



**PAMIBIA UNIVERSITY  
OF SCIENCE AND TECHNOLOGY**

**FACULTY OF COMMERCE, HUMAN SCIENCES AND EDUCATION**

**DEPARTMENT OF MANAGEMENT**

<b>QUALIFICATION: BACHELOR OF BUSINESS MANAGEMENT HONOURS</b>	
<b>QUALIFICATION CODE: 08BBMH</b>	<b>LEVEL: 8</b>
<b>COURSE CODE: SES821S</b>	<b>COURSE NAME: SME SUPPORT</b>
<b>SESSION: JULY 2022</b>	<b>PAPER: THEORY</b>
<b>DURATION: 3 HOURS</b>	<b>MARKS: 100</b>

<b>SECOND OPPORTUNITY EXAMINATION PAPER</b>	
<b>EXAMINER(S)</b>	MS. ESTHER OLIVIER DR. CHRIS VAN ZYL
<b>MODERATOR:</b>	MS. A TJIUEZA

<b>INSTRUCTIONS</b>	
<ol style="list-style-type: none"><li>1. This examination is an open-book assessment.</li><li>2. Study the attached articles and answer the questions.</li><li>3. Answer ALL the questions and in essay format.</li><li>4. Write clearly and neatly.</li><li>5. Number the answers clearly.</li></ol>	

**PERMISSIBLE MATERIALS**

1. Study Notes

**THIS QUESTION PAPER CONSISTS OF 2 PAGES (including this front page)**

**QUESTION 1****[100 Marks]**

How do the following five theories, as presented by Ahmad (2014), influence the [a] Namibian entrepreneurial ecosystem(s) development; [b] the current innovation and technology development challenges as contained/described in the current Namibian MSME National Policy, and [c] the current incubator's performances in Namibia?

- New venture creation theory
- Resource-based theory
- Social network theory
- Dyadic theory
- Real options theory

**TOTAL MARKS: 100**



# A mechanisms-driven theory of business incubation

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Mechanisms-driven theory

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## Abstract

**Purpose** – Following recommendations by scholars for further research on the business incubation process, the purpose of this paper is to build new theory on incubation using the social mechanisms approach – a well-developed body of theory on social processes.

**Design/methodology/approach** – A critical review of dominant theoretical approaches in the area highlighted that researchers in the past have not studied incubation as a social “process.” In order to study a social process such as incubation, a case is made for the value of social mechanisms theory. In order to study incubation as a social mechanism, an inductive-qualitative research design based on ethnography was used. Data were collected over six months each at two Dublin-Ireland-based business incubators.

**Findings** – Results highlight the significant role of a positive relational bond between the incubator manager and client entrepreneurs. Incubation is triggered in a sophisticated normative environment under the prevalence of ground rules, subtle signals and the interplay of personal histories. These contribute to the incubation mechanism’s non-linearity, thereby, making the prediction of outcomes difficult.

**Originality/value** – A contribution of this research comes in the form of a new conceptualization of incubation based in mechanisms reasoning. The mechanisms approach was found to be versatile and helped in extending the work of previous researchers who proposed advancements in the area based on dyadic theory, social capital theory and social network theory. Further, a new, and it is argued, more fruitful direction for incubation process-related research is also highlighted; one which takes on board the often glossed over idiosyncrasies of incubation as a social mechanism for promoting early stage entrepreneurship.

**Keywords** Ethnography, Theory, Business incubators, Social mechanisms

**Paper type** Research paper

Received 20 November 2012

Revised 12 July 2013

25 October 2013

17 January 2014

26 March 2014

16 April 2014

Accepted 23 April 2014

## 1. Introduction

According to Gartner (1985), new venture creation is the organizing of new organizations. There is growing awareness that new venture creation is a multi-dimensional phenomenon, where aspects relating to the entrepreneur, the new firm and the environment interact in complex ways within the dynamic system of new enterprise development (Lichtenstein *et al.*, 2006; Davidsson and Gordon, 2010; Shepherd, 2011). Public policy directives require the accelerated creation of new ventures through a variety of interventions designed to curb new venture failure rates. Out of a myriad of such interventions, it has been suggested that business incubation most comprehensively resolves the issues surrounding the venture creation process (Aernoudt, 2004; Hackett and Dilts, 2004a; Phan *et al.*, 2005).

The focus of much research on incubators to-date has been on understanding their social and fiscal contributions to various facets of government policy and vice versa (Hannon and Chaplin, 2003; Hackett and Dilts, 2004a; Phan *et al.*, 2005; Patton *et al.*, 2009; Warren *et al.*, 2009). The problem with such research is that the “true” impact of incubators cannot be gauged in a simplistic manner (Roper, 1999; Sherman, 1999; Tamásy, 2001, 2007; Rudy, 2004; Sofouli and Vonortas, 2007). Incubators are useful for curbing entrepreneurial risk and the promotion of new ventures (Hongyi *et al.*, 2007;



International Journal of  
Entrepreneurial Behaviour &  
Research  
Vol. 20 No. 4, 2014  
pp. 375-405

© Emerald Group Publishing Limited  
1355-2554

DOI 10.1108/IJEBR-11-2012-0133



Hughes *et al.*, 2007; Cooper and Park, 2008; Ndabeni, 2008), however, evaluating their impact, which would be an attempt to draw a straight line between specific incubator interventions and specific instances of new venture success, is fraught with difficult methodological challenges (Sherman and Chappell, 1998).

