

KM Practices in Service SMEs

K. Cormican, G. Coppola, S. Farina

Abstract—Knowledge management is a critical component of competitive success in service organizations. Knowledge management centers on creating new knowledge and utilizing existing knowledge. While utilizing existing knowledge relates to input and control and can lead to a reduction in costs; creating new knowledge relates to output and growth and can lead to an increase in revenue. Therefore managers must ensure that they can successfully optimize the knowledge and talent in their organizations. To do this they and must try to develop an environment that promotes the generation, acquisition, transfer and use of valuable knowledge in creative ways. However knowledge management is complex and diverse. Research suggests that organizations in general and SMEs in particular are finding it difficult to implement successful knowledge management initiatives. Our research attempts to understand whether organizations are adopting best practice initiatives in their organizations. This paper presents findings from an exploratory study of 139 SMEs operating in the tourism sector across Europe. The goals of the survey is to assess the level of awareness of knowledge and talent management strategies and methodologies and to determine whether the responding companies implement best practice knowledge management initiatives in their organizations. Analysis of the findings from the study are presented and discussed.

Keywords—service sector, small enterprise, success factors, survey

I. INTRODUCTION

ENTERPRISES are experiencing a rapid shift from an Economy based on manufacturing and commodities to one that places the greatest value on information, services, support and distribution [1]. This transformation is described by various terms in the literature notably, "*the move towards the post industrial society*" [2], "*the emergence of the knowledge society*" [3], or "*the rise of the knowledge based economy*" [4]. Contemporary business systems have become more knowledge intensive. Much work now consists of converting information to knowledge, using skills, competencies and expertise. This is particularly evident in service areas such as tourism where knowledge focused activities are becoming the primary source of sustainable competitive advantage. Therefore, knowledge and talent must be effectively managed if improvement efforts are to succeed and businesses are to remain competitive.

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Consequently astute organizations are starting to pay more attention to the concept of (a) attracting and keeping talent in organizations to meet the company's goals and (b) capturing and leveraging the knowledge resources of the firm to generate added value.

However there is little evidence (anecdotal, empirical or otherwise) to suggest that adequate provision is made for managing knowledge and talent in service organizations. Organizations in general and small firms in particular are finding it very difficult to identify and absorb best practice in their companies. Upon analysis it seems that these gaps must be investigated further. This paper presents findings of an exploratory empirical study that was conducted in Cyprus, Greece, Ireland, Italy (both in Lombardy and Campania Regions), Slovakia, Lithuania and Spain between March and May 2011. A purposive sample of small firms operating in tourism sector was surveyed in order to:

- ascertain whether responding companies are familiar with knowledge and talent management strategies and methodologies
- determine whether the responding companies implement best practice knowledge and talent management initiatives in their organizations
- compare SMEs from different EU nations on their use of knowledge and talent management approaches

Owners, senior manager and key decision makers (i.e. those that have influence on strategic decisions) operating in small tourist enterprises were targeted. The paper discusses the notion of knowledge relative to information; it then introduces the concept of knowledge work and attempts to position knowledge management relative to this debate. The research strategy and data collection method used in our survey are introduced and finally findings from the study are presented and discussed.

II. THE CONCEPT OF KNOWLEDGE

Much has been written regarding the knowledge hierarchy and academic researchers are continuously teasing out new perspectives. For example, Boersma [5] and Nooteboom [6] see information as '*data with context*'. They see knowledge as information combined with the skill to interpret and evaluate it in the appropriate context. Wilson [7] describes knowledge as '*what I know*'. This involves comprehension, understanding and learning. He describes information as '*what I am able to convey about what I know*'. There is an implication here that not all knowledge can be transmitted; only a component of it.

