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ENTREPRENEURIAL AND COORDINATION CAPACITIES OF INCUBATED COMPANIES: A STUDY AT A TECHNOLOGY ENTERPRISE CENTER

CAPACIDADES EMPREENDEDORAS E COORDENADORAS DE EMPRESAS INCUBADAS: UM ESTUDO NO CENTRO DE EMPREENDIMENTO DE INFORMÁTICA DA UFRGS

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ABSTRACT
This article aims to identify the entrepreneurial and coordinative capacities, the innovative potentialities of technology bases companies incubated at a Technology Enterprise Center from a Brazilian public University. We've interviewed the incubator's manager as well as the managers of the companies in search of evidence that demonstrated the processes of internalization and externalization of its capacities. The results show that most companies internalize the coordinative aspects through the hiring of managers leaving to the incubator the essential part of allowing the proximity to research centers and the link with the university, to which we refer to as the University factor.
Keywords: Incubators. Incubated Companies. Entrepreneurial Characteristics. Coordinative Characteristics.

RESUMO
Este artigo visa identificar as características coordenadoras, empreendedoras e as potencialidades inovadoras das empresas incubadas de base tecnológica na incubadora do Centro de Empreendimentos de Informática da Universidade Federal do Rio Grande do Sul. Foram entrevistados a gestora da incubadora bem como os gestores das empresas incubadas à procura de evidências que demonstrem processos de internalização e externalização de suas capacidades. O resultado mostrou que a maioria das empresas internaliza os aspectos de coordenação através da contratação de gestores sendo a incubadora essencial por possibilitar a proximidade com os centros de pesquisas e o vínculo com a universidade, o que se denominou de fator Universidade.
Palavras-chave: Incubadora. Empresas Incubadas. Características Empreendedoras. Características Coordenadoras.

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1 INTRODUCTION

Innovation and entrepreneurship have been a common discussion both in the academic and corporate worlds as decisive factors of the companies' strategic competitive capacities.

In Brazil, most of the new enterprises are small or medium, depicting over 27% of the total Gross Domestic Product (GDP) (GEM, 2016), therefore being extremely relevant to the economic system generating jobs and paying taxes. The same GEM (2016) report puts Brazil with a 16,9% of established business ownership rate, meaning that most of the new ventures tend to close at a young age before it reaches a certain level of market maturity. However, although the entrepreneurial capacities are greatly discussed when concerning the creation of new enterprises, it is notable the number of companies that closes its doors due to economic conjectures, competition and difficulties to obtain credit.

As far as governments are concerned there is quite an interest in stimulating the creation of new small and medium business, as well as creating proper conditions in which these companies can innovate and be prepared to face competition. It is for this purpose that the incubators emerge.

The incubators, mostly linked to public or private educational institutions and research centers, emerge as a mean by which innovative ideas can become real. They allow the development of entrepreneurial capacities and innovation by offering an organizational and coordinative work structure.

Specifically, in relation to the incubators, according to Andino (2005), these capacities are instruments that aim to diminish the likelihood of failure and accelerate companies' market consolidation at the same time. According to the OCDE (1996) the government support of tech incubators is justified by the systemic faults of the market that limits the innovative small company's capability to survive during the early stages and also limits managers capabilities of surpassing the uncertainties and obstacles related to the newborn company.

Analyzing the issues regarding the importance of the individual entrepreneurial capacities and the designing of a structure that also allows the organizing capacities to emerge brings forward the question that will be the main concern of this paper: To what point do the incubators play the coordinative function as a complement to the entrepreneurial characteristics of the incubated companies' owners? And how do the innovation process occur within the companies residing in this incubator?

Therefore, the aims of this work are to identify the coordinative and entrepreneurial characteristics from technology-based companies incubated in a business incubator and also to identify the innovation processes in this incubator.

