls emerge to structure these activities efficiently, however, in the case of educational organisations evidence suggests that they lack close internal coordination especially of the content and methods of what is their main activity – *instruction*. Student achievement data is rarely used to evaluate the performance of teachers or schools, a teaching technology or even a detailed instructional programme is largely missing in schools; educational administrators have little direct authority over instructional work. However, certain areas of organisational structure are more tightly controlled such as scheduling of classes and teacher recruitment.

Therefore, organisational control does not affect all areas of activity equally. The critical activity of *instruction* tends to be removed from the control of organisational structure – structure is disconnected from technical (work) activity, and activity is disconnected from its effects. This is so because linking the theory of education to the activities of instruction would create conflict and inconsistency, and discredit and devalue the meaning of ritual classifications in society. Educators thus operate on a 'logic of confidence' by decoupling structure from instruction – working smoothly obtaining support and maximising meaning and prestige of the ritual categories of people they employ and produce (Meyer & Rowan, 1978).

In the case of incubators, the de-coupling of structures maintains the legitimacy of the organisation. Incubators avoid close inspections<sup>44</sup> because elaborate displays of confidence and trust can increase the commitments of internal participants. By agreeing that IMs have incubation delivery competence, maximum social responsibility for upholding the *ethos* of incubation goes to the IMs. And much of the value of incubation has little to do with the efficiency of developmental activities. A good building, external networks, Client-Client experience and other factors have a more significant impact). Measuring what clients learn and the impact of that learning

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<sup>44</sup> *ibid*, see Chapter 2 for a discussion on why incubator impact evaluation is inherently difficult to conduct and why incubators have avoided, and are likely to continue avoiding, close scrutiny which would link 'investments made' to 'macro-economic benefits'.

on economic growth targets and what IMs are actually delivering / contributing introduces unnecessary uncertainty, and creates doubts about the effectiveness of the status structure of the incubator organisation. Even if indicators and measures were developed, due to the randomness and complexity inherent in incubation (discussed in the next chapter), capturing and logging precise details (for later appraisal) is likely to lead to a high cost administrative overload. By minimising resources devoted to coordination and control, the incubator furthers its ability to increase the ceremonial worth of its contribution to client firm development and “success”.

It is clear then that de-coupling enables incubator organisations to gain legitimacy with their external constituents while simultaneously maintaining internal flexibility to address practical considerations. However, there are degrees of structural de-coupling, impacted by the IM’s task variety and key performance indicators. For instance, amongst the most important indicators by which IM performance was judged at *Dublnc* (in the absence of external assured income), was ensuring that the organisation generates enough revenue on a month-to-month basis to meet its short and long term financial commitments. Assuring performance on this key indicator meant that the IM’s energy and time was diverted to a variety of corporate revenue generating activities such as funding and developing community schemes, marketing training programmes and running short courses. The IM’s compensation and benefits were linked to the liquidity situation of *Dublnc* and not strictly to how well client firms were performing (which ought to be, by some standards, the real IM performance indicator). This led to higher degrees of structural de-coupling within *Dublnc*’s primary activity and *raison d’être* – incubation. Incubation activity served an important ceremonial purpose i.e. legitimating the continued institutionalisation of the ‘community enterprise centre’ but its real share, benefit and subsequent impact in the organisation’s total workflow remained uncontrolled and unmonitored.

Interestingly, the *Dublnc* IM, although realising that the de-coupling inherent in incubators’ structure allowed the organisations to function effectively, felt that in the long run, *higher* degrees of de-coupling had the potential to tarnish organisational reputation:

*[DubInc IM] "...We do a lot of work with our existing clients and people walking in but there is no way to show the impact of all this effort...we want to start compiling data about our clients and the progress they make...so when we present our case to Enterprise Ireland we will have concrete figures..."*

The IM had, therefore, commissioned a software company to implement a tracking and monitoring system to log incubation activity. This system (under design when the research was conducted) was to contain client firm data in the form of profiles created on the day of first contact till the time a client graduated. It is important to note that this new software system was exclusively for incubation and was in no way meant to be connected to the incubator's *corporate* accounting, payroll, inventory and other systems.

Lower levels of structural de-coupling were observed at *IncuWorks* with a number of incubation-focused key performance indicators for the IM. The IM's role (as described) was "*tech. transfer from University to spin-outs*". Towards the accomplishment of this primary role, a number of key performance indicators (monitored on a yearly basis) were allocated to the IM including: (1) number of new spin-outs created; (2) number of new desk space clients inducted; (3) number of new unit clients inducted; (4) number of feasibility grants acquired from Enterprise Ireland; and (5) seed funding / capital raised by new clients. These indicators are meant to report actual performance not *actual performance vs. set targets*. In other words, at the strategic level, there were apparently no firm targets set out on a yearly basis including how many new spin outs were to be created or how many new unit clients were to be inducted.

According to the *IncuWorks*' IM, the performance indicators were reviewed annually, however, it was not revealed whether there were any consequences for non-performance. Due to our new understanding of incubators based on the concept of de-coupling, it may be argued that even with the presence of key performance indicators, the *IncuWorks*' IM's true role remained largely uncontrolled and unmonitored. Consider the efficacy of the indicator - "number of new spin-outs created"; a number, let us assume '3' new spin-outs, what does it really tell us about the precise role and contribution of the IM? Similarly, the number of new desk space

and unit clients inducted may or may not have anything to do with the IM's effort. Numerically, how will the IM's contribution by way of a VC introduction be delineated from the (hypothetically speaking) €500,000 of seed capital raised by a client? Thus, the indicators are not true measures of IM performance and this fact has also been brought out in practitioner literature and surveys (UKBI, 2001; UKBI, 2006).

These indicators, however, perform other important roles that contribute to organisational legitimacy and reputation. The indicators give an impression of high quality and professional management and allow *IncuWorks* to publish an annual report detailing accomplishments on a year-to-year basis. They also greatly aid in bolstering organisational reputation and are devices that indicate progress to *IncuWorks*' key sponsors and stakeholders. Based on the publishing of these numbers, *IncuWorks* is able to draw in support and augment its institutionalised position as a model 'campus-based incubator' in Ireland.

This section highlighted two important elements; first, structural de-coupling is inherent to incubators where the major activity of the organisation (incubation) tends to be disconnected from organisational control structures and the activity itself is disconnected from its true impacts. It tends to serve other purposes such as bolstering legitimacy and reputation. Second, the complex and nearly impossible-to-monitor work of the IM raises a number of interesting points, such as, what is truly required of an incubator manager?; and, whether personal leadership style has any impact on incubation ethos, strategy and triggers? These issues are analysed in the next section.

### **10.3 De-Constructing the IM's Role: *Leadership & Organisational Culture***

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Incubator management as a role is not as well defined when compared to roles in other professions such as Chartered Accounting, Actuarial Science or Law. In this section an attempt is made to deconstruct the profile of an Incubator Manager to highlight how the complexities inherent in the position make it nearly impossible to define the precise role of 'incubator management', thereby, making difficult the task of measuring IM performance and contribution to client firm growth. Developing an

understanding of this role and its various requirements is important to gauge the contribution of incubator managers to client firm growth and aligning IM incentives.

In the absence of a recognised academic or industrial qualification for incubator managers, incubator professionals often rely on imagination, previous business experience and by learning on the job (SUMMIT-II, 2010). Practitioner literature time and again emphasises that the success of an incubator is heavily dependent on the person appointment as the Manager. The NBIA recommends, for instance, three principal qualities of an IM: (1) must be a good 'people manager' since the IM simultaneously needs to manage the Incubator Board, stakeholders, staff and clients; (2) should have entrepreneurial experience, having succeeded or failed in starting his/her own business (preferably in the targeted industries) so that client firms can relate to and respect the individual; and (3) must be a good communicator since a really critical task for the IM is to promote the incubation programme in all kinds of business settings and to market it to different stakeholders, including the client firms (Boyd, 2006).

Although there is no accepted code defining the precise role and accompanying tasks of an incubator manager, practitioner literature suggests the broad outlines of an average IM's job description (UKBI, 2001; Byrne, 2005; NBIA, 2008):

1. Providing counselling, coaching or mentoring (as per need and assessment) to companies;
2. Preparing entrepreneurs to take advantage of external resources;
3. Linking companies to external resources;
4. Encouraging companies to make the best use of incubator resources;
5. Marketing the incubation programme to multiple stakeholders including potential clients;
6. Corporate governance – Board of Directors management and strategic planning;
7. Business Administration – HR, finance, facilities management, procurement, legal and other administrative functions; and
8. Show contribution to local and regional economic development.

The IM job description breaks down the task of 'incubator management' into two basic categories: (1) corporate activities aimed at running the organisation like a business; and (2) activities focused on helping client firms grow. The IMs at the case organisations, when asked what the requirements of the role were, responded as follows:

*[DubInc IM] "...My job requires a number of things of me, I am here to progress DubInc's vision and mission of local community development through the promotion of an enterprise culture, I am responsible for the overall management of the facility and for making plans for its expansion and to provide whatever support we can to our clients..."*

*[IncuWorks IM] "...I will have to say that tech-transfer from the University (hosting institution) to the market is my key role. This requires the identification of intellectual property, working with our scientists and researchers to develop commercial proposals and business plans and then help in raising funding and launching their businesses...it is a whole cycle. Besides this I am required to monitor and facilitate the progress of our existing clients, organise the CCDP programme, attend networking meetings and widen our service network, work with my other colleagues to organising trainings and promote our client companies in local and international competitions..."*

The following quotes show what the IM's felt were key aspects of their role:

*[DubInc IM] "...My most useful aspect is my commercial background as manager....working in various organisations in different capacities...this helps me strategising with our clients and coordinating everything..."*

*[DubInc IM] "...The greatest influence I have on client firms is in the day-to-day stuff that allows them to get on with their business...remove worries..."*

*[IncuWorks IM] "...My academic background helps build a rapport with our clients, especially spin-ins, because they feel that I can emphatically understand the unpredictable process of commercialising scientific research..."*

*[IncuWorks IM] "...Helping companies to understand the need to be innovative at all times and not being fixed on only one product or aspect of the business..."*

*[DubInc IM] "...Would like to spend more time with clients but as you can see I wear a number of different hats..."*

While the *DubInc* IM's tasks fall into both the above categories (corporate and incubation), evidence showed that *IncuWorks'* IM's role is much more focused on the second category i.e. incubation activities aimed at helping client firms grow. Corporate and administrative responsibilities fell into the Director's domain who was assisted by a variety of specialised staff. Therefore, in judging and planning the incubator management role, it is apparent that balances need to be struck between:

1. Premises management *and* client support services
2. The provision of day-to-day help *and* strategic inputs
3. The focus on the current and potential client firms *and* focus on local and regional economic development

In the absence of an incubation profession regulatory body (like those that regulate the medical, accounting and actuarial professions) time allocation to the above three categories of 'competing priorities' by IMs is usually a reflection of Board expectations and the IM's 'personal leadership style'. The 'leadership style' aspect seems to have a very strong bearing on client attitudes towards incubation. The IM-Client dyadic relationship is quite closely related to the IM's leadership and management style and impacts whether or not a client decides to work with the IM. To illustrate, a number of clients stated:

*[Client 9] "...Contact with the IM has been informal with good access...lots of interaction...(gender ref. removed) is quite approachable and easy-to-talk-to..."*

*[Client 31] "...Relationships are good...the IM takes an interest in the growth of the firm, introduced us to other clients and has helped us identify customers...this a good benefit..."*

*[Client 39] "...I sometimes get useful nuggets of information by talking with the management here, but I personally don't know the IM at all..."*

*[Client 16] "...The relationship between us and the Centre is sticky...I feel they don't consider clients as proper customers...there is a need for a bit more professionalism...I would not treat my customers like the Centre treats its clients..."*

*[Client 28] "...I have never felt any unease in approaching the IM or other staff here...they are not pushy...we can talk whenever needed...but it is quite rare that I'd approach the IM with a business problem because we have our own network and there is a lot of support from the parent company..."*

*(Client 4) "...I think it makes a big difference if the IM is emphatic, experienced and has good contact...there is a need to build trust and rapport without which I don't think there will a chance to move forward...here I suppose the IM needs to come across as interested and proactive...otherwise how would we know..."*

The effectiveness of leadership styles has long been a topic of discussion in both academic and practitioner circles (Howell & Avolio, 1993; Avolio & Bass, 1995; Avolio, 1999). Most managers exhibit components of several different leadership styles such as transformational behaviour, contingent reward leadership and management-by-exception leadership (Bass & Steidlmeier, 1999), therefore, it becomes difficult to precisely point-point an individual manager's exhibited style. However, researchers agree that effective leadership in any role requires a manager to be adept at a number of common skills such as being able to develop and coach subordinates, communicate clearly, resolve conflicts, analyse problems, make sound decisions, be able to respond to work challenges in a positive way, use time efficiently, and delegate work (Davis et al, 1996).



Based on the client quotes above, and other confidential client firm feedback, dyadic co-production would be greatly enhanced if the IM displayed emphatic behaviour, showed a keenness to devote personal time, had domain (market, sectoral and technical) knowledge and had a dense network of useful and resourceful contacts. If these important ingredients were missing in an IM's leadership style, clients felt that the role of the IM would become irrelevant and it was likely that dyadic co-production would greatly slow down or halt altogether. The importance of these IM leadership attributes became prominent when clients were requested to compare the leadership and management styles of one of the case organisation's previous IMs with the recently appointed new IM. In the words of clients:

*[Client 19] "...X (previous IM) was I am sure a very nice person but seemed very formal and reserved, was usually in the office with the door closed, we did not really have much contact, perhaps once a week in the corridor when we'd see each other and wave hello or something...but since Y (the new IM) took over, things are very different, (gender ref. removed) comes to my office every week, sends out personalised emails regularly, is very friendly and seems keen...I think age also makes a difference...we are like peers now..."*

*[Client 14] "...the culture here is entirely different since Y (the new IM) took over, there is much more openness and rapport, it feels more like an incubator now...previously I'd say it was somewhat like a commercial office let..."*

Ultimately, the leadership style of IMs has an important bearing on the range and quantum of dyadic co-production. The greater the degrees of perceived empathy, proactivity, domain knowledge and network density, the greater are the chances that clients will engage in developmental co-production. Previous practitioner research has highlighted that there is no clear evidence that the skills and time inputted to face-to-face involvement with clients and the leadership / management style of the IM have direct influence on the development of incubator clients as a whole (UKBI, 2001). However, this research has found that there are examples where the amount of time spent with individual clients, and/or where the level and type of intervention is higher, leads to greater benefits being *perceived* by clients. Clients and graduated firms regard support and encouragement from the IM very highly. Even though the

IM's personal involvement may not be a direct cause of improved business performance for all clients, the IM remains significant in terms of the clients feeling recognised and appreciated within the incubator.