For their part, Nonaka and Takeuchi [8] distinguish between information and knowledge from another perspective, where information is defined as '*a flow of messages*'. They

state that knowledge is created by the flow of information anchored in beliefs and commitment of the holder, thereby inextricably linked to the person. Notwithstanding this inseparable characteristic of knowledge, Nonaka and Tacheuchi's description guides us to a way of acquiring knowledge. They assert that if an information component can be captured and stored in the system repositories, and is easily accessible to 'flow' together with its context to the user, and if a knowledge management system can connect the user to the originator, the user may be in a position to share the insight of the originator, re-anchor this insight, now with his own beliefs and commitment to the information with its context, thereby regenerating knowledge. The knowledge in question here is explicit, as Polyani [9] makes it clear that tacit knowledge is difficult to express.

Horton et al [10] go one step further in contrasting information and knowledge. He equates information with explicit knowledge, explaining that an expert cannot pass on, with explicit instructions, complex learned knowledge. Wilson [7] contends that '*explicit knowledge is simply a synonym for information*'. The difference or the 'know-how', he explains can only be learned by doing, typically through practice accompanied by expert feedback. This now provides guidance on how to 'pass on' or acquire tacit knowledge as opposed to simply transmitting or accessing information.

There are many categories of knowledge, all of which have different characteristics. Nonaka and Tacheuchi's [8] particular interest relate to tacit and explicit knowledge and the conversion between these states as described in their matrix known as the SECI (socialization, externalization, combination and internalization) model, also known as Nonaka's knowledge spiral. Choo [11] examined the interrelationships between tacit, explicit and cultural knowledge. Boisot [12] concentrated more on specific knowledge areas including personal, proprietary, public, and common sense. Another distinction is that identified by Firestone and McElroy [13], in their description of the '*new knowledge management*', namely subjective knowledge in minds and objective knowledge in artifacts.

Porter [14], as always, targeting uniqueness or differences in strategy, recommends that firms concentrate on the knowledge assets that are difficult to imitate, as they seek to devise a unique selling proposition. Personal and particularly proprietary knowledge are specific to the firm and therefore essential to develop and protect for the benefit of the firm. Tacit knowledge being difficult (if not impossible) to transfer, never mind imitate, is thus a key competitive asset. Pierce [15] talks about the '*stickiness*' of knowledge. This refers to how knowledge tends to be anchored and so stay in one place. In this regard, this gives it its source of competitive advantage.

III. THE CONCEPT OF KNOWLEDGE WORK

The nature of knowledge work is ad hoc, demand driven and creative [16]. Davenport et al [17] contend that knowledge work focuses on the acquisition, creation, packaging or application of knowledge. In this view, it is complex and diverse and it is performed by professional or skilled workers with a high level of expertise and competence. According to

Harris [16], a knowledge worker is formally defined as one who gathers, analyses, adds value and communicates information to empower decision making. A knowledge worker's job entails doing work for which there is no finitely determined process. Their tasks are not prescribed in advance, but are determined just in time in response to issues, opportunities or problems as they arise. Each event may require a customized unique content and collaboration with a different group of people. According to Laudon and Laudon [18] not only do knowledge workers use their knowledge to interpret incoming information, but they also create new knowledge as well. Knowledge work processes include such activities as research and development, product development and professional services such as software development, law, accounting and consulting [17]. Knowledge workers hold expertise composed of competence and skills and they are typically more productive and better paid than non-experts. Knowledge workers value is acquired through formal education. Such people understand how to learn and will continue to learn throughout their productive lives. What is learned and how it is applied will determine competitive success. According to Takeuchi [19] knowledge workers now constitute up to 35-40% of the workforce and these will become the leading social group. Therefore, organizations' core competencies will focus on managing knowledge and knowledge workers. Furthermore, industrial growth and productivity gains will depend heavily on improvements in knowledge work.

Drucker [3] believes that the great management task of this century will be to make knowledge work productive. Davenport et al [17] also state that organizations' core competencies will centre on managing knowledge and knowledge workers in the future. They add that industrial growth and productivity gains will depend heavily on improvements in knowledge work. Thus, a viable approach is critically needed for improving knowledge work.

