Abstract: - Successful business operation depends on several factors. Among these factors knowledge management and innovation are extremely important business areas. The aim of this theoretical study is to introduce how these two models work together and how their relationship reinforces the chance for success. Relying on secondary data analysis and literature review, the authors prove that the classical innovation model can be a part of this relationship together with the organizational innovation where the human resource come to focus. The logic of system building of knowledge management emphasizes that the path leads from the attainment of innovation knowledge to the evaluation of utilization. The present study reviews the steps of the two business models and highlights the most important relationships in a new model linking the appropriate phases. The synergistic elements can be reinforced if the corporate culture supports the expectations emerging among the factors of learning organization together with the parameters supporting innovation. The success of these models can be increased by the application of the brand new innovative solutions such as open and frugal innovation. Introducing the synthesis of knowledge management and innovation it can be understood where and how these two business factors become an inseparable complex construct.

Key-Words: - innovation, knowledge, knowledge management, organizational culture

1 Introduction

On corporate level the relationship between performance and innovation reinforces the fact that competitiveness is an innovation struggle. The adaptable companies can be successful if they are able to guarantee the continuous learning and knowledge preservation and transmission with an appropriate organizational structure (flatter hierarchy, networks) and the tolerance of intercultural elements. The large and multinational companies are in an advantageous situation considering to SME-s while they can predominate the market due to their prosperous technical and technological know-how and financial opportunities, etc. Based on the authors’ observations and researches smaller companies are able to compete with larger ones in the field of knowledge management due to their flexibility, family and trust oriented culture and human oriented behaviour of employees. It can be said that the competition is equalized and the winner is who understands the logic of knowledge management...
systems and moves forward in the process of realization earlier and more professionally.

‘The main obstacle of the innovation ability of European companies is not the low level of R+D expenditure, but the predominance of workplaces that are unable to ensure a prosperous innovation environment’ [1]. According to the definition those background factors that are rooted in the culture determine the success of innovation activity. More researches focusing on the system building of knowledge management (in theory and in practice) came to the same conclusion that the culture has a determining importance. The relationship of these thoughts will be explained in this section.

The presentation of this logic starts with the pyramid of competitive corporation (figure 1).

![Figure 1. Pyramid of a competitive corporate](image)

Knowledge represented in the product is among the objectives of companies and means technology, products, service packages, innovation that can be fully capitalized [2].

The overview of this pyramid proves that the culture is the common base which is a critical factor in the case of innovation and knowledge management. The culture ensures the creation of further decision about the utilization of knowledge (experimental and documented) for the management. This leads to the final version of innovative ideas (knowledge represented in the product) which is impossible without the transmission of knowledge, cooperative thinking, continuous development, learning and teamwork.

2 Relationship between innovation and knowledge management

The definition and organizational importance of innovation became popular due to J. A. Schumpeter [15]. The definition has been developed over the past few years and today is at the focus of attention. The authors introduce one definition from the many ones which refers to the relationship with the above mentioned knowledge management system.

‘Innovation is equal to new technology, new management styles, new markets, new raw materials, new products, a new production management and instead of foregoing human – machine relationship interfering human – human relationship and the evaluation of feedback results. Innovation system is a continuous and significant development and a regulated system in which the ‘system’ together with its limitations and estimated efficiency is able to receive, absorb and realize innovation’ [3]. However, everyday business practice focus on tangible solutions such as machines, equipments, processes, methods and patent design connected to other products when companies think about innovation. The definition clearly states the importance of innovative solutions supporting the development of business operation and preferring human resource and its relationship system. This is a precondition of the emergence of product and service development. The authors think similarly about the knowledge management based on the review of system building.

The authors do not want to discuss the basic definition of knowledge management and its connections with the different business fields. In order to understand the connections the authors describe a definition as a reminder which is a clear
evidence for the relationship of knowledge management with innovation.

"The knowledge management is a business model that uses the knowledge as corporate property to achieve competitive advantage. It is a management tool that supports identifying, evaluating, utilizing, creating, increasing, protecting, transmitting and applying intellectual capital of the company in an integrated way." [4].

Based on the introduced definitions the common elements of innovation and knowledge management are the following:

- System,
- Human-human relationship,
- Development,
- Feedback.

In the next section of this study a profound connection is highlighted based on the short description of the models of the two organizational success factors (KM, innovation).

2.1 Basic models of innovation

In the development of innovation models five generations can be distinguished. Among these models, the authors highlight the one which became popular in recent years since system approach, complexity and the relationship with a knowledge management system can be shown.

The most developed model of innovation can be seen on figure 2nd.

Figure 2. The fifth generation model of innovation [13]

The new element in the fifth generation model of innovation is the tools of informatics which play an important role in the quality and the speed of planning. The aspects of production are taken into consideration during the process of planning to save significant expenses. The model is characterized by the adjectives of complexity and knowledge driven which includes the strategic business management in a system oriented approach. Strategic partner relationships are extremely important, especially relationship with suppliers. Companies regularly employ consultative and analysing services, have a close relationship with end-consumers, take attention of modelling R+D simulation, build horizontal relationships in researches and create cooperation with development groups and focus on quality [3].

2.2 Knowledge management system model

The focus of this study is not on the introduction of the different knowledge management models. Although the authors think that the short overview of Probst's model [11] is necessary in order to follow the previous logic.

Figure 3. The logic of Probst’s model [11]

The common elements (the fifth generation model of innovation and the logic of Probst’s model) introduced in the definitions can be identified in visual models, too in the following way:

- Strategic thinking – system approach,
- Human – human relationship – network building,
- Intellectual skills – development,
- Knowledge transmission – knowledge network – feedback.

