



Knowledge Management: A Rewarding Challenge for SME's?

Anabela Sarmento
Instituto Superior Contabilidade Administração Porto
Instituto Politécnico Porto
R. Dr. Jaime Lopes de Amorim
4465-111 S. M. Infesta, Portugal
Sarmento@iscap.ipp.pt
Tel: + 351 228322925, Fax: +229025899
Algoritmi R&D Centre, Information Systems Group
University of Minho, Portugal

Ana Maria Correia
Instituto Superior de Estatística e Gestão de Informação
Universidade Nova de Lisboa
Campus de Campolide
1070-124 Lisboa, Portugal
correia@isegi.unl.pt

INNOVATION AND COMPETITIVENESS

In contemporary knowledge-based society, where organizational environment is changing at a rapid pace, information and knowledge to promote innovation are the keys to competitiveness and success.

This was recognised in the conclusions of the Lisbon European Summit [Lisbon ... 2000], which were then extended in the Barcelona European Summit [Barcelona ... 2002]. The latter state that one of the goals of Europe is to attain a "competitive knowledge-based society" based on education and training systems, adapting quickly to the "demands of the knowledge society and the needs for an improved level of quality of employment". Furthermore, every citizen must be equipped with the skills needed to live and work in this rich information environment. These goals would be attained, for instance, by improving the "mastery of basic skills, development of digital literacy and lifelong learning" [Barcelona ... 2002:18-20]. The same concerns are expressed in the *UNICE Benchmarking Report 2000* [UNICE, 2000].

KNOWLEDGE MANAGEMENT

The emergence of interest for Knowledge Management (KM) lies in the confluence of many factors and aspects, which bring all branches of knowledge to the fore including historical, intellectual/philosophical, economic, technological and cultural areas [Despres and Chauvel, 2000:4]. Little, Quintas and Ray [2002] state that the interest for knowledge, as an area of research and practice in the field of management, has its origins in the convergence of different perspectives including information management, organizational learning, strategic management, management of innovation, and the measurement and management of intangible assets. Thus, KM emerges as a pluri- and interdisciplinary area.

Furthermore, Davenport and Cronin [2000] consider that KM is being used differently across different domains with each claiming that its partial understanding represents a definitive articulation of the concept. These domains are library and information systems (LIS), process engineering (PE) and organizational theory (OT). To the LIS, KM is seen as management of know-how, which corresponds to the "coding and classification of recorded material (content) embedded in artefacts, structures, systems and repositories", without trying to understand how business value is perceived and created. In process engineering, KM is perceived as the discovery and extraction of value when existing processes are analysed. This "process approach does not do justice to the application of individual competencies, skills, talents, thoughts, ideas, intuitions, commitments, motivations and imaginations, in short, the realm of tacit knowledge". None of these perspectives takes into consideration the knowledge that cannot be codified, or tacit knowledge. Nevertheless, there is a growing recognition that the "knowledge of experts is an accumulation of experience – a kind of residue of their actions, thinking, and conversations – that remains a dynamic part of their ongoing experience" [Wenger *et al.*, 2002:9]. Knowledge is simultaneously tacit and explicit and its creation is the result of the interaction between them. It is in this context that the third domain emerges, where KM is perceived as a capacity, which allows organizations to develop, to innovate and to be more competitive. Thus, in the perspec-

tive of OT, KM is not the management of resources but of the context where knowledge is used. It is argued that to achieve sustainability, firms should focus on methods to build knowledge as well as providing a stimulating organizational culture, as these are the crucial and differentiating factors, difficult to imitate by competitors [Pfeffer, 2002].

Examples of large corporations implementing KM initiatives proliferate in the specialised and professional literature. Among these, one finds Ford Motor Company, Chevron, Texas Instruments, Canadian Centre for Management Development, Health Canada [Bontis, 2002], Microsoft, Coca-Cola, Merck, Intel, Skandia [Snyder and Pierce, 2002].

Taking into account that the large majority of firms worldwide are small and medium ones (SME's) [EUROSTAT, 2002], why is it that the literature does not offer as many references to applications of KM in this sector? Is KM of any relevance to SME's? If so, are their KM needs analogous to those of large corporations?

One could argue that the solution to KM lies in the training and preparation of a particular kind of worker – the knowledge worker. However, it should be recognised that the biggest contributors to GNP in Europe are the SME's, who cannot afford the resources to formally "compartmentalize the information gathering and use functions, nor do they have the resources to develop the infrastructure necessary to access and use the information" [Rosenberg, 2002:2]. It is argued that these competencies should be developed by all employees, regardless of the dimension of the enterprise in which they are working in. We believe that educational institutions should prepare professionals able to contribute to and manage knowledge across the organisation. Moreover, information literacy must be part of the "skill set of almost every employee who works with information" in a business [Rosenberg, 2002:3]. Furthermore, firms should provide training opportunities to their employees to enhance their KM skills and foster an environment where knowledge is created and disseminated through the organization [Zack, 2002].

