From Individual Memory to Organizational Memory (Intelligence of Organizations)

A. Bencsik, V. Lőre, and I. Marosi

Abstract—Intensive changes of environment and strong market competition have raised management of information and knowledge to the strategic level of companies. In a knowledge based economy only those organizations are capable of living which have up-to-date, special knowledge and they are able to exploit and develop it.

Companies have to know what knowledge they have by taking a survey of organizational knowledge and they have to fix actual and additional knowledge in organizational memory. The question is how to identify, acquire, fix and use knowledge effectively. The paper will show that over and above the tools of information technology supporting acquisition, storage and use of information and organizational learning as well as knowledge coming into being as a result of it, fixing and storage of knowledge in the memory of a company play an important role in the intelligence of organizations and competitiveness of a company.

Keywords—Individual memory, organizational memory, knowledge management, organizational intelligence.

I. INTRODUCTION

IN most cases intelligent systems mean some kind of IT solution. Only a few people deal with the question, how the problem can be solved that IT should not be an aim, but should be a tool to operate intelligent systems. These learning - organizations are created by people where knowledge management system can be used. Knowledge maps, knowledge catalogues and data mining serve implementation of superior purposes, namely successful management in competition at the markets. To this it is necessary to concentrate on possibilities which are guaranteed by developed memory from the individual to organizations.

Individuals, groups and organizations acquire knowledge by learning. This knowledge becomes fixed in the individual, group and organizational memory. The organization creates organizational knowledge by continuous, multilevel learning which later becomes fixed in the organizational memory.

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II. MAIN PROCESSES OF KNOWLEDGE MANAGEMENT OF A COMPANY

Three main processes can be talk about in connection with knowledge management of a company:

- acquisition of knowledge,
- *fixing and spreading knowledge and*
- using knowledge.

There are several ways of acquisition of knowledge which companies apply in different degrees. Revelation of knowledge means identifying knowledge elements, analyzing the bearer and obtaining ability as well as evaluation of knowledge. After the revelation of knowledge the acquisition of knowledge follows and finally the transformation of knowledge comes that is comprehensible for others. In case of explicit knowledge it mostly means some formal fixing while in case of tacit knowledge it creates such a situation which gives preference to sharing knowledge (tools, informal talks etc. motivating sharing knowledge). Knowledge formed in this manner gets into processing and storage that makes comprehension possible without the restraint of time. From that steps a company processes and stores knowledge in some structured form, this exists as contents and it covers such a set which stores utilizable knowledge. This knowledge contains usefulness in itself. The use of knowledge guarantees that knowledge is applied productively and is in favour of increasing the efficiency of the company.

From the facts listed above an emphasis will be laid on fixing and spreading knowledge out of the three main processes.

III. FIXING AND SPREADING KNOWLEDGE

Companies acquire their knowledge either from external or from internal sources; acquisition of knowledge is not enough in itself. Companies have to spread their knowledge within the organization, they have to store it in the organizational memory that the company identified, acquired, developed, shared and used knowledge will be at the disposal of the employees of the company in the future. What does the organizational memory actually mean?

Before the examination of organizational memory the connection among the three keywords supposed to be the most important for us – learning, knowledge and memory will be shown. (Fig. 1)

It is an established fact for everybody that individuals acquire knowledge by learning and this knowledge is fixed in the memory of individuals. These concepts can be spread at the level of group and organization; moreover, the level among organizations must be mentioned as well.
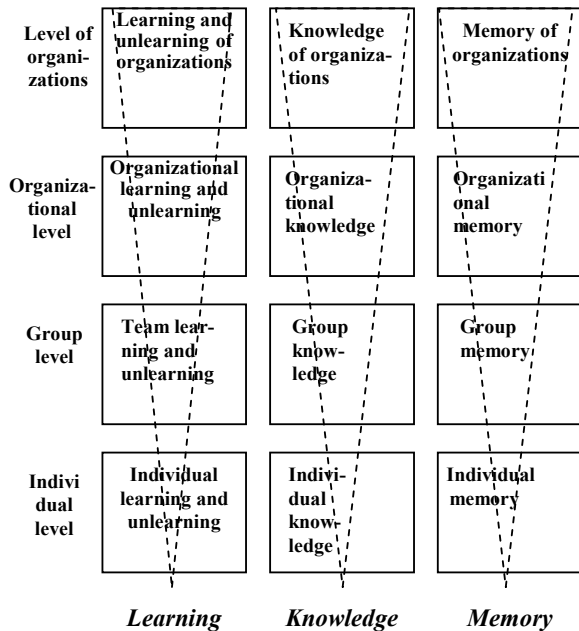