The above over-emphasis on evaluation research has been recognized as a problem by scholars who believe that theory development and advancement of knowledge in the area has been stymied (Hannon and Chaplin, 2003; Hackett and Dilts, 2004a; Phan *et al.*, 2005). To advance theory and to assist practice in achieving accelerated firm growth, scholars suggest that researcher focus must shift away from “incubators” toward “incubation,” or incubators’ underlying and/or internal processes. Such research will help in highlighting the conditions under which incubation is most likely to positively influence new venture creation.

Not much attention has been devoted to studying the process of incubation (Hackett and Dilts, 2004a; Patton *et al.*, 2009; Warren *et al.*, 2009). A review of incubation-process literature indicates that previous researchers have favored new venture creation theory, the resource-based view (RBV), social network theory, dyadic theory and real options theory for conceptualizing incubation. While application of the above theoretical frameworks has been meaningful and adds richness and variety to our understanding; none of these are fully concerned with the “process-oriented” nature of incubation. This has resulted in a “black-box” view of incubators, which is problematic (Hackett and Dilts, 2004b, 2008), since frameworks from organizational and social theory utilized 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 behavior in the context of incubation. Developing a mechanisms-based understanding would require linking the real causes, antecedent events or necessary conditions impacting the dynamics of the process (Hedström and Swedberg, 1998). Hence, conceptualizing incubation as a social mechanism would require the development of a satisfactory explanation where we are able to specify the social “cogs and wheels” that have brought about specific relationships inside an incubator which aid in accelerated new venture creation.

Following on from the above, in this exploratory research, the overall aim is to advance a new and empirically grounded social mechanisms-based conceptualization of business incubation. This is achieved through an inductive-qualitative approach deployed within an interpretive and ethnographic research design; thereby, allowing research findings to emerge from the frequent, dominant or significant themes inherent in raw data, without the restraints imposed by structured methodologies. As a result, light is shed on: first, aspects of an incubator’s normative environment and the often unsaid “rules of engagement” between the parties in incubation that help create a positive incubation link; and second, how developmental assistance is triggered for facilitating incubation activity. In this manner, the paper is able to shed light on how incubation “occurs” inside incubators, and contributes to theory by presenting a new mechanisms-based conceptualization of the incubation process.

The paper is organized as follows: first; in the theoretical framework section, previous research in the area is allocated to five different frameworks and critically reviewed where gaps in understanding are utilized for clarifying this research’s aim. This is followed by a section on research design which highlights the data collection and analysis techniques used to meet the requirements of the research’s aim. Next, results from the empirical work are presented, shedding light on normative conditions



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and triggering mechanisms. The Discussion section pulls together the major contributions of the research and presents a conceptual model that describes the conditions under which incubation “success” is most likely to occur. The paper ends with a reflection on limitations and recommendations for further research.

## 2. A review of business incubation process literature and theoretical framework

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In this section, previous incubation process-related literature is critically examined for the purpose of assessing the relevance of a variety of theoretical approaches when studying social processes such as incubation. Following Hackett and Dilts' (2004b) approach, who in developing a “real options-based theory of business incubation” considered a variety of theories[1] as alternatives for grounding their incubation process model, in this section, a similar result is achieved by assessing the viability of new venture creation theory, the RBV, social network theory, dyadic theory, real options theory and finally, in the synthesis section, a case is made for the suitability of social mechanisms theory. While Hackett and Dilts (2004b) confined their discussion to general definitions and possible conceptual outcomes, this review goes further and explains the merits and drawbacks of specific applications of theoretical frameworks to understand business incubation.

This review has been prepared following a number of criteria. 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 conceptualization and development and business assistance, each of which has an established body of research, to expand the scope of the review beyond research explicitly focussed on incubation would make it impossible to complete given the constraints of this paper. 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 recognized peer-reviewed journals. Thus, 23 papers (three non-empirical and 20 empirical) were selected[2]. The Appendix highlights the particular conceptualization of incubation the selected articles present, their selection rationale and context.

### 2.1 New venture creation theory

Campbell *et al.* (1985), Brooks (1986), Smilor (1987), Hisrich (1988), Lumpkin and Ireland (1988), Allen and McCluskey (1990), Weinberg *et al.* (1991), Peters *et al.* (2004), Aerts *et al.* (2007) and Bergek and Norrman (2008) draw on the new venture creation and entrepreneurial process literature and generally view incubation as a rational process that awards legitimacy, opens network access and heightens community support for entrepreneurs.