IV. KNOWLEDGE MANAGEMENT

There are a variety of definitions of knowledge management, depending on the author's perspective. Horton et al [10] defines it broadly as '*how groups of people make themselves collectively smarter*'. Liebowitz [20] describes it in an organizational context as '*the process of creating value from an organizations' intangible assets*'. Malhotra [21] is much more specific in his definition, equating knowledge management to organizational processes that '*seek synergistic combination of the data and information processing capacity of information technology, and the creative and innovative capacity of human beings*'. Kelleher and Levene [22] contend that, because of the way knowledge management impacts organizations differently, it is futile to reach a consensus definition. However, despite this, and for the purposes of this paper it can be said that "*knowledge management is an effort to increase useful knowledge within the organization*" [23].

According to Bassi [24] knowledge management is a means to an end not an end in itself. Therefore, knowledge management initiatives must be linked to strategies. Strategy influences knowledge generation and use by providing a context for the perception and interpretation of the environment and a boundary to decision-making. Organizations need the focus of a well-defined knowledge management strategy in order to establish the appropriate priorities. Therefore, enterprises must develop, implement and improve proactive knowledge management strategies. Patton and Carlsen [25] found in their research that defining a clear purpose and strategic intent are critical to the success of knowledge management endeavors. Many researchers support this [26, 27]. Organizations must also be able to illustrate how knowledge can have a clear impact on measures such as cycle time, cost, quality, productivity and profitability. Consequently, it is imperative that these strategies are linked to performance measures.

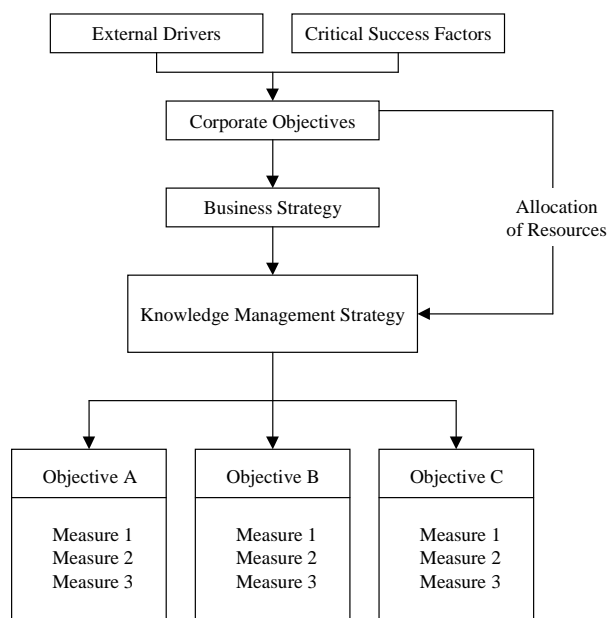


Fig. 1 Strategic Decision Making Process

Marr [28] sets out basic steps of managing the organization's knowledge base. These are:

- Determine the key knowledge-based resources that drive value creation and concentrate effort in providing the minimal critical knowledge needed
- Map out how these resources will help achieve your strategic objectives. There must be clear alignment between the main knowledge areas and the organizations business strategy.
- Measure how the knowledge resources perform in relation to meeting strategic objectives. The system and the knowledge areas must be monitored and evaluated against business related metrics on an ongoing basis to provide feedback for continuous improvement of the system.