THE CREATION OF A KNOWLEDGE AND INFORMATION ECONOMY: THE PORTUGUESE SCENARIO CONCERNING SME'S

Taking into consideration the importance recognised by the European Union concerning KM, being aware that knowledge and its management is at the confluence of some disciplines and can be approached by several perspectives, we have undertaken our research, acknowledging the goals and strategies drawn up by the Portuguese government, in order to help Portugal move towards a knowledge driven society. In the following paragraphs, the results of this research are outlined. A search of the Portuguese official sites (Programa do XV Governo - *The Programme of the XVth Government of Portugal* – <http://www.portugal.gov.pt>; Sociedade da Informação em Portugal - *Information Society in Portugal* – <http://www.si.mct.pt>; Instituto de Apoio às Pequenas e Médias Empresas e ao Investimento - *IAPMEI - Portuguese Institute for SME* – <http://www.iapmei.pt>) shows that the main Portuguese concerns regarding the development of the Information Society are:

- a) to provide online access to all the public services;
- b) to create the portal called "Portugal online" for centralised provision of Government information services;
- c) to create other portal, under the same philosophy of the described above, addressing specific needs of SME's;
- d) to connect to the internet every library and post-offices existing in the country;
- e) to increase the ratio of computers at school regarding students numbers;
- f) to include in the budget of each school the acquisition of didactic contents in the internet;
- g) to increase the ratio of home computer ownership among the population
- h) to create a competitive information technologies sector ,
- i) to modernise the Portuguese Public Administration,

An analysis of the political aims set out in that Programme, reveals that the interpretation of the knowledge driven society outlined in the European Summits is mostly a technological one. Concerns are still linked to the development of infrastructures, bandwidth, access cost to the Internet, equipment in schools and numbers of domestic computers.

Specifically, regarding Internet use by the SME's, one can see that, although a commission named Unidade da Missão Inovação e Conhecimento (*Mission towards the Knowledge and Innovation Society*) has been created (www.si.mct.pt), its strategies and measures that will be taken in order to accomplish its goals are not yet clear (and available) to the public. On the other hand, the *IAPMEI* aims to promote the creation of packages that include electronic business, social security, the generalization of the electronic transference of data between enterprises and public administration, stimulation for the creation of web sites, the creation of support centres, the development of e-commerce, the regulation of digital signature and the dissemination of its use and the improvement of internet domain registry. Finally, the *PME Digital (Digital SME) - Portugal Digital* initiative of the Ministry of Economy (<http://www.poe.min-economia.pt>) aims to help SME's to use the Internet and develop e-business.

COMPETENCES AND SKILLS IN KM FOR SME'S

Despite this scenario, which has a rather technological focus, we claim that there is scope, within the current Programme of Government, for the modernization of the SME's sector, through a Knowledge Management approach. In order that the alteration will have a lasting effect, it needs to be grounded in managers that are aware of the importance of knowledge management principles in managing knowledge intensive firms and in knowledge workers that are urgently needed to achieve the innovation and competitiveness that will enable the country's economy to converge with other EU partners.

To prepare these professionals, some training is required to update their management skills. We claim that such training should address the topics shown in figure 1.

In the six areas of study every contribution to KM, described above, is approached in a way that avoids any partial perspectives. The topics covered in each area are briefly explained in the following paragraphs. These are only illustrative and, by no means, an extensive list of what has to be addressed:

- i) Knowledge resources – the knowledge manager should be able to understand how information and knowledge resources – e.g., databases, web-based and other information and knowledge resources, usually available through library and information services - are created, organised, accessed and retrieved to enable him/her to fully exploit all the information that is being made available, both internally and externally, to the organization.
- ii) KM systems (KMS) – these are seen as the enabling technologies for an effective and efficient KM. These tools and systems can be categorized as (1) basic functionalities (support communication, storing, exchanging, search and retrieval of data and documents, discussion among groups and organizational processes); (2) integrative KMS (support codification, search and retrieval); (3) interactive KMS (support KM processes), and (4) bridging KMS (providing contextualized knowledge repositories) [Maier, 2002:20].
- iii) Organizational knowledge – the notion that while individuals learn so also do groups and organizations has gained wide acceptance in the last decade [Bood 1998:210; Nahapiet and Ghoshal, 2002], together with the

idea that organisational knowledge can be stored, retrieved and recollected. As Karreman [2002] points out "organizational (collective) memory is socially constructed, culturally maintained and dispersed, and as indeed is indicated by the concept of knowledge management – a possible target for managerial efforts"; within organizational knowledge, "Competitive Intelligence" (CI) is also referred to as competitor intelligence, business intelligence or environment scanning. It covers numerous sectors of intelligence (e.g. competitor, technology, product/service, environment, economy) [Fahey, 1999] and its goal is to stimulate the organization's creativeness, innovativeness and willingness to change. "Social intelligence", which is the process by which a society, organization or individual scans the environment, interprets what is there and constructs versions of events that may afford competitive advantage [Cronin and Davenport, 1993:8], falls also within Organizational Knowledge.