Fig. 1 A Model of Multilevel Interpretation of Learning, Knowledge and Memory

IV. INTERPRETATION OF MEMORY

By memory a memory of somebody is meant on the one hand and remembrance on the other hand.

There are several approaches of memory:

By biological approach: remembrance, recollection. Information which is fixed in the central nervous system as a result of learning.

In case of electronic systems: a device, a medium or a component of a machine which is able to receive or store data, information, programs and commands continuously/periodically.

During the presentation of the organizational memory biological approach will be emphasised, so it will be forborne from researching memory in case of electronic systems.

Short-term Memory

Certain things can be memorized, for example names, or telephone numbers for some time, whereas other things, facts, data we are able to recall comparatively easily on the expiration of years. While for the earlier short-term memory is responsible, for the latter the long-term memory is.

Certain authors deal with the sensory memory separately. In this memory the stimulus of the outside world gets into the first time where our minds keep the coded stimulus for a short

time in different ways. From this memory only that information gets into the short-term memory which is paid attention to. [13].

Long-term Memory

Long-term memory supports to form greater units out of the data and thus we are able to memorize as much as possible.

Long-term memory has usually two main divisions: declarative and procedural memory [9].

Declarative memory consists of facts, data, information or events which are not needed to be repeated to be able to recall them later (for example a view of an accident on the way home). Procedural memory involves whole routines, abilities, behaviours or skilfulness, skills (for example knowledge of swimming and cycling). One cannot report about the acquisition of those. Such elements are fixed, they have to be practiced and revised, these elements should not be recalled knowingly to be able to use them later.

Periods of the Remembrance Process

The process of remembrance can be divided into three main periods in case of sensory, short- and long-term memory. First we code, enclose information in our memory which we saw or heard earlier then we store it and if it is necessary, we recall the information from there. Naturally this process does not work properly without exception.

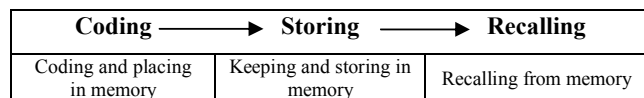| Coding ⟶ Storing ⟶ Recalling		
Coding and placing in memory	Keeping and storing in memory	Recalling from memory

Fig. 2 Periods of Remembrance [13]

It is clear and accepted that everybody has memory. Memory can be defined on the stage of groups, too, but it expects more fantasy. For this certain other effects have to be considered which influence the process of learning and transferring knowledge.

V. GROUP MEMORY

As there are team learning and collective knowledge, group memory can be talked about because knowledge, learning and memory are inseparable ideas on the stage of groups, too.

In the course of work in groups individuals get into connection with each other and this time the participants need their individual knowledge and memory, but sometimes in an unequal proportion. As time goes by the employees recognize the knowledge of the other group members. This process supports the acquisition of recent knowledge and creation of group memory. Thus knowledge of individuals is fixed in group memory.

The composition of a group is important from the point of team learning and common work. Such an environment has to be created in which individual creativeness can be effective; group members aren't envious of each other, but they learn about each other; they don't disparage with each other, but

help and support. The personality of a group leader influences the creation and maintenance of creative-learning atmosphere, too.

Mention must be made of certain factors that hinder team learning at the same time make fixing knowledge more difficult in the memory of a group. These factors are following [3]:

- Negation as protective mechanism,
- Grouped rationalization in which explanations of causes of problems cover up reality,
- Projection when the individual blames the external world to get rid of the internal stress
- Idealization in which positive feelings dominate and negative feelings remain out of attention,
- Raving in which untrue daydreaming "castles in the air" cover reality.

