



# **Real Options and the Option to Incubate: An Exploratory Study of the Process of Business Incubation**

by Sean M. Hackett

## **Abstract**

The purpose of this study is to construct and to test a model that illustrates the incubation process and project business incubation outcomes. Following a discussion of the nature and function of business incubators, real options theory is used to develop a theory of business incubation.

A model of this real options-driven theory of business incubation is presented, along with three hypotheses generated by the model. Taken together, the hypotheses suggest that business incubation performance is positively related to selection performance, the intensity of the incubator's monitoring and business assistance efforts, and resource munificence.

Data from a 2004-2005 survey of 53 incubator managers are used to test the model. Analysis of these data does not support the hypotheses suggested by the model. The implications of the model's failure to predict incubation outcomes are explored.

**REAL OPTIONS AND THE OPTION TO INCUBATE:  
AN EXPLORATORY STUDY OF THE PROCESS OF  
BUSINESS INCUBATION<sup>1,2</sup>**

By

**Sean M. Hackett, Ph.D.**

## 1. Introduction

Most new ventures fail during the early stages of their development (Dunne, Roberts, & Samuelson, 1988; Watson, Hogarth-Scott, & Wilson, 1998; Zacharakis, Meyer, & DeCastro, 1999). Indeed, even venture capitalists with excellent track records and large financial reserves assume that only 10% of their portfolio companies will succeed (Zider, 1998). Although failure is intrinsic to the entrepreneurial process, stakeholders are usually loathe to accept its inevitability, and interest in understanding how and under what conditions new venture failure can and should be avoided continues to grow (Storey, 2003).

Research on facilitating the successful development of new ventures is directed toward institutional arrangements for the incubation of entire industries, and toward arrangements for the incubation of individual firms. At the firm level, institutional arrangements are generally manifested in the production processes (i.e. the incubation process) of business incubators, small business development centers, angels and venture capital organizations (Hackett & Dilts, 2004a).<sup>3</sup> Implicit in these arrangements is the notion that if one approaches entrepreneurship and innovation in a systematic and scientific manner, then the likelihood of new venture success can be increased (Drucker, 1994, , 1998). After almost twenty years of research and popular interest, however, a theoretically grounded model for predicting and explaining business incubation outcomes remains elusive. This study contributes to the field of entrepreneurship research by examining community-based efforts to facilitate the entrepreneurial process through the aggregation and support of new ventures in business incubation facilities (henceforth referred to as ‘incubators’). It addresses the following two questions: (1) *What is the process of business incubation?* (2) *Does this process impact incubator performance when performance is measured in terms of incubatee growth and development?*<sup>4</sup> The goal of this dissertation project is to build, validate and test a model that describes the incubation process and predicts business incubation outcomes.

## 2. Definitions

A *business incubator* is a shared office-space facility that seeks to provide its *incubatees* (i.e. “portfolio-” or “client-” or “tenant-companies”) with a strategic, value-adding intervention process of *business incubation* (Hackett & Dilts, 2004b). This process provides monitoring and business coaching assistance, and controls and links resources with the objective of facilitating the successful new venture development of the incubatees while containing the cost of their potential failure (Hackett & Dilts, 2004b). An *incubatee* is an emerging, new or young firm whose management applies for admission to a business incubator in order a) to gain assistance in overcoming resource gaps<sup>5</sup> which cannot be overcome on its own, and b) to benefit from the process of business incubation (Hackett & Dilts, 2004b). These definitions describe the elements of business incubators and business incubation, but they only begin to address basic questions regarding what occurs inside the “black box”<sup>6</sup> of business incubation.

Figure I depicts the conventional wisdom regarding business incubators. In the figure, companies vie for admission to the incubator. Upon admission, companies undergo a process of incubation; of the companies that are incubated, eighty percent are expected to survive long enough to ‘graduate’ from the incubator, move into their own office and continue to grow, creating jobs and expanding the tax base (Adkins, 2001; NBIA, 2002). The eighty percent survival

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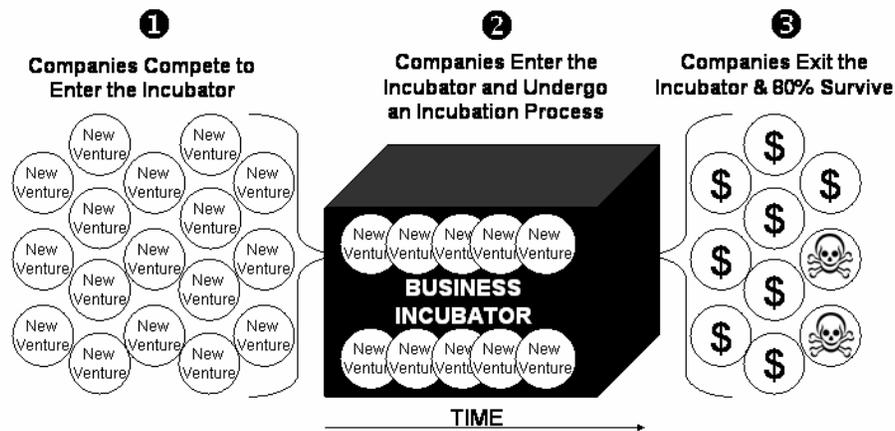
<sup>3</sup> At the industry level, arrangements are generally manifested in the form of policies for infant industry protection. These policies are intended to confer local constituents with enough time to develop dynamic comparative advantage (Westphal, 1981). Although some political and economic ideologies may assert that governments should not be in the business of “picking winners,” arrangements to support sunrise industries (and, occasionally, sunset industries) and new ventures can be found in all industrialized and industrializing countries.

