Organizational Knowledge Development

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ABSTRACT:

The article focuses on the ways of creating knowledge within economic organizations. It deals with research and development, revealing the positive impact of research cooperation and enhancing knowledge workers and it also presents the barriers that can burden the knowledge development process. The article emphasizes as well the modalities of knowledge emergence, such as knowledge sharing, creativity and problem solving.

Keywords: *Knowledge creation context, Research and development, Knowledge worker, Creativity, Problem solving*

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1. Introduction

Some companies imagine successful development of knowledge by breakthrough ideas, exuberant creativity or even the Nobel Prize for internal laboratory chief. The development of new capabilities in enterprises has little to do with chance, and has much more to do with systematic, hard work. Those who want to develop knowledge are always in the middle of creativity and systematic problem-solving. Contrary on the stereotype, inventions and innovations are not only programmed in laboratories or research- and development departments but can occur in all the areas of the organization and then generate success for the company. This article deals with the ways of developing knowledge in an organization taking inspiration from customers, suppliers or competitors and the modalities of making room for new ideas, without sinking into chaos. It does not have to be based on individual experts, but to develop skills such as collective problem solving in heterogeneous teams.

2. Research And Development

In a traditional perspective of knowledge, development is the task of research and development department. That is how more effective drugs result in the laboratories of the pharmaceutical industry, or how a more powerful designed chip generation appears in the development of computer manufacturing. Actually, the research and development department (if it exists at all) does no longer afford to develop new skills on its own. It is generally dependent on competent external partners that can take charge of cooperation within the knowledge development process (see Figure 1).

2.1. The Importance Of Research Cooperation For Innovation And Knowledge

The range of possible forms of cooperation is wide. The knowledge development includes activities that range from collaborative research with the competition (Brockhoff, 2010) to the pure contract research. More and more companies are looking access to external knowledge creation sources in particular universities and research institutes with an excellent reputation. Thus, at the Massachusetts Institute of Technology (MIT) there are 50 high-tech chairs sponsored by several industries. Another example is Nestlé which has a network of about 20 research centers that are spread all over the world and work in close cooperation with external experts in the field of research.

■ Dominance of the research- and development perspective:

Organizations can not improve their skills only through the development and application of new scientific and engineering scientific findings. Some business activities and innovation processes must be analyzed from a perspective of knowledge management, which can develop new critical knowledge for the entire organization.
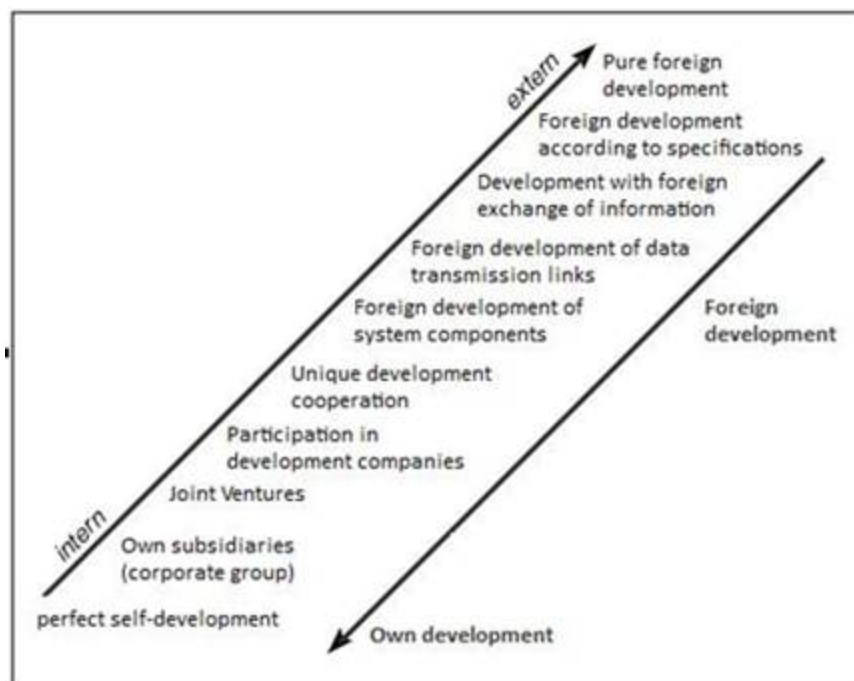

