

Stream 3: Entrepreneurship, Start-Ups and Small Business

Competitive Session

**An affordance lens on the influence of business incubators on firms' strategy
development**

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ABSTRACT: Business incubators have received increased attention in academic literature in recent years, and most of this research has focused on the economic benefits of incubators and on the incubators' provisions to firms. However little is known about how the strategies of the incubated firms develop and the specific role of incubators in this process. This paper presents a conceptual framework that uses an affordance lens to explore the influence of incubators on incubated firms' strategy development. The implications are many. Future researchers will be able to gain an in-depth and triangulated perspective of incubation and build on existing affordance theories. Incubator managers will be able to apply the knowledge gained to implement more targeted and effective incubation strategies.

Key words: Business incubation, incubator, start-up, innovation, entrepreneurial strategy, strategy in SMEs (strategic management conference stream).

Incubators can play a significant role in economic development (NBIA, 2013d; Sherman & Chappell, 1998) and there appears to be widespread support for the notion that the incubation process reduces the risk of new firms failing and increases their growth, job creation, and survival rates (Al-Mubarak & Busler, 2012; Gstraunthaler, 2010; Sherman, 1999; Sherman & Chappell, 1998). Overall, incubators have been argued to be an effective tool when it comes to helping firms (Al-Mubarak & Hamad, 2013; Grimaldi & Grandi, 2005).

The role of incubators is defined as “an economic and social development entity designed to advise potential start-up companies, help them establish, and accelerate their growth and success through a comprehensive business assistance program” (Al-Mubarak & Busler, 2013, p368), and as “a support environment for start-up and fledgling companies” (Peters, Rice, & Sundararajan, 2004, p83). The common theme across definitions is the provision of support for start-ups.

While incubators appear to be successful in supporting the development of new entrepreneurial firms through their extensive provisions, researchers have not explicitly focussed on how incubators' provisions influence the incubator firms' strategic development. This sentiment is echoed by notable

incubator researchers, Hackett and Dilts (2004b), who conclude that very little attention has been paid to the incubators themselves and to their innovations and resulting outcomes, rather the focus has been on the facilities and services that incubators provide to the firms. Hackett and Dilts recommend that further research is needed on the incubation process to draw attention to the factors influencing the development of new firms within the incubator environment. Further, it was concluded by Bergek and Norrman (2008) that the issue of whether incubator business models are aligned effectively with the firms' performance also requires further investigation to ascertain the effectiveness of incubators' provisions.

This paper presents a conceptual framework to explore the influence of incubators' provisions on strategy development during incubation, thus going some way to address these important knowledge gaps. The research question that this model seeks to address is: How do incubators influence firms' strategy development?

THE CONCEPTUAL FRAMEWORK

The provisions of incubators potentially give rise to a number of opportunities for the incubator firms, which may be perceived and used differently by firms within the incubator, and may have varying influence on their strategy development. In this section we propose that these possibilities and complexities could be effectively disentangled using the theories of affordances.

Insert Figure 1 here

The conceptual framework, *figure 1*, presents three constructs. The central construct is explored using the theories of affordances. The two constructs at either side are the incubators' *provisions* and any resultant *strategy developments* of the incubated firms. The incubators' provisions are grouped into four categories, depending on whether they are tangible or intangible, and internal or external. Strategy development is defined as incorporating three orientations; goals, process and content. However, the main relationship of interest is the influence that the *affordances* have on the firms' strategy developments, as portrayed by the central double arrow. The conceptual framework illustrates that the incubator influence on strategy development may not be a simple matter of particular

provisions leading to specific strategy developments. Rather, the influence is two-way, and depends on the affordances arising from the provisions, and on the extent to which these affordances are perceived or realised.

The rationale for the constructs of the conceptual framework, which are the affordances (1), the incubator provisions (2), and the strategy developments (3), are discussed next.

AFFORDANCES (1)

Affordances are the opportunities for action that arise out of an environment (Gibson, 1979). In this context, the focal results of the opportunities for action are the firms' strategy developments, and the environment concerns a particular incubators' provisions.

Gibson (1979), a perceptual psychologist, was among the first to develop the theories of affordances. From his observations, he concluded that affordances were about the naturally occurring and actionable relationships between the environment and an actor. Affordances, in his view, were based on the actor's perception of the natural world. He claimed that when someone looks at an environment they perceive the opportunities for action as opposed to perceiving just its physical properties, and that while aspects of the object can be described, such as its shape, colour and substance, people don't normally pay attention to just this, rather they focus on what that environment or object enables them to achieve. The concept of affordances is explained simply by Zhao et al. (2013) using an example of a chair with four legs; when a person sees a chair they recognise it instantly as an object that they can sit on, as opposed to just its physical properties. Similarly, a doorknob is recognised as an object that will enable a person to open a door. The affordance phenomenon is therefore about the actions that occur as a result of an object or environment and an actor coming together. Potentially, for example, when an entrepreneur looks at their office space in the incubator, they mightn't just see desks, computers and filing cabinets, they may instead see an environment that can help them reach their goals faster and with less risk.