#### 10.4 Uncertainty in the Incubation Environment

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In this section, aspects that contribute to contracting and other social uncertainties in the incubation environment are scrutinised. To precisely isolate all possible sources of uncertainty and risk in any given social or economic transaction is not possible, in fact a futile exercise. But human beings have a desire to understand properties of the unknown, to be able to predict future events in order to take actions prior and gain an advantage. In this context, knowledge must be based on *tangible* and *intelligible* evidence whilst limiting the derivation of general rules from particular sets of evidence as one can be missing hidden properties. It is in this cautioned spirit, after extensive discussions with clients at both case organisations, a number of common elements are discussed below that clients felt led to uncertainty in the incubation environment.

First, was the issue of *clients not being able to precisely pin-point the areas where they needed help* or what organisational economists would call “complexity of product/ service description” (Malone et al, 1987). At *DubInc*, this may be attributed to the absence of any client-specific development planning exercise (coordinated by the IM) to structure incubation activity. At *IncuWorks*, where a formal mechanism of assisting clients with periodic strategic planning existed, clients once again remained largely uncertain about the practicality of following any sort of a “plan” during the start-up phase. In the words of a client at *IncuWorks*:

*[Client 34] “...when we were starting off there were all sorts of teething issues...after those came problems of strategic market orientation, then financial management and finally I would have to say legal [when we were being assessed by a VC]...they were not predicted to be occurring in our business plan...strategy was more a day-to-day sort of thing for the first year or so...then things settled down...”*

Second, there was *uncertainty surrounding the scope of incubation activity* and this was due to the fact that generally speaking incubator services were not formally communicated during the initial induction period. This led to clients expressing uncertainty about *what developmental assistance, coaching and mentoring actually meant*. In the words of a Client at *DubInc*:

[Client 20] "...we do know that XYZ (the IM) is always available to help, what does this mean always available [emphasis added]...always available for what particular help...I am not sure...do I have to pay for it?"

Clients became aware of the facilities either through their experience of interaction with the IM during the pre-incubation stage; by engaging with the IM on a potential lead / project and learning through experience or through 'stories' narrated by other clients in the facility. In other words, what services were available to clients seemed to be a matter of perceptual judgment and differed from client to client.

Third, even if clearly formulated problems did exist, clients expressed *uncertainty about whether they should or could approach the IM for assistance and advice on a given "problem"*. One explanation for the presence of such uncertainty can come from Transaction Cost Economics and its treatment of the problem of "incomplete contracting" (Williamson, 1994). The tenancy / licensing arrangement between the incubator and the client firm details primarily the terms of the tenancy. The provision of developmental assistance is not an explicit part of the formal contract between the incubator organisation and client firms. Thus, in legal terms, neither *DubInc* nor *IncuWorks* are legally obliged to provide incubation assistance. Further, even if any advice or assistance is provided during the tenancy period, it is done so at the risk of the client where the incubator organisation bears no real legal liability for any resulting client losses. Thus, the IM-Client formal *incubation* relationship is based mostly on good faith.

As a result of the above, generally speaking, clients were either (a) not formally aware (or even if they were aware not really sure of what it actually meant in practice) of a facility to provide developmental assistance; or (b) questioned the usefulness of "free", "no obligation" and "non-liable" professional advice. The latter point came

across as a mental block for incubation engagement in a number of clients. For instance, a client at *IncuWorks* stated:

*[Client 26] "...when we need professional advice we set up a meeting with our solicitor or tax attorney and they charge us by the hour...I am not sure if we can really value free professional advice..."*

Explicit contracting may ultimately prove to be detrimental to the incubation environment. The complexity and cost related to preparing a tight legal document setting the scope and limits of incubation-related assistance is quite high. This is due to the unpredictability of the type of support needed during the tenancy period. Moreover, a standard legal document would not suffice for each client in a mixed-use incubation facility comprised of different types of firms from varying backgrounds in a wide spectrum of industries. The cost, preparatory work and time needed for drafting individual client contracts is likely to be debilitating and toxic in a start-up and entrepreneurial environment.

A final point to make is that although replacing explicit contracting with good faith introduces administrative efficiencies, these elements do not necessarily improve the IM-Client incubation relationship which would ultimately depend on associated costs and benefits. Whilst the costs of forming and maintaining relationships are recognised (Adler & Kwon, 2002), they are rarely made explicit in the management literature as they are in (say) economics (Hummon, 2000). The knowledge sharing literature does, however, make clear that knowledge is sticky, and transferring and creating knowledge is not a costless activity (Szulanski, 1996; Haas & Hansen, 2007). Costs and risks arise in relational as well as intellectual terms; some relationships are arduous and de-energising (Cross et al, 2003), and some people are more trustworthy than others (Levin & Cross, 2004).

Thus, in balancing anticipated benefits against costs and risks, the prime concern is the *value of the relationship*. The incubation relationship is such that, in aggregate, neither of the two parties (IM and Client) faces a draining out scenario or is significantly vulnerable without each other, but nonetheless, the relationship provides necessary and sufficient benefits. Therefore, the risk in sharing and imparting

knowledge is reduced since, due to the nature of the relationship, the likelihood of one partner abusing or exploiting the relationship is low – since there is no real incentive in abusing the relationship.

## 10.5 Concluding Remarks

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In this chapter, the impact of structural de-coupling and the IM's leadership style on the scale, scope and nature of 'incubation' work was discussed within the context of relevant research findings. Levels of de-coupling influence a particular leadership style to emerge, thereby, influencing incubation strategy (dormant, proactive or reactive) and incubation approach (coaching or mentoring). In incubators with high levels of de-coupling, the focus of IM activity would be organisational self preservation and bolstering legitimacy and reputation. This is at a cost of devoting time and resources to the core purpose of the incubator – *incubating*. Lower levels of de-coupling is likely to have an opposite effect i.e. a greater IM focus on the core organisational activity due to higher levels of accountability, monitoring, tie-in of IM incentives to *incubating*, clearer definition of the IM's role and the presence of alternate 'resources' to manage the incubator firm or corporation.

The personal leadership style, personality and behavioural traits of the IM have tremendous bearing on the overall quality, levels and intensity of developmental assistance activity at an incubator organisation. Building and nurturing an IM-Client relationship is much more difficult than building more conventional familial or professional relationships such as those between a VC-entrepreneur and landlord-tenant. The IM operates in a number of different capacities, at a number of different levels, and as a consequence maintains several different relationships with clients including that of landlord, shareholder, mentor, referee and broker. Depending on the nature of the IM-Client dyadic relationship, the IM must wear a number of different 'hats' simultaneously whilst maintaining enough levels of rapport to facilitate dyadic co-production. An upset in any one of these roles can have an impact on the level of rapport, thereby, on the efficacy of dyadic co-production. Thus, the IM's role is by its very nature a complex one, and is primarily about influencing clients by building and maintaining quality relationships.

The one normative advantage the IM has, in balancing anticipated benefits against costs and risks, is the *value of the relationship*. The incubation relationship is such that, in aggregate, neither of the two parties (IM and Client) is significantly vulnerable without each other, but nonetheless, the relationship provides necessary and sufficient benefits. Therefore, the risk in sharing and imparting knowledge is reduced, since, due to the nature of the relationship, the likelihood of one partner abusing or exploiting the relationship is low as there is no real incentive or gain by abusing the relationship.

In the following, final chapter of the thesis, referring back to the research's questions, the major theoretical contributions of the research are extracted from the present and the preceding three analysis chapters and presented. There is also a reflection on the limitations of the research; further, a number of recommendations for professional practice are made, areas for further research are identified and the thesis is concluded with a number of closing remarks.

## Discussion & Conclusion

### *Major Analytical Outcomes / Reflections on Theoretical Approach*

#### 11.1 Introduction

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The main aim of this chapter is to pull together, and present, the major contributions of the research. These are discussed at two levels. At the *first*, theoretical level, the contribution of the research's output towards addressing the research questions is presented. To reiterate the points made in the Introduction and Methodology chapters, as this research was based on a qualitative-inductive approach, the research questions acted as useful guides only and were not utilised for ring-fencing the scope of enquiry. Due to the qualitative nature of the analytical work, in a number of instances answers appear across several of the 16 inter-linked themes presented in the preceding four chapters. By organising the research outputs under specific questions it is easier to understand what, in terms of new knowledge, this research has produced which is novel, useful and interesting. Such an approach allows for the demonstration of the research's key contributions and demonstrates the implications for further theory development in the area.

At the *second* level, the research process is scrutinised to see whether it has any implications for the theoretical lens adopted - social mechanisms. The purpose here is to highlight some difficulties that can arise when attempting to develop a general model of incubation. These arise due to randomness inherent in the internal incubator environment and the difficulty of factoring-in the impact of unpredictable rare events which impact client development. The chapter concludes with a number of recommendations for professional practice and suggestions for further research.

## 11.2 Theoretical Contributions

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The objective of this research, as highlighted in the Introduction chapter, was “to investigate the normative environment, internal mechanisms and structural properties of incubator organisations for the purpose of identifying key elements that positively influence the development of new enterprises”. Nine research questions were developed based on the knowledge gaps identified in a systematic review of previous literature. These questions facilitated a systematic investigation of the three areas proposed in the research objective. The original research questions were:

1. How are the various stages of incubation organised?
2. What are the various strategies of dyadic co-production?
3. How do the structural properties of incubators impact on the organisation and orchestration of the incubation process?
4. How does the internal normative environment impact on the organisation and orchestration of the incubation process?
5. What is the nature of the relationship between the incubator organisation and client firm?
6. In what ways does the incubator manager’s leadership style impact on co-production efficacy?
7. How is incubation triggered in a dyadic setting?
8. How does Client-Client interaction within the incubator organisation take place?
9. How are new firms inducted for incubation?

In the following sub-sections, major theoretical contributions arrived at in the preceding four analysis chapters are collated and linked to the above questions. A number of these questions have been paired with another closely inter-linked question, including questions ‘5’ and ‘4’, questions ‘1’ and ‘2’, and questions ‘3’ and ‘6’. Combining these questions allows the presentation of the research’s major contributions in a logical and coherent manner. To illustrate, unless questions 4 and 5 are paired it is not possible to present clearly one major theoretical outcome – that the *nature of relationship* between the IM and a client firm is the key variable that dictates the overall quality of IM-Client dyadic co-production efficacy. By combining



research questions in the manner described, it becomes possible to demonstrate more clearly the ways in which the analytical work has addressed the research questions. For clarity, a summary of the major findings and contributions is presented in Table 18, including an indication of the section where the relevant, detailed analysis can be found. In the sections that follow, more information and related figures are provided.

*Table 18 – Summary of Major Findings & Theoretical Contributions*

<b>Section</b>	<b>Question(s)</b>	<b>Summary Findings &amp; Contributions</b>
11.2.1	<p>What is the nature of the relationship between the incubator organisation and client firm?</p> <p>How does the internal normative environment impact on the organisation and orchestration of the incubation process?</p>	<ul style="list-style-type: none"> <li>▪ Quality of IM-Client relations determine the quality of dyadic co-production.</li> <li>▪ Presentation of a conceptual model (Figure 16) which describes how relationships produce meaningful incubation outcomes.</li> <li>▪ Extension of Rice's (2002) work by drawing on Georg Simmel and theorists in the coaching and mentoring area which helps in the identification of the key variables that form the basis of the dyadic bond.</li> <li>▪ Normative rules are a dynamic complex impacted by human experience and signalling behaviour. They determine why some incubation environments and relationships "click" whilst others do not.</li> </ul>
11.2.2	<p>How are the various stages of the incubation process organised?</p> <p>What are the various strategies of dyadic co-production?</p>	<ul style="list-style-type: none"> <li>▪ Presentation of a conceptual model (Figure 17) that contextualises incubation 'strategies' and 'stages'.</li> <li>▪ The IM adopts one of three strategies to engage with clients and clients move through a number of stages in the incubation process.</li> <li>▪ The 'coaching' or the 'mentoring' approaches are the two meta-ideals that guide IM incubation behaviour.</li> <li>▪ Development of four broad categories which capture the essence of incubation services offered.</li> </ul>
11.2.3	<p>How are new firms inducted for incubation?</p>	<ul style="list-style-type: none"> <li>▪ The incubator induction process for clients is random with a number of broad patterns.</li> <li>▪ Clients bring in multiple, often unsaid and hidden, agendas and pursue ends that sometimes negate the incubation ethos.</li> <li>▪ What it means to receive incubation assistance differs from client-to-client – no standard set of perceptions or expectations. These are also dynamic, changing as clients gain incubation experience.</li> <li>▪ The process of selecting clients for induction is guided by both a rational / analytical approach as well as sub-conscious, intuitive and experiential processes.</li> </ul>
11.2.4	<p>How is incubation triggered in a dyadic setting?</p>	<ul style="list-style-type: none"> <li>▪ Increased understanding of the cognitive programming that triggers incubation in a dyadic setting.</li> <li>▪ An extension of Lichtenstein's (1992) original list of nine precursors of effective incubation relationships. Four additional variables have been proposed: dyadic history; psychological compatibility and degree of vision commonality; IM leadership style; and trust.</li> </ul>

