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# IMPACT OF KNOWLEDGE MANAGEMENT ON THE PERFORMANCE OF START UP COMPANIES DURING THE PROCESS OF INCUBATION

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## ABSTRACT:

Until now, the great attention has been focused on measuring various economics parameters in order to find a model for monitoring and forecasting performance of the ideas that enter and pass through business incubators. Knowledge economy imposes necessity for monitoring non-economic parameters that according to their nature are qualitative and intangible. The paper explores the possibility of defining relevant non-economic parameters as a measure aimed at improving efficiency and effectiveness of management of startup companies.

**Keywords:** Knowledge Management, start up, incubation, innovation

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## 1. INTRODUCTION

It is widely recognized that small firms make a significant contribution to economies and so understandable that there is a persistent empirical research theme that addresses issues of small firm growth. Within this body of research, there is a preoccupation with the creation, capture and transfer of knowledge that may help to stimulate and support growth. This link is considered a legacy of Penrose's (1959) seminal text *The Theory of the Growth of the Firm* (1), in which she proposes that growth is dependent on the application of entrepreneurial and managerial knowledge configured as resources. Entrepreneurial resources are essential for opportunity recognition and innovation, while managerial resources are necessary to provide systems and processes to enable opportunity exploitation. Therefore, for Penrose, expansion is intimately associated with the processes through which knowledge is acquired and applied. Thus, the possession of knowledge defines the shape and trajectory of a firm's growth (2), and a lack of managerial knowledge resources, or competences, may undermine a small firm's ability to grow (3).

Of crucial importance for startup, companies may have their relation to knowledge that is largely in tacit form. Companies that enter into the process of incubation have very little knowledge is translated into procedures and rules and a large part of knowledge is in the form of tacit knowledge is intangible and heads the team that bears the initial idea. Companies in this stage, very sensitive to sudden changes. Quote that is often used by people engaged in business "better give me a team and plan B, but A and Plan B team." This philosophy is one of the key levers of success for many companies. Success always depends on the people, the team behind the implementation of ideas into practice. Most of the skills of the team, its operation is guided and spontaneous feeling. Stable teams, who have good communication and understanding have a chance to be successful. Teams like the system, and our need for teams is that team's strength must be greater than the sum of the individual elements of the force (of) team. Incubation process is put in front of teams that need to grow into the company's many challenges.

Flows of knowledge that High-tech incubators must take into consideration is the knowledge flow from University. Incubators must be in partnership with universities and researchers who enter the incubation process must find a model that will satisfy the interests of all stakeholders. In the paper *University-incubator firm knowledge flows: assessing their impact on incubator firm performance* (4) give an example of Georgia Tech in period 1998 – 2003 in the case of 79 companies.

For young firms, the race for survival and growth is very much a race for learning. Learning results in the accumulation of distinctive firm-specific knowledge, which in itself constitutes a driving resource for growth (5); (6). As organizational learning is largely driven by knowledge combination, a young firm needs to become efficient in combining and assimilating diverse items of externally

sourced knowledge with its internal knowledge base (7); (8). To achieve this and to grow, young firms need to establish learning relationships with external sources of knowledge (9).

Speed the adoption of new knowledge can be of crucial importance for Spinoff Company because its success depends on the ability to translate technological knowledge into a business model in an efficient manner. Most spinoffs company has very strong technical knowledge related to the narrow expertise is based on the ideas and innovations that they want to translate into a product, but they lack the skills and abilities of business thinking. The incubation period, the chance for success will be only those companies who recognize that new knowledge must be adopted, that must be developed while growing.

## 2. KNOWLEDGE RELATEDNESS AND LEARNING

Learning theories suggest that knowledge held in common is important for the firm's absorptive capacity, and therefore, for efficient learning and new knowledge generation from sources external to the firm (8). Related knowledge (i.e., knowledge held in common) enhances the ability of the firm to evaluate effectively the value of external knowledge, to discard irrelevant knowledge, and to concentrate its learning efforts on valuable knowledge sources (10).