Under this view, researchers describe a number of mutually exclusive components or stages of the incubation process such as: diagnosis of needs; selection and monitoring; capital investment; and access to expert networks (Campbell *et al.*, 1985; Brooks, 1986). Typologies or models are proposed such as: not-for-profit; university based; corporate; 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 (Lumpkin and Ireland, 1988; Allen and McCluskey, 1990; Weinberg *et al.*, 1991).

A number of problems emerge when conceptualizing incubation as a step-by-step/staged process. First, 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. What emerges is an instrumentalist description of "what incubators ought to do" which does not show "how incubators function," since in the latter, models of incubation must present a picture of internal management practice and the normative and structural milieu that allows incubator organizations 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.

Further, 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 organization. Arguably, any particular style of incubation is dependent on a myriad of subjective, dynamic and context-bound attributes and behaviors of incubator managements, as well as a particular client-mix.

It seems that 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:

- (1) individual(s)-the person(s) involved in starting a new organization;
- (2) organization – the kind of firm that is started;
- (3) environment – the situation surrounding and influencing the new organization;  
and
- (4) new venture process – the actions undertaken by the individuals to start the venture.

Therefore, no new instance of 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 aspects from each dimension interact with one other. Latest research on new venture creation (Lichtenstein *et al.*, 2006; Davidsson and Gordon, 2010; Shepherd, 2011) re-affirms Gartner's (1985) view. The problem it seems is that the body of theory within new venture creation is not developed enough to provide adequate tools to undertake the sort of sophisticated multi-dimensional analysis that Gartner (1985) and aforementioned contemporaries recommend.

To summarize, the major drawback that emerges as a result of the application of new venture creation theory to incubation is a lack of understanding of new venture creation as a gestalt of a number of dynamically interacting aspects. 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 (IM), the client cohort, the internal normative environment, the external context and the structural properties of the incubator organization.

## 2.2 The RBV

A number of researchers (including: McAdam and McAdam, 2008; Patton *et al.*, 2009; Todorovic and Moenter, 2010), by drawing from the RBV of the firm (Penrose, 1959),



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view incubation as 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. 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.

This is a very appropriate view 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 organizational actors as rational beings assessing choices and making decisions which maximize their self-interests (Fahy, 2000). These assumptions have not only been challenged by behavioral economists in the past but also researchers in the discipline of entrepreneurship and small business (Bernheim and Stark, 1988; Karra *et al.*, 2006).

The basic logic behind the RBV is for the firm to develop sustainable competitive advantage (SCA) allowing the earning of economic rents or above-average returns. Hence, 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. This is so since in the first tier the inherent competitiveness of the client firm’s offer comes into play and in the third tier, “influencers” of strategic choice are usually environmental variables which lie outside the control of both client firms and incubators. Even in the second tier, a problem is encountered; McAdam and 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 organization designed to infuse resources to build effective entrepreneurial teams? As McAdam and McAdam show through their review of past literature, effective team building is mostly dependent on personal capabilities and personality traits – aspects seemingly beyond the scope of incubator organizations to practically influence. This problem brings into question the appropriateness of the RBV for studying incubation simply as mechanism for resource allocation.

In summary, the problem encountered when applying RBV-based theorizing on incubation is that, first, the base assumptions of the RBV have been over turned, bringing into question the value of analytical insights previously presented; and second, for developing an understanding of the client firm’s capacity and willingness to absorb resources it would be important to consider aspects of the internal environment of an incubator (such as the nature of the relationship with the IM). The RBV does not provide the tools to scrutinize these important aspects. For a process orientated understanding of incubation to emerge, further research must attempt to unearth micro processes and institutionalized patterns governing the rules of incubator-client firm interaction.



### 2.3 Social network theory

Incubator-incubation researchers have utilized social network theory to investigate the impact of internal and external network connections on incubatee development and growth (Tötterman and Sten, 2005; Evald and Bager, 2008; McAdam and McAdam, 2006; Bøllingtoft and Ulhøi, 2005; Hughes *et al.*, 2007; McAdam and Marlow, 2007) and view incubation as a system for increasing client firms' network density.

There are a number of interesting findings which emerge from the work of the above researchers; 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:

- (1) some unique features of the architectural design and configuration of the incubator space; and
- (2) the type of companies inducted – some types of companies network more readily than others.

Researchers, however, do not 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 behavior.

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 and Marlow, 2007; Evald and 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 organizational values, leadership behaviors and other factors can significantly impact firm and individual network behavior (Podsakoff *et al.*, 2000).

Third, researchers also highlight disadvantages of client networking in incubators (Evald and Bager, 2008; McAdam and Marlow, 2007), which they suggest can lead to problems in the development of social networks. Investigations based on rich qualitative approaches suggest that the internal environment of the incubator is punctuated by the presence of power struggles, shifting coalitions, self-interest, secrecy and even lying. A degree of inevitability is assumed when it comes to disharmony and political tension in an incubation setting where two rationales are presented for these problems: first, is the issue of close physical proximity of firms with comparable attributes involved in similar lines of business (McAdam and Marlow, 2007); and, second the multi-tiered structure of incubators with competing stakeholders leads to shifting organizational objectives and priorities which leads to conflict (Evald and Bager, 2008). The role of incubators is then to create a collaborative culture by reducing political rivalries and self-interest.