Figure 1: The Continuum Of Possibilities For Cooperation In The Development Process
(Brockhoff, K, *The Dynamics of Innovation: Strategic and Managerial Implications*, Springer, 1st Edition, 2010)

The differentiation in product, process and social innovation illustrates how varied the forms of innovation within the organizations can be. While a chip manufacturer depends of fully developing of the next generation of products (product innovation), a restaurant chain could achieve social innovations, such as the introduction of a new

payment system for their staff, which can have a positive influence on the motivation of their employees.

Often, organizations focus on one aspect of the innovation (for example, the product) and try to get value from other forms of innovation as well. For the classic research and development process, which seeks a product innovation, there is a clear and well established (Brockhoff, 2010) separation applied between basic research and research and development. In contrast, there is often much less attention paid to the development of new knowledge about processes and social phenomena. The consideration of different forms of knowledge development enhances the organizational knowledge base (Leistner, 2010). To understand the processes of different types of innovation, in the following paragraphs of the paper, there are presented general problems in the knowledge development process.

2.2. The Role Of Knowledge Workers For The Organizational Knowledge Development

In 1966, Peter Drucker described the difference between the manual worker and the knowledge worker: a manual worker uses his hands to produce „things", while a knowledge worker uses his intelligence to produce ideas, knowledge and information. The knowledge economy is a new concept which refers to using knowledge to produce benefices (Nestian, 2007). Knowledge workers in nowadays' social groups are individuals who are being assessed for their capacity to interpret information within a specific topic matter. They will frequently make progresses within the general perception of that subject through focused analysis, design and/or development. They make use of research skills to specify problems and to find out alternatives. Supplied with their own expertise and insight, they work to overtake those difficulties, aiming to influence company decisions, priorities and strategies.

Knowledge workers may be met across a variety of information technology roles, but also among professionals like teachers, lawyers, architects, physicians, nurses, engineers and scientists. As businesses increase their dependence on information technology, the number of fields in which knowledge workers must operate has expanded dramatically (Bratianu et al, 2010).

Typical knowledge workers (especially R&D scientists and engineers) in the age of knowledge economy must have some system at their disposal to create, process and enhance their own knowledge. In some cases they would also need to manage the knowledge of their co-workers (Thorp, 1998). Savage describes a knowledge-focus as the third wave of human socio-economic development. The first wave was the Agricultural Age with wealth defined as ownership of land. In the second wave, the Industrial Age, wealth was based on ownership of Capital, i.e. factories. In the Knowledge Age, wealth is based upon the ownership of knowledge and the ability to use that knowledge to create or improve goods and services. Product improvements include cost, durability, suitability, timeliness of delivery, and security (Sheridan, 2008).

Due to the rapid global expansion of information-based transactions and interactions being conducted via the internet, there has been an ever-increasing demand for a workforce that is capable of performing these activities. Knowledge Workers are now estimated to outnumber all other workers in North America by at least a four to one margin (Sheridan, 2008). Knowledge workers bring advantages for companies in a wide range of significant ways. These enclose: studying data to set up relationships, valuing input in order to assess elaborated or conflicting priorities, identifying and understanding trends, making connections, understanding cause and effect, talent to brainstorm, thinking broadly (divergent thinking), developing more focus (convergent thinking), creating a new capability, bringing forth or modifying a strategy (Bratianu, 2011).

3. Barriers To Knowledge Development

■ Innovation barriers:

Innovation is placed between emerging and existing systems and provides conflict zone by excellence (Canary, 2010).