Having verified the value of its knowledge-based resources, the organization must put in place processes to manage these assets to maximize their value creation. Birkinshaw [29] identifies three types of tools that can be applied to manage knowledge, namely:

- IT Systems: Generally codified knowledge repositories
- Structures: Largely people or team arrangements
- Techniques: Specific processes for transferring and sharing knowledge

Takeuchi [19] asserts that western companies pay too much attention to explicit knowledge (i.e. existing knowledge) at the expense of tacit knowledge (i.e. personal knowledge). Therefore, developing an effective strategy depends on adopting a holistic approach to all aspects of the organization. This includes people, process as well as technology related issues. Ulrich [26] believes that employees who feel personally committed to a strategy or vision are more likely to work hard. Leaders have the ability to influence a group towards the achievement of goals [30]. Their role is to create a vision and effectively communicate this by setting clear objectives. To be effective at knowledge management it is imperative that leaders develop co-operation and implement consistent priorities across all functions in the organization. In order to do this, senior managers must adopt a systems approach to projects. In other words, they must look at projects as a system of interrelated activities that combine to fulfill the overall strategy of the organization [31].

V. CRITICAL SUCCESS FACTORS

It is clear that an organization's attributes or characteristics have a significant influence and impact on knowledge management initiatives. Therefore, companies must consciously develop strategies and support structures so as to enhance knowledge creation, transfer and reuse. Many studies found that significant emphasis is placed on managing explicit or codified knowledge at the expense of implicit or tacit knowledge [32, 31, 34, 35, 36]. It is important to remember that companies do not merely manage knowledge; they create it as well and everyone in the organization should be involved in knowledge creation. Therefore, building an effective environment depends on developing an integrated socio-technical system [37]. Here equal emphasis on the social side as well as the technical side of the organization.

Cormican and O'Sullivan [32] identified and grouped five key categories that enable effective knowledge management. These are; (A) Strategy and Leadership; (B) Culture and Climate; (C) Architecture and Structure; (D) Motivation and Performance; and finally; (E) Communication and Collaboration. Each of these categories was found to facilitate knowledge activities in organizations and therefore must be effectively managed. Key elements of this model are summarized below.

A. Strategy and Leadership

Organizations need the focus of a well-defined knowledge management strategy in order to establish the appropriate priorities [32]. In light of this leaders must define clear goals and directions for knowledge management initiatives to focus effort. Furthermore all knowledge management strategies should be linked to critical performance measures such as lead time, cost and quality and these measures should be deployed into the operations in the enterprise to ensure both alignment and traceability.

B. Culture and Climate

Knowledge focused organizations should ensure that information can be identified, captured and transferred in the right format to the right person at the right time. To do this leaders should strive to create an environment where people openly share information and trust each other with their knowledge. To make this happen, dedicated resources such as time, money and people must be provided. This demonstrates commitment.

C. Architecture and Structure

Organizations must be structured in a manner that enables open collaboration and the cross fertilization of ideas. Employees must not be constrained by traditional functional barriers but should seek to engage with customers (and their customers customers) as well as suppliers (and their suppliers suppliers). To do this leaders should try to promote cross functional teams where decisions making is decentralized and members are empowered and accountable for all decisions made.

D. Motivation and Performance

Motivation theory suggests that individuals respond well to incentives and initiatives that reward achievement and performance. Performance measurement and reward systems can be used to align the interests of employees to that of the organization and encourage the desired behavior from all staff. Therefore, if organizations wish to encourage knowledge management activities such as knowledge sharing and reuse they must design motivation and measurement systems that incorporate these activities.

E. Communication and Collaboration

Effective communication is essential for collaboration and knowledge management. Communication among employees and with outsiders stimulates their performance. Thus, the better that members are connected with each other and with key outsiders the better their performance. All team members must be seamlessly connected with each other therefore it is important that communication channels are open and effective.

VI. RESEARCH STRATEGY AND DATA COLLECTION

Research is the process of discovery and the search for knowledge to better understand a particular topic. It is generally conducted to fill a gap in knowledge or understanding. According to Stone-Romero [38] *“a major objective in research is to generate valid inferences*

(conclusions) about issues addressed by it”. Therefore, an effective framework is required to gather process and interpret data. It is also imperative to ensure that this data is valid and relevant to the research goals. Research strategy refers to the particular approach chosen by the researcher to undertake research. Following on from this, specific research designs and data collection methods can be developed. Such research methods are determined not only by the type of research to be investigated but also by the required outcome. The research method used in the study ultimately depended on the nature of the target audience and the research questions proposed.