In summary, although researchers have made a number of very useful contributions to our understanding of incubators' internal dynamic, we unfortunately have little

understanding on what types of architectural design attributes increase network density at incubators; and what types of companies more readily network, and why. It is clear that networking opportunities do not always lead to benefits for clients and that clients do not actively engage in networking on their own initiative at homogenous levels across the board. To develop a process-orientated understanding of incubation we must focus on questions such as in what ways and under what (pre)conditions is networking among client firms promoted?

#### *2.4 Dyadic theory*

Researchers (including Rice, 2002; Warren *et al.*, 2009) suggest that incubators and entrepreneurs operate in an inter-dependent “co-production dyad” where business assistance is co-produced between the IM as the regular producer and the incubator company as the consumer producer. Viewed through the lens of dyadic theory, incubation would be a process of co-producing developmental assistance in independent incubator-client dyads.

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's outputs. Such mutual co-production of incubation assistance is primarily driven by the nature of the relationship between the IM and the entrepreneur (Ahmad and Ingle, 2011). Further, this conceptualization of incubation overturns an important assumption in previous research; that the incubator is the initiator and orchestrator of incubation, while the incubatee is a passive recipient. Instead this approach views incubation as occurring in an inter-dependent “co-production dyad” between the IM and the incubating firm.

Researchers argue that by customizing co-production to fit the readiness profiles of entrepreneurs, IMs 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 and McCluskey, 1990; Markley and McNamara, 1995; Sherman and Chappell, 1998; Colombo and Delmastro, 2002; Bhabra-Remedios and Cornelius, 2003; Wynarczyk and Raine, 2005; Lendner and 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).

In summary, 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 (Ahmad and Ingle, 2011). 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 behavior 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.

#### *2.5 Real options theory*

Perhaps the most explicit and sophisticated theorization on the incubation process has been attempted by Hackett and Dilts (2004b, 2008), who use real options theory derived



from the domain of finance and investments to suggest that incubatee selection is the creation of an option whilst subsequent resource infusions and monitoring and assistance are option exercises. In the domain on non-financial investments, the real options methodology was initially proposed for the evaluation of technological assets, such as R&D, typically a very structured and rationalized activity (Cave and Minty, 2004). Though it seemed possible that the options logic might equally be relevant to the venture decision making of entrepreneurs, it is evident that the process is not as structured or rational as investment in R&D projects (Grant and Perren, 2002). The question to therefore consider is: can a firm, which has applied for incubation, be considered a “real option” by an incubator, as Hackett and Dilts suggest, since, strictly speaking, such an “option” does not in fact create any avenues for the incubator to make subsequent larger financial investments and neither does this “call option” give the incubator any right to cash-in on subsequent increases in option value? In other words, in order for a new client to be a real option for an incubator, the incubator must have a stake in it. This scenario is not applicable for not-for-profit incubators. Furthermore, the bodies that have established incubators, usually universities and governments, are also not-for-profit. Hence, standard economic explanations or assumptions, such as those of real options including arbitrage free market and continuous interest rates (Black and Scholes, 1973), become invalid or in need of substantial modification.

Further, Hackett and Dilts assume that successful incubation outcome states can be equalled with successful option exercises. This would be just one measure of business incubation performance or success. We know from the literature that incubator programs have other goals which are weighed in equally important terms and that incubator evaluations account for other variables also. These include internal incubator network formation (Lichtenstein, 1992), incubator-industry network and incubator support services network density (Nowak and Grantham, 2000), IM and client relationships (Autio and Kloftsen, 1998), incubator effectiveness (Sherman and Chappell, 1998) and client selection process (Kuratko and LaFollette, 1987).

In summary, real options’ assertion that clients can be rationally selected from a pool of available options by employing “selection criteria” (based on the attractiveness and fit of firm proposal to incubator strategy) is problematic. It is not possible to develop a universally applicable set of selection criteria 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.

### *2.6 Synthesis and theoretical framework*

Overall, the review indicates that most research in the area is descriptive in nature and not explanatory where researchers have not presented a theoretical treatment of incubation as a social process. Why has this been the case?

There are two reasons for the above: first, although a number of previous literature reviews in the area (Hackett and Dilts, 2004a; Phan *et al.*, 2005) highlight the diversity of disciplinary foundation in the area; such diversity does not automatically lead to a diversity of underlying meta-theoretical assumptions (Burrell and Morgan, 1979; Gergen, 1994). Within incubator-incubation literature, a lack of diversity in researchers’ meta-theoretical assumptions has led to the dominance of instrumentalist ideals guiding research designs. This becomes apparent from some of the research questions that have been investigated in the past[3] and choice of predominantly positivist methodologies (see research context column in the Appendix). Instrumentalists regard



theories not as attempts to describe the world but as instruments for making predictions (Eldridge, 1998). 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 (Bird, 1998). The instrumentalist’s focus on inputs-outputs without any real concern for mechanisms is precisely what Hackett and Dilts (2008) lament. They conclude that in order to truly understand incubation there is a 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 important aspect of interest to both researchers and practitioners, 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.

