

## KNOWLEDGE MANAGEMENT AND ORGANISATIONAL STRUCTURE DESIGN PROCESS

Mihai Vărzaru<sup>1</sup>  
Anca Antoaneta Vărzaru<sup>2</sup>

*ABSTRACT: The new society, the society of knowledge, is based on an economy of connections, relationships, networks and on the collective intelligence that represents the foundation of durable development and in which knowledge management represents the main instrument available for change. Knowledge management is prepared to offer an organization the manifestation of collective intelligence.*

*Through its informal manifestations, knowledge management influences the process of structural organization. The structure must, in return, favor the emergence and development of knowledge management, in order to encourage the emergence of organizational intelligence.*

*This paper intends to study, first, the effects of knowledge management implementation in the process of organizational structure, to bring forth the problems which nowadays management encounters in dimensioning the number of personnel and ways of overcoming these difficulties. Our intercession analyzes and accentuates the influences which different types of structures show over the implementing and sustaining projects of knowledge management in organizations.*

*The description of the two groups of mutual influences and their consequences contribute to a better approach of knowledge management projects as shown above and the correct dimensioning of personnel in the organization.*

*Keywords: knowledge management, organizational structure, structural forces, adocracy*

*JEL Codes: M12, M13, M21*

### Introduction

Conceiving a structure represents a process of accumulation and changes, all determined by a number of factors highlighted by the evolution of organizational theories. The outdistance from classical theories and the concept of work made the dimensioning of the number of employees, a relatively easy task at first sight, be a “mine field” in which objectivity is hard to reach (Camaly, Deforceau, 2010). But avoiding solving such a problem determines the emergence of situations which can be far from reality and which affect the organizational climate and performance.

At the same time, the emergence and introduction of second generation knowledge management means, in a systemic view, the avoidance of isolation between strategic, organizational, technical and human approaches and their human protagonists, because these four domains are inseparable (Prax, 2003). The organizational dimension, which concerns choosing modalities of organizing work and types of communities, forms together with the human dimension (motivation of sharing knowledge) elements of the organizational structure which determines the success or failure of knowledge management projects.

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<sup>1</sup> University of Craiova, Romania, e-mail: mihaivarzaru@yahoo.com

<sup>2</sup> University of Craiova, Romania, e-mail: varzuanca@yahoo.com

From an operational point of view, knowledge management can be defined as a field that “combines knowledge and experience in certain processes, products or ways of organizing in order to create value” (Prax, 2003).

Its successful implementation can depend on providing an organizational framework capable of motivating and involving personnel in the process of sharing their intimate knowledge, often associated with a loss of personal power.

Identifying the characteristics of structural organization in this framework is, in our opinion, the most important success factor of any knowledge management project.

### **Literature review**

The first reflections concerning organizing appeared at the beginning of the 20th century together with the acceleration of industrialization and the emergence of big enterprises, in which capital and power dissociated. These reflections correspond to an empirical approach, in which practitioners such as Taylor, Weber, Fayol and Ford analyze the organization in a normative manner in order to rationalize its functioning.

The classical approach sustains the existence of an ideal model of organizing an enterprise, whose efficiency is based on dividing tasks, and which is convenient as long as the individuals only execute tasks and show no initiative. All decisions and coordination are made by the leaders, and the employees, considered incapable of initiative, are kept responsible only with executing tasks.

The exclusively technical dimension of scientifically organized work slowly begins to be challenged by the representatives of human relations schools (Mayo, Herzberg, Likert, Lewin, Aegyris, Maslow, McGregor), which bring forth the importance of yielding a point (increased autonomy) and of some new management behavior in order to increase the role of the human factor in the growth of the enterprise's performance. The classical, technical approach, based on standardizing procedures, direct supervising and the hypothesis that man is a means of production like anything else, starts to yield a point to employees in order to increase their motivation and involvement in achieving the organization's goals. Jobs become richer, work conditions improve and this complicates the process of organizational structuring.

Since the 1960's the theories of contingency (Woodward, Burns and Stalker, Chandler, Mintzberg, Lawrence and Lorsh) have challenged the principles of pre-existing theories and the prescription “one best way”, rejecting the idea of the existence of an ideal, optimal structure and supporting the structural configurations that adapt according to the environment's influences. More research done during 1960-1980 characterizes the contexts and factors that influence and determine structural choices. The technicality of the classical school is also completed by qualitative elements that allow the choice of adequate structural types to an assembly of specific factors of any organization.

