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KNOWLEDGE MANAGEMENT AT BRAZILIAN INCUBATORS

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ABSTRACT

This article poses to analyse knowledge management at Brazilian incubators, members of the National Association of Entities Promoting Innovative Enterprises (ANPROTEC). A descriptive, survey like research with a quantitative approach was undertaken. The research population consists of 359 business incubators in Brazil which are part of ANPROTEC, according to a list provided by the mentioned association. A questionnaire of closed questions was sent by e-mail to the coordinators (managers) of these incubators. From the total amount queried, 163 coordinators returned the survey instrument with answers, thus representing 45.40% of the population, which actually constitutes the sample by accessibility. The results of the research indicate that there is a concern in generating, disseminating and, primarily, in sharing knowledge, at the studied incubators. Concepts of knowledge management and the ways these are shared - duly discussed in the theoretical portion of the study - were identified upon conduction of the survey, particularly in as much as the seven dimensions presented by Terra (2001) - which ought to be taken into consideration during the implementation of knowledge management at an organization - is concerned.

Key-words: Knowledge management. Brazilian incubators. ANPROTEC.

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GESTÃO DO CONHECIMENTO EM INCUBADORAS BRASILEIRAS

RESUMO

Neste artigo objetiva-se analisar a gestão do conhecimento em incubadoras brasileiras associadas à Associação Nacional de Entidades Promotoras de Empreendimentos Inovadores (ANPROTEC). Realizou-se uma pesquisa descritiva, do tipo *survey*, com abordagem quantitativa. A população da pesquisa compõe-se de 359 incubadoras de empresas brasileiras associadas à ANPROTEC, conforme listagem disponibilizada pela referida associação. Um questionário, com perguntas fechadas, foi enviado por e-mail, aos coordenadores (gestores) dessas incubadoras. Desse montante, 163 coordenadores retornaram o instrumento de pesquisa respondido, representando 45,40% da população, o que constitui a amostra por acessibilidade. Os resultados da pesquisa indicaram que há uma preocupação em gerar, difundir e, sobretudo, compartilhar conhecimentos nas incubadoras estudadas. Os conceitos de gestão do conhecimento e as formas de seu compartilhamento, abordados na fundamentação teórica do trabalho, foram identificados na pesquisa realizada, sobretudo quando relacionados às sete dimensões, apontadas por Terra (2001), a serem consideradas na implementação da gestão do conhecimento em uma organização.

Palavras-chave: Gestão do conhecimento. Incubadoras brasileiras. ANPROTEC.

1 INTRODUÇÃO

Small and very small businesses have come to light in the organizational context given the fact that they contribute with the country´s economic growth and with the generation of new jobs. As to the relevance of this segment, Fonseca and Kruglianskas (2000) state that smaller companies, towards the end of the 20th Century, evolved to represent the vast majority of business units at every country in the world, whether industrialized, undergoing development or underdeveloped. They expanded to the extent of representing approximately 50% of the total value of production and to encompassing more than half of the total number of job positions.

However, these companies do face some difficulties in terms of conducting the enterprise, especially as to: problems concerning obtaining financing support, the non existence of long term planning, the lack of product development assistance and poor or non existing managerial education of the owners themselves. To try and minimize these difficulties, new organizations appeared with views to offering a set of mechanisms that facilitate the development and insertion of these companies on the market, such as, company incubators.

Amongst the processes that comprise knowledge management, one envisions ways to foster the development of incubating companies. However, empirical research is required so as to verify the characteristic of knowledge management at company incubators, as of the very moment knowledge itself is generated.

Literature concerning knowledge management at company incubators is still incipient. To this effect, the article poses to investigate knowledge management at Brazilian incubating companies which are members of the National Association of Entities Promoting Innovative Enterprises (ANPROTEC). A similar research was conducted in 2005 but with a less expressive number of incubators taking part in the survey. For starters, a brief theoretical incursion concerning knowledge management and incubators of companies is undertaken. Subsequently, the research method is described. Then, this study proceeds with the description and analysis of data collected. Finally, the closing considerations and bibliographical references employed, are presented.

2 REVISION OF LITERATURE

2.1 COMPANY INCUBATORS

Given increasing competitiveness at corporations, a couple of entrepreneurial segments do present signs of weakness. This holds true for small and micro companies. Large and medium sized organizations, on the other hand, given their support structure and bargaining power, with greater ease face the challenges posed by this new environment.

Amongst the support mechanisms, one ought to mention the role played by incubators given that, in addition to promoting the development of small sized businesses, these seek to educate entrepreneurs into managing their own enterprise. It is our understanding that the company set up at an incubator tends to present greater probabilities of survival once it enters the market, as compared to those that did not share the same opportunity.

Fonseca and Kruglianskas (2000) emphasize that originally the idea was linked to the objective of stimulating the rise of businesses resulting from technological projects whether developed within faculty research centres or not. The concept ideated was that of technological incubators, focused on supporting the founding and strengthening of so-called, technology-based companies.