Second, the review in this paper along with that of Hackett and Dilts (2004b) suggests that theoretical frameworks assessed and deployed in the past 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 mechanisms-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” (Coleman, 1964, p. 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 and 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, p. 74). They come in three varieties:

- (1) cognitive mechanisms – operating through alterations of individual and collective perception;
- (2) relational mechanisms – which alter connections among people, groups and interpersonal networks; and
- (3) 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, and understandings and practices that have accumulated historically (Hedström and Swedberg, 1998).

Davis and Marquis (2005) give a number of examples of social mechanisms including: framing (the use of metaphors and symbols that organize 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 organizational practices). There are many more examples, but these should give a sense of the shape of the domain.

Mechanisms-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 organizations – this proves to be a fruitless endeavor – but to use organizational mechanisms to explain social phenomena (Davis and Marquis, 2005). 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 aspects?, how do these aspects impact the link between the incubator and client firm? and, how incubation is triggered? Such a methodological outlook has been missing; and, it is being adopted in this paper for deeper, more direct and fine-grained explanations to emerge.

### 3. Methodology

The primary aim of this research is to advance a new and empirically grounded social mechanisms-based conceptualization of business incubation. Achieving this aim is conveniently possible in a pragmatist philosophy. Scholars regard pragmatism as an interpretivist approach (Benton and 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). The spirit behind the study was to present an insider's account of the lived experiences of the research's participants, thus, the study was subjective and non-experimental in nature. The approach was exploratory where the overall purpose was to provide insight into a complex and dynamic incubation process.

An ethnographic methodology was employed where data was collected using semi-structured interviews and non-participant observation. Ethnography proved to be a useful means since the method allowed for the capturing and recording of social complexity; provides the opportunity to unearth new and unexpected dimensions; and allows the use of an emergent research design (Hammersley and Atkinson, 1983). Moreover, the ethnographic approach was especially suitable, since the incubator allows convenient observation of, and in-depth engagement with, the parties of incubation in a bounded physical space.

To undertake the empirical work, a six-month access period was negotiated with two Dublin, Ireland-based business incubators including first, a university campus incubator, hereinafter referred to as *IncuWorks*; and second, a community enterprise center, hereinafter referred to as *DubInc*. In justifying the choice of the above organizations, it is suggested 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, p. 257). This definition, in essence, of what incubators do (incubate), is the same when university campus-based incubators are compared with community enterprise centers, not-for-profit hi-tech incubators or corporate incubators.



Tables I and II present details on the interview subjects at *DubInc* and *IncuWorks*, respectively. A client numbering system is developed which places *DubInc* clients in the range of one to 20 and *IncuWorks* clients in the range of 21-39. This allows the tracing of specific quotes used in the analysis back to particular respondents.

Data were collected over a period of approximately six months at each case organization during weekly visits. 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 organization. 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, e-mails were sent to clients to confirm the schedule. In addition to interviews, the research plan included the attendance of the researcher at a number of up-coming "incubation" events taking place in the incubator.

A total of 68 interviews (11 with members of incubator managements and 57 with clients) were conducted, recorded and transcribed, each lasting 35-45 minutes. An "interview guide" was prepared using previous literature and keeping in mind the major aim of the research. The approach to interviewing was semi-structured and was informed by Patton (1990). 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 desk.

Incubator management Clients	Industry	Nature	Team size	Stage
		1. Enterprise manager		
		2. Previous enterprise manager		
		3. A member of the board of directors		
		4. Enterprise officer		
		5. Facilities assistant		
		6. Receptionist support staff		
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 and training	4	Year 4
Client 9	Food	Web portal	1	Year 3
Client 10	Food	Processing and sales	1	Year 2
Client 11	Food	Processing and sales	1	Year 1
Client 12	Food	Processing and 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	ICT	Internet and web dev.	5	-

Table I.  
*DubInc* interview  
subjects



Incubator management Client	Industry	Nature	Route	Occupancy	Stage
		1. Director 2. Manager enterprise development 3. Manager communications 4. Manager technology transfer 5. Facilities manager			
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

**Table II.**  
*Incu Works* interview subjects

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 thoughts, feelings, experiences and perceptions of the researchers throughout the research process. In addition, a field log was also utilized providing a detailed account of the various ways in which 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 organization, there was a 30-minute meeting with the IM also arranged. The purpose was to factor-in perceptions from both IMs and clients which allowed the researchers to juxtapose data and draw more nuanced conclusions.