Dealing with organizational creativity can provoke destabilization, as old standards of knowledge must be abandoned, even though the viability of the new solution is often not assured. At the same time, innovations change the power structures within organizations by devaluating traditional skills and strengthening the representatives of the new abilities and capacities. Defensive reactions to the unknown are therefore natural reactions and endanger the development and promotion of new ideas. In addition to these personal barriers, additional enforcement problems exist in the form of object-related barriers to innovation (for example, incompatibility of a new product line) and environment-related barriers to innovation (for example, strict legislation and lack of skilled labor).

■Planning versus self-organization:

The planning of innovation has its limits. No one can force a researcher to have a brilliant idea. Redoubling the research budgets cannot lead to a new creativity. At the same time to the active management of knowledge development and to the deliberated setting of knowledge and development objectives is being set the passive, incremental and rather accidental formation of new skills. This is the reason why many knowledge development processes follow self-organization principles.

The knowledge manager must recognize the areas in which he can influence the production of knowledge of the organization. If the direct effect is not possible, the role of the knowledge manager in creating a positive context could consist of knowledge development. In such a learning-oriented context (Probst, 1993) there is an increased likelihood of developing parts of the organizational knowledge which are relevant to the organization.

■Decoupling of knowledge development:

If too many processes of knowledge development withdraw after a direct control, a coupling of central processes of knowledge development will be ensured in the knowledge goals of the organization. If, for example the professional developers give themselves too much freedom for their technological ideas, it can become highly inefficient for the company. In the recent past, the dominance of technical feasibility of the economic need in the automotive industry lead to the development of expensive projects that were little rewarded from the market (Romhardt, 2001) (see Figure 2).

■ Duplication:

One can often find duplication in the development process, which is not due to lack of knowledge transparency. Some processes, such as the creation of certain reports and studies run automatically in many large corporations and are no longer questioned. Duplication can also appear in form of internal competition when the best solution in the building of efficient development resources is searched. Frequently duplication leads to waste of organizational resources that could be reduced by concentrating development efforts (Canary, 2010).
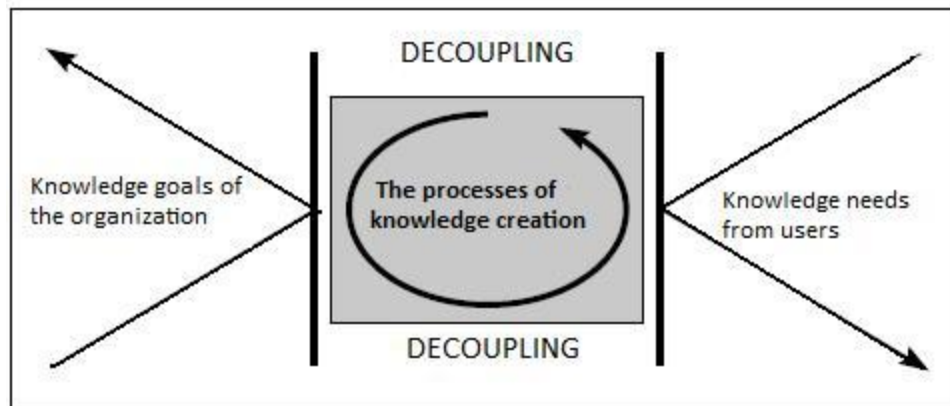

Figure 2: Decoupling Of Knowledge Creation Process
(Romhardt, K., *Wissen ist machbar – 50 Basics für einen klaren Kopf*, München: Econ, 2001)

■ Knowledge projections are difficult to defend:

The importance of effective management of innovation processes is constantly growing, and the competitive pressure is therefore increasing. So it may be seen in the pharmaceutical industry where it is believed that only the first provider of a new drug, that is, the faster innovator, can capitalize its development costs in the market (Corso et al, 2003). The increasing mobility of knowledge holders also called knowledge projections are moving faster and faster. To overcome all these problems in the development, there are different ways of knowledge creation that might be implemented within the development process at

individual and collective level and we will focus on them within the next section.