<sup>4</sup> The terms “incubator performance” and “incubation performance” are used somewhat interchangeably due to the method of measurement; that is, performance is measured by examining incubation outcomes – i.e., the developmental state of incubated companies at the time they exit the incubator. In this research five mutually exclusive categories are used in the assessment of companies exiting the incubator: Profitable & Growing (P&G); Growing & on a Path to Profitability (G&P2P); Marginal Company (MC); Quick Cheap Death (QCD); and Expensive Death (ED).

<sup>5</sup> Resource gaps can be a lack of access to information, a lack of access to potential customers, a lack of expertise required to complete new product development, a lack of access to expensive equipment, or a lack of access to funding sources.

<sup>6</sup> In this dissertation the “black box” of business incubation is defined as the processes occurring from the time of selection for admission to the incubator to the time of exiting the incubator.

rate of incubated firms is considerably better than the fifty percent survival rates of non-incubated start-up firms (Headd, 2003). This difference in survival rates begs one of the two questions that drive this research: *What is the process of business incubation that is occurring inside the incubator?* Drawing from the literature, this study conceptualizes the process of business incubation as 1) selecting emerging organizations for admission to the business incubator, 2) monitoring and coaching these incubates -- including pruning those incubatees that will not be successful -- and 3) infusing the potentially successful incubatees with access to resources so that they can develop, exit the incubator and compete independently in the market.



**Figure I. Business incubators: Conventional wisdom**

### 3. Theoretical background

Most prior research on incubators and the incubation process has been atheoretical (Mian, 1994, , 1996). The theoretical justifications for the existence of incubators that are implicit in the literature, however, are rooted in market failure arguments (Hackett & Dilts, 2004a). Market failure occurs when the competitive transactive space for the production and sale of goods, services and ideas fails to produce a desired outcome (Arrow, 1963; Bator, 1958). Sources of market failure include externalities, imperfect information, monopoly power, and public goods (Arrow, 1963; Pigou, 1920). Incubator-incubation researchers who subscribe to market failure theory believe that structures within the market impede the successful development of entrepreneurial new ventures, and that incubators and incubation are one approach to remedying these market failures (Hackett & Dilts, 2004a). Other theoretical underpinnings of extant research include structural contingency theory (Ketchen, Thomas, & Snow, 1993), co-production of value theory (Parks et al., 1981) in (Rice, 2002), and network theory (Nohria & Eccles, 1992).<sup>7</sup> While these perspectives and the literature in which they are employed serve to describe why and in what configurations and contexts incubator facilities are operated, they do not provide an integrated, theoretically-driven explanation of the factors that constitute the incubation process, nor do they account for the underlying dynamics of these factors, nor do they explain how, and why and in what context these factors are related to incubation outcomes (Hackett & Dilts, 2004b). In order to integrate the factors in a way that enables us to fill this gap and predict and explain incubation outcomes, a *theory of business incubation* is required. To develop such a theory this research draws from real options theory.

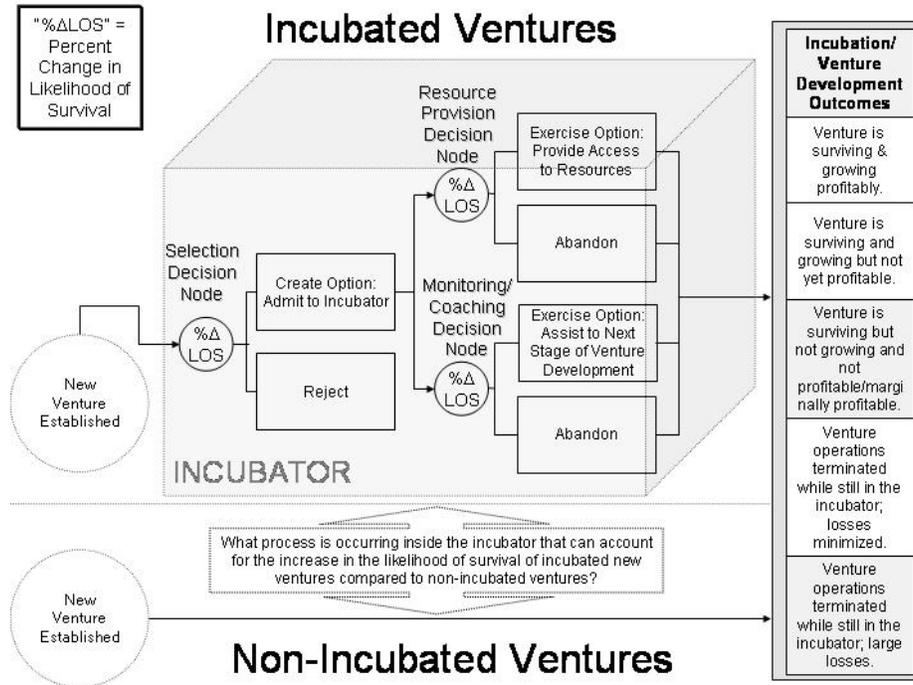
#### 3.1 Real options theory

Real options theory asserts that decision-makers create low-cost options to initiate -- but not fully commit to -- risky investments; subsequent investments are based on reductions in uncertainty and the perceived likelihood of return on option investment (Bowman & Hurry, 1993; Copeland, 2002; Dixit, 1992; Dixit & Pindyck, 1994; Luehrman, 1998; McGrath, 1999; Mitchell & Hamilton, 1988; Trigeorgis, 1993). Restated, a real option is created through an initial investment decision (i.e. *option creation*), followed by subsequent investment decision(s) (i.e. *option exercise*) (Rosenberger, 2003). Entrepreneurs frequently employ real options reasoning in launching a new venture: Under conditions of uncertainty and information asymmetry (Arrow, 1963), entrepreneurs attempt to manage risk and earn a profit through the launch of a new business (Knight, 1921). Rather than "betting the farm" on the launch with one lump-sum investment, however, entrepreneurs and their stakeholders will attempt to hedge against the risk of failure by