Eisenhardt and Graebner (2007) suggest that theory building from qualitative research is an inductive process. The focus was to extract meaning in complex qualitative data through the development of summary themes or categories from raw data through a process of data reduction. In order to induct meaning from case data, the qualitative data analysis rules recommended by Miles and Huberman (1994) were followed. These authors point out that careful descriptions of events, people and settings is one of the most important contributions of qualitative research. This requires an interpretive and analytic effort to illuminate the constant, influential and determining events which shape the course of events. Hence, qualitative data analysis would be a formalized yet creative process (Miles and Huberman, 1994).

#### 4. Analysis of data

##### 4.1 *The significance of norms*

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 take place 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 organization 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 IM and a client develop a mental bond based on a number of key elements: 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 we 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 (key performance indicators) [...].

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 [...] 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 which we shared with XYZ (the IM) [...] and frankly I am not sure if we could have been assisted since we needed very specific technical input [...].

[Client 17] [...] 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?

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 (walk-in sessions with experts) [...] 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 organizational 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 behavior. 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 center [...] 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 [...].

At *IncuWorks*, 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 [...].

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, a very senior client (Client A) at *DubInc* 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 *DubInc* itself specialized. Client A on the other hand, as senior clients, felt that it was appropriate to use unutilized 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.

To conclude, the "click" between the IM and a particular client enables positive incubation activity. It also 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 program.

#### 4.2 Triggering of incubation activity

A social relationship, such as the one between an IM and a client, naturally has a time dimension, forming; evolving and dissolving over time (Burt, 2000; Cummings and 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 personalized e-mails 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 behaviors 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, at *Dublnc*, 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 facilitated by regular disclosures of financial and operational performance during the six-monthly review process. The IM did not have to use stealth to gauge clients' status. 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 realization of their plans [...].

In fact, the review meetings were the greatest source of incubation triggers. For instance, at *IncuWorks*, 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 and 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 benefitting from press coverage, networking and general exposure. The IM was able to ensure that *IncuWorks* benefitted from the hype and publicity associated with winning a high-profile competition.

Incubation triggering mechanisms and dynamics are complex and our understanding of these fields is likely to remain limited because, methodologically, there is probably no viable strategy to capture the incubator's entire social environment in totality. Incubation can be triggered by random events such as hearsay, chance meetings and casual conversations between the IM (or other members of the incubator organization) and a particular client at any point in time inside or outside the incubator organization. However, true for any incubation environment; IM-client relational quality would be the real denominator for developmental co-production quality (i.e. trust and rapport between two professionals and individuals).

In the following section, a theoretical reflection on the five frameworks analyzed in Section 2 is presented along with the major contributions of the research.

These contributions extend and build-on the valuable work of previous scholars. In addition, a new mechanisms-based direction for incubation process research is also proposed.

## 5. Discussion

### 5.1 Contribution to literature

In the review of business incubation process literature presented in Section 2, it was highlighted that our understanding of incubation needed further development due to base assumptions-related limitations of earlier theoretical frameworks. New venture creation theory, the RBV, social network theory, dyadic theory and real options did not present much value in the study of social processes. The study of social processes has been the focus of mechanisms theorists; and, aligned with an interpretivist-pragmatist worldview, in this research; mechanisms theory provided the epistemological flexibility and methodological adaptability to conveniently focus the enquiry on the hidden mechanics inside the “black-box” of incubation. Assumptions behind new venture creation theory, the RBV and real options, based on rational choice theory, were not found to be valid. Much action within the research sites typically involved no conscious weighing of means and ends. As assumed in most rational choice models, means and ends were not always given priority over action – action was often disconnected from an “instrumental rationality” and was initiated on its own allowing actors to become attached to problem-solutions they could not have imagined previously. Furthermore, although the merits of linear models to describe the “incubation system” – as a number of new venture creation theorists have done – are obvious (e.g. ease of elucidation, evaluation and replication); the drawbacks, however, as this research has highlighted, include reductive over simplification and a gross glossing over of important socio-cultural idiosyncrasies that introduce non-linearity, volatility and subjectivity to the process’s dynamics.

Despite the above problems, previous research has indeed contributed valuable understanding; our knowledge of business incubators-incubation since the early 1980s when the first pioneering articles appeared, has come a long way. The endeavor in this paper was to build on previous research to advance theory and for this purpose the mechanisms approach was found to be quite versatile. For instance, Rice’s (2002) research based on dyadic theory suggests that incubators and entrepreneurs operate in an inter-dependent “co-production dyad” where business assistance is co-produced between the IM and the entrepreneur. This research contributes to Rice’s (2002) model by highlighting the mechanisms through which the IM and the client trigger incubation co-production. These include: first, proactive general initiative by the IM – such as mass e-mails to clients advising them of available services in-house or externally; second, proactive specific initiative by the IM where stealth may be used to gauge a client’s latent assistance needs; third, structured processes – such as periodic review meetings to assess client progress; fourth, chance and/or serendipitous meetings or discussions; and fifth, proactive initiative by clients. Instances of proactive client initiative were very few, even though IM interview quotes highlight a great degree of reliance on clients themselves when it comes to triggering incubation co-production (after all, clients are in the best position to judge what existing and foreseeable problems they need assistance with).