This study is justified by the possibility of assessing which are the essential features that the incubator helps the new companies, particularly in two broad characteristics: the promotion of entrepreneurship by supplying a physical and institutional environment that is favorable for the new companies' manager entrepreneurial characteristics to emerge; and the organizational aspect of playing the role of the coordinator of the bureaucratic and research processes carried on by the incubated companies.

The structure of the article is shared into six parts, including this introduction. The next section discusses the literature regarding entrepreneurship and coordination, the third section analyzes the tech incubators and their coordinative functions, in the fourth section we present the methods utilized to conduct the research. In the following section we present the main results and discussions, lastly, we present our conclusion.

2 LITERATURE REVIEW

2.1 ENTREPRENEURSHIP AND COORDINATION

While trying to understand the success elements of the firm, scholars identified a recurring bond to what is called entrepreneurship as a key element in the development of productive systems and in the companies´ positive results (SCHUMPETER, 1982; RAUPP; BEUREN, 2006).

According to Langlois (2005), entrepreneurship is the reason that firm exists and is connected to novelty – new goods and services, but also to a broad range of new economic knowledge. In this aspect, Knight (1921) cited by Langlois (2005) admits that the entrepreneur is the judge that discovers a profit opportunity by observing price variability. The role of the entrepreneur is once again elevated by the difference in Knight's risk and uncertainty concepts, by the fact that the entrepreneur is the responsible for the decision making – what to do and how to do it – under an environment of uncertainty, being that such process is originated by the individuals' cognitive capacities for problem-solving based on their judgment. A risk is when the individual has some level of information in order to calculate the possible scenarios and their probability of occurrence. Acting under a risky or uncertain scenario is a necessary personality trait for the entrepreneur. In Brazil, 36,1% of entrepreneurs state that they are undeterred by fear or failure (GEM, 2016).

According to Hisrich and Peters (2004), the entrepreneur would possess some peculiar skills as decision-making, people management through appropriate tools and the capacity of dealing with and taking risks. Similarly, the authors define entrepreneurship as "the process of creating something new that is valuable, dedicating the time and efforts necessary, taking the implied financial, psychic and social risks and receiving the consequent rewards of satisfaction and personal and economic independence" (HISRICH; PETERS, 2004, p. 29).

To Filion (1999, p.19) the entrepreneur is "a creative person, marked by the capacity of establishing and achieving goals and maintain a high level of conscience of its surrounding environment, using it to detect business opportunities". This conscience is tied to the entrepreneurial imagination that would seem to act on two levels: one related to the work setting and the construction of the enterprise and the other related to the capacity of imagining a significant number of alternatives for making their visions become true. Stropoli *et al.* (2013) relate the entrepreneur as a person whose internal and past experiences allow them to see and take action on an opportunity.

After describing some of the characteristics concerning the entrepreneurs we look at Schumpeter (1982) again, due to the fact that by establishing innovations as something permanent in the companies, the author enhances the figure of the entrepreneur to a figure of entrepreneur-coordinator taking the focus away from the person itself – specifically the owner – and putting it in its role in the company.

The literature concerning coordination can be quite ambiguous, especially regarding the term *entrepreneur*. To some this term is translated to Portuguese as only the owner, however for Schumpeter (1982) it is more than that, he is also a coordinator and according to the theory of the firm, there is a difference in the actions and responsibilities of the entrepreneur and the coordinator.

Coase (1937) says that the coordinative function is mainly responsible for directing the firm's resources aiming the reduction of the transaction costs. Motta (1998) defines coordination or management as an activity that requires more than one person, it has a common goal, and it requires the means to achieve an end and necessitates the cooperation and coordination between individuals.

Although the decision making is at the center of the managerial capacity, Andino (2005) states that we can't limit the managers work only by the decision making bias. Wolffenbüttel (2001) says that

the evidence of the owner's expertise in management and leadership skills are also a way of assessing managerial capacity.