<sup>7</sup> Structural contingency theory suggests that the configuration of the incubator must obtain "fit" with environmental needs in order to achieve incubation success. Co-production of value theory asserts that the incubation process is co-produced by the incubator manager-incubatee dyad, implying that the time intensity of business assistance interventions must be strategically allocated by the incubator manager to the incubatees, and that incubatees must be properly prepared to utilize the advice and insights resulting from the intervention (Rice, 2002). Network theory proposes that the primary value-added feature of incubators is the set of institutionalized processes and norms that carefully structure and channel knowledge throughout the incubator network in order to create conditions that facilitate the development of incubatees and the commercialization of their innovations (Hansen, Chesbrough, Nohria, & Sull, 2000).

spreading their investment commitments over various stages of the new venture's development (Alvarez & Stenbacka, 2001).

A real options view of the incubation process conceptualizes the incubator as an entrepreneurial firm that creates real options by systematically selecting new, young or emerging ventures for admission to the incubator. It then exercises these real options by monitoring and coaching the incubatees through various developmental stage-gates (Block & MacMillan, 1985) while providing access to resources and helping to contain the cost of the incubatees' potential failure (Hackett & Dilts, 2004a). Hypothetically, at each decision node in the incubation process, the likelihood of the incubatee surviving is changed by how well the option is exercised. This approach is depicted in Figure II below.



**Figure II. Real options view of the incubation process**

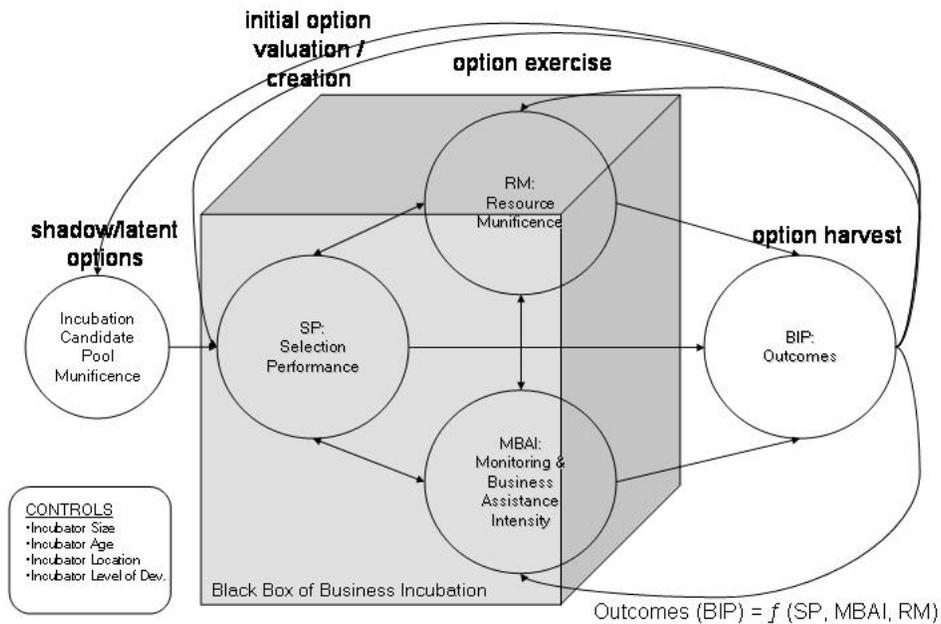
Figure III depicts the real options-driven theory of business incubation developed for this research. The model of the incubation process indicates that incubatees are selected (SP: Selection Performance) from a local pool of incubation candidates, monitored and assisted through business coaching (MBAI: Monitoring & Business Assistance Intensity), and provided with resources (RM: Resource Munificence) during their time within the incubator. Outcomes (BIP<sup>8</sup>: Outcomes) refer to the state of incubatee development at the time it exits the incubator. Control variables include differences in the availability of incubation candidates, level of incubator development, size and age of incubator. Arrows going from Outcomes back to the constructs of interest indicate feedback loops that occur over time and through experience, suggesting the possibility of organizational learning effects. The model suggests the following hypotheses:

**Hypothesis 1:** *Ceteris paribus, business incubation performance is positively related to selection performance.*

**Hypothesis 2:** *Ceteris paribus, business incubation performance is positively related to the intensity of the incubator's monitoring and business assistance efforts.*