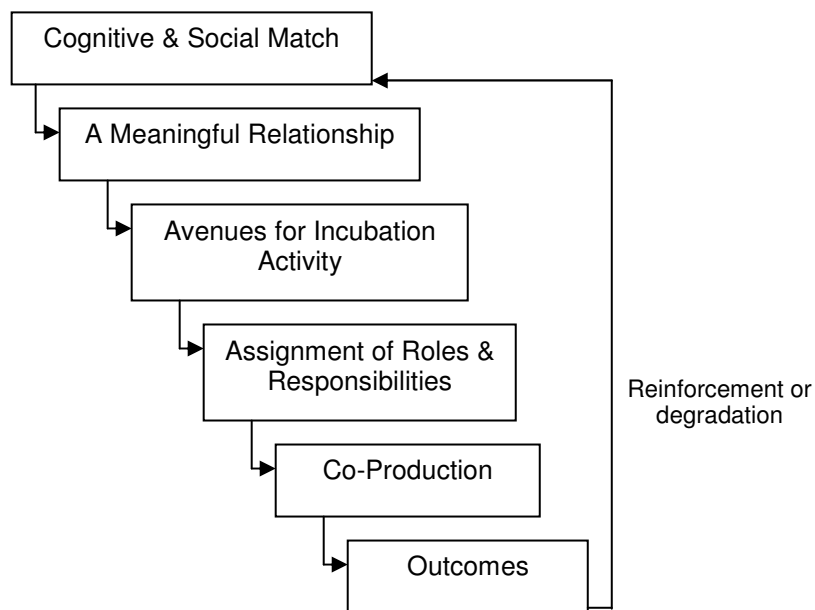
<p>11.2.5</p>	<p>How do the structural properties of incubators impact on the organisation and orchestration of the incubation process?</p> <p>In what ways does the incubator manager's leadership style impact on co-production efficacy?</p>	<ul style="list-style-type: none"> <li>▪ The discovery of structural de-coupling in incubators</li> <li>▪ An exploration of the impact of IM leadership style on incubation efficacy. The IM has two distinct and competing areas of activity (and priority): “<i>incubator management</i>” and “<i>incubation management</i>”.</li> <li>▪ A number of elements contribute to contracting and other social uncertainties in the incubation environment: (1) clients not being able to precisely pin-point the areas where they needed incubator intervention; (2) clients uncertain about what developmental assistance, coaching and mentoring actually meant in practice; and (3) clients uncertain about whether they should or could approach the IM for assistance and advice.</li> <li>▪ Better communication of incubation's goals, the incubator's expectations and incubation services can contribute towards reducing internal environmental uncertainty.</li> <li>▪ In setting efficient organisational boundaries incubators do not wholly base their service menu decisions on the principles of economic efficiency, rather, such decisions are influenced by a mix of economic as well as non-economic factors such as relationship quality, complexity of the service and degree of client need specialisation.</li> </ul>
<p>11.2.6</p>	<p>How does Client-Client interaction within the incubator organisation take place?</p>	<ul style="list-style-type: none"> <li>▪ Client-Client interaction can be of several different types and each type has the potential to both <i>positively</i> or <i>negatively</i> affect client attitudes, beliefs and behaviour towards their own work, the incubator organisation and their ability and willingness to engage with other clients.</li> <li>▪ Contrary to what has been suggested in the past, the client-mix of an incubator does not have a well defined relationship with boosting Client-Client interaction. Increased levels of Client-Client interaction depend on the nature of clients' business and industrial affiliation.</li> <li>▪ Active brokerage behaviour by the IM that facilitates the linkup of clients in consortia or links clients individually or in groups to unrelated outside agencies has the potential to enhance client cooperative behaviour.</li> <li>▪ Several attributes of an incubator's physical layout are quite important when it comes to promoting Client-Client interaction.</li> </ul>

**11.2.1 What is the nature of the relationship between the incubator organisation and client firm? & How does the internal normative environment impact on the organisation and orchestration of the incubation process?**

One of the most crucial findings of the research related to the importance of relationships. The conceptual framework presented below constitutes the mental map or architecture for the investigation of this issue. This emerged iteratively in the effort to make sense of the activity in the case organisations, but is being set down here in a linear fashion for clarity. The framework is built on the proposition that relationships are a necessary condition for economic development and entrepreneurship. It is

summarised in the following flow diagram (Figure 16), and outlines the process by which relationships between the IM and clients and between clients produce meaningful incubation outcomes:

*Figure 16 – Development of Incubation Relationships: A Conceptual Framework*



Simply stated, various factors lead to a cognitive match between the parties in incubation. This ‘match’ is important since it allows the development of productive relationships which opens up avenues for engaging in mutual co-production activity. Once there is an agreement on the nature of this activity, roles and responsibilities are assigned and co-production of incubation activity commences. This leads to either positive or negative outcome states which in turn reinforce or degrade the quality of the cognitive match.

The IM-Client incubation relationship is quite nuanced; a good analogy according to Lichtenstein (1992) would be that the entrepreneurs in the incubator stand in a similar relationship to the IM as do the guests in a party to the host. The IM as the host has no real authority over the entrepreneurs as guests. Indeed, entrepreneurs are expected to behave in certain ways but beyond this they have the freedom of choice to make whatever decisions they choose. The IM can simply provide an encouraging environment to allow the entrepreneurs to access opportunities not otherwise available, whilst allowing them to exercise their own initiative and to make their own

choices. This is the unique challenge which IMs face: to identify the conditions which are crucial to the establishment of positive relationships and to manage them in a way that such an environment emerges. The importance of high quality IM-Client relations cannot be stressed enough, without this basic building block, incubation co-production activity is likely to slow down or halt altogether

The incubation relationship is dyadic and works on the principles of co-production. It was Rice (2002) who first used dyadic theory to explain the nature of incubation; however, his pioneering work needed extension to provide an understanding of the subtle, hidden and often unsaid rules that contributed to the willingness and ability of the dyadic parties to engage in co-production activities. In other words, from a theoretical stand-point, there was a need to augment Rice's initial conceptualisation by focusing on questions such as: how, why and under what conditions does the IM-Client dyad work effectively to promote the ideals and objectives of incubation? Without developing an understanding of the underlying normative rules that influence the dyadic parties' behaviour, the true nature of incubation cannot be correctly understood. Further, it will be difficult to develop an understanding of the reasons why certain IM-Client dyads are much more effective than others.

In order to enrich Rice's work, the original proposer of dyadic theory, Georg Simmel was referenced along with other pioneers in the area (primarily Relationship Marketing researchers). Concepts and ideas were drawn from their work to develop a framework and starting-point for this investigation. This assisted in extending Rice's original ideas on IM-Client co-production to include a number of other core elements which were found to be prevalent in incubation environments. These elements form the very basis of the dyadic bond articulated in Simmel's terminology, and include: a common fate or enterprise; an agreement of "secrecy"; triviality or an immediacy of interaction; and intimacy regarding what each of the two participants gives or shows only to the one other person and to nobody else. It is acknowledged that these aspects have been discussed in the past, mostly singularly, by individual researchers; however, to the best of this researcher's knowledge, previous work has not presented a holistic analysis of the factors that determine IM-Client relational bonds and quality. By incorporating Simmel's core elements, IM-Client dyadic relations come quite close to modern day coaching and mentoring relationships. Following an examination of the

extensive coaching and mentoring literature, it became possible to draw out a further three elements including trust, commitment and active involvement as important relational elements.

It is important to stress here that it is not an easy task to interpret the meanings of unsaid rules and normative behaviour. It requires a rigorous effort in data collection and analysis to ensure consistency (i.e. that what the researcher took down as notes and wrote up was as close as possible to what was said and meant). To ensure this consistency, the researcher shared his interpretation of normative rules with the case participants and requested their feedback. Extended fieldwork and an examination of two case organisations also proved to be useful in the sense that both common themes, as well as organisation-specific norms emerged, lending credence to the assumption about incubation being a highly complex and largely unpredictable social process.

The normative rules that form IM-Client base-bonds are not static, they are a dynamic complex impacted on by human experience; in other words, either of the two parties can choose to change or violate certain rules under certain conditions (and not in others) determined by their experiences (and recorded memory) of the other party's behaviour in (perceived-to-be) comparable instances in the past. The subtle (or otherwise) changes in behaviour and attitude of one party is picked up (and interpreted) as signals by the other party and it is signalling that allows the dyadic parties to determine the relative 'applicability' of normative rules in particular situations. For instance, in a highly simplified scenario, consider an IM, who is normally quite active in following up on client requests for assistance, may become withdrawn or even suspicious when a particular client who has signalled self-sufficiency and independence in the past suddenly (and perhaps even genuinely) makes a new assistance request.

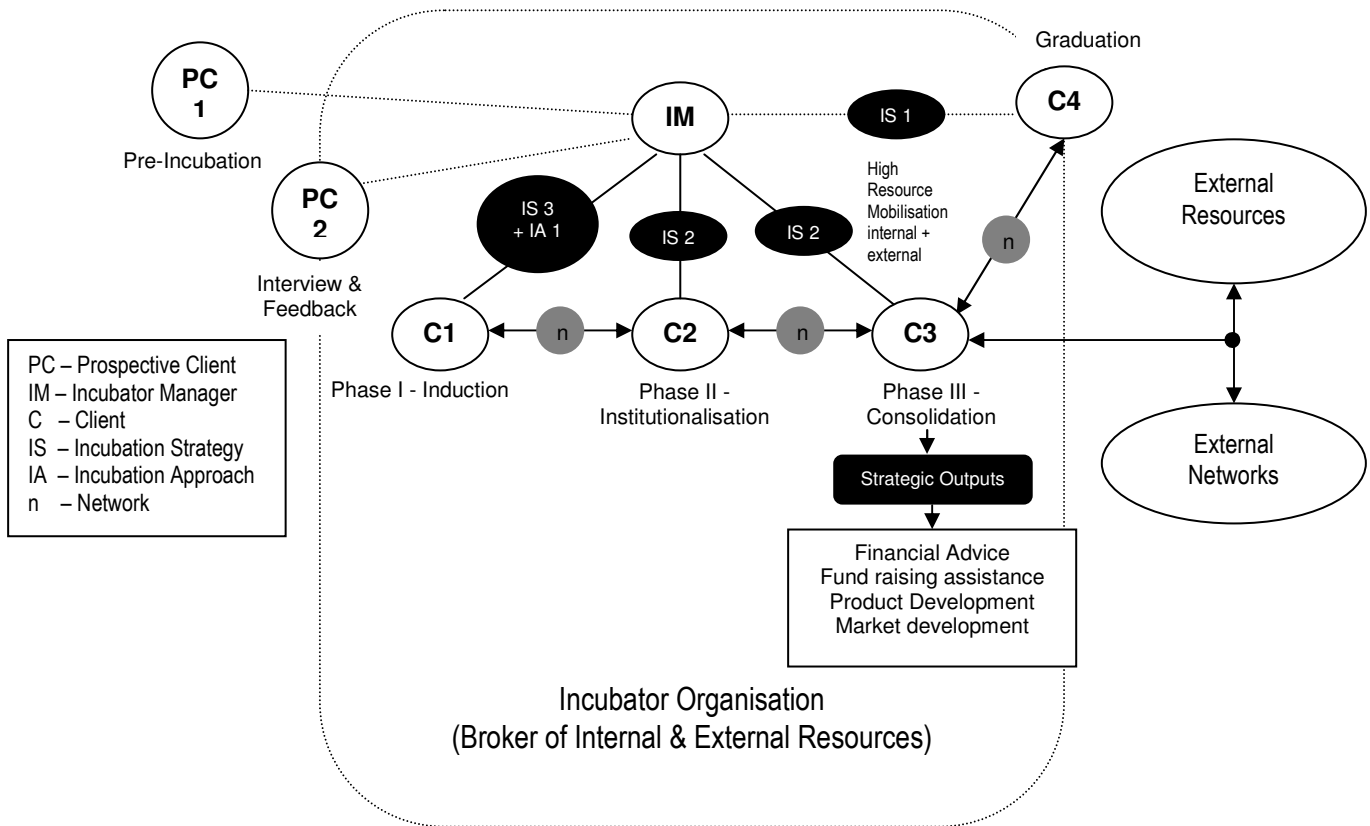
The determination of how this new signal is perceived and interpreted by the IM, is best left to psychologists, but at this juncture it would be true to say that signalling, and relative changes in normative rules determine the overall quality, quantity, frequency, intensity, scale, scope and ultimately the output of incubation. It is quite possible that by studying changes in the dyadic parties' psychological profiles,

signalling behaviour and the accompanying changes to norms, it can be determined why some incubation environments and relationships “click” whilst others do not.

### ***11.2.2 How are the various stages of the incubation process organised? & What are the various strategies of dyadic co-production?***

In Chapter 3 previous research on the incubation process was reviewed. One of the major conclusions drawn was that researchers in the past did not fully explore the true nature of the incubation *process*. It was also demonstrated that previous incubation knowledge was based primarily on a few rational models from the 1980s, at a time when incubator-incubation research began to appear in peer reviewed journals. The critique of the literature in Chapter 3 highlighted a number of problems inherent in previous models including: ignoring appropriate contexts, lack of appreciation of the clients’ role and attempts that were made to describe a non-linear and scalable process as linear. Therefore, in order to increase understanding in this area, and to further investigate the various facets of the incubation process, a theoretical framework based on social mechanisms theory and an inductive-qualitative case study methodology was developed. The output of this endeavour, in the form of the model below, makes a strong contribution to the understanding of a variety of factors that have escaped careful scrutiny in the past.

Figure 17 - Contextualising Incubation Strategies & Stages



In the model outlined in Figure 17, a number of aspects of the incubation process are described: *First*, depending on a number of variables such as the incubator’s goals and the resultant incubation *ethos*, pressures from the external environment and the perceived needs of the client-base, the IM adopts one of three possible strategies to engage with client firms - dormant, reactive and proactive. The adopted strategy is client-specific and signals the intensity, scope and frequency of incubation-related developmental assistance that is to flow from the IM to a particular client in a dyadic setting. These three strategies have different ranges (depending on the nature of relations in a particular IM-Client dyad). For example, the strategy ‘reactive incubation engagement’ for Client ‘A’ could mean a quicker, more thorough response to an assistance request by the IM than for Client ‘B’ due to experience memory and the nature of their relationship. Furthermore, the initially adopted strategy can also evolve over time depending on the changes in the IM-Client relationship. Hence, there is no one master strategy. If for example an incubator has 30 client firms, then a separate strategy for each client is developed. The development of this strategy is not strictly

evolutionary, it can change abruptly at times depending on changes in the IM-Client dyadic relations.

*Second*, process models and practitioner research suggests that client firms complete a common set of stages from selection to graduation. Case analysis shows that this is not an adequate representation of what really happens. The different incubation stages that a particular client experiences are unique, and clients' stage-wise progress depends on a variety of relational / dyadic and internal-to-the-firm factors. Some clients progress much quicker than others (and not necessarily positive progress), some skip entire stages, whilst for others progression may be slower due to completely unforeseen or uncontrollable circumstances not linked to the quality of an IM's developmental interventions. However, when everything is considered equal, a client firm would certainly go through a number of logically organised stages, with each progression bringing the client closer to the ultimate goal of successful incubation. The stages presented in Figure 17 augment previous models with a number of new stages; references and a justification for these have been drawn from the case data.

