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Abstract

In today's economy, learning and knowledge have become the key factors for success and internationally and intangible resources are of vital importance. The competition between existing firms moved, largely, from tangible resources (capital, raw materials, land, machinery and equipment, etc.) to intangible elements such as knowledge and the ability to use them. Knowledge has become the basic resource companies use, how they survive, develop and finally gain competitive advantage. Generation, acquisition and use of knowledge - to name just a few of the processes of transformation of knowledge - are extremely important for many individuals, organizations, public institutions, companies, regions or states. For SMEs, this is particular relevant because they usually do not have the capabilities large companies (LSEs) have in terms of regular competition. On the other hand, prevalence of knowledge determines an increased focus of small companies toward knowledge management, once a reserved area only for LSE. This paper examines the changes and challenges for entrepreneurs of knowledge management implementation from a managerial perspective.

It is an accepted thing that all successful companies generate and use knowledge. Whilst many new start-up entrepreneurs will simply hire highly specialized employees and leave them work, research have indicated that successful knowledge initiatives not only address this processes but also focus on the team structure and internally on the working circumstances to develop knowledge (Nicolescu, Nicolescu, 2011). SMEs faced with new technologic opportunities such as the Internet or biotechnologies still consider it very difficult to find the organizational structures to face them. SMEs are traditionally less involved than LSEs in knowledge management related activities, in the production of internal knowledge resources and in the access to external ones. For instance, in the European Union, 9.5% of innovative SMEs cooperate with other partners, with higher percentages in the leading innovative countries like Denmark, Finland or Germany (European Commission, 2013).

On the other hand, research on knowledge management mostly focus on large companies, even though an increasing part of literature starts to analyse the positive aspects of implementing knowledge management in SMEs (Gassmann and Keupp, 2007, Van de Vrande et al., 2009)). Moreover, empirical studies (Lichtenthaler, 2008) show that SMEs in industrial or service sectors are more and more open to cooperation, in search for external sources of knowledge. Recent data reveals that the collaboration of European SMEs in innovation is growing at an annual rate of 7.8% and becomes a driving force of the EU innovation performance (European Commission, 2013).

In the managerial processes of SMEs, forecast is usually less intense compared with LSEs, especially regarding long term decisions. From the three types of the forecast – prognostic, plans and programs – entrepreneurs use with a higher frequency programs. Plans are usually designed for at least one year, but only by a limited part of the entrepreneurs, and the prognostics are designed occasionally, mainly in medium sized firms. The most frequent form of plan is the business plan. Decisions with respect to forecast have an economic focus and they mostly refer to profit, sales figure, and credits. They are based mainly on accounting information and marketing. Frequently, these decisions are also based on the talent and intuition of entrepreneurs, and managerial forecast methods and skills are just sometimes used. Forecast elements are based mostly on internal and scarce information, usually from the market but, in order to manage all the existing information entrepreneurs use specialized software, especially those for accounting. Usually, these softs supply and process information of accounting, financial and human resources nature. The inferior level of forecasting in SMEs is being partially compensated

by speed of forecasting and especially implementation. The entrepreneur has prompt reactions, especially when decisions have to be taken quickly, in a less formal approach.

In knowledge management context, forecast is the most important managerial function, with new and improved credentials, and it is used more often than in a classic organization. In the forecast process, it can be noticed that new forecast methods and techniques are used. In this sense, data bases, data knowledge become vital, data mining and mega conversations become useful tools for forecasting the future. On the other hand, the information flow and all the knowledge that is necessary for forecasting is more substantial, given that the environment in which the SME operates is becoming increasingly difficult to predict. Thus, entrepreneurs need more information and knowledge about competition, business conditions, potential partners, but also the mechanisms of verification, validation, storage etc. Even though a small company likely does not have many resources to spend on specialized areas of business, the trend of using employees or consultants specialized in forecasting is visible, nowadays with the involvement of knowledge specialists. Stakeholders are, in terms of knowledge management, a key, and not just optional for business success. New types of forecasts should not be neglected. If the classic business focus is predominantly oriented toward quantifiable elements - turnover, profit etc., knowledge management change this issue focusing on knowledge, intellectual capital, etc. A form of forecast is the organizational strategy. In terms of knowledge management, strategies have many changes, which can take two major forms (Ceptureanu, Ceptureanu, 2012): a) the development of specific knowledge strategies n; b) implementation of classic strategies but integrating knowledge as a component.