The essence is not in learning, gaining knowledge, but in the adding of new wealth, creating meaningful knowledge, or as Rene Tissen emphasized in Knowledge Dividend (11) Don't dig deeper for more knowledge, capture only meaningful knowledge and build on the value it has. To deal with the inflow of information, the spin-off firm needs to develop information filters for identifying valuable knowledge and rejecting irrelevant knowledge (12). Such filters are built via existing operations and are best suited to processing and using knowledge similar to that from which they were built. Therefore, firms learn most efficiently close to their existing knowledge domains. New Startup Company will have better chance to survive if they have network support system. Network support system is combination of other startup company in different fazes of incubation and some well develop company.

In short, up to some point, increases in knowledge overlap with the network should increase the productive capacity of the spin-off firm, thereby enhancing its potential for growth. Related knowledge also contributes to the efficiency of communicating external knowledge from the network and of assimilating it into the spin-off firm's knowledge base (10) . According to (10), for the transfer of knowledge to occur, those exchanging information must possess shared language, codes, and symbols: "The higher the level and sophistication of common knowledge among the team, whether in the form of language, shared meaning, or mutual recognition of knowledge domains, the more efficient is integration likely to be." If external knowledge is closely related to the previously held knowledge in the organization, its communication will be smoother and face less resistance. Closely related external knowledge resonates with the organization's established beliefs about relationships between the firm's actions and the outcomes of those actions, thereby enhancing its acceptance within the receiving organization. Because closely related external knowledge is also likely to be more compatible than unrelated knowledge with the organization's existing systems, it will be incorporated more efficiently with these. For example, it is easier for the company to absorb production process knowledge inputs that are similar to its experiential knowledge on its internal production systems. Similarly, knowledge about "what works" in marketing is more likely absorbed if it resonates closely with the firm's own experience; e.g., a payment scheme innovation will more readily be incorporated by a firm expert in pricing tactics than one focused solely on channel selection tactics.

Knowledge not held in common is also important for learning and growth because new knowledge is created through combinations of existing knowledge with new items (7). The more different the combined knowledge items, the greater the novelty value of the created new knowledge. On this basis, knowledge diversity contributes to learning by enabling individuals to make new associations between apparently unrelated knowledge items. As the amount of related knowledge increases and unrelated knowledge diminishes, the potential for new knowledge creation will be diminished. A great degree of overlap among values, systems, and accepted beliefs may also reduce the willingness of the spin-off firm to challenge critical assumptions and to discover novel solutions to existing problems. An important part of an organization's knowledge is constituted by established beliefs about "how things work" or relationships between actions and the outcomes that those actions generate (13).

Our foregoing arguments have implied that increasing knowledge overlap up to a point will increase a spin-off firm's learning and growth potential; however, beyond some optimal point further increases in knowledge overlap (i.e., decreases in unrelated knowledge) will diminish the spin-off firm's ability to create new knowledge necessary for growth. Indeed, reconceptualization of absorptive

capacity emphasizes the importance of both complementary and diverse knowledge for the creation of a dynamic capability that can lead to increased profitability and sales growth, among other types of superior performance (14). Such a mixture exists at intermediate levels of knowledge relatedness.

### 3. TYPES OF KNOWLEDGE RELATEDNESS AND SPIN-OFF GROWTH

Because knowledge relatedness between the spin-off firm and the network affects the speed and novelty of the spin-off firm is learning, it will affect the ability of the spin-off firm to realize future sales growth (15). Areas of knowledge relatedness critical to growth include production, technology, and marketing (16). Production knowledge affects sales growth because it involves the ability of spin-offs to meet variations in demand level and changes in customer specifications. A spin-off will be able to learn about production techniques to the extent that it shares some production knowledge with the network. This knowledge will be valuable in helping spin-offs to realize sales by providing them techniques for meeting demand rather than losing sales to more efficient competitors. Similarly, spin-offs can learn techniques from the network for efficient and effective customization of production. This knowledge will not only allow them to meet the changing demands of their current customers but will also allow them to increase sales by reaching new customer groups. To the extent that the spin-off firm shares some technological knowledge with its network, it will be able to augment its technological knowledge base by learning from its network.