Opportunities for action can also be perceived differently depending on the actor, as concluded by Sadler, Given and Aberystwyth (2007). These authors gave the example of a rock as the object. To a lizard the rock may afford a hiding place or something on which to sunbathe, but to a person the rock

may afford a weapon or a building material. The perceptions of use vary, and therefore there is no single or correct use of the rock. The affordance is therefore relative to the individual actors, as Gibson (1979) noted, and thus the environment or object could mean different things to different people. For example, one incubator firm may see the provision of assistance with market validation from the incubator as a way to determine what features their product needs, whereas another firm may see the same affordance as a way to find a new market entirely.

Maier (2008) augments this in arguing that single objects may have multiple affordances with respect to the same actor, using the example of windows, which both afford views outside, and, when opened, afford fresh air. In business, the types of affordances of an object can be diverse, and, as Maier also identified, an object such as a manufacturing plant can have multiple affordances to a firm such as ease of manufacture, assembly and maintenance. Maier also reports that while affordances are generally positive, they are not always desirable or intended; there are positive affordances, such as the intended operations of a motor, and negative affordances such as the excess heat generated by that same motor.

Affordances do not always arise out of formal interaction. Informal interaction amongst people can also enable a range of affordances as identified by Fayard & Weeks (2007) in their qualitative study of employees' informal interactions in a photocopier room. These authors developed a theory of the affordances of informal interaction, concluding that "the affordances of an environment arise from its social meaning, and conventional rules regarding use, in addition to its physical properties" (p611). For incubator firms the affordances of social interactions in a physical context may be critical, given the close physical proximity of the firms. Further, affordances are not just as a result of interactions between single actors and objects, rather they are the result of complex interaction between multiple actors and objects as Van Osch and Mendelson, (2011) demonstrate in their study of sociomaterial interactions. Given the extensive variety of incubator provisions, and the wide range of potential needs of the firms, this complexity of interaction is somewhat inevitable and needs to be accommodated in theorising the effects that incubators have.

Perceived and realised affordances

In notable contrast to Gibson's (1979) view of affordances as being about the possibility of an actual action between the actor and the object, Norman (1999), through his research on affordances as they relate to design, emphasised that the portrayal of affordances can be manipulated. Norman identified the differences between realised and perceived affordances, that is that a realised affordance is about the actions that actually occur, whereas a perceived affordance is about the actions that are perceived to be possible by the user. The real and perceived affordances of an object may not be the same, and the perceived affordances may not actually even exist. Norman argued that it is the perceived affordances, not the real affordances that determine the object's usability. Further, the perceived affordances depend on the individual perception of each perceiver (Zhao et al., 2013) which can be based on their experience, knowledge or culture (Norman, 1999). This is potentially critical in the incubator environment as incubator management may manipulate information about possible affordances; therefore it is considered important to compare incubator managements' perceptions of affordances to those of the firms' perception.

Perceived affordances can also take into account more than just "objects", that is, they incorporate the wider concept of "environment", and include the corresponding contexts and culture (Zhao et al., 2013). Affordances therefore are neither specific attributes of a person or of the environment, rather they are about the relations between the person's abilities and the features of the environment, and, as a result, are both realised and perceivable, as Chemero (2003) discusses from an ecological psychology perspective. This focus on the wider environment, and not just on a single object, makes Zhao et al.'s view especially relevant to incubators as it is likely that some affordances cannot be isolated to a single object. For example, the affordance of assistance with market validation may not just come from the incubator's staff it could also come from the incubator's networks.

Not only is it the wider environment that impacts on the perception of the affordance, it is also influenced by the prospective control of affordances, that is, in order to be able to realise the goal that a particular action affords, the person must be able to perceive whether it is indeed possible to complete the whole action, and the required sub-actions (Turvey, 1992). Turvey uses an example of a person walking across a cluttered room and needing to navigate the furniture in their way. An

entrepreneur in an incubator firm may perceive that an affordance of financial investment from venture capitalists exists. However, the possibility of successfully achieving this may be remote, and therefore may not be attempted. Within an incubator environment, it is anticipated that there may be many affordances that are only ever perceived, and never realised, by the individual incubator firms, given the large variety of possible affordances available and the unique characteristics of each firm. Additionally there might also be provisions that are perceived to have no affordances.