Mintzberg synthesizes the four contingency factors of the organization (age and size, technical system, environment characteristics and location of the power), identifying five coordinating mechanisms and seven structural types of the same. In this way the theories of contingency have ended the classical paradigm of organizations and enriched the school of human relations.

The defining and conceiving of the structure stands for, according to Mintzberg, the prediction of the means used to divide work in distinct tasks and the insurance of their coordination. According to the environment in which they evolve and its strategies, to its human management resources and the chosen objectives, power will be more or less centralized, the hierarchical lines more or less numerous and short, the technical structure and logistic support will be more or less important (Lecrivain, 2010).

*The professional stream* (Sloan Drucker, Gelinier) developed after 1980, sets accent on the elements of management that can ensure the growth of organizational performances, such as the autonomy of sub-units and their transformation in profit centers, the enrichment of the leadership's

mission, the concentrating on activities that bring appended value, participative leadership through objectives, etc.

*The sociological approach* (Crozier and Friedberg) considers the organization as a social and dynamic construction as well as a coalition of actors, bringing thus forth the necessity of continual change and the taking into consideration of the potential of the groups in its management and administration. The sociology of organizations positions itself in the frame of a logic of action and starts from the hypothesis that the individual who works is not motivated exclusively by gain (taylorism) and does not behave like a passive actor, who does nothing but react to simple stimuli (the stream of human relations). The individual is a free human being, and even though its environment does not allow him to develop but a limited rationality, he can make decisions. He exists as an individual in the organization and develops individual behaviour strategies.

*The cognitive approach* (Cyert, March, Argyris, Schon and Nonaka) highlight the primordial role of human resources in the increase of work productivity and that the result of this productivity is based largely on its knowledge and competences. It also highlights the importance of individual learning when it places itself at the service of organizational learning. Owning a cognitive capital, the enterprise can rely on its knowledge and key competences in order to develop strategies and evolve. Nonaka and Takeushi present the organization as a place where knowledge is created, this being a key factor in conceiving and developing a competition advantage.

As observed in the presentation above, most of the organization theories were formulated between 1880 and 1980. The more recent of them, the psycho-cognitive one, dates back in 1995, but the reality of the organizations in 2011 cannot be fully expressed through what appeared up to now (Jeremy, 2011).

However, a test run of organizational theories offers an adequate assembly of pertinent information to the submitted study, allowing the realization of a compared structural diagnosis with two interesting referential:

- the structural version corresponding to the report between local organizations
- the structural version corresponding to the wishes of the staff in these organizations

Regarding the activity of the organization and its approach one can notice an accumulation of great transformations due, on the one hand, to the new role of human resources in accomplishing performance, and, on the other, to the implication of all human resources in the decisional process as well as a continuous development of knowledge and competences, the main source in advantageous competition.

Most of the enterprise activities are based on creativity and innovation, elements difficult to measure due to their sinuous character. The new society based on knowledge is characterized by powerful dynamic and sinuous processes (Bratianu, 2009). In fact this means the predictability of efforts and results is reduced even with a capital of qualified human resources since management of knowledge and inspiration play a decisive role at both individually and collectively level.

Under the circumstances, planning human resources in the process of conceiving an organizational structure has come across great technical problems and the tendency to adopt adhocratic behaviour in organizations where other types of structures predominate may represent an attempt to solve this kind of difficulties.

### **Structural concept and staff quantification**

Approaches to the structural concept generally refer to the rules and principles that have to be respected in such a process and less to the staging and presenting it in an operational manner. Certo (2002) makes an interesting remark about the formal structure of an organization, indicating four categories of forces influencing it: forces relying on the manager, on tasks, on the environment, and on the forces relying on subordinates. He also states that there is no universal method of designing the occupational positions in a company and that its design also relies on other four

factors: objectives/ strategies suggested technologies to be used, employees and external environment.

Forces relying on tasks refer, among other things, to the dynamism determining their instability and unrepeatability, which makes the efforts of scientific organization in issuing some methods and procedures not viable. Many occupational posts no longer fulfil the classical demands so that in the structure of projects they last briefly and turn into roles. Consequently, the management of competences is the concept that fills the gaps in the old concept of profession and qualification which have lost their relevance. From here the difficulty of quantifying their volume of work, and, furthermore, the number of employees needed to perform it. This category of tasks can include those which accomplish the principles of autonomy and the participation of employees into the decisional process as well as knowledge management.