One other aspect of managerial – or coordinative – capacity is learning. Motta (1998, p. 28) defines it as "the process in which one individual acquires new knowledge, attitudes and values regarding the administrative work". Management learning must be based not only on theory but also on individual experience – both within and outside the organization. The experience that the manager acquires helps in the solution of managerial problems through the observation of administrative practices (MOTTA, 1998).

In this sense, it can be said that the success of a given business is based not only on its capacity for innovation but also on the capacity to coordinate the trajectory of the innovation and its recognition by the market.

2.2 TECH INCUBATORS AND ITS COORDINATIVE FUNCTIONS

Tech incubators are a specific kind of business incubators that supply a broad range of services to the entrepreneurs and new companies including physical infrastructure (offices, labs, meeting rooms), managerial support (business planning, project creation, training, market research), technical support (researchers and databases), access to funding (venture capital), legal support (licenses, intellectual property) and networking (other incubators and federal services) (OCDE, 1997; CAJUEIRO; SICSÚ, 2002; TISOTT *et al.*, 2014). Luz *et al.* (2012) say that incubation is a mean to connect capital, technology and know-how in order to increase the development of new companies and develop entrepreneurial talent.

According to the OCDE (1996), tech incubators have, therefore, four main goals: 1) promote economic development, 2) allow the trading of the technology, 3) promote the development of real estate, and 4) promote entrepreneurship.

The agents involved in an incubator, according to Cajueiro and Sicsú (2002), are mainly research institutions, federal universities, tech centers, government and productive sectors. Tisott *et al.* (2014) demonstrated the importance of the collaboration between the agents in the Triple Helix (government, industry and university) by allowing and facilitating the path that makes academic innovations become technological innovations and a viable product or service.

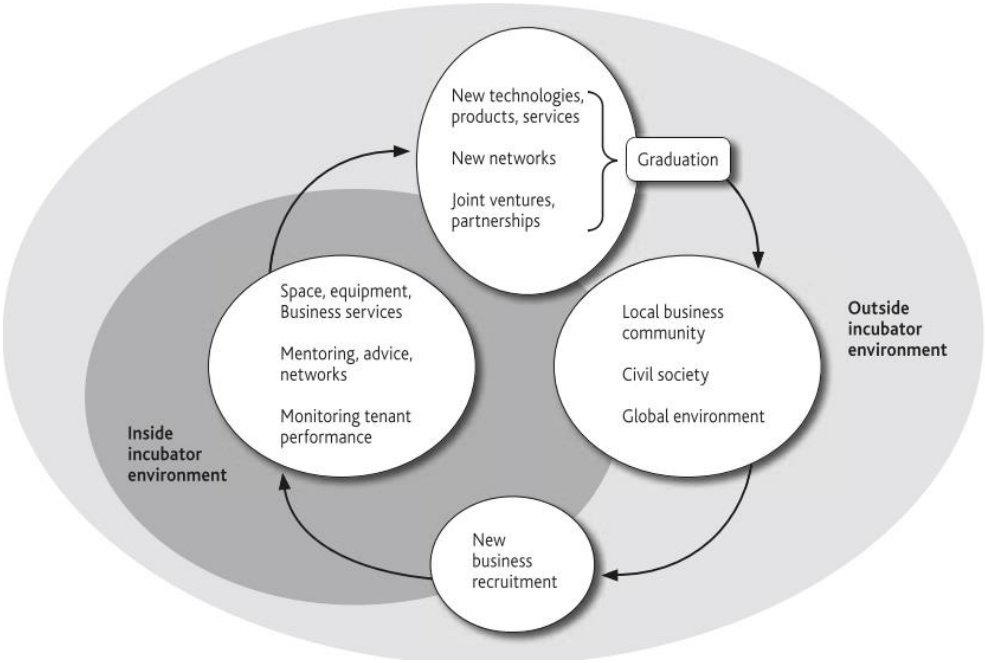
The process of incubation is determined, as stated by Andino and Fracasso (2005), by three phases:

- Implementation: when the companies are selected to become incubated,
- Growth and consolidation: when the new companies take advantage of the incubator's structure to develop the necessary knowledge which will eventually result in a new product or service, and
- Graduation: normally for a company to reach this point it is necessary three years, after that the company is ready to leave the incubator and become an independent player in the market.