*Finally*, three findings help to shed light on the nature and range of co-production developmental assistance-type services offered at incubators. *Firstly*, research revealed that there are two meta-ideals, depending on the nature and range of services offered at a particular incubator, that IMs adopt in service delivery – the “coaching” approach and the “mentoring” approach<sup>45</sup>. There also seemed to be a correlation between the broadly adopted incubation strategy at an incubator and the incumbent meta-ideal. *Secondly*, the “menu” of services at the two case organisations had a number of differences (in terms of nature and range). It was possible however to develop four broad categories which adequately captured the essence of the full range of services offered at incubator organisations in general: one-to-one business advice and guidance; project conceptualisation and management; structured non-specific training and internal and external networking. *Thirdly*, it is often assumed that incubation developmental assistance-type services

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<sup>45</sup> Some incubators have a “mentoring programme” available for clients with a fee; the IM outsources *incubation* in such an instance to an outside ‘expert’. Whether it is the IM or an outside ‘expert’ engaging with a client, the overall approach to developmental assistance adopted would be either *mentoring* or *coaching*. As it has been shown in section 9.6, there are important differences between the two approaches.



are offered at a “diminishing rate”; empirical data analysis, however, revealed that this was not the case, instances were recorded where the delivery rate increased, at times not due to the increased resource requirements of a particular client, but due to changes in the nature of IM-Client relations.

### **11.2.3 How are new firms inducted for incubation?**

Published research in the past, to the best of the researcher’s knowledge, does not examine the process by which clients identify, approach, assess, select and finally make applications to incubators. In the past, “selection” research has been incubator-centric where researchers have used a number of quantitative approaches to highlight the existence and appropriateness of a rational approach to making a “selection” decision [see for instance the critical reviews of Merrifield (1987); Lumpkin & Ireland (1988); Aerts et al (2007); Bergek & Norrman (2008); and Hackett & Dilts (2004b; 2008) in Literature Review - Chapter 3].

The research presented in this thesis has extended the area of “selection” research in two ways; *firstly*, by exploring (from the clients’ perspective) motivations for pursuing the incubation route for new venture creation and their actual experiences in gaining access to incubator services. The case data analysis reveals that far from being rational, the actual process through which a client makes an application follows no identifiable pattern, in other words, it is random and quite specific to a particular client. Clients bring in multiple, often unsaid and hidden, agendas, and pursue ends that sometimes negate the incubation ethos [a point also stressed by McAdam & Marlow (2007)]. They have different views as to what precisely incubation developmental and infrastructural support means, and are also highly likely to change initial views and dyadic approaches once they gain actual incubation experience. Arguably, a better client-centric understanding of the selection process would allow practitioners and policy makers to make positive changes to the way incubators attract and retain potential clients.

*Secondly*, the actual “selection decision” by the incubator management, is not purely rational either, rather it is guided by both a rational / analytical approach facilitated by the assessment of concrete matter-of-fact details provided by the client, as well as

sub-conscious, intuitive and experiential processes (such as stereotyping). It was found that IMs can be influenced by non-rational variables whilst believing they have made an honest, unbiased evaluation to admit a client to an incubation programme.

#### ***11.2.4 How is incubation triggered in a dyadic setting?***

To contribute to an increased understanding of why comparable incubation environments differ when it comes to co-production efficacy, and why certain IM-Client dyads in a particular environment seem to quite actively co-create developmental assistance whilst others do not, there was a need to understand some of the factors that led to the effective *triggering* of co-production activity. If an understanding develops around the variables and (internal and external) conditions that *trigger* incubation co-production, it could result in two benefits; first, explanations may be developed regarding why certain environments and dyads excel in co-production efficacy whilst others do not, and second, from a practice standpoint, it may become possible to introduce catalysts to promote positive triggering behaviour, thereby, heightening the quantum and scale of dyadic co-production.

This research has contributed to the understanding of incubation triggers by developing a number of arguments; *first*, being a dyadic process, incubation can be triggered by either the IM or a particular client, both of whom bring their own motivations and agendas. At times, such motivations and agendas promote the ethos of incubation whilst in others it promotes self-interest. *Second*, research showed that the IM relies to a great degree on clients themselves when it comes to triggering incubation co-production, after all, common sense dictates that clients are in the best position to judge what existing and foreseeable problems they need assistance with.

When it comes to clients triggering incubation, the emerging picture becomes quite complex, because there is evidence of a certain degree of cognitive “programming” in terms of a client’s relative desire to engage with the IM. Due to the notion of bounded rationality, a host of pre-programmed loops, or client “concerns” and “pre-conceptions” (biases) regarding incubation itself and IMs’ abilities, were discovered. These led to a number of programmed behaviours (heuristics) when opportunities to

engage in incubation co-production presented themselves<sup>46</sup>. Following the inductive spirit guiding this research, the discovery of heuristics and biases inevitably takes the research into the domain of behavioural psychology, the scope of which falls outside the original remit of this research. However, their discovery through the methods employed, it is believed is very much valid until, in the tradition of cognitive and behavioural psychology through clinical experimentation (a popular approach recognised for its rigour) they can be either disproved or modified.

When it comes to triggering positive incubation co-production, a problem of evaluating relational variables is encountered, in other words, which aspects of the clients and the IM when paired would result in triggering effective and high levels of co-production activity? When investigating this problem, the clear issue was that there seemed to be no concepts for thinking about the value of and investment in relational variables such as teamwork training or establishing consortia of organisations collaborating on large contracts. The challenge comes from the fact that relationships are intangible, they cannot actually be seen, their existence can only be inferred. Therefore, the development of an effective relational approach would require a great deal of conceptual work as well as field testing.

The contribution made in this area is as follows: Lichtenstein (1992) proposed nine factors that contribute to the development of positive relationships in incubation: the types of businesses, their stage of development, the personal characteristics of the entrepreneurs, critical mass, the incubator space, forums, norms and attitudes, the actions of the incubator manager and time. Lichtenstein's list has been augmented by this researcher with four additional variables; (1) dyadic history; (2) psychological compatibility and degree of vision commonality; (3) IM leadership style; and (4) trust. From a professional practice standpoint, it is foreseen that a psychometric tool or system can be developed based on these variables for matching clients with IMs. The purpose would be to increase the chances of building positive incubation relationships, thereby leading to more triggering behaviour and increased co-production activity.

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<sup>46</sup> The presence of heuristics and biases were also discovered at the IMs' end, such as "stereotyping" when making the client selection decision.

### ***11.2.5 How do the structural properties of incubators impact on the organisation and orchestration of the incubation process? & In what ways does the incubator manager's leadership style impact on co-production efficacy?***

Arguably, given their purpose – an organisation designed to grow other organisations – incubators, as truly hybrid organisations, are much more complex than the conventional firm model<sup>47</sup> put forth by economists. However, as cases for study, they have been largely ignored by organisational theorists. From an organisational theory perspective, incubators are fascinating because traditional explanations for the existence of firms such as those emerging from heterodox economics (transaction cost economics for instance) do not wholly or elegantly apply when it comes to incubators. The Weberian model of the rational bureaucracy to coordinate and control organisational activity is also deficient, since incubators exercise very limited control over the participants of incubation activity and consequently their actions. Ecological perspectives from institutional theory could provide a degree of explanation for the structure of incubators by suggesting the impact of the environment and the overall incubator eco-system; however, in the case of incubators, such an explanation would become too complicated because the internal structure of the incubator is composed of a variety of different micro host-firm structures that are also impacted by their own unique eco-systems and markets. Prominent recent attempts to analyse the structural dimensions of incubators include one by Aaboen (2009). She attempted to conceptualise incubators as professional service firms, but once again, by her own admission, ran into a number of (allegedly irreconcilable) problems, for example, absence of a clear identification of who is the real customer of incubator services, and issues of division of responsibility and control.

The research's contribution to this interesting area comes from three lines of argument which provide valid explanations for why, due to aspects of their organisational structure, it continues to be difficult to evaluate the performance and socio-economic impact of incubators, which is a major area of incubator-incubation research and a question of much policy interest. The arguments presented are grounded in concepts from organisational theory which explain the nature of

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<sup>47</sup> Even venture capital firms (who unlike incubators exercise a high degree of control over their 'portfolio of investments').

incubators' structure and strategy, which in turn shed light on the reasons why incubator evaluation and impact assessment are fraught with difficulty:

*First*, by thoroughly de-constructing the two IMs' roles, speaking with Board members and observing the IM Offices' activities it has become clear that incubators, like some other hybrid organisations (such as universities and social movement organisations for instance), function with "structural de-coupling". The de-coupling of structure is the idea that the creation and maintenance of gaps between formal policies and actual organisational practices allows certain types of organisations to function. In a nutshell, when it comes to incubators, their real activity, which is *incubating* nascent firms, tends to be disconnected from organisational control structures, and incubation as an activity is disconnected from its true impacts. Structural de-coupling allows incubators to avoid close inspections because elaborate displays of confidence and trust increase commitments of internal members. By assuming that IMs are competent at *incubating*, maximum social responsibility for upholding the *ethos* of incubation becomes the IMs' responsibility.

The IM's personal leadership style has tremendous bearing on the perceived quality of developmental assistance co-production. The IM Leadership style, an area which has not received much attention in the past, also has an impact on the overall performance of the incubator. Data analysis revealed two distinct areas of IM activity – "incubator management" and "incubation management". Whilst the former is generally overlooked since its nature is administrative, its overall impact on an IM's available time has a big impact on the latter, which is traditionally assumed to be the IM's primary focus of attention. The case organisations' IMs' particular "incubation styles" had an impact on the perceived quality of clients' incubation experience. Measuring this impact, however, can prove to be very difficult, as tools to extract the incubator's and the IM's precise role in the "success" of a graduated client firm do not exist. It is suggested that such an evaluatory exercise would not only be resisted, but would also ultimately negate the *ethos* of incubation. The one way to assess the IM's impact is to measure levels of client satisfaction and perception of the quality of the IM's role. The greater the degrees of perceived IM empathy, proactivity, domain knowledge and network density, the greater the chances that clients would value the

IM and, therefore, be willing to engage in, (and appreciate the benefits of), developmental co-production.

On the flip-side, measuring what clients learn and the impact of that learning on economic growth targets and what IMs are actually delivering, introduces unnecessary uncertainty and creates doubts about the effectiveness of the status structure of the incubator organisation. Even if indicators and measures were developed, due to the randomness inherent to incubation, capturing and quantifying precise details of what intervention, made by what internal resource, led to what particular client advantage is likely to lead to a high cost administrative workload. By minimising resources devoted to monitoring and control, the incubator furthers its ability to increase the ceremonial worth of its contribution to client firm development and “success”.

*Second*, using concepts from transaction cost economics (TCE), the research highlights elements that contribute to contracting and other social uncertainties in the incubation environment. A better understanding of incubators’ structural factors that give rise to complexity and uncertainty in the internal managerial environment will, once again, help in explaining why incubator evaluation and impact assessment cannot be meaningful using traditional evaluation tools. Discussed in the analysis are three aspects that lead to client-level uncertainty, which to the best of the researcher’s knowledge, have not been previously examined: (1) clients not being able to precisely pin-point the areas where they needed incubator intervention; (2) clients uncertain about what developmental assistance, coaching and mentoring actually meant in practice; and (3) clients uncertain about whether they should or could approach the IM for assistance and advice.

The analysis presented argues against the traditionally held view regarding the need to introduce measures to reduce uncertainty (for better monitoring and control). It is being suggested that the presence of uncertainty, in the case of incubators, to a degree, helps them maintain structural and strategic integrity – although from the clients’ perspective uncertainty is problematic. To reduce uncertainty, Transaction Cost Economics recommends the use of explicit contracting; however, introducing explicit contracting is not only impractical but may also ultimately prove to be

detrimental to an incubation environment<sup>48</sup>. This is due to the fact that the cost and administrative burden associated with preparing comprehensive legal documents for each client (with different, generally unknown and evolving needs) outlining and delimiting the scope of incubation-related assistance would not only be debilitatingly high but would also be highly toxic in a start-up and entrepreneurial environment. Other measures though can be taken to reduce the level of uncertainty including: improved communication of incubation's goals, the incubator's expectations and details of the available incubation services and expertise.

*Third*, is the issue of “boundaries”, or how (and on what grounds) do incubators establish which actors (and their associated developmental services) ought to be integrated into the organisational hierarchy, and which services must be acquired via open market transactions (such as contracting) when setting up resource bases to service client firms. The strategy recommended by TCE is to subject each potential service to the “make-or-buy” decision analysis. When applied to the case organisations, it became clear that although both organisations had come to (arguably) economically efficient boundary decisions, the eventual choice in practice, required a number of compromises. Offering services in-house versus via outsourced suppliers meant gains or losses in efficiency and control, varying investment needs in human resources (which ran the potential risk of hold-up problems) and fluctuating governance costs and information loads on the hierarchy. In reality, it was found that incubators do not wholly base their service menu decisions on the principles of economic efficiency, rather, decision making in the area was influenced by a mix of economic as well as important non-economic factors such as relationship quality (with third party suppliers), complexity / technicality / niche nature of the service and degree of client need specialisation. Evaluation in such a scenario, once again, becomes quite complex since the responsibility of delivering incubation-related assistance moves beyond the IM to a wider eco-system of service providers.

These three arguments highlight that incubators are a very interesting study-case for organisational theorists because they are unusual organizations. “Outliers”, and

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<sup>48</sup> This interpretation of TCE applies only to the neo-institutionalist (Williamson's) version of TCE. The original version, namely that of Coase, did not have the same focus on explicit contracting.

other such cases usually present opportunities to extend extant theory and knowledge.

### ***11.2.6 How does Client-Client interaction within the incubator organisation take place?***

The research has highlighted that Client-Client interaction can be of several different types and each of these different types of interactions had the potential to either *positively* or *negatively* affect client attitudes, beliefs and behaviour towards their own work, the incubator organisation and their ability and willingness to engage with other clients. Thus, the assumption that social capital will automatically increase as a result of an increase in client interpersonal contact is a flawed notion. It is not as simple to increase social capital as some researchers in the past assume – a variety of psychological factors relating to human experience, cognition and decision-making would need to be scrutinised in order to determine the factors which are likely to promote the development of positive social capital.

To explore the question of the conditions under which effective Client-Client interaction can take place, three factors which were thought to improve client interpersonal contact were scrutinised. *First* of these is the idea that bringing together similar clients in a specialist incubator somehow improves client interpersonal contact. The finding here is quite interesting and suggests that, overall, the client-mix does not have a well defined relationship in terms of boosting Client-Client interaction. *IncuWorks* – being a specialist incubator with more similar clients when compared to *DublInc* – a mixed use incubation facility, did not show significantly high levels of Client-Client contact that triggered the development of economically beneficial relationships. The interesting revelation here is that clients of a certain type at *IncuWorks* (ICT-based) had comparatively higher levels of interaction when compared to other types (Bio-Tech). The explanation is that increased levels of Client-Client interaction depend on the nature of clients' business and industrial affiliation.

The *second* factor explored is whether the IM's enhanced brokerage behaviour has the potential to boost client interpersonal contact. Research revealed mixed results.