**Hypothesis 3:** *Ceteris paribus, business incubation performance is positively related to resource munificence.*

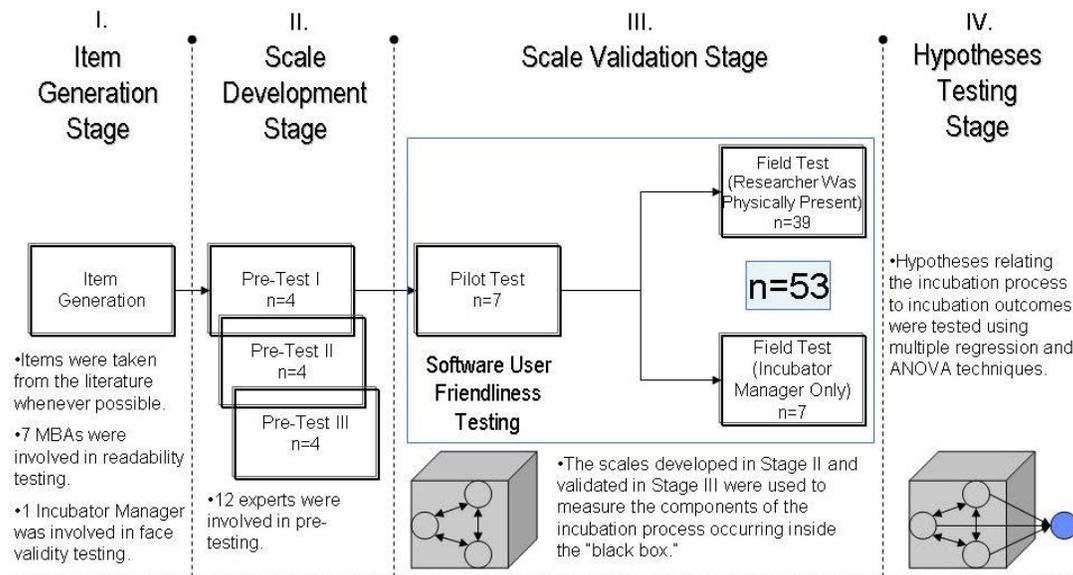
<sup>8</sup> BIP=Business Incubation Performance



**Figure III. Model depicting the theory of business incubation**

**4. Description of research**

After considering available resources for this research project, as well as the size and norms of the population, a non-experimental cross-sectional survey was selected as the most appropriate research design (Creswell, 1994). The survey instrument was developed from January 2003 to February 2004. The unit of analysis is the incubator. Data were collected from February 2004 through April 2005 from incubators operating in the United States of America. Ultimately, of the 79 incubator managers that were contacted (including the pilot test participants), 53 agreed to participate in the study for a 67% response rate. The data were used in order to validate summated scales developed to measure selection performance, monitoring and business assistance intensity, and resource munificence, and to test hypotheses related to the constructs of interest and incubation outcomes. The scale validation methodology prescribed by DeVellis (2003) was used to assess the scales; studies by Moore & Benbasat (1991), Stratman & Roth (2002) and Rosenzweig (2003) served as guides. Multiple regression analysis and analysis of variance techniques were used to test the hypotheses. The various stages of the research process are depicted in Figure IV; incubation outcomes obtained by participating incubators during the period of the study are provided in Table I.



**Figure IV. Research methods and data collection**

**Table I. Incubation outcomes for January 01, 1999 - December 31, 2003**

Descriptive Statistics	Incubation Outcomes					
	# of Incubatees by outcome at the time of incubator exit <sup>9</sup>					
	Profitable & Growing (P&G)	Growing & on Path to Profitability (G&P2P)	Marginal Companies (MC)	Quick Cheap Deaths (QCD)	Expensive Death (ED)	TOTAL
Mean	7.08	4.36	4.04	3.62	.85	
Median	<b>5</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>0</b>	
Std. Deviation	6.492	4.977	3.902	4.324	1.511	
Range	30	25	15	18	7	
Minimum	0	0	0	0	0	
Maximum	30	25	15	18	7	
TOTAL # OF INCUBATEES EXITING THE INCUBATORS OVER THE STUDY PERIOD	<b>375</b>	<b>231</b>	<b>214</b>	<b>192</b>	<b>45</b>	<b>1057</b>

n=53 Incubators

## 5. Results

To address the first research question, this study (1) synthesized and analyzed what is known about incubators-incubation through a systematic review of the literature; (2) used the review process to identify the variables of the incubation process and the constructs they signify; (3) articulated the logic of business incubation, and then motivated a testable, real options-driven theory of business incubation; and (4) developed and validated scales for the measurement of the constructs that constitute the incubation process. Data collected between February 2004 and April 2005 were used to validate scales developed to measure selection performance, monitoring and business assistance intensity, and resource munificence. The scale validation component of this study began with 56 items; after analyzing each item for normality, unidimensionality, and reliability, 29 valid items were retained. As the items were generated from the literature and grounded in theory, the fact that so many items were invalid points to a gaping hole in extant theory. The factor analysis and the reliability testing revealed the existence of unanticipated factors in each construct as well as the inability of some items to reliably measure certain anticipated dimensions.

To address the second research question through hypotheses testing, this study employed multiple regression analysis and ANOVA techniques. The results of the hypotheses testing did not support the rejection of the null hypotheses, and no statistically significant support for the model was obtained.<sup>10</sup>

The interpretation that the incubation process as conceptualized in this study has little or no impact on incubation outcomes is supported by the descriptive statistics, and the regression and ANOVA analyses. However, these results should not be interpreted as indicating that the incubation process is unimportant. Indeed, the fact that the mean score for most of the independent variables was between 5.5 and 6 on a 7-point scale indicates the participants' perceived high importance of these variables in the incubation process. In the words of one incubator advisory board member it is incumbent on the incubator to do "the right things the right way" regardless of the outcomes.<sup>11</sup> While it must be acknowledged that the incubator managers – the respondents – have a natural bias in favor of the incubation process, a nuanced interpretation of the data suggests that regardless of how much effort is expended *vis-à-vis* selection, assistance and resource infusion, it is very difficult to help entrepreneurs in a way that directly translates to improved incubation outcomes in a statistically significant manner.

