

Knowledge Based Management Trends in IT Companies

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Abstract

Knowledge and ability to create it, access and use effectively, has long been both an instrument of innovation and competition and a key economic and social development. However, a series of dramatic changes in recent years have increased the importance of knowledge for generating competitive advantage. Ability to process and use information globally and instantly increased exponentially in recent years due to a combination of scientific progress in computing and distributed computing, exacerbation of competition, innovation in all its forms and cuts of operating costs in global communication networks.

As barriers to access knowledge regarding a process, product or market are gradually decreasing (distance, geographical features, and costs), knowledge and skills are becoming increasingly a key to competitiveness, both locally and globally.

This paper, based on a survey of IT 551 Romanian companies, address a sensitive issue of both business and academic fields – perception of knowledge based economy in Romanian companies. Its conclusion can guide decision makers in Romania to develop an integrated approach to foster knowledge based economy in our country.

Keywords: *knowledge based management, Romanian companies, IT&C companies.*

JEL classification: M10, M15

Introduction

Although learning and therefore knowledge were used in the management of human activities since ancient times, knowledge based management has become part of scientific literature in the last part of last century. H.G. Wells, in 1938, although didn't use the term knowledge based management, referred to the so-called "global brain" (World Brain), capable to synthesize and represent the amount of collective knowledge of individuals and organizations (World Brain: The Idea of a Permanent World Encyclopedia).

In the contemporary economy, learning and knowledge have become key success factors internationally and intangible resources are of vital importance [1]. Competition between existing firms moved in large part, the plan tangible resources (capital, raw materials, land, machinery and equipment, etc.) In terms of intangible resources, in which elements such as knowledge and ability to use (knowledge management) are crucial. Knowledge become the basic resource firms,

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how they get power, prestige and wealth in the economy and modern society. Generation, acquisition and use of knowledge - to name just a few of the transformation of knowledge - are extremely important for sustainable economic, social and cultural sustainable (Popa, Dobrin, Ceptureanu & Ceptureanu E.,2009).

Collaborative strategies are focused on making connections between firms, companies, and even institutions with distinctive and complementary competencies and capabilities obtained by excellence. Unique organizational capabilities depend largely on the ability of organizations to focus "on what they can do best" (Roja, Nastase, 2013).

This trend applies equally to individuals, organizations, institutions, companies, regions or states. Modern economic environment characterized by volatility, high income to employees and rapid changes in political or international competition. As a result, modern organizations cannot compete without skilled managers and employees. Therefore, methods that companies use to manage and exploit knowledge, processes and technologies specific to their activity, including computer technology, are extremely important (Nicolescu et al, 2009).

According to various specialists, no managerial or economic activity has attracted more attention in the last decade as knowledge management. The same specialist notes, however, that while there are many inconsistencies, controversies and points of view radically different:

- Some experts consider it to be a form of information management, but in a demanding name;
- Other specialists approach it as a system to facilitate access to distributed information resources;
- Critics simply disregard it and consider it just a "fashion" temporary management.

American Center for Quality and Productivity (<http://www.apqc.org/>) made the first benchmark on knowledge management in 1996. This study found that this term is recognized and visible, it became an area of strength for a number of consulting firms and companies from different industries that were already a variety of activities related to knowledge management.

A more recent study conducted on a sample of 200 executives (Bontis) found that:

- 80 percent of them claimed to have ongoing knowledge management actions;
- 25 percent of companies had the manager in the organization knowledge (knowledge management chief officer) or learning manager (chief learning officer) - although only half of them were subordinate or a dedicated budget);
- 21 percent of companies had a knowledge management strategy;
- Only 6 percent of the companies analyzed using a holistic approach to enterprise-wide knowledge management (however, 60 percent of the respondents said that within five years will have implemented an integrated system).

Today, knowledge management has become both a science, a branch of management with its own body of concepts, theories, models and best practices and a business (Ceptureanu and Totan, 2010) (for major international consulting firms like Ernst & Young, Arthur Andersen and Booz-Allen & Hamilton). In addition, a number of professional organizations interested in areas such as benchmarking, risk management, change management etc. explores the relationship between knowledge management and those areas (for instance, APQC - American Productivity and Quality Council and ASIS - American Society of Information).