However, overall, in a specialist incubation environment, active brokerage behaviour by the IM that facilitates the linkup of clients in consortia to facilitate joint bidding for large compartmentalised contracts and for linking up clients individually or in groups to unrelated outside agencies has the potential to enhance client cooperative behaviour leading to tangible economic benefits.

The *third* factor involves an examination of the impact of the design and physical layout of the incubator where it is felt that certain design ideals have the potential to promote client interpersonal contact. The area of physical incubator layout has not received adequate attention by both academicians and practitioners. To shed light on this important area, research conducted in environment and behaviour, social psychology, ergonomics, and organisational behaviour was drawn upon and it has been suggested that setting up incubator layouts for the purpose of promoting Client-Client interaction requires a trade-off between demands by clients for “privacy” and “minimum distraction”, and the incubation ideal of creating a well integrated client cohort. Based on the empirical findings, it is concluded that in order to reach the ‘design ideal’, it seems that a balance must be negotiated between the conflicting priorities and strategic requirements of incubators and clients.

This research is, therefore, suggesting that the chances of clients forming beneficial relationships with other clients can improve in a number of ways: (1) the IM acting like a proactive broker between clients; (2) the physical / architectural properties of the incubation space designed to increase opportunities for client inter-personal contact; and (3) grouping clients in incubators according to the nature of their business and industrial affiliation. On this last point, the research outputs suggest that certain types of industries and businesses allow more opportunities for the development of meaningful economically beneficial relationships than others. In the categories where there is little opportunity for forming meaningful relationships, means of venture creation support other than incubation would be economically rational.

### 11.3 Reflections on Social Mechanisms Theory & Research Limitations

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The social mechanisms literature is vast, and it was not a purpose in this research to critically review this material as this important work has already been carried out by Gross (2009). Gross has extensively critiqued the practice-action and rational choice traditions to propose a new pragmatist direction in mechanisms research. His work, along with others, provided a useful theoretical and methodological basis for this research; especially the synthesis of how researchers in the past had conceptualised social mechanisms. It was also highlighted in Chapter 4 that Gross's theoretical view of studying social mechanisms has not as yet been applied in an empirical context, making this research pioneering. Applying mechanisms-based reasoning to the incubation process became possible by extracting a number of assumptions common to these conceptualisations. Following Gross, a view of incubation was adopted which suggested that *we can more or less predict how the dyadic parties will react when confronted with a particular problem situation by looking at habitualised human responses.*

During the empirical work and data analysis, a number of difficulties in empirically capturing the notion of “habitualised responses to known problems situations” were encountered. With further reflection, it is clear that this notion is flawed and presents a difficulty when developing new mechanisms-based theory in the context of incubators-incubation. The difficulty encountered relates to the random nature of the internal incubator environment. This environment is prone to, at times, large-scale, unpredictable shifts in normative patterns occurring as a result of chance. These include highly improbable, serendipitous or rare events, meetings or other unforeseeable and uncontrollable environmental variables impacting upon the dyadic parties' behaviour and approach. For example, a majority of clients, when asked about how they ended up at either *Dublnc* or *IncuWorks* and indeed found out about incubation support, recalled the important role of chance conversations or meetings (with graduated clients or incubator staff or individuals who knew incubator staff at conferences and other public events) or randomly coming across signage or information online (such as looking for office space and coming across an ad from *Dublnc*). Most clients could not foresee what their support needs were going to be in the medium to long term because of unpredictable outcomes of their present strategy.

Clients also suggested that important turning points in their businesses arrived when they pursued random opportunities which were not originally planned for. For an illustration, please see Appendix – F. Therefore, it is nearly impossible to track incidents occurring inside the incubator organisation with a degree of precision to be able to identify cause-effect type relationships.

The role of unpredictable, chance or random variables also has a major impact on the life-world of the IMs. To illustrate, in analysing the story of how *Dublnc* was set up, the important role of *chance* and *serendipity* becomes very difficult to ignore. By chance an incubation “expert” from the US was visiting Dublin, by chance this individual was known to a prominent member of the local community, and this individual was invited to speak at a community meeting. The expert chose to accept this invitation despite his busy schedule, his advice on boosting local employment was put to a vote along with other suggestions and again, by chance, came out as the winner. The trajectory of these unpredictable variables could not have been easily forecast.

Most interaction between IMs and clients is also based on chance and serendipity. At *Dublnc* for instance, where there is no mechanism for ongoing formal client appraisals, all IM-Client interaction is unstructured – chance meetings in the corridors; a client walking by the IM’s office stops to say hello, one conversation leads to another and all of a sudden a joint project is initiated. Further examples include: the IM and client running into each other by chance at an outside conference and the IM introducing the client to an important contact which in turn leads to a turning point in the client’s business; the IM sending out a general information email to all clients, which is randomly taken seriously by a few clients who get in touch with the IM, and one or two then decide to work with the IM on a joint co-production-type activity.

As the case notes were reviewed, due to the random nature of the internal incubation environment, it became clear that developing a robust mechanisms-based theory which produces a level of certainty about causes and effects is difficult. It is not being suggested here that incubators don’t make a difference to the post-incubation survivability of new enterprise. The existence of incubators actively supporting the development of new enterprises through mentoring, coaching, distribution of

resources and facilitating the development of networks do, in fact, make positive incubation outcomes more likely.

The reader of this thesis may have two questions (or thoughts) at this stage; was the choice of social mechanisms as a theoretical framework an inappropriate one given the conclusions in the previous section? And, to what extent are the findings from this research generalisable to the wider incubator-incubation phenomenon? In response to the first question, the reader is reminded of two things: *first*, a serious attempt was made to assess the appropriateness and fit of extant theoretical frameworks (see Chapter 4) to the investigation proposed. It was on this basis that the social mechanisms approach was selected. *Second*, this research was carried out using the inductive and qualitative approach recommended by Gross (2009) whose recent article “A Pragmatist Theory of Social Mechanisms” laid the foundations for the mechanisms-based conceptualisation of the incubation process presented in Chapter 4 (section 4.4). Gross’s work was at once both elegant and simple with clear methodological guidelines, thus its appeal. Using Gross’s approach, to study the incubation process, the following approach was adopted: examine the individual and collective actors (IM and clients) involved in the process’s input-output relationship where the aim was to understand *why* and *how*, when confronted with a problem situation, the actors involved responded.

This was genuinely attempted. However, a number of problems arose chief of which was overwhelming complexity. No evidence was found for standard responses to problem situations which arose with particular clients. Every client was different and had a unique set of problems most of which bore no resemblance to the problems of other clients. Therefore, the IM had client-specific approaches and these approaches were constantly evolving. For example, suppose the relationship between ‘IM incubation strategy’ and ‘type of client problem’ at *DubInc* is examined – a mixed-use incubator organisation where clients are low-to-medium technology firms, and the operational economic environment is one of stagnating or negative growth with a lack of public policy support for non-high-technology firms. According to Gross’s (2009) approach, several kinds of actors, problem situations and habitual responses make up this mechanism. Attempts to identify which habits of thought and action were employed by the IMs, under what incubation strategy, to solve a client’s problem of,

let us say, (out of the myriad of client-specific problems) “lack of technical capacity” seemed superficial – the answer too specific with little or no application to other clients and / or other incubator organisations. This is primarily due to the fact that the mechanisms-based approach does not account for context, and ultimately any approach which attempts to factor in a contextual analysis becomes over-complicated. There is a possibility that hypothesis testing on a systematic sample (rather than random stratified), under given contextual parameters using a quantitative approach might yield some interesting findings.

It must be noted however, that had it not been for the mechanisms-based approach, the research’s outputs would have been quite different, and perhaps not as interesting or useful. In the pursuit of finding evidence for standard mechanisms, the researcher was led into a number of important areas which had not been previously investigated and the research approach recommended by Gross added a degree of methodological rigour during data analysis in both the single case and cross case comparative scenario.

At this juncture, it is also important to reflect on the choice of methodology. Although the qualitative multi-site case study strategy was the most appropriate approach considering the objective of this thesis, it is sincerely hoped that the reader does not get the impression that the researcher believes there is little possibility of a contribution coming from deploying quantitative designs for further research. Quite the opposite, the pragmatist’s stance on research methods is very flexible: use whatever works to answer the research question. Quantitative methods such as a survey have a lot of potential in building on the findings from this research. There are active plans in place to employ a hypothetico-deductive (as opposed to the inductive) approach to shed light on a number of emanating questions, for example testing hypotheses using a survey on the IM-Client cognitive match. From this research, it is clear that such a “match” is the very basis for effective incubation performance. In order to identify the common features of effective cognitive matches (and to perhaps compare these with those which are not as effective) a survey complemented with statistical data analysis would be the ideal approach.

On the issue of generalisation, it is important to note that generalisation does not really apply to the qualitative paradigm because its philosophical, theoretical, instrumental, and methodological foundations are separate from those of the quantitative paradigm (where generalisation is of concern). Making a value judgment between the two paradigms, for the pragmatist, is not of real concern. Nevertheless, there is value and merit in generalisation, and in the Methodology chapter – section 5.4.1, it was pointed out that the strategy in this research was ‘analytic generalisation’ as opposed to ‘statistical generalisation’. To reiterate, analytic generalisation is not generalisation to some defined and “randomly sampled” population, but to a theory of the phenomenon being studied, a theory that may have much wider applicability than the particular case studied. In this, it resembles experiments in the physical sciences, which make no claim to statistical representativeness (physicists do not draw random samples of atoms), but instead assume that their results contribute to a general theory on quantum mechanics. With the theoretical contributions discussed in this chapter, it is believed, that the aim of analytic generalisation has been achieved.

#### **11.4 Practice Recommendations, Further Research & Concluding Remarks**

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From a practitioner perspective, in order to improve the performance of incubators, a number of recommendations can be made: *First*, as highlighted in Chapter 7, the IM has an important role to play in building high quality individual relationships with clients. The “success” of the IM-Client relationship is closely linked to the overall quality of a particular client’s incubation experience. Improving this experience would require the presence of high levels of trust and rapport, which means that IMs need to go a few extra steps and get to know clients on a personal level. Relationship building takes tact, skill, certain personality traits and investment in time and resources. Although it is not an exact science however, relationship building can be learnt as a craft through training and practice. It is recommended that IMs be trained in this valuable craft and be actively encouraged to practice it.

*Second*, further findings analysed in Chapter 7 indicate that there is a need for incubation practitioners to re-assess the value of Client-Client interaction and the issues that promote and stall Client-Client activity. The life-world of the IM is strenuous; and in the day-to-day management of the incubator and the short term

requirements of the role, it is possible that IMs do not get the opportunity to develop the 'chess board thinking' that is needed to promote the Client-Client interaction that is economically beneficial. The recommendation here is that the IM, in consultation with other incubator support staff, engages in a degree of strategic planning which goes beyond setting targets and developing KPIs (Key Performance Indicators). This is needed because a significant level of the IMs' work, and as a result their contribution, cannot be captured through quantitative metrics. To illustrate, such planning could include a rotating twinning arrangement where clients are paired with another client to work on mutually beneficial business tasks under the IM's moderation.

*Third*, the analysis presented in Chapter 9 shows that the IM adopts one of three strategies for alignment with strategic client agendas and intentions (some of which may not be purposefully disclosed). The current thinking on this issue is to discontinue incubation assistance for those clients with whom the IM adopts a 'dormant' strategy i.e. those clients who wish to avail of the infrastructural or economic benefits of incubator placement only, including those such as subsidised rent, locational advantages and convenient car parking facilities. On the basis of the research here, it is recommended, that such final decisions are taken carefully, and on a case-to-case basis, as accommodating dormant clients may not necessarily be a disadvantage. They can at times augment an incubator's brand image and reputation, and play useful roles in promoting Client-Client interaction.

*Fourth*, as discussed in Section 10.2, the IM has two distinct areas of activity, "incubator management" and "incubation management". The latter would be regarded as core, hence, it is recommended that incubators organise their internal structure in such a way so as to allow the IM to devote maximum possible time and resources to "incubation" activity. A recognised certification / qualification / training for the IM would be helpful in this regard, along with the provision of incubator-incubation management software to track and log client development progress.

*Fifth*, as indicated in the Section 10.4 analysis, in order to reduce the impact of a number of factors which introduce uncertainty in the incubation environment, it is recommended that the IM and prospective client discuss and plan the ways in which

the incubator could offer support, in what particular areas, using which resources and by when, and how progress will be periodically discussed and monitored. This kind of disclosure and transparency should help clarify the relationship's deliverables, and at the same time strategically align incubator and client firm goals and strategy.

In terms of further research, there is potential in a number of avenues for advancing knowledge in the incubator-incubation area. *First*, more research needs to be conducted in order to improve an understanding of the variables that positively (and negatively) influence the IM-Client relational match. Such an exercise could help in the development of psychometric tools / methods; these could be deployed as a part of the client selection process. Further, by understanding the nature of the variables which lead to a break down in IM-Client relationships it may become possible to develop and incorporate "advance warning systems" or pre-emptive strategies at critical junctures in the incubation process. By focusing on actively maintaining the health and quality of the incubation relationship, maximum impact and effectiveness in the least possible time can be ensured. This, it is felt, would be an important advance in incubation research.

*Second*, future research must look at developing further explanatory theory about the structure of incubator organisations. This research has suggested that incubators are an interesting case for organisational theorists (because of a number of structural and strategic properties discussed in this research), and have to-date not received enough attention.

*Third*, researchers must turn their attention towards the physical design of incubator facilities; no peer-reviewed or even practitioner publications looking at this particular aspect of incubators-incubation were found. Physical design of the incubator facility undoubtedly has a powerful impact on the quality and scale of incubation activity, therefore, what are an incubator's design ideals which will best promote the *ethos* and goals of incubation?

*Fourth*, from a policy and practice perspective, research is needed in two important areas: (a) for developing carefully contextualised measurable standards / indicators to determine the efficacy of a particular facility's incubation process as without standards, certification and rating will not be possible; and (b) for developing a



suitable qualification for training and certifying incubator professionals, perhaps along the lines of the qualifications for management consultants, company secretaries and marketing professionals.

To conclude, what has been proposed in this thesis is a return to core principles i.e. a recognition of the need to focus on human relational factors. This research has raised the profile of “incubation” research within the incubator-incubation discourse in two major ways. *First*, the major theoretical outcomes of the case work have been pulled together, where, as a result of the research, an understanding of the incubator-incubation phenomenon has increased in a number of areas: the dyadic nature of incubation, cognitive programming that triggers and stalls incubation activity, the structure and strategies in the incubation process and client-client interaction. *Second*, the qualitative-inductive approach’s merits and drawbacks were presented in the critical meta-methodological reflection of the social mechanisms theory. Together, these two levels of contributions (theory and methodology), constitute a clear advancement of knowledge in the incubator-incubation arena.