4.   Knowledge Emergence

4.1.   Knowledge Sharing

When sharing and transferring knowledge is important, one should be aware of the knowledge purpose, use and needs of the person to whom this knowledge is transferred to (Bratianu et al, 2010). This implies that not all employees need to share knowledge because it would not apply or re-use it. Involving the entire organization in the process of knowledge sharing is not useful unless all the employees work with and apply the knowledge that they receive. The studies (Reige, 2005) showed that knowledge sharing activities have not accomplished their objectives to manage companies' knowledge assets and skills due to a large diversity of potential sharing barriers.

In the process of knowledge sharing (transfer), aspects such as, trust, common cultures, vocabularies, frames of reference, meeting times and places, broad ideas of productive work, status and rewards that do not go to knowledge owners, absorptive capacity in recipients, the belief that knowledge is not the prerogative of particular groups, absence of the "not-invented-here" syndrome, and tolerance for mistakes or need for help, among others, are key to the organizational culture (Davenport et al, 2000). Only by combining these factors the company will develop a good environment of knowledge production and sharing between the employee and managers (Hofstede, 2000).

Knowledge sharing is thought to be influenced by factors both at the individual and at the organizational level. At the individual level some of the factors that could enhance knowledge sharing are the trust level in co-workers, whether or not the negative prior experiences with knowledge sharing have influenced the willingness of the employee to share his or her knowledge and last but not least the intrinsic motivation of the employee. Most people are unlikely to share their knowledge and experience without a feeling of trust in the person in front of them, they need to trust that the people will not misuse their knowledge, and to trust that the information that one receives is accurate and credible due to the information source. The level of trust that exists between the organization, its subunits, and its employees greatly influences the amount of knowledge that flows both between individuals and from individuals into the firm's databases, best practices achieves and other records (De Long et al, 2000).

At the organizational level possible factors are linked to rewarding systems related to knowledge sharing, the organizational communication process and the willingness of the company to invest in its employees (Bratianu et al, 2010).

4.2.   Creativity Versus Systematic Problem Solving

■ Creativity:

How does the human-being come to his ideas or creative acts? Everyone knows the feeling when one has an idea in his head or when brainstorm session is organised. The use of these metaphors illustrates that our ideas happen sooner than we could produce them on demand. It can be   explained in very rare cases, exactly how we arrived at a brilliant idea or a unique problem-solving. The cause for this phenomenon is likely to be sought in the operation of our brain. In our brains the neurons are in a diverse interplay between internal and external as well as current and past data information patterns. They interact with each other and can by themselves generate new meaning and new ideas (Etemad et al, 2003). The ability to produce new ideas and solutions is called creativity. It is an important (and non-distributed) property of the individual towards the production of knowledge that can be useful for the organization.

■ Individual problem-solving capacity:

In addition to the creativity, an individual's ability to solve different problems is an important source of new knowledge for the organization. While creativity may be intended more as a unique creation, problem solution rather follows a process that can be described by several phases (Corso, 2003).

Creativity is formed of chaotic components while the problem solving skill could be viewed as a group of systematic components of the knowledge development process. Processes of problem solving can be divided according to the type of problem in simple, complicated or complex problems (Probst & Gomez., 1999). In today's business events it can be observed a shift from simple to more complex problem situations. While simple and complex problems of managers were frequently met with standard solution procedures, complex problems are dynamic, characterized by the rapid emergence of new patterns and interactions that may seem incomprehensible. This means that virtually no process manages to solve complex problems without the development of new knowledge or skills. In such an environment, the individual problem-solving capacity in the process of knowledge development becomes a key skill.