As of the 90´s, initiatives diversified. Thus, the notion of mixed incubators began to expand with units set up by local governments, so as to stimulate economic growth and generate jobs. Irrespective of one kind or another, according to Dornelas (2002), the company incubator is a mechanism of acceleration of enterprise development (incubated or associated) by means of a regime of businesses, services and shared technical support, in addition to practical and professional guidance.

According to Baêta (1999), incubators mean very specific conditions and do comprise the mere set up of companies, however there is also monitoring so as to stimulate the innovation process. Incubators spruce opportunities for the technological development of the productive process and offer new entrepreneurs, in addition to physical space and office services, administrative, counselling, management and marketing consulting support.

Under a more ample perspective, the mission is to supply shared services and resources in the form of competent professionals, adequate premises and administrative and operational infrastructure, to service incubated companies.

Organisms such as these create a favourable environment for the consolidation of new enterprises, via initiatives such as: the supply of technical and managerial support to incubated companies, the promotion and acceleration of corporate consolidation, the stimulation of an entrepreneurial spirit, the development of associative and shared actions, the reduction of costs for the group of companies and their partners, the seeking of new support and partnerships for those sheltered, the promotion of the companies and respective products and the participation in other networks (Amato Neto, 2000).

Incubators, according to Hackett and Dilts (2004), are shared premises that offer new companies technological and organizational resources, systems which create added value and monitoring and corporate assistance, with views to facilitating the success of such enterprises, reducing or eliminating the cost of potential failures that may arise at the set up of the business and which fall under control during the incubation period. New enterprises receive governmental support with the purpose of overcoming certain initial impairments thus having a perspective of success.

However, according to Ferreira et al. (2008), many incubators at present still lack sound mechanisms supporting corporate management and often are limited to the supply of a physical structure and of support services, therefore being unable to assist the new company´s business process in a truly beneficial manner.

From the National Association of Entities Promoting Innovative Enterprises´s (ANPROTEC) (2010) standpoint, incubators offer technical, managerial, administrative and infrastructural mechanisms to support the small entrepreneur. They supply appropriate space and effective conditions to shelter innovative ideas and to transform these into successful enterprises.

Furthermore, implementation has taken place in developed and under development countries and nowadays they constitute an adequate location for the sheltering and support of small and very small companies. By supplying

adequate and quality premises with shared support services and counselling on how the market functions, technologies and their aspects and others concerning financial support, incubators seek to explore and maximize existing resources and foment synergies between pairs. They further seek to create a favourable environment for the rise and strengthening of new enterprises, i.e., pose to transform incubates into graduated and successful companies (Vedovello, Figueiredo, 2005).

In as much as incubator typology is concerned, the most common are: incubators for technology based companies, incubators of traditional sector companies and mixed incubators. Incubators of technology based companies comprise enterprises related to the development of technology such as those engaged in informatics, biotechnology, fine chemicals, precision mechanics and new materials. Incubators of traditional sectors shelter companies focused on economical development such as mechanics, electronics, clothing, foods and agro- industry plus often depend on the support of institutions and entities such as municipalities, state governments or commercial, industrial and agricultural associations. Mixed incubators, as the name suggests, at the same time both shelter technology-based companies and those of traditional sectors.

Incubators don´t operate alone but rather develop partnerships with several other organizations such as government, municipalities, profit or non-profit entities and financial agents, amongst others. Given this support, they come to their prime objective: to promote the development and growth of small and very small companies. For Gonçalves and Freire (2007), incubators currently count on the support of institutions that are concerned with the fostering of entrepreneurship. This initiative ensures they are ground on firm parameters to evaluate their own performance as entities supporting companies undergoing incubation.

Brazil has come to be known for the regular expansion of the number of incubators. The Panorama Company and Technology Site, an annual research performed by ANPROTEC in partnership with SEBRAE, seeks to picture and document the overall status of the Brazilian incubator movement. Figure 1 presents the evolution of the Brazilian incubator movement.