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# Appendix A

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## Chronological Listing of Reviewed Articles

1	Campbell, C., Kendrick, R.C. and Samuelson, D.S. 1985. Stalking the latent entrepreneur: Business incubators and economic development. <i>Economic Development Review</i> , 3(2), pp. 43-49.
2	Brooks Jr., O. 1986. Economic Development through entrepreneurship: incubators and the incubation process. <i>Economic Development Review</i> , 4(2), pp. 24-29.
3	Merrifield, D.B. 1987. New business incubators. <i>Journal of Business Venturing</i> , 2, pp. 277-284.
4	Smilor, R.W. 1987. Managing the incubator system: Critical success factors to accelerate new company development. <i>IEEE Transactions on Engineering Management</i> , 34(4), pp. 146-156.
5	Hisrich, R.D. 1988. New business formation through the enterprise development centre: A model for new venture creation. <i>IEEE Transactions on Engineering Management</i> , 35(4), pp. 221-231.
6	Lumpkin, J.R. and Ireland, R.D. 1988. Screening practices of new business incubators: The evaluation of critical success factors. <i>American Journal of Small Business</i> , 12(4), pp.59-81.
7	Weinberg, M.L., Allen, D.N. and Schermerhorn-Jr., J.R. 1991. Interorganisational Challenges in the Design and Management of Business Incubators. <i>Policy Studies Review</i> , 10(2), pp. 149-160.
8	Rice, M.P. 2002. Co-production of business assistance in business incubators: An exploratory study. <i>Journal of Business Venturing</i> , 17, pp. 163-187.
9	Hackett, S.M. and Dilts, D.M. 2004b. A Real Options-driven theory of business incubation. <i>Journal of Technology Transfer</i> , 29(1), pp. 41–54.
10	Peters, L., Rice, M. and Sundararajan, M. 2004. The role of incubators in the entrepreneurial process. <i>Journal of Technology Transfer</i> , 29(1), pp. 83–91.
11	Bøllingtoft, A. and Ulhøi, J.P. 2005. The networked business incubator—leveraging entrepreneurial agency? <i>Journal of Business Venturing</i> , 20(2), pp. 265-290.
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14	Aerts, K., Matthyssens, P., and Vandenbempt, K. 2007. Critical role and screening practices of European business incubators. <i>Technovation</i> , 27(5), pp. 254.
15	Hughes, M., Ireland, R.D. and Morgan, R.E. 2007. Stimulating dynamic value: Social capital and business incubation as a pathway to competitive success. <i>Long Range Planning</i> , 40(2), pp. 154.
16	McAdam, M. and Marlow, S. 2007. Building futures or stealing secrets?: Entrepreneurial cooperation and conflict within business incubators. <i>International Small Business Journal</i> , 25(4), pp. 361-382.
17	Bergek, A. and Norrman, C. 2008. Incubator best practice: A framework. <i>Technovation</i> , 28(1-2), pp. 20-28.
18	Evald, M.R. and Bager, T. 2008. Managing venture team relationships in corporate incubators: A case study of network dynamics and political rivalry in a high-tech incubator. <i>International Entrepreneurship Management Journal</i> , 4, pp. 349–364.
19	Hackett, S.M. and Dilts, D.M. 2008. Inside the black box of business incubation: Study B—scale assessment, model refinement, and incubation outcomes. <i>Journal of Technology Transfer</i> , 33(8), pp. 439-471.
20	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. <i>Technovation</i> , 28(5), pp.277-290.
21	Patton, D., Warren , L. and Bream, D., (2009) Intangible Elements That Underpin High-Tech Business Incubation Processes, <i>Journal of Technology Transfer</i> 34, 6 pp. 621-636.
22	Warren, L., Patton, D. A. and Bream, D. (2009), Knowledge acquisition processes during the incubation of new high technology firms, <i>International Entrepreneurship and Management Journal</i> , Volume 5, Issue 4, pp. 481-495.
23	Todorovic, Z.W. and Moenter, K.M. 2010. Tenant firm progression within an incubator: Progression toward an optimal point of resource utilisation. <i>Academy of Entrepreneurship Journal</i> , 16(1).

# Appendix B

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## Meta-Theoretical Analysis of Published Incubation Research

At the outset, it is important to highlight that incubator-incubation research falls within the small business and entrepreneurship discipline. This discipline incorporates different research trends (Torres 2003) and that the field is made up of '... a diverse group of scholars from various disciplines ... ' that bring in '... a range of definitions, theoretical frameworks, levels of analysis and methodological approaches' (Landstrom 2005). Hence, the paradigm debate that commenced much earlier in other management disciplines, such as organisational studies, has only latterly begun to take place in this field also (Savage and Black 1995).

Although incubator-incubation has attracted a variety of researchers since the early 1980s, the more theoretically rich work has only recently started to emerge. A number of previous literature reviews in the area highlight how research has progressed by adopting and adapting theory and models from other disciplines, especially economics and public policy. Further, previous reviews also highlight the diversity of disciplinary foundation in the area, however, such diversity does not automatically lead to a diversity of underlying meta-theoretical assumptions within an area (Burrell and Morgan 1979, Gergen 1994). Thus, without a rich meta-theoretical debate to distil the sub-textual essences that exist at the very core of the incubator-incubation discourse, it is unlikely that radically new research agendas would gain currency

Therefore, the present meta-analysis is both timely and novel in that it is not only a reflection on the ontological, epistemological and methodological foundations of published incubation research, but also a conduit to help start a healthy debate about future research agendas. Similar analyses have been conducted in other areas of the social sciences, such as strategic management (Alvesson & Deetz, 2000) and information systems (Gallagher and Webb 2000, Hirschheim. and Klein 1989), and have led to the consideration of the meta-theoretical foundations of competing discourses (Grant and Perren 2002). The aim of the present analysis is similar; to better inform the methodological development in the field.

This analysis will draw inspiration from similar work conducted in related areas, such as entrepreneurship and small business (Grant and Perren 2002), and will thus adopt the broad paradigmatic taxonomy provided by Burrell and Morgan's (1979) influential work. Due to publication-related constraints, it remains outside the remit of this article to describe the major components and key dimensions of Burrell & Morgan's paradigmatic framework or to consider its subsequent criticisms and developments<sup>49</sup>. As Grant & Perren (2002) argue, that while criticisms and extensions from Burrell and Morgan may be helpful in the context of incremental development of discourses within organisational theory, in the context of the mapping of the incubation literature, which falls within the small business and entrepreneurship discipline, it is felt that the original thesis provides a reasonable basis upon which to build, being one of the most widely disseminated paradigmatic frameworks.

The Table below provides such an analysis of the studies included in the literature review. The structure and construction-approach has been adopted from Grant & Perren (2002).

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<sup>49</sup> It is recognised that many authors, not least Burrell and Morgan (1979) themselves, have provided an overview of the underlying meta-theoretical foundations of organisational theory [e.g. (Hirschheim. and Klein 1989)]

*Meta-Theories & Paradigms in the Incubator-Incubation Discourse*

<b>Article</b>	<b>Ontology</b> <i>Realist vs. Nominalist</i>	<b>Epistemology</b> <i>Positivist vs. Anti-Positivist</i>	<b>Methodology</b> <i>Nomothetic vs. Ideographic</i>	<b>Human Nature</b> <i>Determinism vs. Voluntarism</i>	<b>Overall</b>
Campbell et al (1985)	Realist pp. 43, pa. 9	Positivist pp. 44, pa. 6	Nomothetic pp. 47, pa. 4	Determinism	Functionalist
Brooks (1986) <sup>a</sup>	Practitioner Study				
Merrifield (1987) <sup>b</sup>	Practitioner Study				
Smilor (1987)	Practitioner Study				
Hisrich (1988)	Realist pp. 222, pa. 3	Positivist pp. 226, pa. 4	Nomothetic pp. 230, pa. 7	Determinism	Functionalist
Lumpkin & Ireland (1988)	Realist pp. 59, pa. 1	Positivist pp. 60, pa. 3	Nomothetic pp. 68, pa. 3	Determinism	Functionalist
Weinberg et al (1991)	Realist pp. 149, pa. 4	Positivist pp. 152, pa. 1	Nomothetic pp. 157, pa. 2	Determinism	Functionalist
Rice (2002)	Realist pp. 164, pa. 4	Positivist pp. 166, pa. 3	Nomothetic pp. 179, pa. 4	Determinism	Functionalist
Hackett & Dilts (2004b; 2008) <sup>c</sup>	Realist pp. 42, pa. 2 <sup>d</sup>	Positivist pp. 44, pa. 1 <sup>d</sup>	Nomothetic pp. 3, pa. 2 <sup>e</sup>	Determinism	Functionalist
Peters et al (2004)	Realist pp. 84, pa. 1	Positivist pp. 85, pa. 3	Nomothetic pp. 88, pa. 2	Determinism	Functionalist
Bøllingtoft & Ulhøi (2005)	Realist pp. 266, pa. 1	Anti-Positivist pp. 276, pa. 1	Ideographic pp. 284, pa. 2	Voluntarism	Interpretivist
Totterman & Sten (2005)	Realist pp. 487, pa. 1	Positivist pp. 489, pa. 2	Nomothetic pp. 498, pa. 2	Determinism	Functionalist
McAdam & McAdam (2006)	Nominalist pp. 88, pa. 2	Anti-Positivist pp. 90, pa. 3	Ideographic pp. 94, pa. 1	Voluntarism	Interpretivist
Aerts et al (2007)	Realist pp. 255, pa. 3	Positivist pp. 255, pa. 6	Nomothetic pp. 262, pa. 4	Determinism	Functionalist
Hughes et al (2007)	Realist pp. 155, pa. 3	Positivist pp. 166, pa. 2	Nomothetic pp. 145, pa. 4	Determinism	Functionalist
McAdam & Marlow (2007)	Nominalist pp. 366, pa. 3	Anti-Positivist pp. 367, pa. 1	Ideographic pp. 374, pa. 2	Voluntarism	Interpretivist
Bergek & Norrman (2008)	Realist pp. 20, pa. 3	Positivist pp. 23, pa. 3	Nomothetic pp. 25, pa. 4	Determinism	Functionalist
Evald & Bager (2008)	Realist pp. 351, pa. 4	Positivist pp. 355, pa. 2	Nomothetic pp. 356, pa. 2	Determinism	Functionalist

McAdam & McAdam (2008)	Realist pp. 278, pa. 2	Anti-Positivist pp. 281, pa. 2	Nomothetic pp. 284, pa. 1	Voluntarism	Interpretivist
Patton et al (2009)	Realist pp. 622, pa. 2	Anti-Positivist pp. 625, pa. 2	Ideographic pp. 633, pa. 2	Voluntarism	Interpretivist
Warren et al (2009)	Realist pp. 482, pa. 2	Anti-Positivist pp. 485, pa. 2	Ideographic pp. 492, pa. 3	Voluntarism	Interpretivist
Todorovic & Moenter (2010) <sup>f</sup>	Realist pa. 4	Anti-Positivist pa. 31	Ideographic pa. 44	Voluntarism	Interpretivist

'a' and 'b' – Both studies have been authored by practitioners and are as such neither structured nor organised as academic articles. No primary data was collected for these studies either. However, the studies' recommendations are oft cited in the incubator-incubation literature since they represent some of the most comprehensive and early works in the area. Moreover, both the studies have been separately reviewed in an incubator-incubation literature review by Hackett & Dilts (2004a).

'c' – The earlier study in 2004 draws on Real Options Theory from the domain of finance and investments to propose an Options Theory of Incubation, whilst, the later 2007 study, tests the developed model's various assumptions and aspects.

'd' – Citations from the 2004 study.

'e' – Citation from the 2008 study.

'f' – Available online only, therefore, page nos. could not be mentioned. Paragraphs nos. commence from the full-text.

## ***Findings from the Analysis - 1: The Meta-Methodological Implications of Functionalism***

Most published incubation literature falls within the functionalist rather than the interpretive paradigm, when using Burrell and Morgan's (1979) classification schema. The analysis here simply suggests that the zeitgeist of research in the leading articles in the incubator-incubation area is functionalist in orientation. Functionalist theories of organisations predominantly focus on functional coordination, integration and cohesion, need satisfaction and social order rather than aspects such as emancipation, structural conflict or radical social change (Gooijer 2006). Therefore, the current body of research helps us understand the "what" aspects of the incubation through a number of empirical and normative descriptions of the factors that should be included in attempts at explaining the process.

In contrast, an interpretive sociology of organisations, according to B&M, is primarily concerned with understanding the subjective experience of individuals and is anti-positivist in approach. Such an epistemological position has, on the whole, not gained currency amongst incubator-incubation researchers where positivist methodologies and methods have remained predominant.

Interpretive methods of research, in contrast to positivist methods, adopt the position that value-free data cannot be obtained. Interpretivist researchers start out with the assumption that access to reality (given or socially constructed) is only through social constructions such as language, consciousness and shared meanings (Walsham 1995). Thus, if for instance, had interpretivism been the dominant paradigm in previous incubator-incubation research, our understanding of the phenomena may have been entirely different since the questions researchers would have thought important to investigate would have been entirely different. As a result, the methods employed would have been different and in turn what would count as knowledge about incubation would have been different.

We find that past incubator-incubation research is pre-dominantly interested in building a rational and causal model of incubation that allows for the creation of generally applicable incubator classifications and the prediction of incubatee outcome-states. Whereas, interpretive researchers would view incubation as a social process that is contextually sensitive, subject to changes triggered by internal events or shifts in the external environment and is politically charged with competing agendas and objectives. Research questions would attempt to understand the phenomena through the meanings that people assign to the process and focus on the full complexity of human sense making as the process unfolds. Thus, interpretive methods of research in incubation would aim to understand the context in which incubation occurs, and the processes whereby incubation influences and is influenced by its context.

According to Hackett & Dilts (2004a), if the area of incubator-incubation research is to advance forward in a theoretically meaningful manner then we must turn our attention from "what" – type research questions and lists of descriptive factors to "how" and "why" and "in what context" ("who" "where" and "when") these factors are interrelated. In other words, studies of how incubation works in the real world. Such an anti-positivist approach should help in the development of more adequate explanatory theory.



## ***Finds from the Analysis - 2: The Inevitable Epistemological Problem Associated with Instrumentalism - Black-Box Conceptualisations***

It seems incubation researchers are quite concerned with 'relevance to practice' or in pursuing an instrumentalist research agenda. This becomes apparent from some of the research questions that have been investigated in the past. The answer to why this is the case is open to speculation, however, what impact instrumentalism has had on the nature of our understanding of the incubator-incubation phenomena can be coherently discussed. The purpose here is not to present a wholesome critique of the instrumentalist position, rather, to extract (with some degree of precision) the inevitable knowledge gap(s) it has led to.