Naturally promotional team learning methods enhance the memorization of knowledge. Such methods are communication (changing of ideas), common vision (targets, strategy, philosophy, identifying), psychological safety, norms (toleration of mistakes), personal direction (self-realization), awareness (self-control, openness), leading role and style (modelling) [3]

If one creates a successful and committed group, using team learning and holding goals of organization promote fixing knowledge in the organizational memory [2].

Talking about the role of groups it is important because the group integrates memory and the knowledge of the individuals forming the group. Group atmosphere, roles in the group and the proper leader make it possible that known or hidden knowledge and ability of individuals come to light, find support, so the individual develops. By this means performance and efficiency of the group improve. This determines the performance of the company since all the groups (as a little organization) form the company.

A significant efficiency can be reached in spread of knowledge in the memory on the level of groups since several factors are more favourable than on the level of the company:

- a group is smaller in number, by this means the connection of the individuals can be closer, freer, opener,
- formation of a motivating atmosphere is easier which affects the birth of fresh ideas prosperously.

A company scale is too big to the successful organization of processes connected to imparting knowledge, therefore it is the group that is the convenient organizational unity (convenient scale) which is exactly ideal, so it has an important role in fixing knowledge in the organizational memory, realization of knowledge management.

Consequently we can talk about memory in the level of organizations. But what is meant by organizational memory, what motivates its timeliness and actuality?

VI. ORGANIZATIONAL MEMORY

In what way do memory and the learning process of individuals create group and organizational memory in what way does the result of individual study settle in common memory? These and similar questions can rise if deeper processes of learning and knowledge transferring are examined.

Defining Organizational Memory

There is a considerable variation in the descriptions of organizational memory because the notion was borrowed from the early sociology and then reinterpreted in various ways. Organizational memory is an instance of collective memory which evolved from the work of the Durkheim school of sociology at the end of the 19. century. Durkheim argued that the collective mind is composed of individual minds that share information through the exchange of symbols [15]. Organizational memory is a collective memory of a certain kind, memory of group which appears at that time when different groups of people get into connection with each other. In 1982 Nelson and Winter [10] discussed the nature of organizational memory, but it has become an independent field of research just in the past years.

It is significant to distinguish the idea of organizational memory from organizational knowledge which includes all the abilities, cognition, knowledge or information on the level of individual, group and organization to which an organization has indirect or direct access. Organizational memory does not include those abilities which are characteristic of just certain individuals, therefore it can be established that organizational memory is independent from any members. Organizations have such routines, values and data which remain comparatively permanent when members are exchanged, thus there are such elements which are characteristic of not the members but the organization [5].

Think about that case when a new colleague gets into the organization. At this time he/she does not yet know the organization, expectations, norms earlier colleagues familiarize him/her with the right norms of behaviour, features of the organizational culture. Suppose that all the employees are changed at a workplace after a time, so only new employees work, old values, norms, routines fundamentally do not change.

A view concept of memory in a wider sense can be met in another excellent example in the book of Ferenc Jánossy dealing with developmental theory. Jánossy reasons that in the process of economic development some kind of decisive factor must necessarily exist which wholly survives the war [6]. He proves that this stable factor is humanity in it itself, not the individual, who falls victim to the war, but the human society, in its entirety with all its experience and knowledge. People – in spite of truly serious, almost immeasurable victims – not only have survived all the past wars to the present day, but they keep most important inheritance salvaged from the past, accumulated knowledge, moreover they may have enriched it.

Coming back to the organizational level, different fields of organizational memory can be identified on the basis of the model of Walsh and Ungson [16] as follows: individuals,

organizational culture, transformational processes, organizational structures and systems, environment, external stores. From these the first five are internal factors, the sixth is external. Hackbarth and Grover [4] completed the approach of the mentioned authors with a seventh element, the information system which includes computerized systems, application of multimedia, CAL-systems, networks of communication etc.