Despite these findings, 77% of the incubatees were surviving at the time they exited the incubator, and 75.5% were successful when viewed from a real options perspective at the time they exited the incubator.<sup>12</sup> Additionally, the data in Appendix G and Appendix H suggest the existence of two levers within the black box of business incubation: The variable *selection based on managerial characteristics* obtained a .271 correlation with business incubation performance ( $p \leq .10$ ), and the variable *monitoring & assistance comprehensiveness/quality* obtained a .253 correlation with business

<sup>9</sup> Please refer to Chapter III section 3.4.1.1 for the definition of each outcome category.

<sup>10</sup> Notably, two previous studies also found a lack of a statistically significant relationship between incubation practices and outcomes; i.e. (Allen & McCluskey, 1990; Tornatzky, Sherman, Adkins, & Boyd, 2003).

<sup>11</sup> This quote is from a meeting with an incubator advisory board that the author attended.

<sup>12</sup> As noted in Chapter III a successful incubation outcome viewed from a real options perspective includes incubatees that, at the time of incubator exit, were Profitable & Growing, Growing and on a Path to Profitability, or which were terminated Quickly and Cheaply.

incubation performance ( $p \leq .10$ ). This suggests that these variables are relatively more important than other variables and, independently, that they may contribute to better incubation outcomes.

## 6. Limitations of the Study

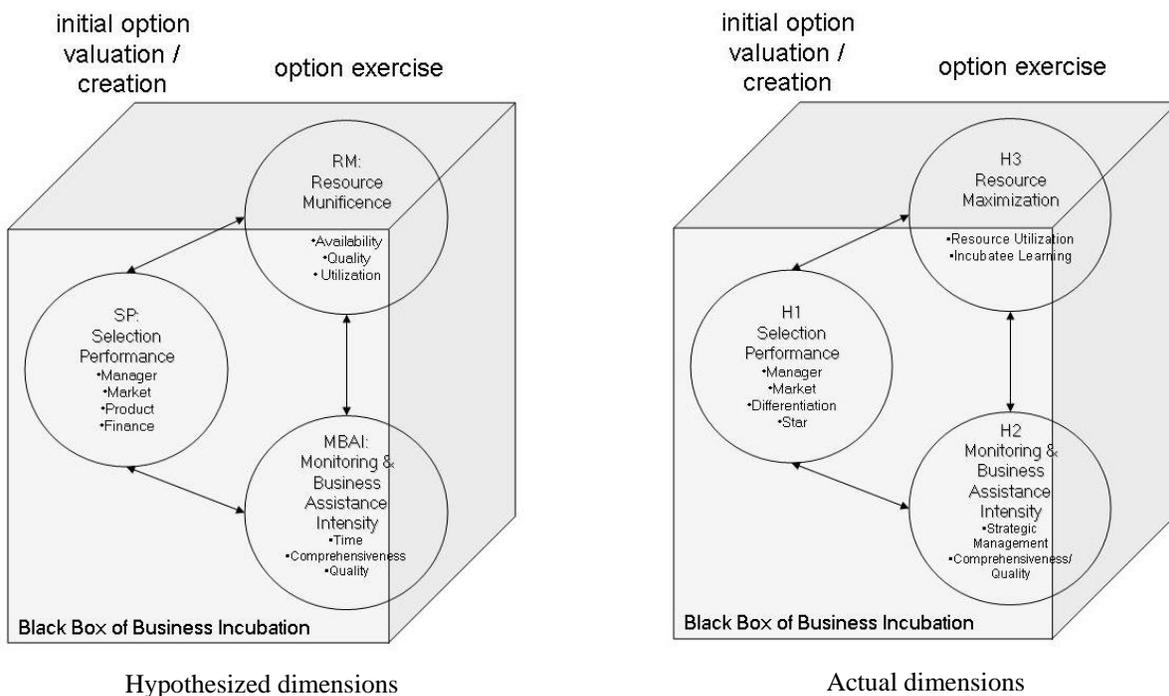
Due to the complexity of the context surrounding most of the entrepreneurial process, the phenomenon of entrepreneurship is likely to be highly resistant to the kinds of predictive mathematical modeling typical of most positivist research (Bruyat & Julien, 2000; Bygrave, 1993; Smilor & Feeser, 1991). The results of this research lend support to the previous assertion. In addition to the failure of the model to yield statistically significant predictive results, this research suffers from the following limitations: small sample size, reliance upon single informants, respondent fatigue, use of a cross-sectional (vs. longitudinal) measurements, and a lack of a control group.

## 7. Theoretical implications

This research has implications for both the theory of business incubation and for real options theory.