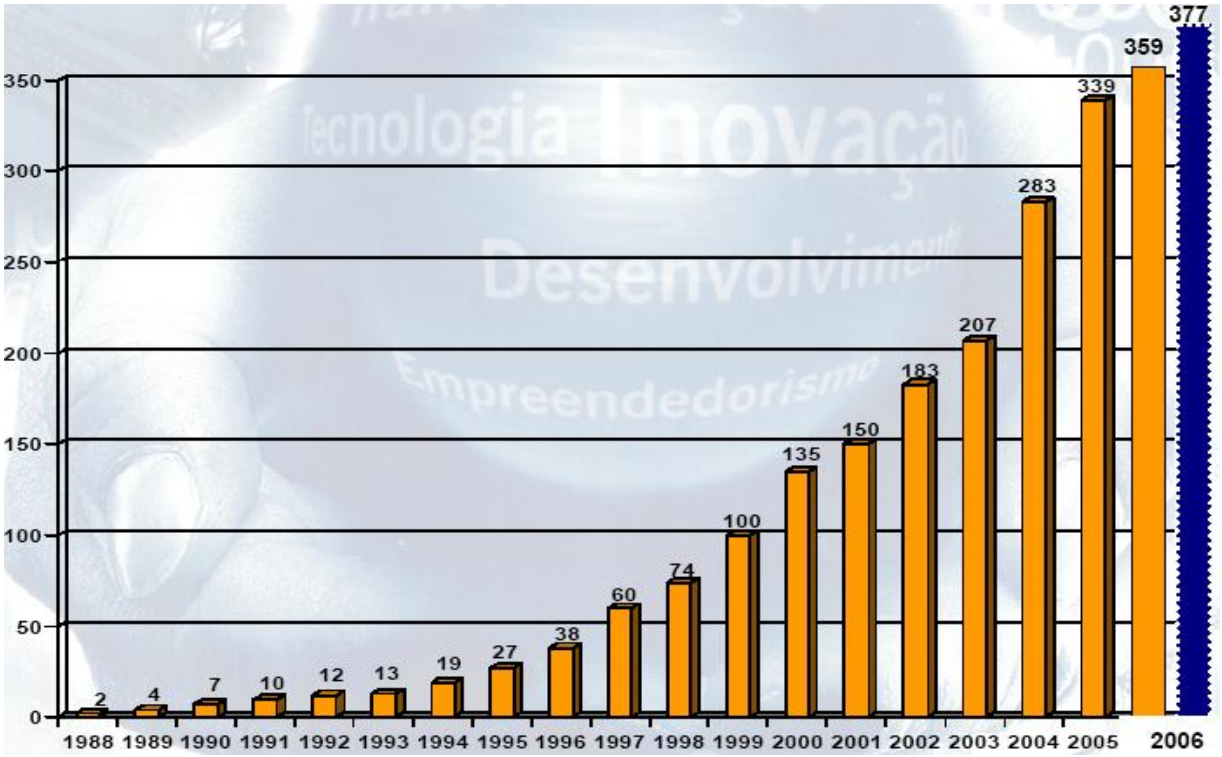

Figure1: Evolution of the Brazilian incubator movement
Source: ANPROTEC (2010).

Growth in terms of incubators in operation, over the years, is quite expressive. During the last 10 years there was a rampant increase of approximately 787% in the number of incubators. Brazilian incubators, as years go by, expand not only in numbers but also in terms of the level of complexity. In addition to new structures, new kinds of incubators that were not technology-based, arose.

Under this perspective, knowledge management has been discussed in the environment where companies are incubated. One must analyse not only the sharing of knowledge amongst incubator managers and employees but, primarily, the exchange of knowledge between entrepreneurs of similar or different fields who often face the same difficulty during the incubation period.

Given this an environment where knowledge is generated, incubator managers ought to channel this knowhow amongst the entrepreneurs so that it might be promoted and developed in the form of new business units. Therefore, in light of the exposed, choice fell upon analysing the knowledge management process at the Brazilian incubators, members of ANPROTEC.

2.2 KNOWLEDGE MANAGEMENT

The understanding of the knowledge generation process first calls for the differentiation of data, information and knowledge. In as much as data is concerned, Davenport and Prusak (1998, p.2) define "a set of distinctive and objective facts, relative to events. Data at modern organizations usually is stored at some type of technological system". Given that data is a set of diverse and often isolated facts, it does not enable greater in-depth analysis of that which is observed or studied. When related to the decision process, data does not supply adequate grounding for decisions to take place.

When data receives some kind of treatment, from which certain inferences can be made, one then has information. Nonaka and Takeuchi (1997) emphasize that information provides a new point of view for the interpretation of events, bringing to light previously non visible meanings or casting a light on unexpected connections.

Knowledge, in turn, according to Pereira and Fonseca (1997, p.225), "is an organized form of information consolidated by the human mind by means of cognitive intelligence mechanisms of memory and attention". Notwithstanding the conceptual distinction between knowledge, information and data, in practice, these elements are interconnected by the generation of knowledge. Furthermore, as to the concept of knowledge, Davenport and Prusak (1998) comment that it concentrates a fluid mixture of condensed experience, values, contextual information and experimented insight, that offers a structure for the evaluation and incorporation of new experiences and information. It has an origin and is applied in the mind of those who are knowledgeable. At organizations, it is usually embedded not only in documents and repositories but also in routines, processes, practices and organizational norms.

Specifically in relation to the concept of knowledge management, Angeloni (2002) states that a set of processes governs the set up, promotion and use of knowledge within organizations. Organizing of knowledge is characterized as that which accumulates a repertoire of individual and group shared knowledge, is treated as a valuable asset and is capable of understanding and superseding surrounding contingencies.