Organization represents one of the most important managerial functions in a SME. Specific to this kind of firms is that people that are working there report directly to the entrepreneur and have usually simple hierarchies. The advantage of these structures is the simplicity, which means they have an outstanding flexibility compared to LSEs. The micro organizational structure is rarely reflected in the establishment and descriptions of positions. Sometimes using a simplistic form of post-list description of the main tasks and responsibilities of the employee. This form has been eliminated in recent years, following the completion of the job requirement by authorized bodies. In medium-sized companies, especially in high-tech fields of industry, there is more emphasis on organizational documents. In addition, it's widespread that recorded in recent decades system quality standards ISO, is reflected in the proliferation of standardized

documentation related, some of which, working procedures, have a strong organization.

In terms of knowledge management, SMEs are influenced by changes in work processes within the organization (Ceptureanu et al., 2012). The first feature is the emergence of a variety of structural and organizational choices, giving to SMEs the much needed flexibility in carrying out their activities. Network firms, clusters, virtual organization, are notable choices. Simultaneously, due to reconsideration of human factor, employees' roles are substantially emphasized, the involvement of each employee in organization - individual goals, tasks, powers, responsibilities, working methods and techniques – being discussed. Often these issues are negotiated so that organizational structure becomes more fluid. At the same time, new forms of informal organization - knowledge-based communities, Ba groups etc. emerges, where collaboration is often on a voluntary basis, without hierarchies.

Organizational changes are reflected in the development of the information system, also. Following an increasing accessibility of computers in terms of costs and knowledge, a large proportion of SMEs use computers and software related to costs, inventory etc. These elements lead to an increased number of computer specialists.

In procedural terms, the five classical functions of the organization - research and development, commercial, manufacturing, financial, accounting and human resources - and activities component is modified by the emergence of duties and tasks related to knowledge, on the one hand and the emergence of a new functions, the knowledge one.

Also within the organization there are two trends: participatory, found less in the form of participative management bodies but rather the increasingly involvement employees in decision-making process, establishing and negotiating objectives, expanding the use of delegation etc. and decentralization, in the sense that organizations have an increasingly number of more autonomous centres interrelated, with top management having mainly a major role in their coordination. Also, we must not neglect the emergence of two new categories of employees: independent knowledge specialist and telecommuters.

Due to the reduced size and complexity of SMEs, which translates into less intense use of forecasting and organization, there is a high enforcement for coordination and motivation functions.

Coordination involves a managerial toolkit made of methods and management techniques less sensitive than the two functions mentioned above, based on a considerably higher extent on human relations, entrepreneurial flair and discernment from the entrepreneurs. All this explains the wide use of coordination, a small businesses important feature. From the methodological point of view, there is

usually a reduced occurrence of meetings, the predominant method of coordination in large firms, of dashboards, graphs, managerial methods etc. In compensation, the entrepreneurs use their coordination based on bilateral discussions with his employees. This type of coordination, costly in terms of time consumption, enables a good communication and proves particularly effective. In family firms, and generally in micro companies coordination through bilateral discussions is predominant. Unfortunately, harmonization of decisions is significantly reduced due to the concentration of decision-making processes of the entrepreneur. Another important feature of the coordination of small and medium enterprises is strong touch of informality, which often has a considerable emotional load.

From the knowledge management perspective, the first feature of coordination is given by the focus on the scientific part. Coordination, like motivation, depends decisively on the talent of entrepreneurs. This is not the case anymore in knowledge management context. Of course, entrepreneur talent will continue to be important, but when they have to work with specialists and employees often better prepared than them, the scientific aspect becomes paramount. So coordination is based on a greater extent on the skill of persons involved and to a lesser extent on talent. Coordination intensity will increase given that managers will be more participative. Tools such meeting are no longer optional, but are required to coordinate teams of highly qualified semi-autonomous and autonomous employees. This correlates with the expansion of virtual coordination - conferencing, VoIP, online platforms, etc. The basis of coordination is communication. In knowledge management, communication becomes simultaneously intense and multidimensional. Both "ordinary" managers and the knowledge managers (T-managers) will have to solve two problems: adaptation to various types of communication behaviour of their employees and identify the most effective communication channels. In terms of using virtual value chain coordination, it will be done not only within the organization but also outside it, which will make it more complex. Moreover, managers are faced with not only having to coordinate their subordinates, but also new categories of employees – knowledge brokers, stewards and researchers.