Since its inception, the theories of affordances have been applied to many fields, as noted by Maier (2008), including childhood psychology, ecological psychology, and for the design of graphical user, and control room, interfaces and for mobile robots. While no empirical studies have been found that apply the theory of affordances to the field of entrepreneurship, business incubation or to strategy development, the use of the theories of affordances in the conceptual framework will help ensure an in-depth understanding of how the affordances of provisions vary, and how they influence different strategy developments. It will help illuminate cases where multiple provisions combine to enable single affordances, single provisions enable multiple affordances, and that these affordances may sometimes lead to multiple strategy development outcomes. It will also help highlight cases where the provisions from different incubators may not be the same, and that, depending on the actor, the affordances may be realised differently. If the theories of affordances is not used researchers may concentrate on the notion that specific provisions lead to specific strategy developments.

INCUBATOR PROVISIONS (2)

Incubator provisions are the objects from which the affordances arise. Table 1 summarises the key provisions noted in the literature.

Insert Table 1 here

The most common distinction is whether the provisions are tangible such as infrastructure-related services, or intangible such as counselling and business assistance services, and incubator networks, as concluded by Abduh, D'Souza, Quazi, and Burley (2007a). Further, these services and infrastructure may be provided internally or externally to the incubator, as Hackett and Dilts (2004b)

and NBIA (2004) note. These two basic categorisations of incubator provisions can be combined to form the basis of a typology for incubator affordances, as presented in the conceptual framework. While the theory of affordances would be applied at the individual provision level, pattern identification as well as understanding the implications for practice of current or prospective provisions can occur more readily within a more aggregate framework.

STRATEGY DEVELOPMENT (3)

Strategy development is seen as the key outcome of realising the affordances from an incubators' provisions (objects), given that this represents a primary benefit from new ventures undergoing incubation (citation). Given the breadth of perspectives on strategy and strategic management in the literature (Nag, Hambrick & Chen, 2008), there are a variety of dimensions along which incubation could influence strategy development. Alfred Chandler defined strategy as "the determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals" (Chandler, 1962, p13). This definition, as Snow and Hambrick (1980) noted, encompasses the firm's goals and the process of their achievement. The notion that strategic management was a process was also evident in Gupta and Pandit's (2012) determination that it involves "a set of decisions, commitments, and actions that result in the formulation and implementation of plans designed to achieve firm's objectives and produce a competitive advantage" (p89) and in Hsiu-Li's (2005) study where he defined strategic management as a series of four phases: "situation analysis", "strategy planning", "strategy implementation" and "strategy evaluation" (p366), that together result in the creation of a firm's competitive strategy. In contrast, Schendel and Hofer (1979) explored strategy in relation to content as opposed to it being a process. Given these varying definitions we concluded that when exploring the concept of strategy development in incubator firms that "strategy" should encompass *goals, process* and *content*.

Table 2 presents these three orientations and a proposition of what their associated sub-dimensions could be. For example, the goal orientation could be an adaptation of Wissema, Van Der Pol & Messer (1980) and Mintzberg's (1973) typologies of strategy making, both of which are somewhat on a continuum from increasing goals, to reducing or radically changed goals. The process

orientation could be based on Mintzberg and Waters (1985) observations that the process of strategy development can be on a continuum from deliberate to emergent, and from Mintzberg's (1973) observation that firms' focus of activities can be on a planning to doing continuum. The content orientation could explore the degree to which the content of the firms' strategies developed. Various typologies of strategy content were considered, specifically those developed by Miles and Snow (1978), O'Shaughnessy (1986), Nicholls-Nixon et al. (2000), and Deligianni and Voudouris (2011). The typology developed by Nicholls-Nixon et al. (2000) could be appropriate as it was developed specifically for new entrepreneurial firms, and uniquely, it explored the extent to which the strategy developments impacted the firms' core or periphery.

It is acknowledged that other dimensions of strategy development could warrant investigation, however the above dimensions encompass the aspects of strategy development considered important in this context.

METHODOLOGICAL APPROACHES

To adequately address the proposed research question researchers would benefit from employing methodological approaches that permit an in-depth understanding of the events surrounding the realisation of incubator affordances and of the resulting strategy developments, if any.