Spender (2001) points out that the differences in establishing the concept of knowledge management derives from the comprehension of authors concerning what knowledge is. Some treat knowledge as an object. Under this perspective, the concept focuses more on the activity of promoting and stating knowledge that lies within individual and collective organizational practices. Others treat knowledge as a process. Here, the concept involves the individual and social processes of creativity, innovation, motivation and communication.

Knowledge management, according to Sveiby (1998), proposes to reduce costs as of the use of existing knowledge and increased income, as of the creation of new knowledge. Cost reduction is associated with the maintenance of the organizational memory by means of the mapping, systemizing and adequate dissemination of knowledge. Increased income refers to the set up of a work environment that builds knowledge.

Knowledge management makes use of both tacit and explicit knowledge. According to Nonaka and Takeuchi (1997, p.7), tacit knowledge "is rooted in an individual´s actions and experiences, as well as in his emotions, values or ideals. Conclusions, insights and subjective suggestions are included in this category of knowledge". Explicit knowledge on the other hand is that which can be verbalized or written, being easily transmitted to individuals.

Therefore, knowledge management comprises the generation, storage and dissemination or sharing of several types of knowledge in the organization. According to Grotto (2002), one of the greatest challenges of knowledge management lies in promoting the sharing of knowledge that is not found in manuals, in reports and research. Given that knowledge is not easily captured, formalized and communicated, to expedite sharing one might need to change and mobilize the entire organization.

To understand how knowledge is shared at an organization in such a manner that the same is not concentrated within a small group of members constitutes a major challenge for managers. Efficient knowledge management at organizations will first consider the individual management of the elements that comprise knowledge management and subsequently, of the synergy between them.

Davenport and Prusak (1998) state that the only competitive advantage that a company holds is what collectively, it is knowledgeable in, the efficiency with which it makes use of this knowhow and the promptness with which it acquires and uses further, new knowledge. Together with these issues, one must ideate effective manners to share individual knowledge at the organization.

Knowledge transfer involves the transmission and diffusion of knowledge within an organization or between different organizations. Sharing might occur both between individuals that integrate the organization and amongst these and external individuals that temporarily participate in the process (Lahti, 2000 apud Mussi, 2000).

Sveiby (1998) affirms that knowledge transfer may occur between people primarily, in two manners: via information or tradition. By means of information, knowledge is transferred in an indirect manner, that is, mostly by means of lectures and audiovisual presentations. On the other hand, tradition transfers knowledge in a direct manner, from person to person.

For Nonaka and Takeuchi (1997), knowledge is created as of a combination of tacit and explicit knowledge and there are modes of knowledge conversation: socializing (from tacit to tacit); externalization (from tacit to explicit); combination (from explicit to explicit); and internalization (from explicit to implicit). This line of thought is explained by Grotto (2002, p.108) and, by means of the knowledge conversation modes, the ways tacit and explicit knowledge is shared are identified. During socialization, an exchange of experiences process takes place given that individuals share their tacit knowledge directly with others (via language, observation, imitation and practice). At externalization, the individual shares his tacit knowledge with various others and in a non direct manner. Under the combination modality, an already explicit knowledge is also shared in an explicit manner. When internalization takes place, explicit knowledge is shared in a direct manner and the receptor transforms it into implicit knowledge.

Pereira (2000) presents a knowledge creation model, proposed by Nonaka and Takeuchi, composed of five distinct phases, that involves the sharing of knowledge. The first phase promotes the sharing of tacit knowledge amongst members of a work group that has common challenging targets. During the knowledge explanation process, the second phase takes place and refers to

knowledge creation whereby explicit concept consolidation, which derives from tacit shared and verbalized mental models, takes place. The third phase arises in view of concepts that are generated according to the organizational intent. The fourth makes use of the newly ideated explicit knowledge and that which already existed. In the fifth phase, a new cycle of knowledge formation, which takes place within the organization and amongst organizations, begins.

Such a model may serve as a guide to organizations that wish to promote or even manage the knowledge creation process. However, when one seeks at organizations existing models so that these may serve as a base, some aspects might arise as exceptions, especially in terms of differences, such as: people, places, procedures, environments, amongst others.

Davenport and Prusak (1998) understand that some knowledge sharing practices can be adopted and at the same time, promoted at organizations. Such practices seek a higher level of commitment in the sharing of knowledge. Examples include: water fountains and conversation; trade fairs and open knowledge forums; videoconferences; lectures, *workshops* and events; physical space without dividing wall panels; and other methods such as the intranet.

Knowledge management strategies must be developed in alignment with business strategies (Zack, 2002). One must also know how much knowledge is worth and, most importantly, who owns it, so as to ensure efficient management. To recruit, select and retain the best employees has become one of the main functions of the human resources area at organizations (Strassmann, 1998).