1. Survey

1.1. Sample

Analysis of knowledge-based management in Romania was performed on a sample of 107 firms that use – totally or partially - knowledge management systems.

Considering the age of firms analyzed, most of the companies under investigation have been under 5 years old (39.25%), followed by firms aged 5-10 years (28.97%), the 10-15 years (17.75%) and companies more than 15 years old (14.03%).

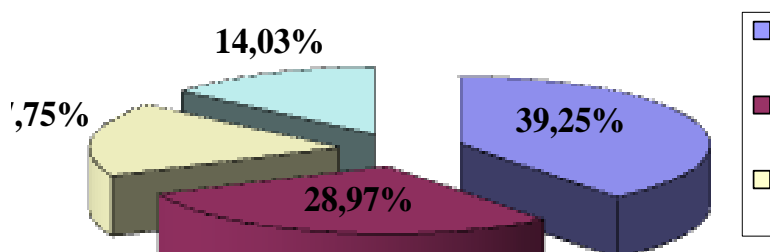


Figure 1. Sample structure by age of surveyed companies
(Source: own research)

Distribution of companies by development regions is as follows: South West - 12.14%, Bucharest - 28.98%, North East - 4.67%, North West - 12.14%, South East - 5.60%, Western region - 14.96%, Central Region - 13.10% and South - 8.41%.

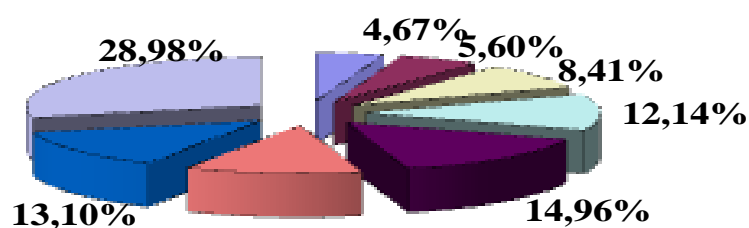


Figure 2. Sample structure by development regions of surveyed companies
(Source: own research)

By size class, micro companies formed 21.5% of all companies surveyed, the small ones share of 34.58%, medium-sized companies have a rate of 33.64% and 10.28% are large companies.

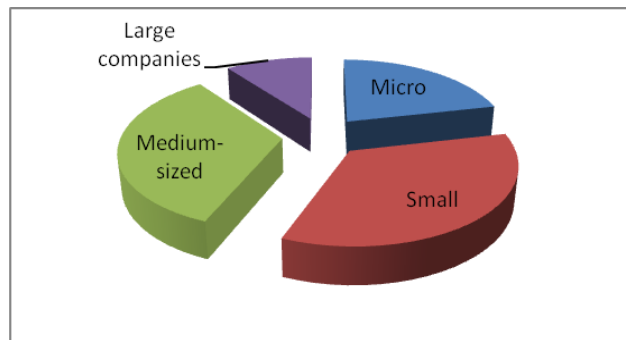


Figure 3 Sample structure by size of surveyed companies
(Source: own research)

Regarding legal form, 47.66% of companies are limited liability companies, 49.53% are joint stock companies and only 2.81% have other legal forms.

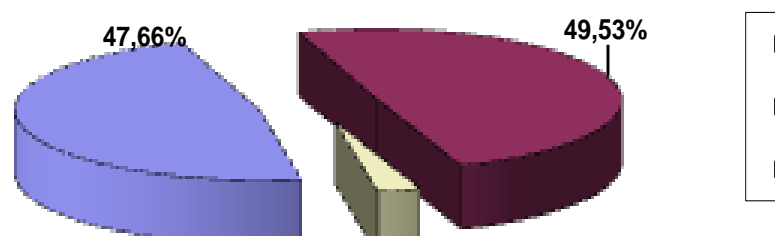


Figure 4. Sample structure by legal form of surveyed companies
(Source: own research)

By industry, sample structure is the following: 19.63% of companies operates in trade, 21.98% are from services, 28.04% are manufacturing companies, active in construction 1.86%, 2, 81% are 5.61% in transport and tourism operates.