Organizational memory can influence organizational efficiency, as well as organizational competitiveness. Definition of the organizational memory of Stein relates to this too that is worded as follows [12]:

Organizational memory is the means by which knowledge from the past is brought to bear on present activities, thus resulting in higher or lower levels of organizational effectiveness.

An organization has several metaphors. If one studies the organization like a human brain then one focuses on those factors which develop or impede the learning ability, memory, and intelligence. The goal is "self-organising" organization which is able to solve unexpected problems. An organisation should not be thought of as a closed one which is about to produce itself. An organization has to process information from outside world and integrate it in its own memory [8].

Interpretation of Short - Term and Long - Term Memory in the Context of Organizations

Studies show that individuals have short-term memories that fade rapidly long-term memories extend for decades unless they become inaccessible due to injury [11]. In the context of organizations, short - term and long - term have special meanings. For example, information maintained for just a few hours would be considered short term to members of most organizations, but not to a trader executing buying and selling decisions. Similarly, six months would be a long - term to a computer industry analyst, but not to a banker reviewing credit history. Duration within an organization thus relates to the rate of organizational and environmental change and to the perceptions of the stakeholders.

Importance of the Organizational Memory

Nowadays the importance of the organizational memory comes into the limelight according to several view-points. On the one hand organizations often do not know what they know therefore again and again they have to discover the same solution, and again and again commit the same mistakes to progress. On the other hand expandability and flexibility of organizational memory determine how companies fix new organizational knowledge. The third part of organizational memory influences how organizations observe and interpret the incidents of environment and on this reason how they respond to the actions of competitors or change a consumer's demands [1].

It can be laid down as a fact that organizational memory – as regards either informatics or other approaches – plays an important role in organizational learning processes and the activity of knowledge management. Organizational memory has an important role in encoding knowledge acquired by different learning routines or in other way, in storage and effective use of it.

VII. WIDENING OF ORGANIZATIONAL MEMORY: MEMORY OF ORGANIZATIONS

Memory exists not only on the level of individual, groups and organisation, but several organisations, - an alliance of organisations - also have their memory.

The basis of widening of the notion of the memory is knowledge share among organizations which can fundamentally be realized in an alternative way:

- by integration of the employees and/or
- by learning from other companies.

So migrant employees take features characteristic of companies along and can hand them over to the employees of the other companies, by this means features characteristic of their former workplace, earlier experiences can infiltrate to the memory of the new workplace.

Naturally companies can learn from other companies. Two well-known forms of it are cooperative learning and competitive learning. In the previous case mutual, advantageous cooperation exists between companies, in the course of that each participant gives and gets information. Against this at the time of competitive learning certain companies tend to acquire information from/about the other as much as possible in return they supply only minimum or unusable information.

Examination of the cases of companies entering into a strategic alliance supports understanding and reinforcing these reflections.

Knowledge of Strategic Alliances

In the worldwide competition a lot of companies have only one chance: unite with other companies.

Frequent motivation factors of conclusion of a union are handing over and taking over of successful market knowledge, experience and technology, as well as uniting, combining and completing of cumulate knowledge.

One form of knowledge sharing among companies is the strategic alliance. Strategic alliance is a special form of relations among companies. This is a mutually advantageous cooperation which is valid in long - term and serves strategic purposes. By way of financial means and experience which are available for an alliance, integration of activities is established to some extent [14].

In the following the role of the franchise system in knowledge transferring will examined.

Franchise as a Special Knowledge Transfer

Organizational knowledge supports successful operating and effectiveness in the market which contributes to the increase of touchable (money, resources, infrastructure) and untouchable (brand name, customer loyalty, notoriety) elements of wealth of a company.

A lot of companies can meet given needs (for example making use of accommodation in a foreign town or country) in the market we can find a large number of participants in the buyer's market. Customers can choose from too many products. On the other hand a supplier will have to make an effort to meet needs as successfully as possible and adopt to the changing demand of customers if it wants to make that and retain them.

All the organizations have to examine what they know and what they do not. If a company recognises what it knows, it will make the first move to become successful. There are a number of possibilities in business life so that organizations can obtain knowledge or share their knowledge among each other. Possibilities and solutions are various in many respects which have to be considered. A practicable form of cooperation is the franchise system.