Stropoli *et al.* (2013) citing Hannon (2003) propose a different process composed of five phases: idea formulation, determining the opportunity, planning and preparation, entrance and launch and post-entrance development.

Burnett and McMurray (2007) characterize the incubators as catalysts for the growth of a company, connecting the "protected" inner environment (the incubator itself) and the "exposed" outer environment (the market) according to figure 1:

Figure 1 – Basic concept of incubation



Source: Burnett and McMurray (2007)

This view is supported by Tisott *et al.* (2014) and the authors advance as to show some important benefits that the incubators bring. The first one is to the companies by allowing new important opportunities regarding innovation and helping slow down the death rate of new enterprises. Also, according to Tisott *et al.* (2014) the community in which the incubator is present benefits from its work. New companies, new job positions (both direct and indirect), and increases in tax collection are among the benefits.

Brazil nowadays has 369 incubators (ANPROTEC, 2017), which make it the fourth country worldwide to recognize and utilize the incubators as means for creating new companies. According to the *Associação Nacional de Entidades Promotoras de Empreendimentos de Tecnologias Avançadas* - ANPROTEC (2017) the incubators house around 2.310 companies and so far has a total of 2.815 graduated companies, representing almost 53.208 jobs created.

A growing number of policies and innovation and development programs can be observed in Brazil, those programs were spawned indirectly through the use of tech incubators. According to Vedovello and Figueiredo (2005), these policies have the objective of improving the companies' competitive environment and the means utilized to implement those policies have been the construction and reinforcement of the tech infrastructure, particularly with the implementation and development of incubators in the country.

By analyzing the process of innovation and generation of new ventures, the tech incubators emerge as an important mean for the development of technological knowledge allowing an innovative idea to actually become a real innovation. Coase's (1937) coordinative function, in other words, the capacity to organize and coordinate managerial activities normally attributed to the entrepreneur is also established by the incubator.

However one of the major causes of mortality for ex-incubated companies when they are graduated is actually the managerial knowledge established by the incubator and that at the moment of graduation becomes restricted by the managers' capability.

In this sense, while the incubator makes possible the existence of the new company it is pivotal that the managers absorb the incubator's coordinative capacity e further develop them by themselves.

The coordinative independence built gradually within the incubator can determine the success or failure of the company when they become separated from the incubator in the competitive market. Stropoli *et al.* (2013) show that incubators do develop some of the coordinative function, albeit passively, by providing the infrastructure, services and networking. A similar result is given by Silva *et al.* (2013) in a study about the entrepreneurial profile in a tech incubator. The authors found that entrepreneurs thought the incubators were important both by allowing interaction with other companies and by diminishing costs for the new company.

3 METHOD

To Gil (2007, p.42), research has a pragmatic character, it is a "formal and systematic process of development of the scientific method. The fundamental objective of the research is to discover answers for a problem through the usage o scientific procedures".

This investigation took place in one of the biggest tech incubators (given the number of incubated companies) of the Federal University of Rio Grande do Sul called *Centro de Empreendimentos em Informática* (CEI).

The focus of our investigation resided in the evaluation of the entrepreneurial and coordinative capacities of the companies incubated at CEI with the objective of identifying potential points of improvement in the work of the incubator that would allow it to aid the development of the necessary coordinative capacities for the companies after graduation.

The total number of companies incubated at CEI was 12 however only 6 of them agreed to participate. To preserve their identities we will refer to the companies using a code (EI) and a randomly assigned number to differentiate each of them. Given the reduced number of interviewees we chose to use a qualitative approach reaching for the possibility of a more profound interpretation of the relations established between the variables studied allowing the capture of not only the apparent side of the phenomenon but also of its essence, aiming the explanation of its relations and the causes of its occurrences (TRIVIÑOS, 1987).