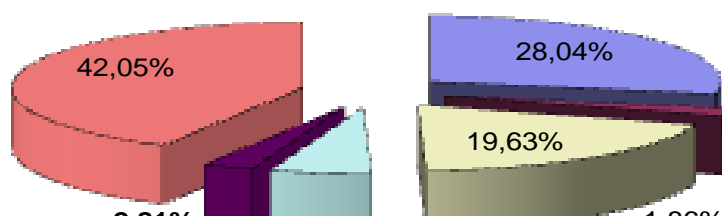


Figure 5. Sample structure by industry of surveyed companies
(Source: own research)

By ownership, all companies using elements of knowledge based management are private.

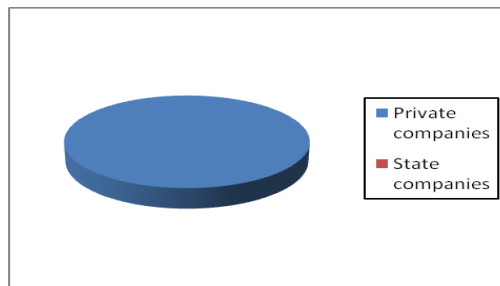


Figure 6. Sample structure by ownership
(Source: own research)

1.2 Survey results

The research focused on features of knowledge management system in Romanian companies.

Among **decisional trends**, the most common by far was the computerization of decision (43.93%), seconded by contextualizing decision processes (24.30%), and the less common is efficiency of multidimensional decision making (4.67%).

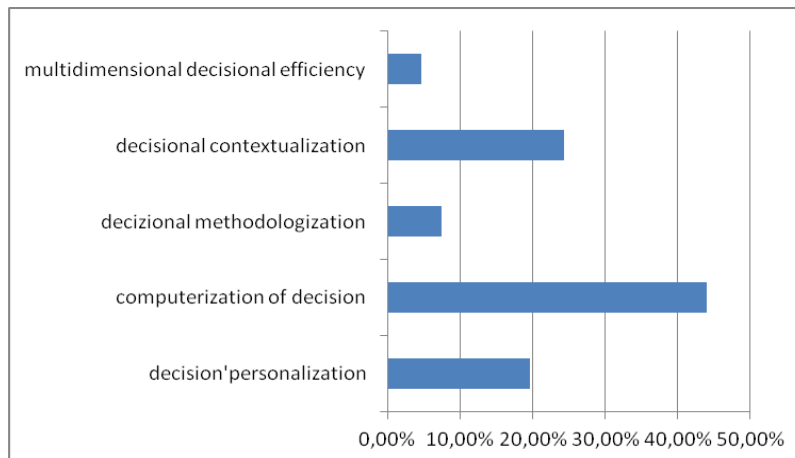


Figure 7. Decisional trends in Romanian knowledge based companies
(Source: own research)

Regarding **informational system**, Romanian companies that implement knowledge management are focus primarily on the use of computers, email and internet (100%). It is noteworthy that practically there was no company that has implemented knowledge management technologies that do not use IT&C.

Table 1 IT&C technologies used

No.	IT&C technologies used	%
1.	Computers	100
2.	E-mail	100
3.	Internet	100
4.	Company's own website	72
5.	Sales/ purchases online	92
6.	Intranet	83
7.	Not use of any of the above	0

(Source: own research)

Intention to use of IT & C has been communicating with suppliers or customers (100%), obtaining information on business (95.33%) or facilitate intra-organizational communication (92.52%).

Table 2. Intended use of IT&C

No.	Intended use of IT&C	%
1.	To communicate with suppliers or customers	100,00
2.	To facilitate communication within the company	93
3.	For obtaining information about business	95
4.	Transactions and electronic payments	64
5.	Another answer, specify that.	44

(Source: own research)

Finally, the **most common informational trends** in Romanian companies that use knowledge management have been computerization of work tasks and staff training (47.66%) and informational outsourcing (23.36%), while the least common was dematerialization and deleveraging of information and knowledge (10.28%).