The research strategy comprises a three stage research methodology. The key stages in the methodology include:

- Understand the area: Here the background, rationale and significance of the area is analyzed. An exploratory structured workshop was hosted with the target end users in an attempt to understand some of the key issues relating to knowledge and talent management in the tourist sector.
- Define the scope: This stage focused on framing the scope of the research. It clarified the aims and objectives of the research to be conducted as well as the audience to be targeted.
- Develop and validate research tools. This stage explores, selects and evaluates appropriate research tools to be used.

The principal data collection method used in this study is the survey. The first part of the survey is a scorecard or self-assessment audit that consists of twenty five statements, or traits adapted from Cormican and O Sullivan [32] (see table 1). The scorecard requires respondents to circle the extent to which they agree or disagree with the statements. The second part of the survey attempted to identify whether respondents used specific knowledge tools. The third part of the survey captured some basic data about the responding companies.

The survey was designed so that respondents could complete it themselves on a standalone basis. It was designed to act as a guide for structured interviews.

The advantages of adopting this approach as a data collection tool include:

- Responses are gathered in a standardized way
- It is easy to use
- It is a quick way to collect information

TABLE I
SCORECARD ADAPTED FROM [32]

STATEMENT	SCORE				
	Disagree			Agree	
Strategy and Leadership	1	2	3	4	5
1. Our company is interested in continuous improvement	1	2	3	4	5
2. We have effective knowledge and talent management strategies	1	2	3	4	5
3. Strategies are flexible enough to respond to changes in the environment	1	2	3	4	5
4. Strategies are used to establish appropriate knowledge and talent priorities	1	2	3	4	5
5. Managers actively promotes information sharing	1	2	3	4	5
Culture and Climate					
6. Information and knowledge is shared throughout the company	1	2	3	4	5
7. A formal idea generation process is in place	1	2	3	4	5
8. Risk taking is actively encouraged	1	2	3	4	5
9. There is a high level of trust in the organization	1	2	3	4	5
10. Adequate resources (time; money; people) are dedicated to achieve KM goals	1	2	3	4	5
Architecture and Structure					
11. There is a high level of co-operation across the organization's units	1	2	3	4	5
12. The organizational structure promotes knowledge generation and learning	1	2	3	4	5
13. Our teams are organic, flexible and agile	1	2	3	4	5
14. All operations are driven by customer needs	1	2	3	4	5
15. Team members are mutually accountable	1	2	3	4	5
Motivation and Performance					
16. Effective performance indicators are used to measure progress	1	2	3	4	5
17. Performance indicators encourage desired behavior	1	2	3	4	5
18. Knowledge sharing and reuse is rewarded	1	2	3	4	5
19. All team members are mutually accountable	1	2	3	4	5
20. Adequate and effective training is provided to all employees	1	2	3	4	5
Communication and Collaboration					
21. Alliances are formed with other organizations for mutual benefit	1	2	3	4	5
22. Communication among team members is efficient and effective	1	2	3	4	5
23. Individuals collaborate to solve problems	1	2	3	4	5
24. The right information is available at the right time and in the right format	1	2	3	4	5
25. All team members are equipped with effective IT tools to communicate	1	2	3	4	5