### 7.1 Implications for the theory of business incubation

The theory that is built and tested here helps to fill a gap in a stream of research that has been mainly atheoretical. Although the model is not predictive, the unpacking of variables of the incubation process and the elaboration of the inner workings of the black box of the business incubation is both descriptively powerful, and backed by quantitative and qualitative evidence. By building, empirically, on a comprehensive literature review and theory-driven model development, this exploratory research has delved deeply into the operational setting of business incubators and the incubation process to both confirm popularly held assumptions regarding the process of incubating ventures as well as to reveal an underlying set of factors that have not received attention in the literature. (Figure V depicts the hypothesized dimensions of the incubation process and the actual dimensions identified in Stage III of this research). Indeed, while most of what is currently known about business incubation is anecdotal and fragmented; this research teases out the common threads that weave incubation stakeholders and the incubation process together. From a theoretical perspective, the factors identified and the scales that are developed in this study represent an important advance in scientific understanding of the key components employed in the facilitation of the entrepreneurial process: For the first time it has been possible to identify and measure the factors of the business incubation process. The failure of the model to predict outcomes does not detract from the contribution of this research; rather, it provides a clear indication that incubator-incubation performance – where performance success is measured in terms of incubatee development – is not simply a function of selecting incubatees, and coaching them while providing them with access to resources; the need for future research to identify the drivers of incubation performance is clear.



**Figure V. Hypothesized and actual dimensions of the incubation process**

## 7.2 Implications for real options theory

This study extends scholarly understanding of the existence of real options-driven behavior in early-stage new venture settings. Specifically, in Table I it is revealed that the average (median) incubator experiences almost no expensive deaths among its incubatees. This finding is in accordance with real options theory which views the incubator as an entrepreneurial firm that helps keep the potential losses of entrepreneurial ventures to a boundedly-rationally minimum investment cost. With an average of one expensive failure per incubator (i.e. 45 expensive deaths out of 1057 incubated companies), perhaps all it takes is one expensively failed incubatee for an incubator to learn how to prevent such an outcome.

## 8. Managerial implications

The model of the incubation process and specification of the range of possible incubation outcomes offer several implications for managerial practice and policy-making *vis-à-vis* incubator management.

### 8.1 Incubatee quick-cheap-death failure is good

With a real options perspective of the incubator as a laboratory for entrepreneurship, a positive view of incubatees that fail quickly and cheaply can be adopted. The relevance of this normative approach should not be understated: Incubators that help their incubatees fail quickly and cheaply are successful incubators because quick and cheap failures not only represent entrepreneurial activity, they also provide opportunities for entrepreneurial learning, firm recovery and repositioning (or later firm 'reincarnation' in the event of terminal firm failure). Incubator managers and stakeholders are well-advised to align community expectations with the notion that incubate failure is good, in order to avoid problems caused by the political dimension of business incubation. (See 9.2.3 for more information on this point).

### 8.2 The incubation process is not directly linked to outcomes, but it may be important yet

*"none of the incubator business assistance practices, nor the environment and management practices appeared to show any predictive relationships to client outcomes such as firms' employment or sales growth." (Tornatzky, Sherman, Adkins, & Boyd, 2003)*

In this study, as in the recent study cited above, no statistically significant support was found linking the incubation process to incubation outcomes. Simply because the incubation process is not directly correlated with outcomes, however, does not necessarily mean that the incubation process is unimportant; it may be preventing expensive failures. The fact that most incubators exhibit negligible numbers of expensive failures corroborates this possibility, and may go a long way toward explaining the high incubatee survival rates that were observed. The fact that the mean score for most of the independent variables was between 5.5 and 6 on a 7 point scale indicates the participants' perceived high importance of the variables of the incubation process. In the words of one incubator advisory board member, it is incumbent on the incubator to do "the right things the right way" regardless of the outcomes.<sup>13</sup> The fact that almost 80% of graduated incubatees are surviving while only 50% of non-incubated firms are surviving merits further study.

### 8.3 Additional managerial practices and challenges not found in the model

Anecdotal evidence gathered during this study indicates that some incubators are extending the selection process by using pre-incubation services as a way to coach entrepreneurs prior to their formal application for admission to the incubator. This approach can strengthen candidates or help them to realize that they are not yet ready for incubation. Other challenges faced by incubator managers include the need to manage unstable demand for their services, and incubatees who are difficult to assist, are unaware of the importance of the market, and/or who fail to utilize the resources the incubator provides them. An awareness of these challenges can help incubation stakeholders to better structure incubator management activities and build more realistic expectations within the community.

## 9. Future research

The failure of the model to predict outcomes points to the existence of a gap in the theory that has been developed. In the sub-sections below insights are drawn from interview data from the author's meetings with incubator managers; although anecdotal, these insights are a step toward filling the gap in the theory and have implications for future research. First, the incubator's potential for stimulating more frequent and more effective entrepreneurial activities at the community level is explored. The stimulation of entrepreneurial activities may be a more appropriate dependent variable *vis-à-vis* the incubation process, and is suggested as such by one of the incubator managers quoted below. Second, alternative key success factors are considered for possible inclusion in future theory.

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<sup>13</sup> This quote is from a meeting with an incubator advisory board that the author attended.

## 9.1 Centers of entrepreneurial gravity

Business incubators have the potential to stimulate more effective entrepreneurial activities by functioning as centers of entrepreneurial gravity within a community.<sup>14</sup> In the paragraphs below, insights from a variety of incubator managers are synthesized. It is important to note, however, that due to differing needs, capabilities, and local demand, not every incubator would be able to adopt the functions described.

First, incubators can provide a brokering or clearinghouse function that screens local entrepreneurs and brings those with higher potential to the attention of angels and venture capital investors without necessarily revealing the identity of those potential investors. This is an important function because venture capitalists and angels are frequently inundated with business plans of little or no value. By serving as a clearinghouse, incubators can contribute to the resolution of the “sorting problem” (Jain, 2001) and facilitate the flows of investment capital and support within a community. While most would agree that, *prima facie*, this is an extremely important function, it does not appear in most evaluations of incubator performance, including the evaluation conducted for this study. One respondent suggested a Kevin Bacon Game-style “six degrees of separation” approach to building the incubator’s status within the community. This entails linking, whenever appropriate, entrepreneurial achievements back to the incubator.