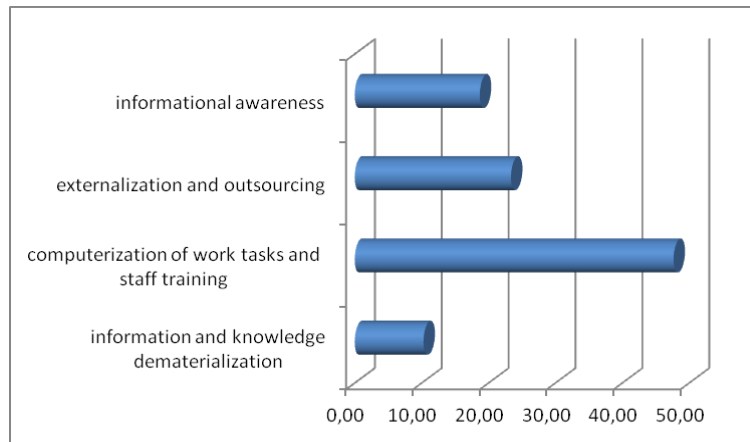


Figure 8. Informational trends in knowledge-based Romanian companies

(Source: own research)

In terms of **organizational subsystem**, the main categories of employees based on knowledge was specialist based on knowledge (35.51%) and practitioners of knowledge (52.34%), while the most rare is, which is very unfavorable, knowledge managers category (20.56%).

Table 3. Categories of employees based on knowledge

No.	Categories of employees based on knowledge	%
1.	Stewards	27
2.	Brokers	31
3.	Researchers	27
4.	Knowledge Managers	21
5.	Infrastructure specialists	36
6.	Knowledge Specialist	74
7.	Practitioners of knowledge	52
8.	None	0

(Source: own research)

Also in the category of **knowledge workers**, managers of companies investigated **appreciate** the knowledge and skills they held, learning ability and competence in business (all at 100%), while the recommendations contemplated or graduate school are the least important.

Table 4. Elements for assessing knowledge-based employees

No.	Elements for assessing knowledge-based employees	%
1.	Experience	72
2.	Knowledge and skills held	100
3.	Recommendations considered	22
4.	Intelligence	83
5.	Sense of responsibility	93
6.	Involvement in company	86
7.	School graduated	61
8.	Learning ability	100
9.	Competence in business	100
10.	Conscientiousness	71

(Source: own research)

Main trend on **organizational level** in companies that implement knowledge management systems were development of complex relationships with stakeholders (33.64%) and outsourcing (26.17%), whereas the least represented were remodeling organizational system based on the value chain and expanding organizational subdivisions to dual functionality (7.48%).

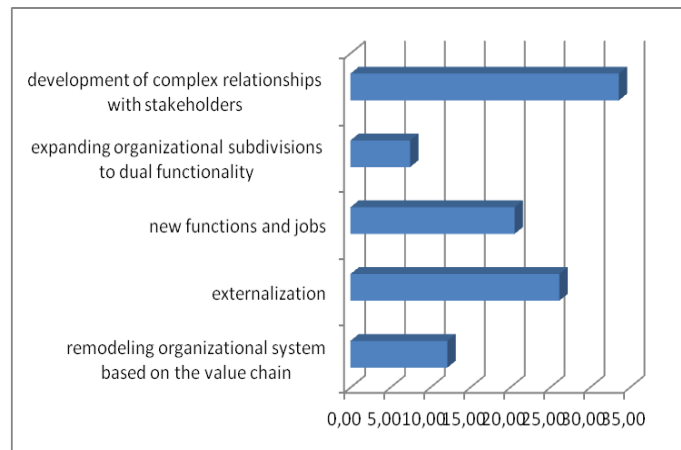


Figure 9. Organizational trends in knowledge based Romanian organizations
(Source: own research)

The main knowledge management tools used by Romanian managers are benchmarking (26.17%), expert seeker (17.76%) and technical knowledge collection (13.08%), while social network analysis (2.80%) K profile (2.80%) or Skandia navigator (1.87%) are least used.

Table 5. Knowledge management tools

No.	Knowledge management tools	%
1.	Knowledge audit	7
2.	Social network analysis	3
3.	Knowledge matrix	10
4.	Benchmarking	26
5.	Expert seeker	18
6.	Technical knowledge collection	13
7.	Transducer	11
8.	K profile	3
9.	Mega conversation	2
10.	Skandia Navigator	3
11.	Other, please specify which.	4

(Source: own research)

Among **methodological - managerial trends**, increasing computerization of management tools (22.43%) and increasing sophistication of methodological-managerial elements (17.76%) are found in most Romanian companies managers responses, while methodological and managerial ascendancy of elements with a strong motivational content (3.74%), internationalization, management methods and techniques (2.80%) use of management tools (1.87%) are less frequent.