A solid technological knowledge base will allow the spin-off firm to design products that offer greater technological performance than already available in the market, allowing it either to charge higher sales price or to increase the volume of sales because of superior cost-to-performance ratio. A solid technological knowledge base will also allow the spin-off firm to cut the development time from product idea to commercial product, thereby helping it generate sales earlier. Superior product development efficiency will also enable the spin-off firm to introduce a greater variety of products, thereby allowing it to reach more customer groups. Indeed, (14) provided some empirical evidence for these arguments by showing that technological learning be positively related to sales growth in new internationalizing firms. Marketing knowledge affects sales growth because it enables the spin-off firm to identify the customer groups that offer the greatest sales potential and because it enables the spin-off firm to design and implement more effective marketing strategies. To the extent that the spin-off firm shares some knowledge with its network about customer groups, distribution channels, and marketing strategies and expertise, it will be able to strengthen its marketing competencies by learning from its network.

A greater depth of knowledge on customer groups will allow the spin-off firm to position and price its products optimally for maximum sales and to target the best customers. A firm's knowledge of appropriate distribution channels, and of how to get access to these, will further enhance its ability to increase sales. Above, we argued for a relationship between three types of organizational knowledge and spin-off firm sales. Because both related knowledge and unrelated knowledge are required for organizational learning, learning in an interorganizational relationship should be a curvilinear function of the knowledge relatedness between the knowledge bases of the respective firms. Minimal knowledge relatedness (no overlap between the knowledge bases of the firms) hampers learning because local search and assimilation suffers. Extreme knowledge relatedness (i.e., very high overlap between the knowledge bases of the firms and network) hampers learning because the potential for novel knowledge combinations is reduced. To sum up, the relationship between knowledge relatedness and learning should be an inverted U-shaped function. Such a relationship was anticipated (but not empirically tested) by (8): "While common knowledge improves communication, commonality should not be carried so far that diversity across individuals is substantially diminished." Of course, a networked environment on its own is not enough; entrepreneurs face the challenge of maximizing the value of new network relationships not only as a source of specialist knowledge, but also as a lever for industry advantage (17). In paper, Critical junctures in the growth of university high-tech spinout companies (18) discuss about demands on entrepreneurs change over the life trajectory of a new technology venture. They argue that in order to reach full potential, a venture must successfully make the transition between different phases of growth, overcoming what are termed 'critical junctures' as they move from one phase to the next. The critical junctures concern the absence of key resources or capabilities required by the firm, some of which are tangible business necessities, such as finance, others are less tangible, associated with the knowledge needs and management capabilities of the aspirant entrepreneur. In the early stages of opportunity recognition, they need business management skills to embrace the realities of the market in their target industry with regard to generating commercial returns from their technology. Later on, once appropriate framing of the opportunity has taken place, (18) contend that, at least for academic entrepreneurs, the steepest learning curve must

now take place. Time must now be spent gaining the commitment of key individuals, leveraging social capital to enable the venture to commence business operations.

The entrepreneur must be able to screen, evaluate, benchmark and appoint new members of the management team through their own network of contacts, through networks of potential investors, or through professional recruiters. If this does not take place, through limited access, or insufficient entrepreneurial expertise, then the venture's ability to achieve strategic objectives and growth in later phases through interaction with customers, competitors, suppliers and potential investors is compromised. Points to the importance of the relationship between the incubator manager and business owners and found that the incubator manager's skill in determining the timing and frequency of business support intervention and preparing businesses to exploit such activity is critical to the business development process (19). In terms of knowledge flow to new entrants to the incubator, (20) identified three possible sources: internal networks (between firms in the incubator), external networks (mentors, professional service/course providers) and the Director. They use model from (18) work, which gave them possibility to identify key phases where knowledge transmission must occur: firstly, the acquisition of basic business understandings towards the development of a business plan; secondly, the leveraging of social capital in the chosen industry networks.

#### **4. KEY KNOWLEDGE PROCESSES STEPS**

According to the literature, to succeed, incubator entrants must know very quickly how to craft their early-stage ideas into realistic business plans, and must therefore engage with basic business development functions, including marketing, finance, intellectual property management and strategic analysis (21). This is in line with Vohora et al's phases (1) and (2). Further, it has been argued that they must develop high added value networks support the development firstly, of an embryonic organizational infrastructure, and secondly, a customer / supplier / investor base to support the organization's competitive position in its target industry financially (17).