Motivation is, paradoxically, while less sophisticated than LSEs, intense and very effective in SMEs (Nicolescu, Ceptureanu, 2009). As with the previous functions of management, the entrepreneur has a power over it. The way in which the entrepreneur works and behaves has a decisive influence on the degree of motivation and involvement of its employees, personal example being usually decisive. Its strong individual

motivation that led the entrepreneur to assume the risks associated with the business, his intensive efforts and the prospect of substantially winning make the entrepreneur to be permanently motivated for quality and performance and, by extension, motivating others.

Although there are elements of motivation less precisely determined - except salary - motivating employees is intense because of the permanence of the entrepreneur in the company and his personal example. All these elements determined the use of many elements of moral and spiritual nature, such as praise, verbal admonition, group celebrating special events, direct talks between enterprise and employees, frequent consultation with staff on way of solving problems, flexibility of working hours etc. However, intuitively, the entrepreneur pays special attention to some of the key stakeholders of the SME.

All these factors lead a strong motivation of employees and part of the other stakeholders, which is reflected in the high efficiency of the activities of the small and medium enterprises. In knowledge management context, motivation retains the same reputation as in traditional firms: the most difficult to exert managerial function. Its importance increases given that organizations become dependent on human resource in the generation, use, sharing and codification of knowledge.

Entrepreneurs will have to cope with a new challenge: classic motivational mechanisms no longer work. If the company classical emphasis is on individual reward or penalty, depending on the efforts and results, in a knowledge-based company began to appear group rewards as well. This is due to two reasons: a) preponderance of intellectual work processes; b) the extension of groups, teams, communities which organize various activities. Also in this logic, the last word in determining motivations granted will belong to career managers, if applicable, or the entrepreneur will have to acquire skills in this area and others, like mentoring. Another element is represented by company's image and reputation. More people will want to become employed due to its reputation and image, being willing to accept lower wage packet given that the development will benefit from a superior to other companies.

In terms of decision-making, according to Committee on Development Information (CODI) there are two paradigms on Knowledge based decision system: process oriented and best practices oriented. Process oriented considers that the basis for decision-making process are tacit knowledge, which can be "downloaded" in the minds of employees through interviews and meetings, encoded, stored and reused in a profitable way. This paradigm is based on the promotion of artificial intelligence movement, oriented towards

the development of decision systems based on interrelated databases. In this orientation, the decision-making system is oriented top-down and focused on IC&T technologies.

Best practices oriented paradigm is based on good practice. According to it, decision-making approach should be bottom up, decisions are determined by how employees resolve, often in innovative ways, problems, in an environment increasingly difficult to predict.

Table 1

Paradigms of decision making system in the knowledge management context

Process oriented paradigm	Best practices oriented paradigm
Focus on tasks organization	Focus on tasks implementation
Routine	Problem solving
Structured	Spontaneity,
Predictable environment	improvisation
Based on explicit knowledge	Unpredictable environment
Linear relationships	Based on tacit knowledge
	Network relationships

Source: Brown, J.S. and Duguid, P. (2000) *Balancing act. How to capture knowledge without killing it*

In the context of knowledge management entrepreneurs must take into account elements such as the incorporation and use in decision-making system of a large amount of diverse and complex knowledge, which reflects positively on the quality of decision-making process and management decisions within SME, expanding the scope of decision-making system to the organization's external stakeholders, particularly those involved in virtual chain of value, which generates problems in terms of decisions harmonization, but it is beneficial for business performance and sustainability, the emergence of special categories of decisions, for instance those adopted in the knowledge-based communities - or use of an increasing number of decision-making methods, techniques, tools, many involving information databases, special software applications, mentoring, coaching, tutoring, etc.