Gozales, Martins and Toledo (2009) believe that a core issue for the adoption of knowledge management initiatives is preparing the organization to use a structure that enables the constant retrieval of information, it´s interpretation and subsequent institutionalizing in the form of knowledge, creating an organizational memory. Proposing an organization for knowledge management above all means adapting the company´s culture.

Therefore, knowledge sharing practices must derive from the aligning between business and knowledge management strategies. Based on a study concerning knowledge management practices at 373 companies, Terra (2001) proposed seven dimensions that ought to be taken into consideration when implementing knowledge management at an organization:

a) upper management vision and strategy for the definition of essential and strategic knowledge, definition of challenging and motivating targets and clear statement of the corporate strategy;

b) development of an organizational culture focused on innovation, experimenting, continuous learning, keyed on action and tolerance of mistakes;

c) new organizational structures that facilitate innovation, learning and the generation of new knowledge, based on the work of multidisciplinary teams and with a high level of autonomy;

d) human resources practices and policies capable of attracting and maintaining people with skills that add value to knowledge stocks and flows and of stimulating behaviours that are aligned with strategies, essential competencies and collective learning;

e) TIC (information and knowledge technology), with views to facilitating communication and connectivity of the various hierarchical levels, storage of explicit knowledge that might be readily accessed, serving as a data bank with the description of the competencies of people within the organization and beyond its boundaries;

f) practices involving the measuring of results centred on the three dimensions of intellectual capital – employee competencies, internal structure and external structure (Sveiby, 1998); and

g) management practices directed towards learning with the environment, the network of alliances and customer relationships.

Undoubtedly one of the most critical dimensions is that which mentions results measuring practices focusing the three dimensions of intellectual capital (letter f), however, despite recent publications concerning this matter, findings are not as yet conclusive. The processes perspective arises in literature as one of the alternatives for the management of knowledge. Stewart (2002) states that innovation must be generated via processes. He emphasizes that evaluations via processes acquire greater legitimacy because the same things are measured as of the same methods. Amongst the various types of organizations, incubators have already proven to give special attention to knowledge management in addition to reinforcing the perceived need for the sharing of knowledge. Henceforth, we shall proceed with descriptions concerning company incubators.

3 RESEARCH METHODOLOGY

Concern with the knowledge of reality is always on high in the life of mankind. Research presents itself as a form of investigation that poses to seek replies to society´s queries, by means of scientific procedures. It´s outlines pose a relevant role in scientific research in terms of articulating plans and structures for the obtaining of replies to problems under study.

The cornerstones of this investigation were set in view of the objectives, procedures and the approach to the issue at hand. As to the objectives, this research consists in a study of the descriptive kind. In terms of procedures, it refers to a research of the survey kind. As to the problem approach, the study resorted to the quantitative proposition.

The population of this research comprises the 359 incubators of Brazilian companies which are members of the National Association of Entities Promoting Innovative Enterprises (ANPROTEC), as per the list supplied by the mentioned institution.

For the purpose of collecting data in the field, a questionnaire was utilized as research instrument containing closed questions. Gil (1999) states that the questionnaire, as an instrument of data collection, is composed of a relatively high number of queries presented in writing to people with the purpose of getting to know their opinions, beliefs, feelings, interests, expectations and experienced situations.

The questionnaire was sent by electronic mail in the month of July 2009 to the coordinators (designation employed for managers) of the incubators. Their name and electronic address were obtained based on information supplied in the list offered by ANPROTEC. Of the 359 questionnaires sent, a return on the replied research instrument of 163 incubators was obtained, representing 45,40% of the population, thus constituting the sample per researched accessibility.

Analysis of data collected in the field occurred by means of a quantitative approach. To this effect, first the answers to the queries on the questionnaire were typed onto an electronic spreadsheet. Subsequently, descriptive statistics was utilized to organize, summarize and present the statistical data (Stevenson, 1981). Further to the description of relative frequencies of answers to the queries of the questionnaire, interpretation was attempted in light of theoretical foundations.

4 PRESENTATION AND DISCUSSION OF RESULTS

For the description and analysis of results with views to analyzing the knowledge management process at the incubators of Brazilian enterprises members of ANPROTEC, approaches of the theoretical reference and answers provided by incubator coordinators to the queries of the questionnaire, were taken into consideration. As to the first dimension (vision and upper management strategy), amongst seven dimensions indicated by Terra (2001), for the implementation of knowledge management at an organization, the understanding of incubator coordinators as to knowledge management, was sought. Table 1 presents characteristics concerning incubator coordinator comprehension of knowledge management.