Data collection was performed in two steps:

1) We applied an in-depth interview with the manager of the incubator using a script created with the concepts we've obtained from the literature review, as discussed above, however allowing the interviewee to have full liberty to answer the questions. The objective was to acquire information regarding the context in which the companies are incubated as well as the coordinative functions that the incubator supplies.

2) We applied questionnaires with both closed and open questions with the managers and founding partners of the companies. The questionnaire that was used was adapted from Andino (2005), with the objective of acquiring detailed information about the general characteristics of the companies, the entrepreneurial and innovative characteristics of the managers, the types of products developed as well as the sources that originated the development of the new product, its usability and investment in R&D, the use of coordinative support supplied by the incubator and a self-evaluation of the coordinative capacity possessed by the managers.

Given the fact that the incubated companies were focused on the creation and viability of innovative products we've considered the concept and classification of innovation according to the Oslo manual (OECD, 1996). The concept of innovation according to the Oslo manual is also utilized by the CEI to select the companies applying for incubation.

4 RESULTS

This section aims to fulfill the objectives proposed by this paper and its development will be presented in sub items. So we will begin by first characterizing the companies studied then analyzing the entrepreneurial and coordinative characteristics of the managers of said companies and the influence of the incubator on these characteristics. Finally, we present the products description and the innovative processes developed by the companies. We must also make a clear separation of terms at this point. From heretofore the term entrepreneur must be always linked to the founders of the company and the term manager must be always linked to the person that was hired by the company using the aforementioned Federal funds.

4.1 CHARACTERIZATION OF THE COMPANIES INCUBATED AT CEI

Tech based companies are those who produce innovative products and services through a continued process of R&D related to areas like IT, electronics, microelectronics, new materials, communication, precision mechanics, fine chemical, biotechnology, instrumentation, pharmacy, among others (BARBOZA, 2000).

The companies incubated at the *Centro de Empreendimentos de Informática* (CEI) are purely tech-based, considered micro-sized and with emphasis on the development of software and hardware. The companies that were studied in this paper pertain to the following areas: Artificial Intelligence, Precision Mechanics, Communication and Security, Telemedicine, Robotics e Microelectronics.

The following table presents some relevant characteristics of the incubated companies.

Table 1 - General characteristics of the companies incubated at CEI

	EI1	EI2	EI3	EI4	EI5	EI6
Number of founding partners	3	4	2	4	2	4
Educational level of the founding partners	3 Masters	1 Master 3 Masters students	1 Bachelor 1 Specialist	2 Doctors 1 Doctorate student 1 Master student	2 Masters	1 Bachelor 1 Specialist 1 Master 1 Doctor
Number of employees	2	7	3	2	3	4
Educational level of the employees	-	-	-	-	-	-
Incomplete undergraduate	2	4	2			
Bachelor		3	1	2	2	2
Masters					1	2
Doctorate						
Time incubated	8 months	4 months	2 years and a half	6 months	2 months	8 months

Source: Research data

For all the companies studied the founding partners represented the major part of the intellectual capital of the company, being up to them mostly the whole process of originating the innovative idea that gave birth to the enterprise. The educational level of such individuals is mostly in exact sciences or engineering in which 21% of them are bachelors or specialists, 21% are doctors or doctoral students and 58% are masters or master's students.

One common aspect considered very relevant for this study is that all companies have a manager especially hired to operationalize the venture. The reason for this phenomenon is due to the fact that they've all been received the Grant from the PRIME project – *Primeira Empresa Inovadora*, or First Innovative Enterprise in a free translation – a program backed by the Brazilian Federal Government through FINEP (*Fincanciadora de Estudos e Projetos*) which consists in giving away a sum of capital for companies with elevated innovative content and who have no more than 24 months old. The funds given to the selected companies do not have to be refunded, in other words, it is not a loan but an investment in new and innovative companies in order to ensure their growth and prosperity in hopes of one day they'll become highly profitable Initial Public Offering (IPOs) companies and important players. It is one goal of the PRIME program to have the companies open their capital in the stock market.