In determining an appropriate methodological approach, consideration needs to be given to prior empirical studies in the incubator and theories of affordances fields. As discussed previously, no prior studies were found on the impact of the incubators' provisions on strategy development. Just six studies were found addressing incubator firms' perceptions of incubator provisions. Four of the six studies took a solely quantitative approach, using survey questionnaires to broadly research the range of incubator provisions (Meru & Struwig, 2011; Kilcrease, 2011; Xu, 2010; Abduh, D'Souza, Quazi, & Burley, 2007). The two studies that used a multi-method qualitative approach made use of questionnaires and in-depth interviews. The research by Rice (2000) sought to explore the nature of the co-production relationship between the firm and the incubator. The study by McAdam & Marlow (2011) used multiple methods because of the specificity of their research, that is, rather than a broad

study of perceptions of incubator provisions, they sought to focus on the process of attaining venture capital.

Given the in-depth data required in research using an affordance-based conceptual model, a multi-method approach is also most relevant here. The use of qualitative methods could enable substantial insights into the incubation process, which has, until now, predominantly been researched using quantitative methods. The theories of affordances have had minimal application in empirical research. Just six studies were found, from varying disciplines. Quantitative and qualitative approaches appeared to be used in equal measure, with methods including laboratory experiments, field studies, in-depth interviews, focus groups and surveys. The research contexts were broad, and include team learning (Andres & Shipps, 2010), informal interactions (Fayard & Weeks, 2007) and virtual communications (Goel, Johnson, Junglas, & Ives, 2013). The research that appears most relevant is that of Sadler et al. (2007) who sought to establish graduate students' perceptions and experiences of the affordances of a university library. These researchers utilised qualitative in-depth interviews to help the researchers explore not only the actions of the participants, and but also their attitudes and feelings, and to understand the broader context of behaviours. Given the epistemological similarities, that is, the desire to compare the realisation and perceptions of affordances, in-depth interviews again seem most appropriate in the application of the conceptual model.

IMPLICATIONS OF THE CONCEPTUAL FRAMEWORK

This conceptual framework presents an original approach to developing knowledge in the field of strategy development in incubator firms, and the influence of incubators in that process. The question that it is proposed is: How do incubators influence firms' strategy development?

The notion is that the affordances from the incubators' provisions will vary and that these affordances influence the strategy developments of firms in varying ways. Notably there are two key inputs into the framework; the firms and the incubators. The respective views should be sought, enabling triangulation of the data and clearer understanding of perception of provisions and associated affordances. This triangulation is expected to reveal some irregularities between the views of the two

groups of participants, thus illuminating whether there are any poor-performing or redundant provisions as well as any differing expectations and strategy development outcomes.

The implications for practice are many. The incubation sector is growing rapidly (Al-Mubarak & Busler, 2013), and therefore new, and existing, incubators would benefit from knowledge gained from this research. For example, researchers may find that some incubators have a focused and narrow range of provisions with the goal of influencing firms' strategies at the core of their strategy content (partnership status and product scope) as opposed to at the periphery (competitive emphasis and time allocation). Other incubators may offer a broader range of provisions and provided services to the business community beyond just incubation, and consequently influence the firms' strategies in a broader and less defined way. This broad approach could result in redundant provisions and an overall diluted influence on the firms' strategy development, and knowledge of this could help the incubators operate more efficiently.

Knowledge of what specific types of strategy developments different types of firms make, and why they make them, could potentially help incubators short-cut the strategy development process and provide specific provisions that meet the needs of different types of firms. For example, researchers may find that firms that have physical products employ a more deliberate approach to strategy development, while firms with information-technology products employ a more emergent approach. Additionally, for example, researchers may find that the type of governance structure that the firms have is related to both how they engage with the incubators' provisions, and how likely their goals are to develop. Knowledge of the varying use of provisions, and their varying influence on strategy developments, may infer that different provisions are required, indeed one size may not fit all.

The conceptual framework could also help researchers establish provisions that are important for firms' survival, even though the provisions may not directly influence strategy development. For example, the provisions of office space and assistance with general business administration tasks probably don't influence the firms' strategies but are important in that they enable the firms to save money and time.

The use of the conceptual framework also has implications for theory. Researchers using the theories of affordances will help build on existing knowledge. Firstly the theories will be tested to see

if they apply in the business context. Secondly the theories may be expanded upon, giving rise to opportunities to later test these expanded theories in non-business contexts.

LIMITATIONS AND OPPORTUNITIES FOR FURTHER RESEARCH

A limitation of this conceptual framework, or indeed with any study that involves incubators, is it presents challenges with providing a matched sample, that is, it is not practical to carry out a comparative study in firms that are not in incubators. Non-incubator firms would inevitably use a range of substitute provisions and therefore the influence of these substitutes would need to be isolated before drawing conclusions on the specific influence of incubators. Despite the complexities, the inclusion of non-incubator firms in future research would no doubt be beneficial.