In terms of information, the knowledge-based economy and expanding the use of knowledge management, the market is very favorable to the implementation of applications, part of the organizational information system. There are industries that reserve as part of the budget, huge amounts of money for the purchase of information technology, which is the initiative more or less obvious to improve rates of return.

In terms of informational systems, new generation of emerging business applications will be built around a service-oriented architecture (Service

Oriented Architecture). This is based on the plan to make it easier for companies to implement, integrate and maintain software applications, substantially reducing maintenance and copyrights costs of business applications (Erl, 2005). Also, SOA will provide for businesses new levels of organizational capacity for their software, around business processes instead of the other way around (Perrey, Lycett, 2003). The ability to define and modify business processes to support operational and market requirements, and yet easily support these processes with software package is actually the original vision of ERP. Supporting end-to-end collaborative inter-departmental processes such as POS order collection, recruiting, procurement and others will become much easier. The same would happen with: industry specific requirements, methods of cost management or other associated processes.

Another trend would involve dropping classical IT solutions and move towards the adoption of new products and technologies such as CPM (Corporate Performance Management). Most of these applications have been standardized using the same system of units of measurement reported in a very similar template and their suppliers are in the same type of business. The challenge for most companies is to manage the exponential growth of information, with connecting users with data, content, applications and processes they use in their various roles. We discuss both the information provided by the external environment (market, administrative environment) and those that are generated as a result of the introduction and development of management information modules within the organization. Investments made in the 90s helped companies develop and establish their powerful data networks connected to the Internet, increasing running speed data collection process in their organizations. Information technology is progressing faster than most organizations can innovate in business. This disagreement provides opportunities for organizations seeking to gain competitive advantage. What business benefits aim to raise is informational contexts in which they are placed and that should include the location and geography.

Recent studies have revealed that knowledge information system has increasingly moved to new functions compared to classic information system, predominantly decades ago. Among them we consider the emergence of a new component - knowledge – the next stage in the evolution of information that changes significantly the quality and performance of the IT system functionality, incorporation of new information processing tools, with large processing capability and high speed, often in real time, with multiple positive effects on other components of information system, increased sophistication of other components such as

procedures and tools., increased capacity to process information and communicate in real time, with multiple positive effects on the content and pace of development of managerial and operational processes in the organization; on this basis the speed of the forecasting, organization, coordination, training and monitoring-evaluation processes increase. Another issue is a visible easiness in getting rapid access to information and knowledge the SME is lacking, given their relatively modest transactional costs.

In any business, knowledge can come from three sources: own, attracted and acquired (Ceptureanu et. al, 2010). So, two out of three sources are external. Almost all experts, when referring to knowledge management, tend to usually consider internally generated knowledge and, to a lesser extent, the purchased one. Due to capacity multiplier for knowledge, the spectacular development of the Internet, web-sites, electronic libraries, the proliferation of conferences, seminars, fairs, exhibitions, etc., accelerating expansion of the media and their accessibility to people and companies, attracted resources - which are cheaper or sometimes for free - can be a major source of knowledge for SMEs. Moreover, some SMEs have developed strong international focus on acquiring knowledge and promote an organizational culture favouring this approach. Their knowledge is often the main pillar of competitive advantage.

The third category, the knowledge acquired, is usually the most well-known and discussed by practitioners. The causes that generate this situation are multiple (Ceptureanu, Totan, 2010):

- Knowledge in the form of projects, computer programs, studies, etc., are purchased to meet the goals and specifically outlined needs of the organization;
- This type of knowledge involves spending budgeted money and expressly specified in the contracts, which form the subject of monitoring and evaluation of the managers and owners;
- The responsibility and applicability of each acquired knowledge set is precisely determined.