4.3.   Contexts That Enable Knowledge Creation

■ Context control:

The fact that opportunities for knowledge management in the process of knowledge development are much more located in the context control than in direct control was already known. But what are these particular contexts or situations in which novelty can develop better? Many organizations try to influence the tendency creativity of their employees (Jovchelovitch, 2006). Meeting rooms are painted in exciting colors, communication exciting coffee corners and the whole range of existing creativity techniques are put in place in order to help within the fight against the individual and collective lack of imagination. Almost every manager has now completed Synaptic- or Brainstorming-exercises. But often, the great effort proves in vain. The flat-rate

formula for idea generation does not exist. Nevertheless, it is worth to pay attention to some basic contextual factors in the process of knowledge development (Kotlarsky et al, 2008).

■ Creation of open spaces:

Many authors agree that the creation of space for new ideas is one of the most important conditions in this process. Many good ideas are crushed in the run-up by the existing culture. The rule is that it is ten times easier to destroy a new idea than to be constructive and develop one (Jovchelovitch, 2006). Companies protect new ideas, by outsourcing innovation projects such as subsidiaries or provide them with strong promoters. This is how IBM forms the so-called "skunk works" for innovations, which are separated from the mother company because of their geographically protection considerations (Lee at al, 2009).

■ Action relief:

But not only structural changes can provide the individual freedom. In its current every-day activities, the organization often has short-term action priorities. The preoccupation with ideas for improvement and innovation is frequently under the operational stress. A resolution of this situation may lie in the creation of interaction relationships, in which the individuals are constrained by the organization to devote themselves to more long-term projects. Thus, some people can take a sabbatical, which is a holiday period up to a year in which the university professors can pursue their ideas without being disturbed (Probst et al., 1999). The exemption of business operations for preparation of publications and conferences falls into the category of action relief. Also on the establishment of "spinner corners" or "creative zones", which are separated from the normal work environment, open spaces can be created to support the creative process. At 3M, it has already been seen that members of development facilities may engage in self-defined projects even during a significant part of their own time.

■ Error-friendliness:

Moreover, in an organization, the management of errors made by the employees is important. An error prevention culture can cause barriers to creativity, because those who want to experiment new solutions will inevitably make a trial-and-error-path error. In a context in which this error is not interpreted as a failure but rather as necessary dues on the way to the right solution, the individual is more likely to go in search of easy warm solutions. A climate of error-friendliness is therefore leading to innovation but it must be built on long term and credibility. This is the only way to avoid situations such as "mistakes are allowed (but they hurt the career)".

■ Creativity plan:

Knowledge does not come from anything. The study of innovation processes has a number of established and powerful tools produced, which can be used for innovation processes in planning and control. Self-creativity can be promoted only in some extent. The use of a particular instrument is not a guarantee for success.

Therefore the following rule is applied: "instruments are not perceived as good or bad, for achieving a certain goal. One and the same instrument may be inhibiting learning or promoting learning and depends on where and how it is used"(Probst & Buchel., 1994).

■ Creativity Techniques:

The individual creativity is being supported through established tools such as brainstorming, the morphological method or Synaptic. But the organization is often not matching the ideas of its employees. Anyone who has ever participated in an ill-moderated or at the wrong time conducted brainstorming session knows that each of these methods can be counterproductive, especially when the promoters are not credible (Lee et al, 2009).

Therefore, it is necessary to know in addition to the principle and the application fields, more of the conditions of their use. Only if the expertise is available, than the creative techniques meet their purpose instead of becoming frustrated. The same applies to other methods such as searching and screening procedures, formal analogy method, Delphi method, relevance tree method or the use of algorithms with appropriate computer support.

Principles of creativity at SONY (Probst & Gomez., 1999):

• Entrepreneurship through small manageable units.
• Enterprise mobility increases creativity.
• The family is an energy source.
• Creativity requires targets.
• The settings that are addressed to errors must be represented.
• A long-term time horizon creates space.
• A fair argument culture encourages innovation.