In this research, it has been 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. Previous researchers have also investigated



relational inter-changes within incubators; for example, Aaboen *et al.* (2008), drawing from social capital theory, examined the role of counseling and networking inter-changes between the incubator management and client firms. Frequent inter-changes with incubator management are deemed to be beneficial where the venture can get direct assistance and access to recommended programs (Aaboen *et al.*, 2008). We know from previous research that frequent inter-changes between incubator management and client firms and between client firms can in fact lead to power struggles, shifting coalitions, self-interest, secrecy, lying and entrepreneurs trying to hide the fact that their businesses are based in incubators (McAdam and Marlow, 2007; Evald and Bager, 2008). Through the identification of IM-client relational ground rules in this research, it becomes possible to highlight the normative conditions under which frequent inter-changes could “safely” occur minimizing the extent of problems identified above. Identified ground rules and norms include clients adopting the ethos or spirit guiding the incubator; contributing to incubator reputation, adhering to rules of tenancy, and participating in their own development by periodically disclosing progress details.

In previous research, a number of factors are identified that contribute to the development of positive incubation relationships; including, 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 IM and time (Lichtenstein, 1992). Through this research, it becomes possible to induct three additional variables:

- (1) psychological compatibility and degree of vision commonality between IM and client;
- (2) IM leadership style; and
- (3) 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 behavior and increased co-production activity.

Using social network theory, previous researchers suggest that certain types of client firms network more readily within an incubator than others, thereby, improving their “network density” – an important criteria for incubation success (Tötterman and Sten, 2005; Bøllingtoft and Uihøi, 2005; Hughes *et al.*, 2007; McAdam and Marlow, 2007). Further, researchers argue that bringing together similar clients in a specialist incubator improves client interpersonal contact (Schwartz and Hornych, 2008). Findings in this research suggest that, overall, the client-mix does not have a well-defined relationship in terms of boosting client networking. *IncuWorks* – being a specialist incubator with more similar clients when compared to *DubInc* – a mixed use incubation facility, did not show significantly high levels of client-client interaction that triggered the development of economically beneficial relationships. The interesting finding 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 and not entirely on an incubator’s “specialist” or industry-specific focus.

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5.2 *Toward a new mechanisms-based conceptualization of business incubation*

It was highlighted that mechanisms come in three varieties (Schwartz and Hornych, 2008 – Section 2.6):

- (1) cognitive mechanisms;
- (2) relational mechanisms; and
- (3) environmental mechanisms (Hedström and Swedberg, 1998).

In line with the scope and aim in this research, two important relational mechanisms were identified – norms and ground rules and triggers of incubation. Distilled outcomes allow us to progress a new theoretical basis for studying incubation based in social mechanisms theory, one which is distinct from bases reviewed in the analytical framework section. Thus, defined, incubation is: a more or less general sequence or set of social events or processes initiated from inside an incubator organization analyzed 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 IM-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-interpretive worldview, 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.

The above task of searching for embedded deep causes would not be easy, and this would be a limitation of the mechanisms-based approach. To illustrate; when an episode of incubation co-production is triggered, the ensuing process does not have a repeatable pattern. The process follows a random sequence of interactions and events, is non-linear, not wholly controllable and its outcomes are difficult to predict. For example, a majority of clients, when asked about how they started-up operations at either *DubInc* or *IncuWorks* and indeed found out about incubation support, recalled the important role of chance conversations or meetings, and randomly coming across signage or information online. Most clients could not foresee what their support needs were going to be in the medium to long term because of unpredictable outcomes of present strategy. Clients also suggested that important turning points in their businesses came when they pursued opportunities for which they did not originally plan for. Chance meetings and introductions to other clients in the cafeteria led to a number of informal alliances. Hence, from a methodological standpoint, it becomes quite difficult to track incidents occurring inside the incubator organization with a degree of precision to be able to accurately identify cause-effect type relationships.

Despite the above limitation, there may be opportunities to further enrich knowledge on incubation using the mechanisms approach. To further research in the area, and on social mechanisms in general, an important question must first be posed: what should be the primary points of analysis (or the factors that bring about the causal relationships) when analyzing social mechanisms? Following Gross (2009), people's responses to certain situations are limited by a repertoire of behaviors to which they have exposure and those that seem suitable to the problem at hand. Thus, 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 actors' problem would emerge. For each, our goal would be to understand why and how, when confronted with a problem situation and endowed with habits of cognition and action, along with other resources, certain responses become the most likely. In other words, the focus of future research enquiry in this area should be in uncovering why and how the parties in incubation develop responses to certain problem situations through the habits of cognition and action.