TABLE II
VALIDATION CRITERIA

Criteria	Description
Effective	Does the methodology work? Does it solve the problems, or produce the products, for which it is intended?
Efficient	Are all the tasks and activities prescribed by the methodology strictly necessary? Are all legitimate short cuts exploited? Is there any repetitive or redundant effort?
Universally applicable Comprehensive	Does the methodology work in any organization size or culture, or does it assume a particular organization or management style? If there are any restrictions on the range of situations that the methodology can handle, are these restrictions well understood?
Reliable Accurate	What risks are involved in using the methodology? How are the risks minimized?
Stable Robust Flexible Evolving	Is the methodology tolerant of minor errors and alterations? Does the methodology allow for human imperfection? Does the methodology contain a self-preservation mechanism, to maintain its relevance within the organization? Is the methodology capable of incremental change, to cope with new ideas or technological opportunities? Is the methodology capable of incorporating improvements learned from experience?
Simple and easy to learn and use Acceptable to participants	Is the methodology targeted at a well-defined population? Is the methodology based on a coherent set of concepts and techniques? Are all the concepts and techniques strictly necessary? Is it easy to motivate people to adhere to the methodology?
Well supported	To what extent are relevant tools, skills and services currently available to support this methodology?

- Data can be collected from a large group
- Observations and contextual data can also be captured

The survey was piloted and tested via an open workshop to ensure that (a) it was easy to understand; (b) it covered all the correct relevant material; and finally (c) it was applicable to the specific target audience. Table 2 provides a list of the criteria for this assessment as well as descriptions of these criteria. On receipt of some feedback the survey was amended and refined. It is important to note that during this process every effort was made to keep the final draft of the survey short and concise but as rich as possible without losing the ability to capture the maximum amount of critical data.

VII. FINDINGS FROM THE SURVEY

The study revealed that the vast majority of surveyed companies were interested in continuous improvement. However, less than half of those surveyed attest to having any effective knowledge and talent management strategies in place. Only half of respondents feel that their strategies are flexible enough to respond to changes in the environment and most worryingly the majority of respondents feel their strategies are not used to establish appropriate knowledge and talent priorities. However, our exploratory study revealed that managers actively promote information sharing in their organizations. In light of this it seems that there is a clear need to improve the present situation regarding the development of effective knowledge management strategies in service SMEs operating in the tourist sector.

Almost 77% of those surveyed stated that information and knowledge is shared throughout the company. However only 43% stated that they had a formal idea generation process in place. Again a mere 40% of respondents acknowledged that risk taking was actively encouraged in their organization. 63% of respondents stated that there is a high level of trust in the organization. Finally only 22% of those surveyed stated that there was adequate resources (e.g. time, money and people) dedicated to achieve knowledge management goals.

The vast majority from our sample acknowledged that there was a high level of co-operation across the organization's units. 75% of those surveyed agreed with the corresponding statement. However only half of respondent felt that their organizational structure promotes knowledge generation and learning and 66% felt that their teams are organic, flexible and agile. The vast majority of SME are customer focused with a total of 84% stating that all their operations are driven by customer needs. Finally 65% of respondents feel that team members are mutually accountable.

Those participating in the survey were asked to respond to five statements regarding motivation and performance. Our findings reveal that only 35% of responding companies feel that effective performance indicators are used in their companies to measure progress. Very few (43%) stated that performance indicators encourage desired behavior and only half of those surveyed felt that adequate and effective training is provided to all employees

The final category required respondents to consider communication and cooperation in their organizations. Half of the companies surveyed formed alliances with other organizations for mutual benefit. The vast majority (79%) stated that communication among team members is efficient and effective. 61% agreed that individuals collaborate to solve problems however only half of those surveyed believed that the right information is available at the right time and in the right format. Interestingly 65% of respondents noted that all team members in their organizations were equipped with effective IT tools to communicate.