The influence of subordinates upon the structure manifests, first of all, through their level of competence and development potential. The classical theories regarding the number of employees took into consideration a performer with an average qualification and dexterity without a focus on these aspects. The importance of this factor is supported by the competition on the labour market towards finding the best managers and specialists and continuous staff training.

When referring to the process of conceiving the structure, Hauwell (1974) underlines the perspective of the scientific organization evoking the levels on which organization manifests in an enterprise - the policy, the functional and administrative structures.

The second level of organizing, process organizing, has as aim the identification of tasks and components as well as determining the amount of specific work through methods appropriate to situations. Accordingly, for repetitive activities there are systems limiting time on movements MTM, WF etc., which have become interesting instruments of measuring the amount of work.

Classical theories of organization have a complete coverage in the case of mechanistic, bureaucratic and entrepreneurial structures but the situation changes dramatically in the case of adhocracy. The dynamics of tasks reduces their life span, thus making their measurement difficult or inefficient and so occupational positions are continually changing. They no longer coincide with standard professions since the knowledge and competences they require are new and they are obtained through continuous training. Classical positions become roles representing less defined extensions as regards the contents of work and the ways of dealing with tasks. Mutual adjustment stands for the most adequate mechanism of coordination in such organizational structures (adhocratic structures).

The evolution of the present day environment and knowledge improvement have increased the interest in the organizational concept, which finds inspiration in other fields like industrial design and architecture from which it borrows the "attitude of projection" (Bolland and Collopy, 2004). From these domains, a conception and an approach unique in dealing with issues is an inspiration for managers.

The new attitude is characterized by a perspective centred on the human as a solution of focusing strategies (Cross, 2007; Frazer, 2007; Brown, 2008). It opposes the usual practices which take the existing structures as an instrument that can be determined and adjusted through schemes, labels and stereotypes developed in time (Weick, 2004). Structure by projection also means bringing organizational methods closer to design, action and implementation (Jelinek, Romme and Boland, 2008).

Approaching the conception of organizational structure through design stands for the delineation of this process from the excess of technicity, the rigour of using some patterns to the minutest of details. The technical aspects have to come first in the case of elements that can be projected, controlled and reconfigured, such as compartments or informational systems because the other elements of organizational life, like interactions and individual behaviour cannot be imposed in such way.

Moving towards design allows more subtlety and makes the structure easier to adjust and more sensitive to the environment instability (Eisenhard and Sull, 2001; Davenport, 2005; Edmonson, 2008; Garud, Jain and Tuertcher, 2008; Davis, Eisenhardt and Bingham, 2009). The excessive organizing of tasks, limiting thinking, is replaced with a better participation and a better use of the employees' competences. The new process of structural projection is based on models which allow learning and increase employees' vitality within the organization (Weick, 2001; Spear, 2004; Jelinek, Romme and Boland, 2008).

A reduced level of structuring in organizational design is not an easy task since it supposes a sensitive balance between studies requiring more and those requiring less from this perspective, the unique consensus being that high performance is generated by a moderate structuring (Davis, Eisenhardt and Bingham, 2009). A way of reaching this dimension was studied on minimal structures (Kamouche, Pina e Cunha and da Cunha, 2003), characterized by a set of rules meant to support the manager of an organization and to preserve its resistance.

### **The influences of the emergence from knowledge management in organizational structure**

An ideal vision of this concept is that in which the development and transmitting of knowledge becomes the organization's second nature. Its managerial structure, the assignment of roles and responsibilities must sustain the insurance of a maximal fluidity of exchanges of mutual and explicit knowledge through cooperating networks.

Knowledge management is a dynamic concept, in which we find collaborative instruments, economical intelligence, and learning organization, social networks and so on (Perrin, 2009). These different facets concentrate around the same preoccupation: a rational and scientific organization of the knowledge owned by a socio-economical entity. By analyzing practices of the past, observing practices of the present and anticipating those in the future, the author brings arguments that place this concept in its teenage period. It constantly reinvents itself and evolves as its real practices, dynamics, methods and instruments change.

Knowledge management designates an assembly of diverse objectives and methods which trace:

- the formalization, sharing, conservation, transmission and reutilization of knowledge and good practices existing in enterprises;
- the management of external knowledge (documenting, economical intelligence);
- creating new knowledge (continual improvement, research – development).