Table 1: Incubator coordinator understanding of knowledge management

QUESTIONS	ANSWERS	PERCENTAGE
1) How would you classify your understanding of knowledge management?	none	0%
	scarce	14,11%
	good	63,19%
	very good	22,70%
TOTAL OF THE QUESTION		100%
2) How interested are you in learning or becoming acquainted with more about knowledge management?	great	93,25%
	average	6,75%
	poor	0%
	indifferent	0%
TOTAL OF THE QUESTION		100%

Source: Research data (2009).

The replies of the incubator coordinators indicate that they have a sound understanding of knowledge management. Amongst the research subjects, 63,19% claimed to have good and 22,70% a very sound comprehension. Given the subjectivity of the quantification, it must be emphasized that the parameter measuring the understanding of knowledge management for each reply category may have varied amongst respondents.

The second question referred to interviewee interest in learning or getting to know more about knowledge management. It became apparent that, despite having claimed to have a pretty sound understanding of knowledge management, almost all coordinators totalling 93,25% replies, are greatly interested in learning or becoming acquainted with more about the subject matter.

The comprehension that incubator coordinators already have, added to the interest in learning more about knowledge management, demonstrates their awareness concerning the role of incubators before those whom they shelter. It is likewise in alignment with the statement made by Zack (2002) as to the importance of the knowledge management strategy - one that ought to be developed in accordance with the business strategy - particularly given the peculiarities of this kind of institution, that is, the sheltering of enterprises.

Under this perspective and, as per Terra (2001), on account of the second dimension (development of an organizational culture), the question raised refers to if the incubator utilizes modes of interaction amongst its employees. Table 2 pictures the plotted replies to this query.

Table 2: Development of an organizational culture for the sharing of knowledge

QUESTIONS	ANSWERS	PERCENTAGE
3) Does the incubator employ modes of interaction between its collaborators?	none	0%
	scarce	22,09%
	good	66,87%
	extensive	11,04%
TOTAL OF THE QUESTION		**100%**

Source: Research data (2009).

The third question relates to the use of interaction modalities between incubator employees. The existence or not of modes of interaction will impact the level of knowledge sharing in the organization. Thus, when queried as to if the incubator resorts to modes of interaction between it´s employees, most (66,87%) coordinators indicate the positive and 11,04% the very positive alternative.

Replies indicate the development of an organizational culture at researched incubators focused on the sharing of knowledge. Davenport and Prusak (1998) list several manners for the sharing of knowledge that may be adopted and in parallel, promoted, at organizations. Thus, a list of possible practices was organized to offer alternatives to respondents so as to indicate which are being utilized at the incubator under their responsibility.

However, so as to concentrate efforts on the specific focus of the research, the level of importance of each modality was investigated as coordinators engaged in the knowledge sharing process. Therefore, in the fourth

question, the attempt was to identify the level of importance, to respondents, of the knowledge sharing modes, whereby 0 was the lowest and 4 the maximum score. The referred modalities, with their respective attributed average scores, are presented in Table 3.

Table 3: Level of importance of knowledge sharing modalities

MODES	SCORE AVERAGES
1. Meeting	3,1
2. Gatherings	3,1
3. Lectures	3,3
4. Intranet	2,9
5. Seminars	2,8
6. Discussions	3,1
7. Books	2,9
8. Magazines	2,7
9. Newspapers	2,9
10. Surveys	2,6

Source: Research data (2009).

Amongst the presented modes, those that demonstrate higher levels of importance, according to researched respondents, on average, include lectures, meetings, gatherings and discussions. The intranet, notwithstanding the fact that it is widely employed as a mode of communication between employees and managers, did not account for a significant position in the ranking, at most organizations.

However, one might observe that none of the knowledge sharing modalities obtained less than an average 2,6 score. It is emphasized that, although the other forms are not as intensely employed by incubators as those that lead the ranking, they are relevant according to the opinion of interviewees.

The very manner incubators are physically erected, with specific and previously defined modules, destined for each sheltered company, in itself enables the adoption of the most recommended knowledge sharing modalities. Under this perspective, Terra (2001) indicates as third dimension, new organizational structures to facilitate innovation, learning and the generation of new knowledge.

As to the fourth dimension (practices and human resources policies capable of attracting and retaining people) mentioned by Terra (2001) for the implementation of knowledge management at an organization, queries were

made concerning the frequency of use of meetings and participation in discussions of the incubator´s professional matters. Table 4 pictures the tabulated replies of the coordinators.

Table 4: Practices and human resources policies capable of attracting and retaining people

QUESTIONS	ANSWERS	PERCENTAGE
5) How frequently are meetings utilized at the incubator with views to the transferring new knowledge?	weekly	14,72%
	monthly	52,15%
	biannually or more	7,36%
	on an as needed basis	25,77%
TOTAL OF THE QUESTION		**100%**
6) Do you participate in some sort of discussion of the incubator´s professional matters?	doesn´t participate	7,35%
	scarcely	11,66%
	often	58,90%
	always	22,09%
TOTAL OF THE QUESTION		**100%**

Source: Research data (2009).