For SMEs, the volume of knowledge acquired is relatively low due to the costs involved. However, there is a tendency to amplify the commercial transactions which have as their object knowledge - outlining an increasingly observable knowledge market, consisting, for instance, of best management IT, marketing, financial, technological practices. For SMEs, the reasons for relying more on external sources of knowledge are the same as for larger companies. The competition based on knowledge intensifies, and the knowledge related products or technologies development process accelerates. It thus becomes more and more difficult for SMEs to develop new product and technology by their own (Bianchi et. al, 2010). Some SMEs build their knowledge base gradually

through incremental accumulation, usually from domestic market. Others take a more radical approach and build innovation capacities that allow them to target the international market directly (Lee, Shin, Park, 2012). So, even well-established SMEs have difficulties in acquiring knowledge when they need it and at the pace they need it.

Knowledge has two major concepts associated with it - strictness and absorptive capacity. Strictness refers to the possibility and the ability to transform knowledge into an explicit, transferable information. There are people and organizations that have this capability at a high level and others that, while possessing similar knowledge, fail in a less sensitive measure to raise the posts transferable (Handy, 1999). Absorptive capacity designates the ease with which the receiver perceives knowledge, understands and retains it (Cohen, Levinthal, 1990). Other authors have defined it as a firm's ability to recognize the value of new information, assimilate it, and apply it to commercial ends (Nicolescu, Nicolescu, 2011). It is studied on individual, group, firm, and national levels. According to Cohen and Levinthal (Cohen, Levinthal, 1990) it is the ability of a firm to recognize the value of new, external information, assimilate it and apply it to commercial ends. Some authors have redefined the concept through the distinction between a potential absorptive capacity and a realized absorptive capacity and identified four dimensions: acquire, assimilate, transform and exploit (Zahra, George, 2002).

According to Nicolescu (Nicolescu, Nicolescu, 2011), the main factors of absorptive capacity are:

- a) Macro-social factors, which reflect the main elements on the economy, culture, population etc., quantity, quality, cost, etc. of existing and used knowledge in a country;
- b) Individual factors that consider various forms, potential or manifest characteristics of the persons involved in the processes of generation, acquisition, use, storage, protection etc. of knowledge;
- c) Organizational factors, expressing the structural and functional parameters of various natures of each entity, with relevant influence on the generation and use of knowledge. The maximum absorptive capacity is achieved when there is a heavy congruence between the three categories of factors. Naturally, congruence does not occur by itself, but depends largely on the characteristics of the people involved and the characteristics of each organization and management of the environment in which it operates.

Absorptive capacity is instrumental in understanding knowledge-capital formation, being a prerequisite for its formation. It is considered as an essential capacity to build competitive advantages over competitors.

The SME knowledge's needs come from two main sources categories (Ceptureanu et. al, 2012):

- Outside the company, from other organizations, individuals, media etc;
- Within the company, through acquisition from other members of the organization, from other groups or pool of knowledge of the organization as a whole.

Very often, most knowledge learned by entrepreneur and its employees come from the environment. It is therefore very important to know which are the major factors influencing the knowledge transfer. Knowledge previously owned, which gives it the ability to recognize the value of new knowledge or information and to assimilate and use for commercial purposes is absorptive capacity. According to S. Zahra and George G. (Zahra, George, 2002), absorptive capacity has four complementary dimensions or, considering their content rather four essential components:

- a) Acquisition, which is defined as the ability to recognize, evaluate and purchase a new knowledge that is critical to the organization's activities;
- b) Assimilation, referring to the company's ability to acquire new external knowledge processes and procedures for analysing, processing, understanding and interpretation of such knowledge;
- c) Transformation, which takes into account the company's capacity to develop such procedures and processes to facilitate combining existing knowledge with new knowledge acquired and assimilated;
- d) Operation, which lies in the company's ability to use new knowledge gained commercial organization to achieve its objectives.

Based on these four dimensions, professionals covered defines two types of absorptive capacity:

- a. Absorptive capacity potential that lies in the ability to acquire and assimilate external knowledge. This capacity expressed receptiveness to new knowledge of the organization and enhances its ability to adapt and innovate
- b. Achieved absorptive capacity, which is the ability to transform and exploit new knowledge, to obtain quantifiable performance of the firm.

Practice shows that the companies differ in the level at which possesses two capabilities. The organization is engaged in intense learning processes, the capacities are developed both with positive effects in terms of effectiveness and efficiency of the organization. Knowledge management is essential for a SME to identify and consider both forms of knowledge, tacit being more difficult to meet and process.

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