4.2 MANAGER´S ENTREPRENEURIAL AND COORDINATIVE CHARACTERISTICS

Entrepreneurial and Innovative Characteristics:

Based on the literature review we selected some characteristics that fulfill the role of the entrepreneur in the incubated companies such as: leadership, propensity to risk-taking, independence, achievement, results, ability to face new situations, craftiness, learning capacity, educational level, technical level, problem-solving skills, result-focused management.

Table 2 presents the answers given by the managers or founding partners of the incubated companies. The answers were rated from 1 to 5 where 1 represents the smallest incidence and 5 the most incidence of the characteristic.

Table 2 - Manager's entrepreneurial and innovative characteristics

Entrepreneurial and Innovative Characteristics	EI1	EI2	EI3	EI4	EI5	EI6
Leadership	4	5	4	5	4	5
Propensity to risk taking	5	5	3	3	4	3
Independence	4	4	4	5	5	5
Achievement	4	5	4	5	5	5
Results	4	4	4	5	4	5
Ability to face new situations	4	5	3	5	4	5
Craftiness	4	4	4	4	3	4
Learning capacity	4	5	4	5	5	5
Educational level	4	4	5	5	5	5
Technical level	1	1	2	5	3	5
Problem solving	5	5	2	5	4	5
Result focused management	4	5	4	5	5	4

Source: Research data

Given the results of the interviewees, the entrepreneurial and innovative characteristics that were most present were: leadership, independence, achievement, learning capacity, problem solving and result-focused management.

In the majority of companies the managers said that they possess a certain amount of autonomy for decision making regarding the venture and solving recurrent problems, however, they participate in regular meetings where they are asked to present their activities and discuss with the founding partners the strategic plans of the company.

It was also considered important by the interviewees the educational level of the managers in areas like management, strategy and finance, which would complement the technical skills of the majority of the founding partners of the company. Besides that, the learning capacity and the determination of goals are also attributed to the diverse educational level of the managers as catalysts of its personal characteristics.

One aspect discovered in the research is that one characteristic that is most cited in the literature as essential to the entrepreneur – the propensity to take risks – was not contemplated as one of the main characteristics among the interviewees. This result corroborates the GEM (2016) data showing that less than 50% of entrepreneurs claim to be undeterred by failure.

4.3 COORDINATIVE CHARACTERISTICS

In the aspect of coordination, this research explored the management knowledge of the managers. The interviewee also answered questions related to the utilization of the resources provided by the incubator. The intent of these questions was to identify coordinative tasks that the company would "delegate" to the incubator therefore not internalizing it.

We've selected nine resources offered by the incubator and asked the interviewees to evaluate their capacity regarding these resources. The interviewees attributed scores from 1 to 4 given the following equivalence: 1 – Do not possess capacity; 2 – Possess low capacity; 3 – Possess average capacity and; 4 – Possess high capacity. Table 3 presents the responses given by the managers of the incubated companies:

Table 3 - Capacity regarding management knowledge

Management knowledge	EI1	EI2	EI3	EI4	EI5	EI6
Marketing and sales	3	3	4	3	3	3
Finance and costs	4	4	3	3	4	4
HR management	4	4	3	3	4	3
Strategic planning	4	4	4	3	4	4
IT management	3	3	3	3	4	4
Service management	3	3	2	3	4	4
Quality management	3	3	3	3	4	3
Legal aspects	2	2	1	3	2	4
Personal characteristic	4	4	3	3	3	4

Source: Research data

According to table 3, it is possible to observe that the capacity of the managers of the companies incubates at CEI is directly related to the most salient characteristics of the coordinative function where the highest scores were in strategic planning and finance and cost, aspects considers the most important for a growing company. An effective cost control and a good strategic planning help the company to search for funds as wells as accredit them to participate in programs such as PRIME.