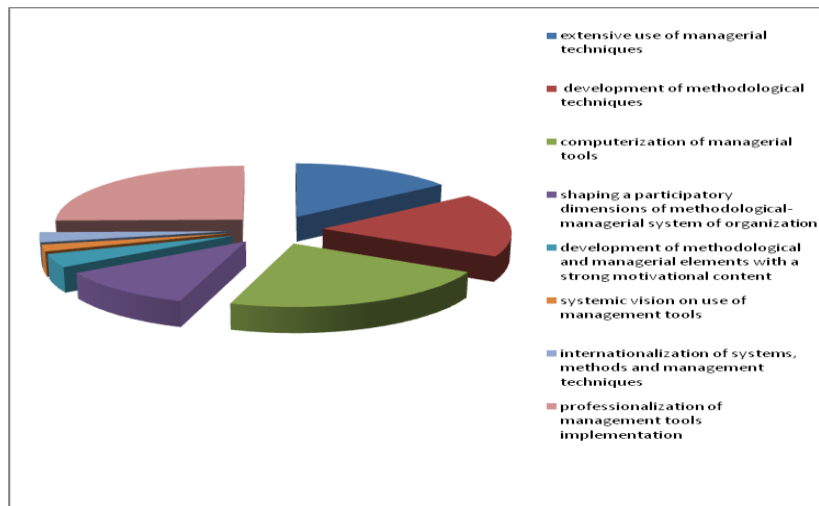


Figure 10. Methodological- managerial trends in knowledge based Romanian organizations

(Source: own research)

In terms of **cycle knowledge processes** performed by domestic companies, it is found that internal sources of knowledge access, knowledge use, knowledge storage and exploitation of knowledge are most used by Romanian companies, but neglected knowledge renewal (40.19%) and sharing knowledge (71.03%).

Table 6. Processes of knowledge cycles

No.	Processes of knowledge cycles	%
1.	Accessing internal sources of knowledge	100,00
2.	Creating new knowledge	86
3.	Accessing external sources of knowledge	74
4.	Transmission of knowledge	97
5.	Sharing knowledge	71
6.	Using knowledge	100
7.	Storage knowledge	100
8.	Development of knowledge	73
9.	Renewal of knowledge	40
10.	Exploitation of knowledge	100

(Source: own research)

None of the managers investigated does not propose closing business in the future, which is a sign that companies performed well in terms of economic and financial results. The main **strategic objectives** for the future horizon are the rapid expansion of business (41.12%) and moderate expansion of business (35.51%).

Table 7. Main strategic objective for the next 3 years

No.	Main strategic objective for the next 3 years	%
1.	Maintain business to its current size	21
2.	Moderate expansion of business	36
3.	Rapid expansion of business	41
4.	Sale of business	3
5.	Closing the business	-

(Source: own research)

The main competitive advantages of knowledge based Romanian companies come from quality products / services (22.43%), innovation (14.95%) and price – quality (14.02%), while the lower price of products / services is sought by a minority (3.74%).

Table 8. Competitive advantages

No.	Competitive advantages	%
1	Low price of products / services	4
2	Quality of products / services	22
3	Value for money	14
4	After-sale customer services	10
5	Innovation capacity	15
6	Quality employees	12
7	Quality of management practices	9
8	Company reputation	13

(Source: own research)

Innovation efforts of firms investigated were oriented with priority to create new products/services based on knowledge (32.71%) and upgrading information technology (24.30%), while the management side is ignored by most Romanian managers (8.41%).

Table 9. Orientation of innovation efforts

No.	Orientation of innovation efforts	%
1.	New products / services based on knowledge	33
2.	New production technologies	15
3.	New approaches to management	8
4.	Information technology modernization	24
5.	Training human resources	20
6.	Not applicable	-

(Source: own research)

Conclusions

- Of the decision trends, the most common by far was the computerization decision (43.93%), seconded by contextualizing decision processes (24.30%), and the least common is efficiency of multi-dimensional decision-making (4.67%).