- iv) Organizational context and culture –how people are managed, effectively motivated and the effects of this on their behaviour and skills are becoming vital [Pfeffer, 2002:62 - 66]. Furthermore, knowledge creation implies, besides information codification, the development of a "knowledge culture" that can be translated into the nurturing of communities of practice [Wenger, McDermott, Snyder, 2002]; [Davenport and Hall, 2002], trust among people, rewards, incentives, motivation [Hall, 2001] as well as the establishment of communication channels and organizational structure [Maier, 2002].
- v) Intellectual capital – knowledge creation by business organisations is now recognised as the most important source of organizational competitiveness, at international level. The importance of intangible resources gave rise to a growing interest in developing methods and tools that enable companies "to analyse their intellectual capital stocks" and "organizational learning flows" [Bontis, 2002:623]. Intellectual Capital includes the human, structure and relations. Measurement methodologies of Intellectual Capital, within plan of study to convey KM skills, will contribute to the understanding of the role intangible assets have in an organization and will address the measures and metrics to assess and evaluate the IC.
- vi) Innovation management – those who are going to perform the Knowledge Management function should be able to identify KM resources to support a knowledge strategy for technical/scientific innovation, contribute to the writing of a development plan for an innovative product or service in a scientific or technical organisation, search for developments funds, contribute to the strategic understanding of the regulatory and standards environment of scientific and technical organizations and identify and evaluate knowledge markets opportunities; it is these subjects that this area of study aims to address.

These areas of study should not be seen as independent of each other, or as mutually exclusive.

CONCLUSIONS

This paper highlights the European strategy towards a knowledge-based society where innovation and competitiveness are the goals to attain. Knowledge management is, also, briefly, introduced by presenting some approaches contributing to an understanding of the scope of this discipline. The elements contained in the Portuguese Government's strategy towards a knowledge driven society allow us to see that it is primarily based on technology. We agree that technology is an essential issue, in the access to the internet by firms and citizens at large in public places or at home. However, KM is much more than infrastructures. We also have the involvement of people, the building of communities and contexts where the sharing of knowledge is promoted, intellectual capital is developed and inter- and intra-organization communications are stimulated.

Although not underestimating the infrastructure aspect in KM, we think there is scope within the current Government Programme to embark on complementary perspectives to accelerate the pace at which Portuguese SME's are embracing KM. In our opinion, the way ahead is to offer education programmes on KM (formal degrees, lifelong learning opportunities, etc.). This would contribute to the development of adequate competences and skills that will allow the emergence of KM in SME's.