Second, incubators with plentiful meeting space can provide a centralizing function for the forces of entrepreneurship within a community. Face-to-face meetings among members of the entrepreneurial community facilitate the exchange of tacit knowledge and new market knowledge that is important for successfully staking a claim to value creation as well as for the creation of social capital. One urban mixed-use incubator manager states “A lot of our time is spent being a traffic cop. We work the hell out of the Chamber of Commerce and vice versa.” Interestingly, it may take a village to incubate companies: One urban high-tech incubator manager, when asked to explain his incubator’s success, noted that in the previous week he had spent an hour publicly thanking various community leaders for their assistance. In addition to being exceedingly polite, this incubator manager rather adroitly educated the entire audience on the ways that they too could support the incubator. One university-based high-tech incubator manager stressed the importance of “co-aligning the economic development interests of the entire community.” This includes governmental agencies as well as the local research institutions. This manager noted that “it is just as easy to do [funded] research that also has practical commercializable implications, as it is to do basic research without such implications.... However, it usually takes a few new sports cars appearing in the faculty parking lot for that realization to sink in.” The co-alignment of resources enables a more efficient approach to economic and community development, and need not be limited to the community borders. Several incubator managers noted their efforts to integrate regionally in order to provide better assistance to incubatees.

Third, incubators have the ability to institutionalize knowledge about the start-up process and impart that knowledge through education programs and coaching. One urban high-tech incubator manager noted that mentoring and telling stories to incubatees provides them with the foundations for analogical reasoning about what works and what does not, but that active coaching can help incubatees to get beyond the entrepreneurial “inertia that enables nothing to be done.” This is critical as much of the early stage development that occurs within the incubator entails the operationalization of the business plan.

Fourth, incubators have the ability to legitimate entrepreneurship. The Global Entrepreneurship Monitor, an annual global survey of entrepreneurship conducted by Babson University has noted that the legitimacy of engaging in entrepreneurship varies across nations. It seems likely that the legitimacy of engaging in entrepreneurship varies within nations as well. This argument is not meant to imply that some communities are anti-entrepreneurial; rather, it is meant to suggest that some communities are more entrepreneur-friendly than others. With this insight and Richard Florida’s work (Florida, 2002) on the importance of the creative class in mind, it seems possible that the incubator functions as a kind of community altar to the great economic and community development gods of new venture and new job creation. In this view, the presence of the incubator has the potential to inspire latent entrepreneurs to action regardless of whether they are admitted to the incubator.

## 9.2 Alternative key success factors

### 9.2.1 Real estate component of business incubation

As suggested by Figure V, some self-described ‘business incubators’ in the incubation industry function as serviced office spaces. Within the incubation industry these are known -- somewhat derisively -- as real estate incubators. While in many cases real estate incubators do not offer formal incubation services, they do offer one important insight: Regardless of the intensity of incubation services provided, an incubator must have the real estate component of its business model firmly in control. Specifically, every incubator manager must know the occupancy rate at which breakeven is achieved and manage to this reality. (Note: Several incubator managers made a point of pulling out their operations manual and showing the author exactly where the occupancy break even point was). In communities where demand for incubation services is low, it seems likely that an incubator operated at or near full occupancy will be full of lifestyle ventures. Keeping in mind the logic model introduced in Chapter III, it would be illogical for such an incubator’s stakeholders to expect the lifestyle ventures entering the incubator to somehow be transformed through incubation into an IPO-grade firm by the time of incubator exit.

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<sup>14</sup> The term entrepreneurial center of gravity is used to indicate the gateway through which information germane to the entrepreneurial process flows to stakeholders in the community.

Incubator-Incubation Program	Level of Coaching Support
Virtual Incubation Program (Protégé)	Systematic Program of Business Development Coaching with Access to Capital, Community Support, and Managerial Expertise
Incubation Program (Client)	Pro-Active Coaching
Incubator Facilities (Tenant)	Re-Active Coaching
Real Estate Incubator (Serviced Office Space) Occupant	No Coaching

**Figure VI. Hierarchy of incubation models and levels of coaching support**

### 9.2.2 Incubator manager archetypes

One incubator manager asserted that there are just two types of incubator managers: those with an orientation toward incubation as social welfare and those with an orientation toward incubation as a means to ruthlessly and unemotionally helping entrepreneurs prepare themselves for market battles. The implication was that those with a social welfare orientation may not produce incubatees who are as successful as those with a market orientation. A high-tech incubator manager independently echoed these sentiments by suggesting that successful incubator managers are the ones who have already had successful careers in large organizations and have decided to become incubator managers because they are too young to retire. S/he was not enamored with the type of clients who are attracted to physical incubation facilities, but suggested that the incubator did play an important role in bringing together various players in the local entrepreneurial community.