Instrumentalists regard theories not as attempts to describe the world but as *instruments for making predictions*. For the instrumentalist then, questioning the truth of a theory is a conceptual mistake. The appropriate question to pose is whether a theory is *empirically adequate*. And a theory is empirically adequate if it makes accurate predictions or *all of its observable consequences are true* (Eldridge, 1998, pp. 67). Thus, the 'black-box' analogy is an appropriate one for instrumentalism. The researcher inserts (intrinsically value-free) information regarding observed background conditions into a model black-box and the box then generates predictions regarding what one will ultimately observe. The outputs, like the inputs, are value-free, only acquiring a moral significance at the point at which they are employed by human agents for particular uses (Newberry, 2007). To the instrumentalist, the most important expectation from such a black box is that when accurate information is inputted, then the yielded predictions must be accurate too. Of no concern, therefore, is the *mechanism* inside the box – it can be anything 'as long as it works'. There is no particular requirement that the black-box and its mechanism depict the way the world really is. Indeed, the mechanism is only an instrument, depicting the world is not its purpose (Bird, 1998, pp. 125)

The instrumentalist's focus on inputs-outputs without any real concern for mechanisms is precisely what Hackett & Dilts (2008) lament in their article 'Inside the black box of business incubation: Study B—scale assessment, model refinement, and incubation outcomes'. They conclude that in order to truly understand incubation we must move away from 'black-box' approaches designed to simply predict incubation outcomes to understanding how incubation works in practice. No doubt, the prediction of incubation outcomes is an important aspect of interest to both researchers and practitioners / policy-makers, however, the paucity of grounded models that can make accurate predictions is clear testimony that value- and context-free black-box approaches are simply not enough.

The intention and mind-set of past researchers, as it has been shown, is grounded in a pragmatist philosophy. This meta-methodological underpinning, it is believed, is truly noble and valid – a worldview arising out of practical action, situations and consequences, where there is a concern with real-world application – what works - and solutions to problems (Creswell, 2009). However, a new moderating approach is needed that simultaneously embraces the spirit of previous incubator-incubation researchers and impedes the consequences arising out of an extreme variety of pragmatism – i.e. instrumentalism. Our focus must be on internal incubation *mechanisms* that turn inputs (nascent entrepreneurs and new businesses) into outputs ('successful' new firms).

# Appendix C

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## Incubators-Incubation in Ireland

Latest published statistics on the incubator-incubation phenomenon in Ireland are not readily available. A number of qualitative case studies by McAdam and colleagues though provide interesting insights for understanding the internal dynamic of hi-tech Irish incubators. These studies have been reviewed in Chapter – 3: Literature Review. A number of Irish government documents were offer background information or policy underpinnings. The Irish Government's Dept. of Trade, Industry & Employment and Enterprise Ireland suggests a very high level of focus on "accelerating the development of world-class Irish companies". Enterprise Ireland's Strategy 2008-2010 lays down the Govt's plan for creating 200 new HPSUs (High Potential Start-ups) through their envisaged work with and funding to city and county enterprise boards, *business innovation centres* (another term for business incubators) and third-level institutions. The same focus is pronounced in the Policy for Science, Technology & Innovation 2006-2013.

A useful report was a comprehensive survey on enterprise space in the Dublin City area produced by the Dublin City Enterprise Board (Dublin City Enterprise Board, 2008). This report clearly establishes the link between curbing early stage entrepreneurial risk and the provision of business incubation and other state-sponsored support services. The report also stresses the need for increasing the total available enterprise space due to excessive demand reported by existing incubation centres. Perhaps the most important aspect of the report is the broad-based survey of existing incubation centres in the Dublin City area and a resulting typology of incubators in Ireland. Thus, in Ireland today three different types of incubator models exist:

1. *College Enterprise Centres* – these are linked to and supported by third level institutions, and generally support businesses emanating from college research or from 3rd level graduates. Businesses tend to be knowledge based and there tends to be cross-fertilisation between the incubation businesses and college research activities.
2. *Community Enterprise Centres* – these are rooted in the local community, and their objective is generally to provide local employment through the generation and support of local enterprise. They are generally very broad in the types of business supported, and the centre will often perform a dual role, offering a range of services and training to the local community.
3. *Cluster Enterprise Centres* - This type of centre tends to specialise in developing synergies between businesses of a similar type such as IT, Software and Multimedia.

Enterprise-Ireland reports a total of 23 campus incubation centres in the country<sup>50</sup>. These are incubators linked to either 3<sup>rd</sup> level institutes of higher education or the various institutes of technologies (ITs) in Ireland. The idea behind the establishment of these entities is to support academic researchers to take the outputs of research with commercial potential and bring it to a point where it can be transferred into industry or be commercialised. The client-mix at these facilities is, therefore, inclined towards the sciences or engineering. The incubators are usually set up as

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<sup>50</sup> From the website of Enterprise-Ireland: <http://www.enterprise-ireland.com/ResearchInnovate/Research+Commercialisation/Campus+Business+Incubation.htm> (accessed July 2009).

independent entities with a % of shareholding (in terms of equity input) of both university-IT (where equity contributed is usually land/space) and EI. Campus incubation forms an important overall component of EI's strategy of "Realising the Commercial Potential of Ireland's Research Community". The last investment made in campus incubation was during 2007 amounting to (approximately) € 1.4 million<sup>51</sup>. The funds have been mostly utilised for the construction of incubation infrastructure.

Community Enterprise Centres (CECs) are also seen as "a tangible and visible contribution to regional development" by Enterprise-Ireland<sup>52</sup>. CECs have in most part been established by local communities on a mostly self-help basis with support, at times, from local County Enterprise Boards. These facilities are mixed-use incubators catering to wide array of small business sectors and are not usually purpose built. They provide office space, commercial kitchen space, work shop space alongside advice, training, mentoring and other support services such as reception desk, conferencing, mail handling, shared internet, cafeteria and so on. Since 1989, EI and its predecessors have administered five schemes supporting CECs. A total of €51m has been approved for 169 CEC projects throughout the country. EI reports that to date 105 CECs have been built and 19 are under construction. In the year 2008, CECs received (approximately) € 1.2 million funding for infrastructural development<sup>12</sup>. CECs are financially sustainable on the basis of the incomes they generate through client rentals and other commercial / community-based activities and as such receive no ongoing state subsidy for operations.

There are five Business Innovation Centres (BICs) reported by EI on their website, however, DCEB reports a further three (Dublin City Enterprise Board, 2008). This disparity may again be due to the problem of "definitional ambiguity" (Hackett & Dilts, 2004a) or overlapping roles between state agencies involved in the construction and support of incubators. BICs are involved in the provision of business information, advice, counselling and mentoring. They are also involved in the development and management of enterprise space and the promotion of an enterprise culture. Of all incubation programmes, the highest amount of funding in 2008 went to BICs, amounting to (approximately) € 2.7 million<sup>12</sup>. These facilities are usually large and purpose built and focus on the hi-tech / designated innovation-based sectors. Financial sustainability, due to lower rentals, comes once again from state subsidy and contributions from the industry.

In 2007, EI conducted a survey of 105 CECs. EI reports that the top line results show a very positive use of the investment it has made in CECs in terms of occupancy rates, numbers employed and the number of manufacturing and traded service enterprises. The survey revealed that the centres have been successful in achieving an average occupancy rate of 87% with almost 1,000 businesses employing 4,850 people. As a follow-up to this exercise, according to our sources, EI is presently conducting a new survey of all incubators in Ireland. This survey, according to insiders, is essentially an attempt to compile base statistics about available infrastructure and incubators' impact on economic development indicators such as number of new jobs created, number of new companies graduated and so on in a particular period of time. The primary data sources for this survey are incubator managers themselves who are relaying base data through questionnaires. In such a scenario, the reliability of the compiled statistics may be slightly questionable. This is due to two reasons: (a) since incubator managers in Ireland, especially community-

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<sup>51</sup> Notes to the Enterprise-Ireland Annual Accounts 2008: <http://www.enterprise-ireland.com/annualreport2008/note4.html> (accessed July 2009).

<sup>52</sup> Downloaded policy document from the website of Enterprise-Ireland: <http://www.enterprise-ireland.com/Grow/Finance/Community+Enterprise+Centre+Scheme.htm> (accessed July 2009).

based (since they receive little or no form of state subsidy), do not maintain detailed records of incubation practice they maybe tempted to rely on rough guesstimates; and (b) in order to present a more positive picture for obvious reasons, incubator managers may resort to glossing-over finer details.

In terms of incubator impact assessment, the latest publicly available document is the Dept. of Trade, Industry & Employment's first-off Annual Output Statement 2009 whose purpose is to "match key physical outputs and strategic impacts to financial and staffing resources for the financial year" (Department of Enterprise, Trade & Employment, 2009). This report evaluates, amongst other programmes, the Govt's Enterprise Development scheme. This scheme funds activity carried out by Forfas, IDA Ireland, Enterprise Ireland, Shannon Development, the City and County Enterprise Boards, the National Standards Authority of Ireland and *InterTradeIreland*. Hence, the Annual Output Statement is essentially reporting the progress of all the above entities on their major overall objective: "to improve competitiveness and growth by promoting entrepreneurship, working with companies to develop new products and processes, growing exports".

This important scheme suggests 18 strategies to achieve the above goal of which promoting an entrepreneurial culture, training and mentoring to new entrepreneurs, direct assistance to hi-growth firms feature prominently. These strategies come together very neatly in package within an incubator setting. However, what we don't understand is the particular impact of incubators to the achievement of the scheme's overall goal. The role of incubators is presumably combined with a number of other programmes for supporting early stage entrepreneurs such as the Enterprise-Ireland Growth Fund, Enterprise Platform Programme and Enterprise Stabilisation Fund. Due to the Statement's construction methodology and the system of compiling data at the concerned Govt. departments, it is nearly impossible to gauge incubator impact on economic development indicators. This essentially makes a majority of the indicators used in the Statement meaningless: for instance, when the reader comes across an indicator '% of Greenfield jobs approved or created' or 'X new HPSUs supported', questions beg to be asked: what is the quality of those jobs?; what % of those jobs are 'blue collar'?; 'what sort of commitments do we have from the supported HPSUs that they in what ways will benefit the Irish economy'?

At the overall expenditure of €536 million (approximately), 71 new High Potential Start-Up (HPSU) enterprises and 959 other enterprises were supported by the County Enterprise Boards. With further enquiries and more desk research, arguably, it may be possible to draw a straight line between expenditure on incubators and a number of economic development indicators, however, the 'real' and 'true' impact of incubators as it has been suggested by past researchers, can not be gauged in such a simplistic manner (Tamásy, 2007; Sofouli & Vonortas, 2007; Tamásy, 2001; Roper, 1999; Sherman, 1999; Rudy, 2004). Incubators are very useful 'packaged programmes' for the curbing of entrepreneurial risk and the promotion of new ventures (Hughes et al, 2007; Ndabeni, 2008; Benson, 2008; Cooper & Park, 2008; Hongyi et al, 2007), however, they are also highly sophisticated when it comes to management, service delivery and evaluation (Sherman & Chappell, 1998).

There is currently a national association for Irish CECs in existence with regional chapters, however, sources have informed that this body is not well coordinated, lacks capacity, resources and most of all ownership. The ITs also have their own association but allegedly suffers from similar coordination and control problems.