Marketing and sales and service management were rated in the average level of capacity which can be considered a red flag for these companies given the fact that once they've introduced a new product in the market there is a necessity of advertisement and commercialization plans for the product or service supplied by the company.

4.4 THE ROLE OF THE INCUBATOR IN THE COMPLEMENTATION OF THE COORDINATIVE CAPACITIES

The support given by the incubator to the companies that constitute strong conditions for the existence of the coordinative characteristics of the managers divide into three groups:

- Administrative Support (legal, accounting advisory, financial advisory, marketing assistance and management and market guidance);
- Financial Support: (fund-raising, fund application, venture capital funding, subsidized interests rates, shared costs);
- Structural Support: (individual office space, appropriate space, meeting rooms, training services, communication services, cleaning and security services).

In this sense, as far as administrative support goes, the most utilized service is marketing and market guidance. The incubator helps the incubated companies to subsidize the costs of exposition of the products in Expos and/or meetings. This fact was mentioned by most interviewees as one of the high points of the bond between the incubator and the incubated companies.

Regarding the advisory services, we saw that most companies do not utilize the services due to the fact that they must utilize part of the resources granted by the PRIME program to hire an advisory service (be that legal, market, management, among others). One issue raised in the interviews is regarding the time available by the advisory professionals supplied by the incubator. The interviewees rated the time insufficient for the current needs of the company.

The financial support utilized by the companies is mainly restricted to the subsidy given by the incubator in order for the companies to participate in Expos and the value charged by the office space, which is merely symbolic, together with the furniture that is in those spaces, which constitutes a great help to the newborn companies that need to apply the largest amount possible of resources in the conception, assembly and commercialization of their new products.

The structural support is the most used by the incubated companies. Each company selected to be part of CEI buys a package that contains the rent, furniture, internet and phone services, security and meeting rooms. The incubator also offers training and courses aiming the development of the management capacity of the founding partners, managers and their employees.

By analyzing the coordinative factors within the companies we can see that they barely use the services offered by the incubator. Members of the incubator's management team state that not all companies participate in the training offered and that few of them actually find that the management aspect of the company is something important. As was exposed in the literature review, the excess of technical knowledge can be harmful to the organization.

4.5 INNOVATION

The entrepreneur-coordinator (role of the founding partners) is responsible for creating an organization that will sustain the firm, however, he/she will possess the innovation plan and knowledge but will abdicate the coordinative function, performed by the incubator and the hired manager, only overseeing the development of the innovation.

Besides, they take smaller risks than the non-incubated tech-based companies given the fact that the resources invested in the incubated companies come from subsidized or research funds.

In relation to the profile of the companies analyzed in this paper and following Lall's (1992) classification, we can evaluate them as being of high technological intensity. As for the products and

types of innovation generated, the results show that all incubated companies work with the production of specific goods. Following Andino´s (2005) classification, the companies consider that more than 80% of the products are innovative.

In relation to R&D investment, we investigated the incubated companies´ spendings in actual R&D, acquiring of technology and equipment and with technical training.

Although it is quite complex for these companies to measure the exact proportion of time and resources applied in each one of the research items due to the fact that they do not have formally organized R&D departments, we observed the role of developer in the incubated companies falls almost exclusively with the founding partners who alternate research with production and other functions.

The companies declared that they spend about 2/3 of their time and financial resources with R&D while investment in acquiring technology, equipment and technical training responds to 1/3. However, these numbers are not uniform among the companies due to the different degrees of development of the products.

As for the development cycle of the products, the companies' report to be an everlasting cycle and due to the specificity of the products (some products are unique for each buyer) there is not a standardized pattern in R&D techniques. Among the products developed by the interviewed companies, 83% are still in the development stage while 17% have been or will be commercialized. The normal lead time between the conception and commercialization of a product is 17 months.