While additional incubator managers and stakeholders may also favor a “hard-core” market orientation over a social welfare orientation, the significant variation in incubator locations and respective local demand means that in areas where the market demands a softer, social welfare approach to the delivery of incubation services that may, in fact, be the most appropriate approach. Indeed, some observed incubators’ clientele were developing lifestyle ventures and clearly needed a soft approach to incubation. This nuanced analysis is supported by the insight of another incubator manager who noted the following:

*We are serving a market. We have to understand our market and adapt to our market. We have to run our incubator like a business. -- Urban Mixed-Use Incubator Manager*

### 9.2.3 The political dimension of business incubation

*Incubator funding comes in waves.... The political dimension of incubation results in cutting programs. Surviving programs rarely achieve self-sustainability. -- Urban High Tech Incubator Manager*

Frequently, significant over-promising (*vis-à-vis* the number and type of jobs that will be created) occurs along the path to establishing an incubator (Bears, 1998). Additionally, supporters for the establishment of an incubator do not always want to hear the objective results of an incubator feasibility study.<sup>15</sup> Even when the conditions are ripe for the establishment of an incubator, all is not necessarily smooth sailing. One incubator manager offered the following insights:

*The incubator concept can be a formula for a perfect storm... The incubator building represents high fixed costs. These fixed costs need to be covered by ‘cash-poor’ entrepreneurs, and a community that has been promised that healthy companies will be jettisoned by the incubator into the community... causing economic growth. -- Urban High-Tech Incubator Manager*

This incubator manager noted that in contrast to community expectations that are more appropriate for VC investors,

*“the Promise of Incubation to the community should be simply to stimulate economic activity...My optimum is job creation and pushing innovation into the marketplace. A venture capital fund is solely concerned with R.O.I. These goals cannot be held simultaneously.” -- Urban High-Tech Incubator Manager*

This insight resonates with the observation of another urban high-tech incubator manager who noted that incubatee graduations fail to capture everything that an incubator does within a community, and another who notes “We are not looking for incubator exits... we are looking for [job creation and profitability] results.”

<sup>15</sup> When a proponent of the establishment of a high-tech incubator in a small-sized city was asked by the author to articulate from where the new technology requiring incubation would emerge, the response was a confident “It will come.”

#### 9.2.4 Directions of future research

The anecdotes above suggest that future research change the specification of outcomes to focus more on the incubator's ability to stimulate entrepreneurial activity within the community. They also draw attention to the real estate component of business incubation, the varying degrees of assistance provided by incubators, varying types of incubator managers, and the political dimension of business incubation.

While this study has centered on incubation processes occurring within business incubator facilities, future research should not be so limited: The incubation process can be and is applied in varying degrees of intensity by "hands-on" venture capitalists to portfolio companies, angel investors to their investees, and in established companies engaged in corporate entrepreneurship: A robust process-based theory of business incubation must be applicable outside the walls of the incubator.

Finally, recent evidence suggests that investment syndication is correlated with VC-incubated venture success (Birkinshaw & Hill, 2003). Forthcoming research (Peredo & Chrisman, 2005) builds on the notion of the importance of communities being involved in the enterprise of entrepreneurship. Future research that synthesizes these views may develop new insights into how non-Silicon Valley areas obtain and stimulate clusters (Porter, 1998) of entrepreneurial activity. This is a topic that will be of great relevance to the full spectrum of incubation stakeholders.

### 10. Conclusions

At the beginning of this research project the variables of the incubation process had not been integrated into a theory-driven model of the incubation process. The impact of the incubation process on early stage new venture development was also unknown.

With the results of this dissertation, the incubation process has been articulated and refined, and scales for measuring the incubation process have been developed and validated using a rigorous methodology. A model indicating causal linkages between the incubation process and outcomes has been built, tested, and rejected. Potential causes for the lack of support for the model include the possibility that the incubation process may have been defined and modeled incorrectly. Alternatively, the incubation process as defined in this study may not have been measured correctly. Or, the incubation process as defined and measured in this study may simply not have had much of an impact on the early stage development of new ventures.

Since the research model was not robust, the question remains: What accounts for the variation in business incubation outcomes and the 77% incubatee survival rate? Ultimately, the entrepreneur, his or her efforts at new venture development and new product/service development, and the market may account for the vast majority of the variance in outcomes. (See the Activities column in Figure III-1 in the dissertation manuscript for more insights on this point). Much of the process of incubation occurring in business incubators involves getting the incubatee venture through the starting gate and into the early stages of its market race, a race that typically has started long before the incubatee arrived and a race in which entry is no guarantee of victory. However, while the individual entrepreneurs themselves can be responsible for their venture's failure, only the market – not an incubator and not an incubation process – can confer success. With the primacy of the market in mind, it seems fair to say that incubatorial settings (regardless of whether they occur in incubators) should not be viewed exclusively as locations where either venture success or failure occurs. Rather, incubatorial settings should be seen as locations where laboratorial experimentation related to an entrepreneur's articulation of his/her theory of the firm and its role in the market can occur and expensive failures can be prevented. This approach builds on the views of Drucker (Drucker, 1994, , 1998) and suggests that when the cost and degree of business failure is contained through incubation, entrepreneurs will have a greater degree of freedom to test which of those hypotheses related to their venture are supported by the market, and which are not.

In closing, it bears noting that a lot of the interest in business incubation may be a function of the perceived simplicity of the "incubation solution" (Bears, 1998) and the real pain of economic decline that it deigns to resolve. But one can never get something for nothing, and – as most economic and community development professionals will observe - there is no one magic bullet for remedying economic decline. An incubator without inputs is just a building... not an economic engine of growth. An incubator with low quality inputs is not likely to produce high quality outputs, but it may have a very important educational role in the community, and it may grant a greater degree of experimental flexibility to entrepreneurs who are willing to fail cheaply and often on the path to eventual success or terminal failure.

## 11. References

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