# Appendix D

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<p><b>Client:</b> I only came because of the rent, and I only knew because they advertised on Daft, if it were not for this, I would never have known that this place existed. And the fact that they have these other supports and services, when I enquired I have absolutely no idea that they were offered.</p> <p><b>Researcher:</b> Now that you have been here for sometime; if you were going to tell a friend about this place and what was offered here, what would you say?</p> <p><b>Client:</b> I would say that it is a Centre where you can get cheap rent in if you were to start your business. They are quite flexible in their relationships with tenants, especially with rental, if you can't pay for a month you can go and have a chat about it. They collect your post and other simple things that I wouldn't have thought of when I first came in here, do you know what I mean? There is no post office in XXXXXX, they put all the stamps on. For me that would have been a huge headache. I suppose, another thing is that you can talk to people here in the Centre and they are all in the same boat as you, so you can bounce off ideas, see how they are doing, discuss your own problems and you get ideas from that as well.</p> <p><b>Researcher:</b> This is very interesting? Have you had any engagements with other tenants here, you did mention that you spoke with XXXXXX at XXXXXX and XXXXXX.</p> <p><b>Client:</b> Also XXXXXX.</p> <p><b>Researcher:</b> So its three tenants, very good, so how did you come to know them?</p> <p><b>Client:</b> Well XXXXXX I used them to get uniforms made for my staff, XXXXXX I think XXXXXX told him to come see me and XXXXXX the receptionist told me about them.</p> <p><b>Researcher:</b> I see, do you go to the Monday coffee mornings?</p> <p><b>Client:</b> Some of them, not all, sometimes I am just too busy. Even the courses, the classes you know, they are on in the evening or at night, sometimes I don't leave till 10 so the last thing I want to do is to attend a course at that stage, I just want to go home. I think the courses should be during the lunch time.</p> <p><b>Researcher:</b> So as I am understanding it, convenience and timing would be your two key issues?</p> <p><b>Client:</b> Yes, I think the tenants would be better attended to if these courses were made more accessible time-wise.</p> <p><b>Researcher:</b> So, besides the benefits of client networking and the shared support facilities like post and the subsidised rental, do you have any views on some of the other support services here like coaching and targeted business advice?</p> <p><b>Client:</b> See, I never use that.</p> <p><b>Researcher:</b> How come?</p>	<p><i>Motivation to pursue (8.3)</i></p> <p><i>Value ascribed to developmental assistance: infrastructure supports (8.10)</i></p> <p><i>Meaning of incubation (8.2)</i></p> <p><i>General view on the benefit of being around other clients (7.1)</i></p> <p><i>Process of getting to know other clients (7.2)</i></p> <p><i>Value ascribed to client-client contact (7.1)</i></p> <p><i>Value ascribed to developmental assistance: general (8.8)</i></p> <p><i>General feedback on developmental assistance: there is value but the issue is convenience (8.11)</i></p> <p><i>Value ascribed to developmental assistance: specific (8.9)</i></p>
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<p><b>Client:</b> I know my own...I know I have a lot to achieve...I did notice these, but lets say Dublin City Enterprise Board assigned a...what is it...a mentor...?</p> <p><b>Researcher:</b> Yes, a mentor.</p> <p><b>Client:</b> I felt I knew twice as much.</p> <p><b>Researcher:</b> I see, so you thought the mentor was not upto speed with things?</p> <p><b>Client:</b> No he wasn't.</p> <p><b>Researcher:</b> I just thought that it was a waste of my time.</p> <p><b>Client:</b> I am a qualified accountant with good business experience, I thought he was going to add something to my knowledge, but it was generally a chat, if I wanted a chat I could just pop-in and chat with my friends in the exact same way, you know what I mean (laughs).</p> <p><b>Researcher:</b> So you are saying that it was purely therapeutic?</p> <p><b>Client:</b> Yes, more so than mentoring. I don't know, I asked him if I could apply for a bank loan for my business and he told me that it wouldn't work, but he was wrong.</p> <p><b>Researcher:</b> What about with XXXXXX, XXXXXX and other people downstairs, do you talk with them sometimes, I know you mentioned that you ran into them in the hall way and the reception area, but do you speak to them specifically about whats going on in your business?</p> <p><b>Client:</b> If I went to talk to them that I would think that would be when I knew that she knows something that I didn't. XXXXXX sends emails about awards and different competitions and says that maybe you should enter this one and infact I did. I probably wouldn't have if she hadn't brought it to my attention. She told me about micro finance for start-ups, never heard of them, but she told me...and that was just a meeting in the corridor.</p> <p><b>Researcher:</b> And did you apply?</p> <p><b>Client:</b> Yes, I did for 25K. But in saying that, she just told me about it, I wrote my own business plan, I did my own projections...I just latched onto her idea, she just told me oh look at this...and I went online and read up on it on the website all by myself, you know what I mean? But, I have an extra advantage that I am an accountant, that I can go and say oh yeah this is a good thing, I can make my own business plan and do my own projections, I don't need...such advice.</p> <p><b>Researcher:</b> What if you had a problem which was out of your own skill set, lets say a legal problem or marketing problem, not that you have one...</p> <p><b>Client:</b> We already have a solicitor in town.</p> <p><b>Researcher:</b> I see, so you are inclined to use your own</p>	<p><i>Prior experience tainting views on the value of developmental assistance: specific (8.9)</i></p> <p><i>Entrepreneur self-confidence: a signal for 'I don't need help' (8.12)</i></p> <p><i>Ascribing value to developmental assistance: specific BUT also signalling self-sufficiency (8.9)</i></p> <p><i>Strong signals of self-sufficiency and confidence in own abilities (8.12). Note: it seems the respondent is attaching a negative trait to the seeking of developmental assistance – a sign of immaturity or lack of experience</i></p> <p><i>(note: very quick strong response)</i></p>
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<p>resources and your own networks. What if I were to say to you, do you feel you could ever have a problem that you may not be able to handle?</p> <p><b>Client:</b> I am sure there is, but I don't think you could get the answer in here, you know what I mean.</p> <p><b>Researcher:</b> And why do you say that?</p> <p><b>Client:</b> Well the girls at the front desk are good at general sort of business advice, I don't want to be harping on about this but if I went to XXXXXX and said I have this legal problem, she would tell me to go ask a solicitor. What help can they be to me. They have offered this service for free.</p> <p><b>Researcher:</b> So what you are saying is that any specific legal advice or advice on your books cannot be free?</p> <p><b>Client:</b> Yes, it is to be paid for.</p> <p><b>Researcher:</b> If it was free you wouldn't value it?</p> <p><b>Client:</b> No (laughs), I would think to myself, how much does this person know about what I am saying.</p> <p><b>Researcher:</b> Very interesting insight because the way incubators are setup, they are supposed to be offering free advice or they have panels of experts setup to help tenants, because it is difficult for an incubator manager to be an expert in all aspects of the business cycle. So if I were to say to you that there is such a panel of experts and that they could help you, what would you say?</p> <p><b>Client:</b> The problem is that it goes back to the same old saying, if people are not getting paid then how much interested are they going to take in your project. Any legal issues I would have would be of a high level nature, I am dealing with people's eyes, I am dealing with the HSE and a lot of people would just veer away from the type of questions I would have.</p> <p><b>Researcher:</b> How would you describe your relationship with XXXXXX and her team, it strictly professional or...</p> <p><b>Client:</b> It is both professional and personal, she is the manager, you can push boundaries to a point you know, but you have to know where to stop...</p> <p><b>Researcher:</b> What do you think is her role, what is she supposed to be doing?</p> <p><b>Client:</b> Make sure the rentals are paid on time, follow up on rentals, make sure the corridors and other health hazards are looked after and are tidy, any lights that break or need fixing...</p> <p><b>Researcher:</b> So is it mostly house keeping?</p> <p><b>Client:</b> Yes, house keeping.</p> <p><b>Researcher:</b> Other than house keeping, do you think the incubator manager has any other role?</p>	<p><i>View on the incubator staff's ability (8.5)</i></p> <p><i>Meaning of incubation: conceptual problem (8.2)</i></p> <p><i>Hi-end technical advice and the issue of legal liability (8.2)</i></p> <p><i>Relationship with IM (8.6)</i></p> <p><i>Thoughts on the role of the IM (8.6)</i></p>
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**Client:** Ah maybe advising new start-ups, some of those people who have no business experience at all, like an artist starting up a business, somebody who doesn't know anything at all.

**Researcher:** Am I then understanding this correctly; you would only approach the manager if there was a problem related to the facility or your unit but not if you had a business specific problem?

**Client:** Not with the current business, no, but I am setting up another online business so I asked her about setting up an online web shop. I asked her about that because she owned one in the past and understood the pit falls of it.

**Researcher:** Are you then saying that for any incubator manager to be credible enough to be able to advise they personally ought to have gone through the trials and tribulations of entrepreneurship?

**Client:** They have to understand that in the first six months you don't make any money, so there will be a cash flow problem and it would be difficult to pay rentals. I understand that they have to run this facility and pay their staff salaries and all this to be done...but its upto the manager to be aware of. I will give you an example, we were here two months and we had a problem, not with XXXXXX but with the previous manager, in order for us to set up a business in the Republic we needed an address and to qualify for contract we had signed. I took up this unit in October of 2006 and did not move in until December, so I wasn't in two months, I had paid the rent and the manager kept on ringing me every two minutes 'when are you coming in, when are you moving in', I couldn't move in because I didn't know whether I was going to get the contract. She said 'why did you take up an office when you didn't have a contract', but I needed an address to get the contract. And then when I did get the contract I had to do advertising material so I was only here only part time because there were other things to be done. She asks 'where are you', but I am doing advertising material. Do you know what I mean? So I moved in properly in the middle of January. They don't realise that there is a time lag, the foot woman...

**Researcher:** You mean the Chiropractor?

**Client:** Yeah, she took up the unit even before her equipment was ordered...there should be some understanding...

**Researcher:** Do you see a different between how XXXXXX managed this place and how XXXXXX is doing it now?

**Client:** I didn't really get to know XXXXXX that much. My experience with XXXXXX was that she wanted me to move in straight away and kept on ringing me constantly about when I was moving in. Like, I am paying the rent, I have moved in my things, 3 desks, chairs, filing cabinets. I could see her concern if I wasn't paying the rent, but when you are paying the rent every month and she knows that you have business idea and even gave her an explanation as to why we hadn't moved

*Role of the IM: Advise people who are new start-ups with lack of experience. Also signalling, I don't fall in that category (8.5)*

*A slight backtrack on the above. Respondent accepts lack of experience in an area. Important issue of IM credibility (8.5)*

*Initial experience of incubator induction (8.4)*

*Feeling of not being treated with impartiality (8.11)*

*Experience with previous IM (8.6)*

in...but you know...

**Researcher:** So...

**Client:** Back to my point, that if she had started up a business herself...theory is one thing and practice is another...

**Researcher:** I see where you are coming from. Okay, let me put this to you, if you were in XXXXX's chair, how would you run this place?

**Client:** How would I run this place...eerrmmm...first I will give the new tenants freedom to do what they want with the office, so if they want to put one chair in, one desk and a computer. I wouldn't interfere initially with them because they are obviously laying the foundations down the business hasn't taken off yet, what they are doing is putting the building blocks down for a new business. I would ofcourse expect them to pay the rent but I would ask them from time to time what is your cashflow like blah de blah. Then lets say three months have passed, I would ask them how they are getting on, how they are settling in, you know, if the office is okay, if the facility is okay, and just general chat to them. And if they were to say to me that their plan wasn't taking off or their business wasn't taking off, I would tell them that there are support groups. I would actually ask them, in what area of your business are you having problems...like another issue I had was finding staff...basic administration staff, I didn't want anybody highly accomplished, it was a problem...

**Researcher:** How did you manage to resolve this recruitment issue?

**Client:** Jobs.ie – I paid Euro 40 for it but FAS had a free service but I didn't know about it.

**Researcher:** After lets say one year has gone by, the tenant is paying their rental predictably, what kind of an approach would you adopt then, a more proactive interventionist type of an approach where you would see if they were meeting certain set targets and meeting their objectives...or...

**Client:** It all depends on the individual totally, some people with no business background, would want that, others wouldn't, so you have to judge each business person separately, each entrepreneur is different, you could get a very structured person who will take on this type of advice, and might take it literally, Another instance is that there is a business which is struggling, then the input would be very much welcome. I think you have to judge the business by judging the person in it.

**Researcher:** So if you were to look at a pool of entrepreneurs out there, experienced ones, technology ones, so on, on what basis would you select individuals for incubation?

**Client:** If you had an enterprise centre where you selected people based on what you want, lets say for example you selected only creative people, they would have little business experience and would be talking about arty farty things all the

*Important qualification of the IM – issue of credibility: prior experience in entrepreneurship (8.5)*

*Role reversal emphatic imagination of the IM's role (8.2)*

*Signalling how the respondent wished to be 'incubated (8.2)'*

*Importance of individual client-specific incubation strategies (8.2)*

*Views on qualities of client-mix (7.1)*

time, there will be no structure there. But if there is a good mixture, some technology, some health care, some creative...you know what I mean...then you will have people in the canteen talking about different things. A serious thing is also competition, if I setup a business that is similar to another business here then there might be a problem but if there is a good environment where people feel comfortable in talking to each other then it maybe a good thing.

**Researcher:** Last question; can you describe, if you don't mind me asking, what happened a few weeks ago in the canteen, there was some discussion about you firing someone and XXXXXX intervening...

**Client:** (private and confidential)

**Researcher:** Thank you for that XXXXXX. Is it okay if we talk again?

**Client:** Yeah that's okay, just email me.

End of transcript.

*Critical Incident of  
Incubation Activity (6.x)*

# Appendix E

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## Client Respondent Quotes & Critical Incident Summaries

<i>Clients</i>	<b>Industry</b>	<b>Nature</b>	<b>No. of Quotes and Associated Page Nos.</b>	<b>Critical Incident Summaries</b>
<b><i>Dublnc</i></b>				
Client 1	Energy / Power	Design	2 (pp. 153, 215)	
Client 2	Energy / Power	Equip. Manufacture	2 (pp. 164, 189)	
Client 3	Energy / Petroleum	Project Management	2 (pp. 153, 229)	
Client 4	General	Social Entrepreneur	3 (pp. 146, 188, 240)	
Client 5	General	Medical Diagnostics	2 (pp. 164, 229)	
Client 6	General	Bespoke Stitching	1 (pp. 164)	2
Client 7	General	Health / Therapy	2 (pp. 147, 153)	
Client 8	General	Consulting & Training	2 (pp. 169, 215)	
Client 9	Food	Web Portal	2 (pp. 165, 239)	
Client 10	Food	Processing & Sales	2 (pp. 159, 189)	1
Client 11	Food	Processing & Sales	2 (pp. 164, 190)	1
Client 12	Food	Processing & Sales	2 (pp. 152, 189)	1
Client 13	Construction	Recruitment	2 (pp. 153, 169)	
Client 14	Insurance / Energy	Consulting	2 (pp. 169, 241)	
Client 15	Software	Sales	3 (pp. 164, 190, 202)	
Client 16	Hi-Tech / Knowledge	Consulting	3 (pp. 147, 184, 240)	1
Client 17	Publishing	Design / Printing	4 (pp. 153, 159, 169, 218)	
Client 18	Property	Management	2 (pp. 165, 215)	
Client 19	Optical	Web sales	2 (pp. 159, 241)	
Client 20	Optical	Testing / Sales	3 (pp. 157, 191, 243)	
Ex-Client	ICT	Internet & Web Dev.		1
<b><i>IncuWorks</i></b>				
Client 21	ICT	Consulting, design	2 (pp. 160, 228)	
Client 22	ICT	Product design	1 (pp. 152)	
Client 23	ICT	R&D	1 (pp. 147)	1
Client 24	ICT	Internet technologies	2 (pp. 156, 218)	
Client 25	ICT	Internet technologies	2 (pp. 153, 191)	
Client 26	ICT	Internet technologies	3 (pp. 154, 189, 244)	
Client 27	ICT	Misc.	2 (pp. 147, 160)	
Client 28	ICT	Software Development	3 (pp. 147, 156, 240)	1
Client 29	ICT	Internet technologies	1 (pp. 189)	1
Client 30	ICT	Internet technologies	1 (pp. 187)	1
Client 31	Telecom	IP Commercialisation	2 (pp. 153, 187, 240)	
Client 32	General / Hi-tech	Consulting	2 (pp. 152, 190)	
Client 33	General / Hi-tech	Consulting	1 (pp. 216)	
Client 34	Bio-Tech	Fuel	3 (pp. 187, 191, 243)	
Client 35	Bio-Tech	Engineering R&D	2 (pp. 196, 228)	
Client 36	Bio-Tech	Clinical trials, testing	2 (pp. 160, 216)	
Client 37	Bio-Tech	Drug Testing / Dev.	1 (pp. 152)	
Client 38	Bio-Tech	R&D	2 (pp. 160, 217)	
Client 39	Bio-Tech	Clinical R&D	2 (pp. 157, 240)	

# Appendix F

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## **An Example of the role of Unpredictable, Chance or Random Variables on the Life-world of Clients**

Two clients at *IncuWorks* recalled that they could never envision long term venture capital support which came as a result of them participating in an international competition of innovative business ideas and coming across an investor who was interested in precisely the sort of areas that their companies were working on. Similarly, a fiercely independent client at *DublInc* who was against any sort of state subsidy but on the insistence of the IM very casually applied to Enterprise Ireland for a grant, not expecting (or indeed requiring) an award, however, against all expectations was committed a substantial award without much scrutiny and hassle – as a result the client made substantial new investment in expansion. Chance meetings and introductions to other clients in the cafeteria led to a number of in-formal alliances; one client randomly ended up with a like minded neighbour which led to them joining forces to jointly bid for a large government contract.

End of document.