BIBLIOGRAPHY

- Barcelona European Council (2002). *Presidency Conclusions* 15-16 March 2000. URL: <http://ue.eu.int/pressData/en/ec/71025.pdf>. [Retrieved in 20 Dec 2002].
- Bontis, N. (2002). "The Rising Star of the Chief Knowledge Officer", *IVEY Business Journal*, March / April, p. 20-25
- Bood, R. (1998). "Charting organizational Learning: a Comparison of Multiple Mapping Techniques". In Eden, C. and Spender, J. (eds.) *Managerial and Organizational Cognition*. London: Sage, p. 210-230.
- Cronin, B. and Davenport, E. (1993). "Social Intelligence". In Williams, M. (ed.). *Annual Review of Information Science and Technology (ARIST)*, 28, p. 3-43.
- Cheuk, B. (2002). "Information Literacy in the workplace context: issues, best practices and challenges". White Paper prepared for UNESCO, the U.S. National Commission on Libraries and Information Science, and the National Forum on Information Literacy, for use at the *Information Literacy Meeting of Experts*, Prague. URL: <http://www.nclis.gov/libinter/infolitconf&meet/papers/cheuk-fullpaper.pdf> [Retrieved in 20 Dec 2002].
- Davenport, E. and Cronin, B. (2000). *Knowledge management: semantic drift or conceptual shift?* Proceedings of the ALISE (*Library and Information Science Education*) Conference. URL: http://www.alise.org/conferences/conf00_Davenport-Cronin_paper.htm [Retrieved in 20 Dec 2002].
- Davenport, E. and Hall, H. (2002). "Organizational Knowledge and Communities of Practice", in Cronin, B. (Ed.) *Annual Review of Information Science and Technology*, Medford, NJ: Information Today, p. 171-228.
- Despres, C. and Chauvel, D. (2000) *Knowledge Horizons: the Present and the Promises of the Knowledge Management*. Oxford: Butterworth Heinmann, quoted in Kasinskaite, I. (2002). "Managing Knowledge Assets: Between the Global and the Local". *Informacijos Mokslai*, 21, p. 33-42.
- EUROSTAT (2002). *SMEs in Europe: Competitiveness, innovation and the knowledge-driven society*. Luxembourg: Office for Official Publications of the European Communities (CAT No KS-CJ.02-001-EN-N).
- Fahey, L. (1999). *Competitors: Outwitting, Outmanoeuvring, Outperforming*. New York: Wiley.
- Governo da República Portuguesa (2002). *Programa do XV Governo Constitucional*. URL: http://www.portugal.gov.pt/pt/Programa+do+Governo/programa_p023.htm [Retrieved in 20 Dec 2002].
- Hall, H. (2001). *Social exchange for knowledge exchange*. Paper presented at the *International Conference on Managing Knowledge*, University of Leicester, April 10-11 2001. URL: <http://www.bim.napier.ac.uk/~hazel/esis/hazel1.pdf> [Retrieved in 20 Dec 2002].
- Karreman, D. (2002). "Knowledge management and "organizational memory" - remembrance and recollection in a knowledge intensive firm". Paper presented at *OKLC/ALBA*, APRIL 2002 URL: http://www.alba.edu.gr/OKLC2002/Proceedings/pdf_files/ID312.pdf [Retrieved in 20 Dec 2002].
- Lisbon European Council (2000). *Presidency Conclusions*. 23-24 March 2000. URL: <http://ue.eu.int/Newsroom/LoadDoc.asp?BID=76&DID=60917&LANG=1> [Retrieved in 20 Dec 2002].
- Little, S., Quintas, P. and Ray, T. (2002). *Managing Knowledge: an essential reader*. London: Sage Publications.
- Maier, R. (2002). "State-of-Practice of Knowledge Management Systems: Results of an Empirical Study", *Informatik / Informatique – Knowledge Management*, 1, p. 14-22.
- Ministério da Economia - IAPMEI (2002). *Economia Digital*. URL: <http://www.iapmei.pt/iapmei-art-03.php?id=549> [Retrieved in 20 Dec 2002].
- Ministério da Economia (2002). *Programa Operacional da Economia – Programa -Missão*. URL: <http://www.poe.min-economia.pt/0001.htm>. [Retrieved in 20 Dec 2002].
- Nahapiet, J. and Ghoshal, S. (2002). "Social Capital, Intellectual Capital, and the Organizational Advantage", in Choo, C. W. and Bontis, N. (Eds.) *The Strategic Management of Intellectual Capital and Organizational Knowledge*, New York: Oxford University Press, p. 673-698.
- Pfeffer, J. (2002), "Competitive Advantage through People", in Henry, J. and Mayle, D. (Eds.), *Managing Innovation and Change*, London: Sage, p. 61-73.
- Presidência do Conselho de Ministros (2002). *Unidade de Missão Informação e Conhecimento*. URL: <http://www.si.mct.pt> [Retrieved in 20 Dec 2002].
- Rosenberg, V. (2002). "Information Literacy and Small Business," White Paper prepared for UNESCO, the U.S. National Commission on Libraries and Information Science, and the National Forum on Information Literacy, for use at the *Information Literacy Meeting of Experts*, Prague, URL: <http://www.nclis.gov/libinter/infolitconf&meet/papers/rosenberg-fullpaper.pdf> [Retrieved in 20 Dec 2002]
- Snyder, H. and Pierce, J. (2002). "Intellectual Capital", in Cronin, B. (Ed.), *Annual Review of Information Science and Technology*, 36, Medford, NJ: Information Today, p. 467-500.
- UNICE (2000), *Stimulating creativity and innovation in Europe: the UNICE benchmarking report 2000*. URL: [http://www.unice.org/unice/docum.nsf/all+by+description/35E8D63071BCD394C12568EA002FECB0/\\$File/Innov-5.pdf](http://www.unice.org/unice/docum.nsf/all+by+description/35E8D63071BCD394C12568EA002FECB0/$File/Innov-5.pdf). [Retrieved in 20 Dec 2002].
- Wenger, E., McDermott, R. e Snyder, W. (2002). *Cultivating Communities of Practice*. Boston: Harvard Business School Press.
- Zack, M. (2002). "Developing a Knowledge Strategy". In Choo, C. W. and Bontis, N. (Eds.). *The Strategic Management of Intellectual Capital and Organizational Knowledge*. New York: Oxford University Press.

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