The fifth question investigated the frequency meetings are used at the incubator with the purpose of transferring new knowledge. Results demonstrate that meetings occur monthly to promote interaction between incubator employees at 52,15% of cases. However, 25,77% of research subjects informed that such meetings are only held when deemed necessary.

In the following question, the respondent´s participation in discussions concerning the incubators professional matters was surveyed. The option often accounts for 58,90% of replies. Only 11,66% of respondents indicated that they hardly ever participate in such discussions.

Discussions between employees and managers promoted within organizations, not only represent an important mode of dissemination but also of knowledge generation. Nonaka and Takeuchi (1997) state that knowledge is formed as of the combination of tacit and explicit knowledge. Sveiby (1998) affirms that the transfer of knowledge may occur via information (in a direct manner) and by means of tradition (in a direct manner, by practicing). Therefore, meetings and discussions of professional matters may be characterized as important practices and human resources policies capable of attracting and retaining people.

As to the fifth dimension (information and knowledge technology) indicated by Terra (2001), to implement knowledge management at an organization given the size of the sheltered companies, information technology was not the query's main objective. Attributing a 0 to 4 scale, the investigation sought to verify which were the most favourable locations for the discussion of professional matters, whereby 0 represented the lowest grade, and 4, the uppermost. Table 5 presents score averages attributed by interviewees for each alternative.

Table 5: Locations which best contribute with discussions

SITES	SCORE AVERAGES
1. At work	3,4
2. Over coffee, lunch, breaks	2,8
3. After work	1,5
4. At other gatherings such as soccer and parties	1,2

Source: Research data (2009).

One notices that the most appropriate site for discussions to take place, according to respondents, is the work environment itself. However, despite the fact that other places are not those which most contribute when considering incubators, quite often, it is there that ideas are exchanged and at the organization, developed.

It also seems that TIC (information and knowledge technology) mostly related to people as opposed to computerization itself. One also perceives how privileged the application of the knowledge generation model, proposed Nonaka and Takeuchi and explained by Pereira (2000) and Grotto (2002) herein, composed of five phases whereby the first promotes the sharing of tacit knowledge between members of a work team, is.

The sixth dimension (results measuring practices focused on the three dimensions of intellectual capital) nominated by Terra (2001) for the implementation of knowledge management at an organization was adapted given the fact it was not common practice at organizations. Results measurement was restricted to the opinion of incubator coordinators as to the efficiency of activities concerning the sharing of knowledge. Table 6 presents the perception of the coordinators of the researched incubators as to the efficiency and positive effect of these activities.

Table 6: Efficiency of knowledge sharing activities

QUESTIONS	ANSWERS	PERCENTAGE
8) In your opinion, how efficient are the meetings, gatherings, lectures and seminars held for employees that you attend at the incubator?	nil	3,06%
	poor	9,82%
	good	66,87%
	very good	20,25%
TOTAL OF THE QUESTION		**100%**
9) How positive is the effect of debates at the incubator, when promoted?	nil	1,84%
	poor	17,79%
	good	45,40%
	very good	34,97%
TOTAL OF THE QUESTION		**100%**

Source: Research data (2009).

The eighth question requested the opinion of incubator coordinators as to the efficiency of meetings, lectures and seminars offered to their employees. Efficiency was considered good for this kind of initiative per 66,87% of indications. This demonstrates the relevance of organizing such activities within the organizations, promoting new experiences and exchanging knowledge.

The ninth question investigated how positive was the effect of debates promoted within the incubator´s environment, when held. From the researched subjects, 45,40% replied that the positive effect is good and 34,97% indicated it is very good. When interaction occurs between people, somehow this will contribute with the organization since the exchange of information will stimulate individual knowledge.

According to Dornelas (2002) the offering and promotion of these activities at the incubators is already foreseen within the very definition of enterprise incubators. Further to providing facilities and shared services, they offer practical and professional guidance to those sheltered, via governmental institutions, universities, entrepreneurial associations and foundations so as to accelerate the development of the enterprises.

The seventh dimension (management practices directed towards learning with the environment) indicated by Terra (2001) for the implementation of knowledge management at an organization, was captured by the questionnaire focusing learning with the incubator´s environment and network of alliances. Table 7 displays frequencies relative to such practices, according to information supplied by the managers of the researched incubators.