##### **4.1. Pre-incubation and entry**

Many of startup companies claimed that they had little understanding of the incubation process prior to joining the incubator, but there was a commonality about why they were joining: they were strong in technological skills, but weak in marketing, financial acumen and the wherewithal (knowledge and contacts) to build an organizational infrastructure capable of competing in their target industry (20). It is common agreement that the incubator offers subsidized office space, a sense of legitimacy and place, an opportunity to be around like-minded individuals and that help would be available with business planning. There were a number of references to a need for help with specific functional issues within the overall planning process such as marketing, obtaining finance, accounting and intellectual property issues. In early stages of engagement with the incubator, new startups are very dependent on the Director, or Incubator Management Board (IMB), who knead to take them through an informal induction process. This involve, to different extent, the production of a business plan, at least in outline, that related to potential market opportunities discussed with the Director or IMB . At this point, although business management is now obviously a learning priority, no targets, milestones or participation agreements were made, nor were any training needs formally identified. In this stage Incubator, knead to create opportunities for networking, probably at informally events and warm introductions to industry contacts and mentors. During this phase, the role of Director and IMB in the learning process is significant. This key role is in line with (19) who points out the importance of Directorial advice in fostering successful business development.

##### **4.2. Ongoing review and development**

Once firms were fully accepted into the incubator, they were expected to rework, develop and realize their business plans in the hope and expectation of leaving the incubator with at least a degree of financial self-sufficiency, whether through customer-based revenue streams, or external finance, or both. During this phase of development startup companies are expected to be self-reliant in identifying training and knowledge gaps from the advice given, and developing new business skillsets that are necessary from the provision in the incubator and other support providers, and also nurture and exploit new network contacts that will be obtained through the incubator and/or mentors. The Director attached great importance to fostering entrepreneurial acumen in the founders through the freedom to operate independently; while at the same time, asking for (and receiving) help as and when they needed it. In this step of process startups developing and improving the necessary vocabulary and expertise in marketing, finance and intellectual property. Their new abilities arise mainly from a 'needs must' immersion in the commercial world, that is supported by formal and informal interactions with new network colleagues in the incubator's external network (20).

Proactive approach to network exploitation, the leveraging of high value social capital, had been part success, for example, from the founder of one of company from study (20): “...what I was looking for was connections to all those skills that we just didn’t have, so I was looking for mentoring and access to people with high-tech startup business experience, access to venture capital [lawyers, banks, accountants] which didn’t feature in the world of a pre-incubation company....I think there were about 3 or 4 [mentors] that we could have considered and [the Director] felt quite strongly that the one we chose...was the one that was right...he had a lot of experience in high tech start-ups. He had a lot of experience in the sort of corporations that we were going to have to make friends with, and he had a lot of experience in the world of electronics, which we needed to talk technology to the scientists and our customers. But not get buried in it...He helped us through in a way that we probably wouldn’t have done very well on our own”. The mentor here acts as a conduit to legitimacy in the necessary industry networks, not just as a source of knowledge. Confidence is a very important element in the success of the process of incubation. Trust is the basis for knowledge sharing, if there is no full trust cannot be counted on the free flow of knowledge.

## 5. CONCLUSION

It is required to understand the interactions between firms in incubators and with firms in the external network (22), with particular reference to the need for aspirant entrepreneurs to acquire knowledge concerning business management (21) and to leverage industry knowledge through network interactions. The knowledge acquisition is described as a two-stage process where firstly, knowledge was gained about business planning from the Director, then firm and industry specific connections provided a unique set of knowledge flows that supported the firm through the incubation process towards exit (20). A very significant ‘tipping point’ occurs when the firms begin to leverage the social capital themselves, weaning them away from the Director. In study, conducted by (20) firms that were able to do this did well. It was noticeable in a case that the internal networks added little value—the external networks were all important. We must not forget that it is important and internal stability of the team that represents a startup company. Results that occurred the survey conducted by the (20) support (19) in his identification of the importance of the role of the Director. It is necessary to carry out further research to identify different factors that can influence the flow of knowledge in the process of incubation. Walked flows of knowledge, confidence, and developed internal and external networks definitely play an important role in the success of new startup companies during period of incubation.

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