Its emergence in organization brings consistent modifications to managerial principle, both in organizing and at individual level. The organizing modifications are traced back, for the most part, in the structure of the respective organization. Although its emergence is recently dated, knowledge management is considered a new function of the organization (Knowings, 2003), a situation in which its influence on activities and on the dimension of the organizational structure cannot be questioned. We add the fact that there can be only a few "full-time" jobs, most of the activities of knowledge management lying also in the classical positions which are the most involved from this point of view. Participation in knowledge sharing process requires specific tasks, knowledge of tools, good behavior and time. KM efficiency requires that time be recovered through increased productivity and superior results at individual or organizational level.

As to what the incidence of adopting knowledge management over the structure of an organization is concerned, this is difficult to question. The activities and their components are relatively easy to catalogue and can be estimated from the perspective of the volume of work they require and the necessary personnel to support them. On the other hand, adopting this instrument may significantly grow the employees' productivity, regarding the efficient reorganizing of the archive of information, knowledge, experience, accessing modalities and combining methods in order to achieve new ones, from which one can draw competition advantages.

The estimate of the latter is quite difficult, but not impossible, as it frees the employees' time budget, which is replaced by knowledge management actions. It is very likely that these actions matter in the growth of the work volume, but their marginal productivity will be superior to that of classical actions they are replacing.

### **Structure and knowledge management**

For every traditional enterprise entering knowledge society is not easy and must be coordinated as a real enterprise project. The central role assigned to the human factor and to the client in the new economical model, the emerging of e-business, the new concepts about enlarged enterprises force the enterprise to rethink deeply the bases of its own strategies, its mechanisms for creating values, its cultural values and all its ways of functioning.

Taking action will be difficult, because it will have to face managerial and organizational resistances, the old configuration of power, as they all manifest themselves as soon as change appears.

An organization must be designed in a logical manner and its performance functioning depends on a few simple principles. For an organization to function, it must reconcile different coordination mechanisms. Their choice is not accidental, but it depends on a balance between four structuring forces, namely entrepreneurial, mechanistic, professional and adhocratic (de Person, 2001).

Entrepreneurial force is based on the logic of direct supervision, conducted by a manager and is indicated in conditions where the environment is simple and dynamic. Mechanistic force is inspired by tailoristic logic and the convenient coordination mechanism is the standardization of the procedures. Technostructure is the dominant structural element in an environment characterized by simplicity and stability. Professional force is characterized by the presence of highly skilled operators in the organization, and is specific to a stable and complex environment. Adhocratic force tends to a configuration that works through projects, depending on the precise and original requirements of each customer, where you need to continuously innovate to fulfil these requirements. Keywords in adhocracy are innovation, quality, team examination etc. Adhocratic logic is shown in a complementary and dynamic environment.

To include the human element in this structural framework, de Person (2001) uses Ernst's life positions scheme, called "inside OK": a grid to go forward with the other. The conclusion reached is that the adhocratic structure provides the conditions to cooperate and motivate of the best successful implementation of knowledge management.

This first conclusion does not mean that in the case of other organizational logic there cannot be provided appropriate conditions for the development of this important instrument. Any other configuration comprises the elements that provide the customers' necessary satisfaction, but also carries the risks which make it incompatible with the terms of knowledge management.

In the organization engaged in KM, the development and transmission of knowledge must become second nature: the managerial structure of the company, the division of roles and responsibilities are supported to ensure maximum fluidity of exchanges of knowledge, tacit and explicit through cooperation networks. The tasks and responsibilities of each actor of the organization must evolve to integrate knowledge creation and capitalization. This redistribution of roles is new, but it has to coexist with the operational and functional responsibilities exercised in the organization. Penetration of the concept of KM in the organization depends on the involvement and leadership of the chosen strategy, and it can be considered a new feature that has or does not have a special structure. Most of times, the KM introducing is related to the direction of computerization or human resources. As Nonaka and Takeuchi (Sari, 2006) there are three types of implementation of a KM initiative booked, two classical types (strategic or "top-down" and operational or "Down-Up") and a modern one, called "Middle-up-down".