#### Notes

1. They briefly describe and attempt to operationalize (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 and finally the real options theory from the domain of financial economics.
2. It was felt that 23 articles was a sufficient-enough number considering that Hackett and 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.
3. For example: what are the core services of start-up incubators, and how can they be managed best? (vonZedtwitz and Grimaldi, 2006); what role does the incubator play in supporting the new firm in its development as represented by the lifecycle model? (McAdam and McAdam, 2008); 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 and Sten, 2005).

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Table A1.  
Selected articles,  
selection rationale  
and context

No.	Article and conceptualization	Selection rationale	Research context
<i>New venture creation theory</i>			
1.	Campbell <i>et al.</i> (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 conceptualization 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>

(continued)



No.	Article and conceptualization	Selection rationale	Research context
5.	Hisrich (1988)	Verifies Brooks (1986) – see no. 2 – conceptualization 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.	Lumpkin and 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>
7.	Weinberg <i>et al.</i> (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>
8.	Peters <i>et al.</i> (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>

(continued)

No.	Article and conceptualization	Selection rationale	Research context
9.	Aerts <i>et al.</i> (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>1. Quantitative with survey</li> <li>2. Incubators can be categorised according to their screening profiles: (1) financial screener, (2) team screener, (3) market screener, and (4) balanced screener</li> <li>3. Incubator screening practices vary across European nations and Europe's screening emphasis as a whole differs considerably from the USA. Whereas, in the USA, financial criteria dominates screening, in Europe the more "soft" criteria to evaluate the management team and market fit are employed</li> </ol>
10.	Bergek and 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 application of assessment criteria</li> </ol>
11.	McAdam and 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 (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>

(continued)



No.	Article and conceptualization	Selection rationale	Research context
12.	Patton <i>et al.</i> (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 IM and client relationship</li> </ol>
13.	Todorovic and 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>
<i>Dyadic theory</i>			
14.	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 were 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 IM and the incubating firm</li> </ol>
15.	Warren <i>et al.</i> (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>

(continued)

No.	Article and conceptualization	Selection rationale	Research context
<i>Social network theory</i>			
16.	Bøllingtoft and 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 mechanisms related to the construction of the incubator</li> </ol>
17.	Tötterman and 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 were 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>
18.	McAdam and McAdam (2006)	Useful qualitative study that looks at entrepreneurial networking within a technology incubator in Ireland	<ol style="list-style-type: none"> <li>4. In-depth longitudinal study using semi-structured interviews</li> <li>5. Incubator placement enhances the development of entrepreneurial networks which provide support during the vital stages of firm foundation</li> <li>6. Networks have a key role in facilitating the design and implementation of firm growth strategies</li> </ol>
19.	Hughes <i>et al.</i> (2007)	Relevant study which looks at an important aspect of incubation process – client networking behaviour inside incubator organizations	<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>

(continued)



No.	Article and conceptualization	Selection rationale	Research context
20.	McAdam and 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>
21.	Evald and Bager (2008)	A unique piece of research since it looks at venture team activity inside "corporate incubators" – which remain quite under-studied; 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, IMs 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>
<i>Real options theory</i>			
22.	Hackett and 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 real options theory	<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>
23.	Hackett and Dilts (2008)	Important article which operationalises the real options framework proposed in Hackett and 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>







**NAMIBIA UNIVERSITY  
OF SCIENCE AND TECHNOLOGY**

**FACULTY OF COMMERCE, HUMAN SCIENCES AND EDUCATION**

**DEPARTMENT OF MANAGEMENT**

<b>QUALIFICATION: BACHELOR OF BUSINESS MANAGEMENT HONOURS</b>	
<b>QUALIFICATION CODE: 08BBMH</b>	<b>LEVEL: 8</b>
<b>COURSE CODE: SES821S</b>	<b>COURSE NAME: SME SUPPORT</b>
<b>SESSION: JULY 2022</b>	<b>PAPER: THEORY</b>
<b>DURATION: 3 HOURS</b>	<b>MARKS: 100</b>

<b>SECOND OPPORTUNITY EXAMINATION PAPER</b>	
<b>EXAMINER(S)</b>	MS. ESTHER OLIVIER DR. CHRIS VAN ZYL
<b>MODERATOR:</b>	MS. A TJIUEZA

<b>INSTRUCTIONS</b>	
<ol style="list-style-type: none"><li>1. This examination is an open-book assessment.</li><li>2. Study the attached articles and answer the questions.</li><li>3. Answer ALL the questions and in essay format.</li><li>4. Write clearly and neatly.</li><li>5. Number the answers clearly.</li></ol>	

**PERMISSIBLE MATERIALS**

1. Study Notes

**THIS QUESTION PAPER CONSISTS OF 2 PAGES (Including this front page)**





**QUESTION 1****[100 Marks]**

How do the following five theories, as presented by Ahmad (2014), influence the [a] Namibian entrepreneurial ecosystem(s) development; [b] the current innovation and technology development challenges as contained/described in the current Namibian MSME National Policy, and [c] the current incubator's performances in Namibia?

- New venture creation theory
- Resource-based theory
- Social network theory
- Dyadic theory
- Real options theory

**TOTAL MARKS: 100**