Regarding the source of innovation, we corroborated the fact that in the first place the innovations emerge through the role of the partner or founder followed by cooperation with universities and/or clients and lastly by collaboration with research institutes and staff brainstorming. The innovations emerged due to the acquisition of technology incorporated into the products, commercial and marketing departments, and R&D management. Participation in Expos and events has little significance.

5 CONCLUDING REMARKS

There is one factor that needs to be considered in order to start our concluding remarks. The organizational structure of the incubated company is only possible through public funding. The participation of the owners is given essentially in the conception of the innovative idea and the articulation of the development of such idea in order to transform it into a de facto innovative product.

The initial issue regarding this paper resides in how far do the incubator performs the coordinative function as described by Coase (1937), as a complement to the entrepreneurial and organizational characteristics of the incubated companies' founding partners and how the innovations are developed within the incubators.

One aspect found in this research to be quite important is the influence of institutional funding programs, especially the PRIME program, in the development of entrepreneurial and coordinative capacities existing in the incubated companies and, in the same way, in the relation between the incubator and the incubated companies. This fund is of special importance to the companies' as it has permitted them to have more leeway in conducting their growth given the financial easy of the funds provided.

What can be concluded from this aspect is that the companies incubated at CEI internalize many of the coordinative characteristics not by the work of the incubator. The PRIME program, in this case, is the main cause of the said phenomenon given the fact that the companies selected must hire a manager thus making the management services offered by the incubator seem to have little value.

Another analysis that can be made resides on the fact that it was quite clear the entrepreneurial and coordinative functions did not belong to the same person within the incubated companies. There is a clear distinction between the founding partners, owners of the venture, who assume the role of thinking the venture, in other words, conceptualize the idea of the products and the coordinative function which is owned by the manager when hired and then becomes responsible for the operation and the commercialization of the said idea, unlike what is described by Schumpeter (1982) who says that by establishing innovations as something permanent in the company, the figure of the entrepreneur grows to be the entrepreneur-coordinator, leaving the focus on the function itself rather than on the person.

In response to the question proposed by this paper it is concluded that the influence of the incubator over the incubated companies do not reside in the factor initially considered and advertised by the incubator in question – the coordinative characteristics – but it does reside in the institutional environment considered to be fundamentally important by the incubated companies due to the proximity to the University creating the possibility for cooperation and business opportunities.

There is also the perception that by being linked with the University, the company will have a facilitated access to the market. Besides these aspects, we saw the importance of the University where the incubator is inserted. It represents a source of credibility to the market in relation to the products developed and commercialized by the incubated companies. Therefore, we conclude that the "University-factor" is the main reason leading new companies to apply for a position in an incubator, as also was pointed by Luz *et al.* (2012) and Tisott *et al.* (2014).

In relation to the innovations produced by the incubated companies, we saw that the lead time for development of the products of companies incubated at CEI has is on average 17 months from conception to commercialization. Regarding this issue, we refer to the work of Andino (2005) where the study of incubated companies showed that the same lead time had an average of 10 months. We believe that the reason for this difference of time is in the interference of the current institutional environment with the existence of a series of funding programs that actually give resources for companies in this situation giving the owners and managers more time to better conceptualize the product before launching it to the market.

Finally we can cite three limiting factors regarding this study: i) the size of the sample, being that future research should interview more incubated companies and more incubators; ii) the perception of the necessity of confronting data regarding incubated companies and graduated companies with the intention of identifying gaps of coordinative knowledge between entrepreneurs and their perception regarding the importance of the incubators as a key player in complementing this knowledge; and iii) the fact that the interviews were conducted with direct questions to the managers and entrepreneurs. This might result in biased answers, especially regarding their self-assessment as per the characteristics. The results have to be analyzed carefully with special attention not to generalize them.

It must be advised not to generalize this study given the limitations cited above and the fact that in order to do so this research should be applied to different incubators thus eliminating the risk of analyzing characteristics present exclusively in the incubator studied in this paper.

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