The Role of a Franchise System in Knowledge Transferring

Knowledge keeping culture is typical of companies. Knowledge fearing is noticeable not only within the companies, but also among the companies, too. The latter is clear since unique knowledge of the company is a fundamental component of competitiveness.

Franchise as a special knowledge transfer that makes it possible that certain companies hand over their business knowledge legally regulated, hereby more safely. Franchisee gets explicit and implicit (tacit) knowledge in the same way within the framework of a franchise contract on which a franchise system is being built. Explicit knowledge of the company which was called "encoded knowledge" by Lam, is easily transferable [7]. Such knowledge of the company for example is knowledge concerning infrastructure, external-internal appearance, technological and operational descriptions and service quality. A franchisee gets explicit knowledge by handing over of a complete business conception. Usually we have to posses certain industrial basic knowledge to start a business enterprise. However, in this case a detailed program is written in such a way that it makes possible that a person who does not have any former business experience, starts business activity on its own responsibility behind its back such an organization which otherwise does not stand at its disposal.

In the course of knowledge transferring among companies a critical step is that how they can frame implicit knowledge into explicit. Implicit knowledge of companies (so-called "embedded knowledge") is less transferable; first of all it can be handed over by means of observation. Transferring of implicit knowledge requires close interaction between a franchisor and a franchisee and it is based on mutual understanding and trust. Therefore teaching and training process, continuous support of the profession are especially important in the course of knowledge transferring existing in "know-how" organizational practice, routines and norms.

For that the franchisee is able to provide exactly the same as a franchisor for the customers, using a common conceptual system is primordial.

Fig. 3 illustrates the above mentioned ideas and knowledge transferring in a franchise system.
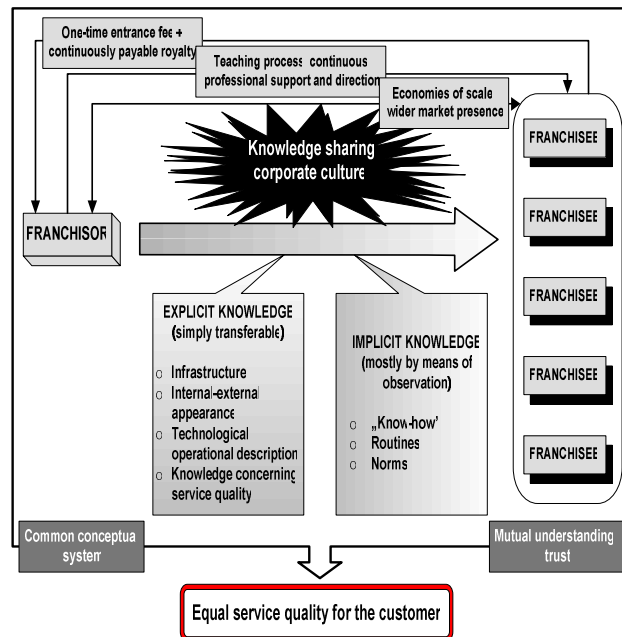

Fig. 3 Knowledge transferring in a franchise system

VIII. CONCLUSION

When experts leave, the cost the organization is even greater because it takes years of education, training and experience to make one. Loss of that knowledge can undermine the competitiveness and competence of the firm and have an impact on cultural norms and values. In sum, a better understanding of organizational memory can assist managers in framing and solving problems related to the retention and utilization of organizational knowledge within their organizations beyond the limited support provided by current information technologies. Such knowledge can lead to higher levels of organizational effectiveness which in turn can result in the attainment of competitive advantage.

The paper presented an interpretation of a concept of learning, knowledge and memory at the level of individual, group and organization, respectively among organizations.

It can be established as a fact that over and above tools and systems of information technology supporting acquisition, storage and use of information and knowledge organizational learning and organizational knowledge coming into being as a result of it play an important role in competitiveness of a company in the same way as fixing and storage of organizational knowledge in organizational memory.