- In the informational subsystem, Romanian companies that implement knowledge management focus primarily on the use of computers, Internet and email (100%). It is noteworthy that practically there was no company that has implemented knowledge management technologies that do not use IT & C.
- The most common trends in Romanian companies that use information knowledge management work tasks have been computerized and staff training (47.66%) and outsourcing (23.36%), while the less common was dematerialization and deleveraging of information and knowledge (10.28%).
- The main categories of employees based on knowledge was experts based on knowledge (35.51%) and practitioners of knowledge (52.34%), while the most rare is category managers based on knowledge (20.56%).
- All staff in the knowledge category, managers of firms investigated appreciate the knowledge and skills they held, learning ability and competence in business (all at 100%), while the recommendations contemplated or graduate school are the least important.
- The main trends in companies that implement organizational knowledge management systems were to develop complex relationships with stakeholders (33.64%) and outsourcing (26.17%), whereas the least represented were organizational reengineering based on the value chain and expanding organizational subdivisions dual functionality (7.48%).
- The main management tools used by Romanian managers are benchmarking (26.17%), technical "expert seeker" (17.76%) and technical knowledge collection (13.08%), while social network analysis (2.80%), profile K (2.80%) or Skandia navigator (1.87%) are least used.
- Among methodological- managerial trends, increasing computerization of management tools (22.43%) and increasing sophistication of methodological and managerial elements (17.76%) are found in most Romanian companies' managers responses, while methodological elements with a strong motivational content (3.74%), internationalization, management methods and techniques (2.80%) and print a systemic vision sharp design and use of management tools (1.87%) are less frequent.
- There is a slight decrease of managers who make distinctions between employees based on knowledge and other categories of employees (51.40% vs. 48.60%).
- Virtually no company using knowledge management neglects the strategic side. Unfortunately, knowledge-based strategies are a minority (16.82% -83.18% compared with traditional strategies).

- None of the managers of investigation does not propose closing business in the future, which is a sign that companies performed better in terms of economic and financial terms. The main strategic objectives for the future horizon are the rapid expansion of business (41.12%) and moderate expansion of business (35.51%).
- The main competitive advantages on knowledge based Romanian companies came from quality products / services (22.43%), innovation (14.95%) and price - quality (14.02%), while low price products / services are looking for a minority (3.74%).
- Main cultural barrier in using knowledge management is, according to Romanian managers, reluctance to share knowledge (27.10%) and lack of rewards / recognition for participation in the exchange of knowledge (21.50%), while the same managers consider organizational inertia as the least important barrier (17.76%).
- Innovation efforts of the companies investigated have turned priority to creating new products / services based on knowledge (32.71%) and upgrading information technology (24.30%), while the management side is ignored by most managers Romanians (8.41%).

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Bibliography

1. Bontis N, The Rising Star of the Chief Knowledge Officer <http://www.business.mcmaster.ca/mktg/nbontis/ic/publications/BontisIBJ.pdf>
2. Ceptureanu S.; Totan L.S. (2010), Knowledge-Based Communities, 16th International Conference on the Knowledge-Based Organization - Management and Military Sciences, Conference Proceedings I Book Series: Knowledge Based Organization International Conference pp. 495-498 Sibiu, Romania Date: NOV 25-27, 2010
3. Nicolescu O., Nicolescu C.; Popa I.; Ceptureanu S., Ceptureanu E (2009), Innovation in Romanian SMEs and its impact on performance, Spring Conference of the International-Association-of-Computer-Science-and-Information-Technology IACSIT-SC 2009: International Association of Computer Science And Information Technology - Spring Conference pp. 336-339 DOI: 10.1109/IACSIT-SC.2009.134

4. Popa I.; Dobrin C., Ceptureanu S., Ceptureanu E. (2009) The positive impact on SMEs activity of Romania's integration in the European Union, *Spring Conference of the International-Association-of-Computer-Science-and-Information- IACSIT-SC 2009: International Association of Computer Science And Information Technology - Spring Conference* pp. 340-344 DOI: 10.1109/IACSIT-SC.2009.138 Published: 2009
5. Roja, A., I., Nastase, M., (2013), "Leveraging Organizational Capabilities through Collaboration and Collaborative Competitive Advantage", *Revista de Management Comparat International / Review of International Comparative Management*, Vol. 14, Issue 3, July
6. <http://www.apqc.org/>