The conceptual framework does not explore the effects of the incubator or of the firms' strategy development on their performance, which would have involved a longitudinal study and analysis of financial performance. Instead the focus of the conceptual framework is on the process of incubation and on understanding the nuances of how incubators influence firms' strategy development, as opposed to the outcomes of incubation, of which knowledge already exists. However, again, research into these factors could be beneficial.

Lastly, it would be beneficial to get a more in-depth understanding of the nature of the strategy developments that occurred in the firms and of the chain of events that lead to these developments.

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TABLES AND FIGURES

Figure 1: Conceptual framework showing the relationships between the key constructs and contextual factors

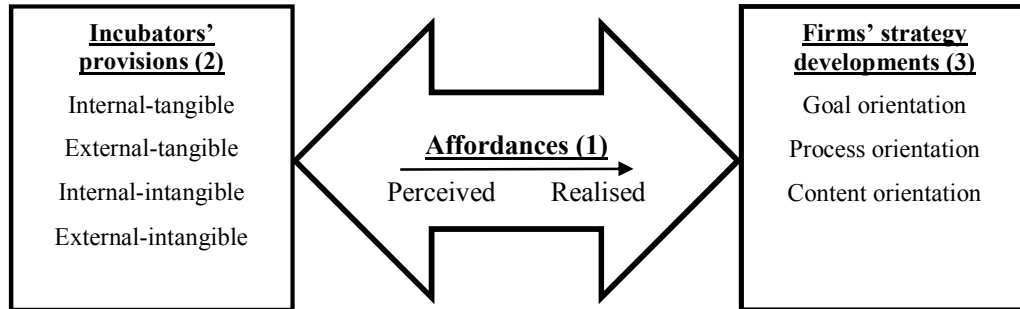


Table 1: Summary of incubator provisions

Provision category	Broad provision grouping	Specific Provisions
Internal-tangible	Shared office space and support services (Bergek & Norrman, 2007)	Subsidised office space and internet access (Abduh et al., 2007; Xu, 2010)
		Shared office services (Xu, 2010)
		Capital from incubator's funds (Webb, 2012)
External-tangible	External financing	Capital from grants by local and national economic development agencies (NZTE, 2013)
Internal-intangible	Professional business support and advice (Bergek & Norrman, 2007)	Business planning and growth advice (Webb, 2012; Abduh et al, 2007; Fry, 1987; Incubators New Zealand, 2011b)
		General business management advice (Al-Mubaraki & Busler, 2012; Lewis, Harper-Anderson and Molnar, 2011)
		Educational workshops (Peters, Rice, & Sundararajan, 2004)
		Fundraising support (Aaboen, Lofsten & Bengtsson, 2011; McAdam and Marlow, 2011)
		Market validation advice (Incubators New Zealand, 2011b; Webb, 2012)
		Knowledge sharing (Rice, 2002)
	Internal networks (Bergek & Norrman, 2007)	Get social support and feel like they are part of an "in-group" (Cooper, Hamel, & Connaughton, 2012)
		Share knowledge with each other (Fayard & Weeks, 2007)
		Embed firms with entrepreneurial networks (Bøllingtoft, 2012)
External-intangible	Connections to external networks (Bergek & Norrman, 2007)	Connections to local universities and industry (Hackett & Dilts, 2004a; Lewis, Harper-Anderson and Molnar, 2011)
		Connections to advisory and board members (Al-Mubaraki & Busler, 2012)
		Connections to providers of professional services often at subsidised rates (Hackett & Dilts, 2004b)

		Connections to funders including angel investors and venture capitalists (Hackett & Dilts, 2004a; Incubators New Zealand, 2011a; Lewis, Harper-Anderson and Molnar, 2011)
		Credibility from being connected to incubator's networks (Rice, 2002)
		Credibility from being connected to incubator (Xu, 2010)

Table 2: Summary of strategy development dimensions

Broad dimension	Specific dimension	Reference
Goal orientation	Increased, decreased or more precise	Adapted from Wissema, Van Der Pol & Messer (1980) and Mintzberg (1973)
Process orientation	Deliberate or emergent process	Mintzberg & Waters (1985)
	Planning or doing activities	Adapted from Mintzberg (1973)
Content orientation	Product scope changes (core change)	Nicholls-Nixon et al. (2000)
	Partnership status changes (core change)	
	Competitive emphasis changes (peripheral change)	
	Time allocation changes (peripheral change)	