5. Conclusions

Knowledge development is the conscious production that doesn't have existing internal capabilities. Knowledge development is not only research and development, but it applies to all areas in which critical knowledge is created for the company. Knowledge is developed not only aware, but it occurs almost as a by-product in the daily organization of events. It is very important to know how to raise the awareness of the limits of controllability of the development of skills.

The decoupling of the knowledge creation process of the knowledge goals leads to waste of resources and creativity and individual problem-solving capacity have to

interact with the individual development of knowledge in order to lead to efficient knowledge creation. It is very important for any organisation to try to innovate by creating knowledge creation contexts.

6.   References

Bratianu, C. (2011), *Knowledge and Intellectual Capital*, Business Excellence Publishing House, Bucharest.

Bratianu, C., Dinca, V.M. (2010), *Knowledge Economy Dimensions,* Review of International Management, Volume 11, Issue 2, May 2010, 210-221.

Bratianu, C., Orzea, I. (2010), *Tacit Knowledge sharing in organizational knowledge dynamics*, Proceedings of the, 2nd European conference of Intellectual Capital, 29-30 March 2010, Lisbon, Portugal, 2010.

Brockhoff, K. (2010), The Dynamics of Innovation: Strategic and Managerial Implications, Springer, 1st Edition.

Canary, H. (2010), *Communication and Organizational Knowledge*, Routledge.

Corso, M., Martini, A., Pellegrini, L., Paolucci, E. (2003), *Technological and organisational tools for knowledge management: in search of configurations,* Small Business Economics, Vol. 21(4), 397-408;

Davenport, T., Prusak, L. (2000), *Working Knowledge - How Organizations Manage What They Know*, Boston: Harvard Business School Press.

De Long, D.W., Fahey, L. (2000), Diagnosing cultural barriers to knowledge management, Academy of Management Executive, 14(4), 113-127.

Etemad, H., Lee, Y. (2003), *The Knowledge Network of International Entrepreneurship: Theory and Evidence*, Small Business Economics, Vol. 21 (4), 397-408.

Hofstede, G. (2000), *Cultures and Organizations:Software of the Mind*, McGraw-Hill, London.

Jovchelovitch, S. (2006), Knowledge in Context: Knowledge, Community and Culture, Routledge.

Kotlarsky, J., Oshri, I., Van Fenema, P. (2008), *Knowledge Processes in Globally Distributed Contexts*, Palgrave Macmillan.

Lee, S.M., Kim, J., Choi, Y., Lee, S.G. (2009), Effect of IT knowledge and media selection on operational performance of small firms, Small Business Economics, Volume 32 (3), 241-257;

Leistner, F. (2010), *Mastering Organizational Knowledge Flow: How to Make Knowledge Sharing Work*, Wiley.

Nestian, A. (2007), *Knowledge management concepts and models applicable in regional development,* Management & Marketing*,* Economica Publishing House, Vol.1 (1), 27-45.

Probst, G.J.B. (1993), *Organisation: Strukturen, Lenkungsinstrumente, Entwicklungsperspektiven*, Landsberg: moderne industrie.

Probst, G.J.B., Büchel, B.S.T. (1994), *Organisationales Lernen: Wettbewerbsvorteil der Zukunft*, Wiesbaden: Gabler.

Probst, G., Gomez, P.(1999), *Organisationales Lernen: Wettbewerbsvorteil der Zukunft*, Wiesbaden: Gabler.

Reige, A. (2005), Three-dozen knowledge sharing barriers managers must consider, *Journal of Knowledge Management*, 9(3), 18-35.

Romhardt, K. (2001), *Wissen ist machbar – 50 Basics für einen klaren Kopf*, München: Econ.

Sheridan, W. (2008), *How to think like a knowledge worker.* New York: United Nations Public Administration Network.

Thorp, J. (1998), *Information paradox*, Toronto: McGraw-Hill Ryerson Publishers.

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