Memory plays an important role on the mentioned levels hereby in life of organizations and in knowledge management process. Fig. 4 illustrates the connection of acquisition, storage and use of knowledge, respectively the role of memory and unlearning.
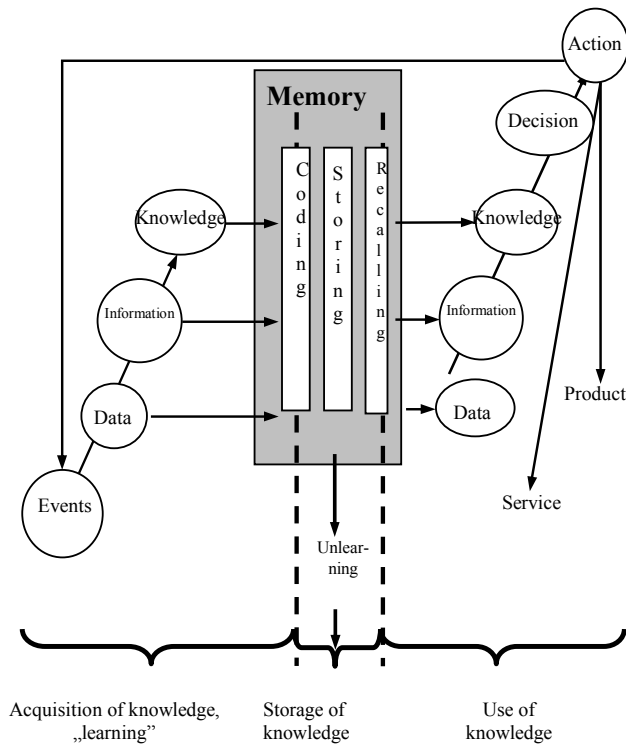
Fig. 4 A Model of the Role of Memory in Knowledge Management Process

[15] M Traugott (1978): Emile Durkheim on Institutional Analysis University of Chicago Press Chicago
[16] J.P. Walsh, G.R.Ungson (1991): Organizational Memory Academy of Management Review Vol 16. No 1. pp. 57–91.

REFERENCES

[1] Gy. Bakacsi, (1999): Stratégiai emberi erőforrás menedzsmen KJK Budapest
[2] A. Bencsik (2003): Csoportszerepek és csoportfejlődés a tudásmenedzsment szolgálatában Vezetéstudomány Vol 34. No 6. pp. 17-24.
[3] A.Bencsik, K.Bognár (2003): Tanulószervezetek változásmenedzsmentje a tudásmenedzsment felé vezető úton IME, Vol 2. No 5, pp. 24-30.
[4] G. Hackbarth, V. Grover (1999): The Knowledge repository: Organizational memory information system Information Systems Management, Vol 16 No 1, pp. 21-30.
[5] B. Hedberg (1981): How Organizations Learn and Unlearn in Nyström, P. C. (Ed.), Starbuck, W. H. in: Handbook of Organizational Design, Vol 1, University Press, Oxford.
[6] F. Jánossy (1966): A gazdasági fejlődés trendvonala és a helyreállítási periódusok KJK, Budapest
[7] J. Kapás (1996): A vállalat tudása Vezetéstudomány, Vol 30, No 6, pp. 2-11.
[8] S. Klein (2005): Vezetés és szervezetpszichológia Edge 2000. Budapest
[9] C. Moorman, A. Miner (1998): Organizational improvisation and organizational memory Academy of Management Review Vol 23. No 4. pp. 698-723.
[10] A.A.Nelson, S.G.Winter (1982): An Evolutionary Theory of Economic Change Harvard University Press Cambridge MA
[11] L.R. Squire (1986): Mechanisms of memory Science, Vol 232, pp. 1612-1619.
[12] E.W. Stein (1995): Organizational Memory: Review of Concepts and Recommendations for Management International Journal of Information Management, Vol 15, No 2, pp. 17-32.
[13] I. Takács (2003) Pszichológia BME Oktatási segédlet Budapest
[14] E. Tari (1998): Stratégiai szövetségek az üzleti világban Közgazdasági és Jogi Könyvkiadó Budapest