Our survey also revealed that the adoption and use of talent management tools in the interviewed SMEs is very poor. They survey identified 13 tools for talent and knowledge management tools and it seems that only three of the tools are used by more than a half of the surveyed companies:

- Team building tools (58%)
- Coaching and mentoring (59%)
- Performance measurement (58%)

Many of the tools identified were practically unknown. For example:

- Balanced scorecard was used by only 12% of respondents
- Talent map was used by only 13% of respondents
- Talent repository was used by only 13% of respondents
- Employee Portal was used by only 17% of respondents

This exploratory study of SME owner managers in the tourism sector revealed some interesting results. It seems from our initial analysis that knowledge management strategies or not well defined, effective or used in the majority of participating SMEs. Furthermore there is a dearth of performance indicators. This would suggest that knowledge management initiatives are not a strategic priority and insufficient planning is afforded to knowledge management initiatives. These organizations recognize the importance and value of continuous improvement but they do not have any formal idea generation systems in place. Furthermore risk taking is not actively encouraged. While it is very positive to learn that the responding organizations are customer focused it is worrying that the respondents are not happy with the information management systems and practices. There also seems to be major gap between resources needed and resources employed to facilitate effective knowledge management. Companies do not deploy sufficient time people, money to support knowledge management initiatives.

VIII. CONCLUSION

Knowledge is a key resource that must be managed in all organizations. Employee's know how, experience and judgment resident within as well as outside the organization must be effectively leveraged. Research indicates that there are two principle types of knowledge management strategy namely codification (managing explicit knowledge) and personalization (managing tacit knowledge). It is important that the right balance be found between appropriate codification of knowledge (such as creating forms to structure

ideas) and personalization (such as working in teams). Developing an effective strategy for knowledge management depends on adopting a holistic approach to all aspects of the organization. Therefore, any initiative should include people, process as well as technology related issues. It seems that knowledge management solutions also require imaginative and subtle approaches because of the multifaceted nature of knowledge.