Table 7: Management practices directed towards learning with th environment

QUESTIONS	ANSWERS	PERCENTAGE
10) Do you share your knowledge with other people at the incubator?	always	74,85%
	scarcely	17,18%
	only when questioned	6,13%
	no	1,84%
TOTAL OF THE QUESTION		**100%**
11) Does the incubator seek specialized people to deploy lectures and seminars?	yes, most often	50,31%
	yes, quite often	43,56%
	yes, on occasion	4,91%
	doesn´t deem necessary	1,22%
TOTAL OF THE QUESTION		**100%**
12) Do employees take part in regional and national gatherings in search of new knowledge?	yes, most often	32,52%
	yes, quite often	53,99%
	yes, on occasion	11,04%
	doesn´t deem necessary	2,45%
TOTAL OF THE QUESTION		**100%**
13) Should the above be affirmative, how does the incubator promote the sharing of their knowledge?	via documents	17,79%
	via meetings	51,53%
	promoting lectures	28,23%
	doesn´t share	2,45%
TOTAL OF THE QUESTION		**100%**

Source: Research data (2009).

The tenth question posed to verify if the incubator managers shared their knowledge with other people. Given that they manage the incubators they ought to be the first to promote this kind of knowledge transfer. One notices that 74,85% of respondents inform that they always share their knowledge with others at the incubator, supporting the dissemination of knowledge. Only 6,13% replied that this only occurs when prompted.

Next, question eleven verified if the incubator seeks experts to deliver lectures or seminars. The quest for new experiences with people coming in from other places is important for the generation and exchange of knowledge. One observes that 50,31% of respondents claimed to very often resort to this modality, 43,56% quite often and 4,91% hardly ever.

Question twelve checked whether employees participated in regional and national gatherings in search of new knowledge. Given that organizations are being driven to count on an increasing basis on specialized labour to sustain competitiveness, the participation of employees and managers at events that discuss matters of their interest or of that of the incubators, is vital. Amongst respondents, 32,52% informed that this does most frequently take place, 53,99% quite often and 11,04% scarcely.

The last query on the questionnaire relates to answers concerning the previous question. Here focus lay on verifying how the incubator promotes the sharing of knowledge acquired by those who take part in the referred gatherings. It becomes apparent that 51,53% replied that people who participate in regional or national events share knowledge via meetings and only 2,45% do not engage themselves in sharing activities.

Management practices centred on learning with the environment and with the network of alliances are present at incubators under the two investigated perspectives. Results suggest that the knowledge concept is in place as set forth by Davenport and Prusak (1998), in the form of management of the researched incubators. The other practice (customer relationship) was not captured by the questionnaire given that the incubated companies went through several stages before placing their goods on the market. Therefore, there are corporations at the incubator that are still undergoing the initial product development stages.

Given the exposed, one verifies that the knowledge sharing process at the incubators of companies researched occurs in a similar fashion to that proposed by the seven dimensions indicated by Terra (2001), notwithstanding the fact that in this study´s objective such dimensions were not set as a reference. Keeping in mind the purpose proposed by incubators, these do look upon knowledge management as a means of implementing both knowledge generation and dissemination. Thus, they may better prepare their employees and develop the sheltered companies, in addition to sprucing up the nature of the entrepreneurs that chose to install themselves therein.

5 FINAL CONSIDERATIONS

The article proposed to investigate knowledge management at Brazilian incubators, members of the National Association of Entities Promoting Innovative Enterprises (ANPROTEC). To this effect, a descriptive research of the survey type was conducted by means of a questionnaire sent via electronic mail to the coordinators of incubators and, for data analysis purposes, a quantitative approach was employed.

The study revealed that the incubator coordinators understanding of knowledge management, plus their interest in learning more, demonstrates awareness as to the role played by incubators before those sheltered. Furthermore, this is consistent with what Zack (2002) emphasized concerning the importance of developing a knowledge management strategy in alignment with the business strategy, given the peculiarities of this type of institution, i.e., sheltering enterprises.

The most relevant modes of sharing knowledge according to research respondents were lectures, meetings, gatherings and discussions. The very manner in which incubators are physically set up, with specific and previously defined modules, in itself enables the adoption of the most informed knowledge sharing modalities since, according to Terra (2001), structural organizations must promote innovation, learning and the generation of new knowledge.

One notices that TIC is more closely related to people than to information technology in itself. It is also apparent how privileged the application of the knowledge generation model proposed by Nonaka and Takeuchi, explained by Pereira (2000) and Grotto (2002) herein, is.

The efficiency of meetings, lectures and seminars offered by collaborators, as emphasized by the coordinators, pictures the relevance of promoting this type of activity within organizations, bringing about new experiences, in addition to exchanging knowledge. As per Dornelas (202) offering and holding these events at incubators is foreseen in the very definition of enterprise incubators.

Learning with the environment and with the network of alliances management practices are also encountered at incubators. Results suggest that the concept of knowledge, as mentioned by Davenport and Prusak (1998), is also present in the form of management of the researched incubators.

Given the results of the research conducted at the Brazilian incubators which are members of ANPROTEC, one concludes that they are managed encompassing knowledge management characteristics. Knowledge management concepts mentioned in the study´s theoretical discussion, were identified during the research conducted, primarily as to the seven dimensions mentioned by Terra (2001) one ought to consider when implementing knowledge management at an organization.

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