The "top-down" approach may be included in the strategic and operational plan and may become the subject of a specific function of the organization or a specific structure. It is spoken about a management function of the organization knowledge, meaning the classical theory of the division of labor (Taylor) and hierarchical organization of Fayol. This type of management requires a high level of management involvement. It involves the implementation of highly formalized processes and formal knowledge management, doubled by an active use of technological tools of information distribution (intranet, extranet, knowledge based systems, workflow, groupware). The person in charge of strategy knowledge is called intellectual capital director, director with strategic intelligence or knowledge management director and such positions have appeared in all major companies. This style is very formal and restrictive, fostering growth and codified knowledge conversion modes versus combining and internalization types (Nonaka and Takeuchi, 1995). Such an approach neglects another key dimension of knowledge management, particularly human factor. This approach focuses on the development of computer tools and puts on the backburner human dimension of knowledge management.

The "Bottom-up" approach organizes knowledge management mainly horizontal and autonomous. Knowledge is created and disseminated at the operational level and basically is not transferred to the rest of the organization. It allows the organization to develop essential tacit knowledge and ways of converting such as socialization and externalization (Nonaka and Takeuchi, 1995). After the success of some pilot projects at department level, it climbs up to the management level, which can generalize the experiment within the organization.

The "Middle-up-down" approach. For the same authors, the intermediate frames can be genuine knowledge engineers and they have to act as mediators of knowledge, achieving a certain interaction between the DG strategic guidelines and their practical experience in the field. The "Middle-up-down" approach uses both tacit and explicit knowledge, it allows also highlighting the conversion modes proposed of N and T. In 1996, Mintzberg considers the intermediate strategic frameworks to be a strategic node and a horizontal link between strategic and operational dimensions of the organization. They promote and catalyze innovation and capitalization processes of knowledge, so that tacit knowledge, while owned by the senior players leading operational and synthesis, explicit, and incorporated into organizational achievements (Nonaka and Takeuchi, 1995).

Hypertext organization. Nonaka and Takeuchi campaign for a structure called "hypertext organization" that develops an organizational design with two "extremes":

- A perfect bureaucratic structure (hierarchical);
- A project group based structure (flatter).

An organization that makes the two structures coexist is likely to increase performance both at innovation activities both and at routine ones. In this organization, each actor has a position in a predefined bureaucratysystem, in order to perform "everyday" tasks. Each employee may also form part of a team comprising for innovation and remain regrouped until the end of the project.

Compared with the "matrix" structure in which the collaborators respond simultaneously to the two structures, in this case, they develop in only one context at the same time (hierarchy or team context). The main objective of the hypertext organization is particularly to provide the organization with means and mechanisms of learning that allow a continous development. For this purpose, the hypertext organization contains a third structure or "wrapper" which is its own knowledge base. This coating includes the knowledge created and accumulated by the organisation as vision, culture, technology, etc. its databases.

"Organizational memory" is managed in the way of providing available knowledge to all internal and external actors. Briefly, in this organization coexist two structures, one perfect bureaucratic and another working through projects (non-hierarchical). However, in order to create a hypertext organization is essential to align as well, all the internal systems, in order to avoid disturbances. As Nonaka and Takeuchi, if the capacity for innovation and business efficiency were

to be enhanced by hypertext organization, a knowledge base will be developed and managed to give a learning capacity of the organization. This learning ability is the one that allows it to remain innovative and therefore long-term competitive.

### Conclusions

The knowledge management is an imperative requirement for the current stage of development of the world economy. Its adoption at organizational level involves major changes to the organizational structure. These changes concern the technical dimension, especially relational aspects of the structure.

1. Regardless of theoretical reflections on the structural design of an organization, its logic and approach phases remain largely unchanged.

2. The knowledge society is characterized by nonlinear and dynamic processes. In reality this means that predictability in terms of efforts and results is quite low even if it has a quality human capital because the knowledge management level and inspiration play a decisive role at the individual and collective level.

3. Under these conditions, the human resources dimension in the design process of the organizational structure has encountered large technical problems and the tendency to adopt adocratic behaviour in organizations which have other the predominant types of construction are nothing but an attempt to solve the difficulties of this kind.

4. Knowledge management involves, above all, the development of new tasks that increase added value by sharing and creating new knowledge. It changes the structure from technical and behavioral point of view, being considered either a new feature or a set of actions, with or without a formal structure of its own.

5. The organizational structure influences, in turn, the knowledge management process. Participation in the process of sharing knowledge and creating new knowledge requires an organizational culture and a social climate that can be fully developed only by a structure with adhocratic accents in which autonomy, cooperation and self-control represent its basic coordinates.

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