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REFERENCES

- [1] D.A. Nadler and M.L. Tushman, (1999) "Organization of the future: strategic imperatives and core competencies for the 21st century", *IEEE Engineering Management Review*, 27, pp 96-107, 1999.
- [2] A. Toffler, *Powershift: Knowledge, Wealth and Violence at the edge of the 21st Century*. Bantam Books, New York, 1991.
- [3] P. Drucker, *Post Capitalist Society*, Harper Business, New York, 1993.
- [4] D. Leonard Barton and S. Sensiper "The role of tacit knowledge in group innovation", *California Management Review*, 40, 3, 1998.
- [5] S.K Boersma and Stegwee, R.A. "Exploring the Issues in Knowledge Management", in *Proceedings of the 1996 IRMA International Conference*, Washington DC, May 19-22, pp. 217-222, 1996.
- [6] B. Nooteboom, "Towards a Cognitive Theory of the Firm. Issues and a Logic of Change", *Proceedings of the AFEE Conference*, San Francisco, Jan. 5-7, 1996.
- [7] D.A. Wilson, *Managing knowledge*. Butterworth Heinmann- Oxford, 1996.
- [8] I. Nonaka and H. Takeuchi *The Knowledge-Creating Company*, Oxford University Press, New York, NY, 1995.
- [9] M. Polanyi, *The Tacit Dimension*, Doubleday, New York, NY, 1967.
- [10] R.B. Horton, T. Buck, P.E. Watersoton, C.W. Clegg (2001) "Explaining intranet use with the technology acceptance model" *Journal of Information Technology*, 16, 4, pp 237-249, 2001
- [11] C.W. Choo, *The Knowledge Organisation: How organisations use information to construct meaning, create knowledge, and make decisions*, Oxford University Press, New York, 1998.
- [12] M. Boisot *Knowledge assets: securing competitive advantage in the information economy*. New York, NY: Oxford University Press, 1998.
- [13] J.M. Firestone and M. McElroy, "The New Knowledge Management", *Knowledge Management*, 6, 9, pp. 12-16, 2003.
- [14] M.E. Porter, "What is Strategy", *Harvard Business Review*, 74, No. 6, pp 61-78, 1996.
- [15] J. Pierce, "Knowledge: Content or Context? – Irish Computer Society Technical Views", *The Engineers Journal*, 56, 2, pp. 45-47, 2002.
- [16] K. Harris, K. "So, you're a knowledge worker: What Do You Do All Day?" *Internal Report*, Gartner Group, 1999
- [17] T.H. Davenport and S.C. Völpe, "The Rise of Knowledge Towards Attention Management", *Journal of Knowledge Management*, Vol. 5, No. 3, pp. 212-222, 2001
- [18] K.C. Laudon and J.P. Laudon, J.P. *Management information systems: Organization and Technology in the Networked Enterprise*, Prentice Hall, New York, 1999.
- [19] H. Takeuchi, "Beyond Knowledge Management: Lessons from Japan", *Monash Mount Eliza Business Review*, Vol.1, Issue 1, p21-29, 1998
- [20] J. Liebowitz, "Knowledge Management and its Link to Artificial Intelligence", *Expert Systems with Applications*, Vol. 20, No. 1, pp. 1-6, 2001.
- [21] Y. Malhotra, Y. "Deciphering the Knowledge Management Hype", *Journal for Quality and Participation*, Vol. 21, No. 4, pp. 58-60, 1998.
- [22] D. Kelleher, and S. Levene, *PAS 2001: Knowledge Management: A Guide to Good Practice*. British Standards Institution, London, 2001
- [23] C.R. McInerney "Knowledge management and the dynamic nature of knowledge", *Journal of the American Society for Information Science and Technology*, 53, 12 pp 1009–1018, 2002
- [24] L. Bassi, "Harnessing the power of intellectual capital", *The Journal of Applied Manufacturing Systems*, Summer, pp 29-35, 1998
- [25] K. Patton and A. Carlsen "Strategies, techniques and tools for knowledge reuse", *Internal Report*, Sintef, Trondheim, Norway, pp 1-24, 1998.
- [26] D. Ulrich, "Intellectual Capital = Competence * Commitment", *Sloan Management Review*, Winter, pp 15-26, 1998.
- [27] T. Kotnour, C. Orr, J. Spaulding and J. Guidi, "Determining the Benefits of Knowledge Management Activities". In *IEEE International Conference on Systems Man & Cybernetics*, Vol. 1, Orlando, Florida, 1997.
- [28] S.P. Robbins, *Organizational Behavior: Concepts, Controversies, Applications*, Prentice Hall, 1996.
- [29] B. Marr, 'Known Quantities', *Financial Management*, February, pp. 26-27, 2003.
- [30] J. Birkinshaw, J. "Making Sense of Knowledge Management", *Ivey Business Journal*, 65, 4, pp. 32-37, 2001.
- [31] R.L. Englund and R.J. Graham, "From experience: Linking projects to strategy", *Journal of Product Innovation Management*, 16, pp 52-64, 1999.
- [32] K. Cormican and D. O'Sullivan, D. "A scorecard for supporting enterprise knowledge management", *Journal of Information and Knowledge Management*, 2, 3, pp 191-201, 2003.
- [33] K. Kreiner "Tacit knowledge management: the role of artefacts", *Journal of Knowledge Management*, 6, 2 pp 112-123, 2002
- [34] P. Hildreth, C. Kimble, and P. Wright, P. "Communities of practice in the distributed international environment", *Journal of Knowledge Management*, 4, 1, pp 27-38, 2000
- [35] M. Zack, "Managing codified knowledge", *Sloan Management Review*, 40, 4, pp 45-58, 1999.
- [36] I. Nonaka, and Konno "The concept of BA – building a foundation for knowledge creation", *California Management Review*, 40, 3, pp 40-54, 1998
- [37] P.K. Ahmed, "Culture and climate for innovation" *European Journal of Innovation Management*, 1, pp 30-43, 1998.
- [38] E. F. Stone-Romero, "Implications of Research Design Options for the Validity of Inferences Derived from Organizational Research". *The SAGE Handbook of Organizational Research Methods*. D. A. Buchanan and A. Bryman (Eds), Sage, 2009.