As a result of the above mentioned ideas the relationship between the steps of knowledge management and innovation can be summarized in table 1st:
Table 1. The relationship between the steps of knowledge management and innovation

<table>
<thead>
<tr>
<th>The steps of knowledge management system</th>
<th>The steps of innovation process</th>
<th>The steps of knowledge management system</th>
<th>The steps of innovation process</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Culture of learning organization</td>
<td>Human related culture, ensuring absorption</td>
<td>6. Knowledge sharing</td>
<td>Development of innovative ideas</td>
</tr>
<tr>
<td>2. Knowledge goals</td>
<td>Research focus</td>
<td>7. External knowledge transfer</td>
<td>Network building</td>
</tr>
<tr>
<td>4. Knowledge acquisition</td>
<td>Collecting information</td>
<td>9. Knowledge preservation</td>
<td>Usage of knowing how, invention, intellectual products</td>
</tr>
</tbody>
</table>

New circle……

The connection between the steps of the models can be seen in figure 4th.

![Figure 4. Relationship between innovation and knowledge management](image-url)
In order to highlight the relationship the researchers used the logic of the basic innovation model (for the simpler perspicuity and demonstration) since with the help of this model those imperfections that the modern models aimed at completing can be improved by the feedback of knowledge management elements. In case of the most developed innovation model the same relationships can be identified.

In case of organizational innovation when the innovation effort is aimed at the creation of new business model the contents of "prototype and product development" boxes should be replaced by such activities as human resource development and business model development.

The influencing effect of corporate culture can either increase or freeze creativity, cooperation, knowledge transmission that is the whole process of innovation. According to Stephen Shapiro [18] "The innovation culture is the main source of organizational competitive edge and the costs of innovation clear over the years. (…) " If employees identify themselves with this approach, innovation will be a part of their life. This ensures for the companies to use all human capital with appropriate approach and produce values coming from the company.

2.3 Organizational characteristics supporting cooperation between innovation and KM

Stephen Shapiro [17] collected the main management tasks to achieve innovation culture and other expectations characterizing the culture. Both the organizational characteristics and the elements of culture are similar to the characteristics of the learning company [16]. This fact is reinforced by the primary research results of Ross [12]. He found that 38% of the questioned employees answered that culture influences the success of innovation. Beyond this category the management styles and characteristics were also mentioned as an important factor. (The research used the questions developed by Golman [6].)

The Hay Group [7] collected six characteristics of a culture that cause an excellent innovation. Relying on the answers of employees these characteristics are the following:

- Clear objectives,
- Flexibility,
- Responsibility – self determination,
- Teamwork,
- Clear definition of expectations,
- Acknowledgement.

The authors summarize the main characteristics of learning organization based on the researches of Senge [12] and Garvin [5] in table 2nd.

<table>
<thead>
<tr>
<th>Culture is supporting KM (Garvin)</th>
<th>Characteristics of learning organization</th>
<th>Culture is supporting KM (Senge)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change</td>
<td>Decision making based on participation</td>
<td>Principle of personal management</td>
</tr>
<tr>
<td>Systematic problem solving, learning from private experiences</td>
<td>Rotation, flexibility</td>
<td>System thinking or system approach, personal management</td>
</tr>
<tr>
<td>Experiment</td>
<td>Continuous development, training, innovation</td>
<td></td>
</tr>
<tr>
<td>Learning from others’ experiences</td>
<td>Flat hierarchy</td>
<td>Collective learning, system approach</td>
</tr>
<tr>
<td>Dissemination of knowledge</td>
<td>Adaptability, external – internal openness</td>
<td>Mental samples, collective learning, system approach</td>
</tr>
</tbody>
</table>

Garvin [5] put emphasis on the creation of knowledge while Senge [16] and his co-authors focus on individual and collective development, learning and predominance of individual objectives. However the wording of the two models is different, the same expectations can be highlighted from the substantive contents. Culture supporting knowledge management is a condition of developing knowledge management system and requires the rethinking of companies’ strategic objectives. The following table third summerizes and compares all preconditions that were defined by the above mentioned researchers connected to culture supporting knowledge management and culture supporting innovation.
Table 3. Comparison of corporate culture supporting innovation and KM

<table>
<thead>
<tr>
<th>Culture is supporting KM (Garvin)</th>
<th>Culture is supporting innovation (Shapiro) – Characteristics supporting learning organization</th>
<th>Culture is supporting KM (Senge)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creation of shared vision and attainment of common objectives - Change</td>
<td>Systematic problem solving, learning from private experiences</td>
<td>Common vision</td>
</tr>
<tr>
<td>Participation of employees in important decisions and plans - Decision making based on participation</td>
<td>Extension of occupation - Rotation, flexibility</td>
<td>Principle of personal management</td>
</tr>
<tr>
<td>Change of management style from command to supporting style - Culture based on support and trust</td>
<td>Change of management style from command to supporting style - Culture based on support and trust</td>
<td>System thinking or system approach, personal management</td>
</tr>
<tr>
<td>Continuous development as common corporate value - Continuous development, training, innovation</td>
<td>Experiment</td>
<td></td>
</tr>
<tr>
<td>Supporting team work - Flat hierarchy</td>
<td>Learning from others’ experiences</td>
<td>Collective learning, system approach</td>
</tr>
<tr>
<td>Development of internal communication</td>
<td>Dissemination of knowledge</td>
<td>Mental samples, collective learning, system approach</td>
</tr>
<tr>
<td>Transmission of knowledge - Adaptability, external – internal openness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table third proves that culture is a precondition and the operation of innovation and knowledge management systems is inseparable. Another precondition of success resulting from their connection is a good strategy. This enables companies to treat innovation and knowledge management either as separate business models or as strategic objectives defined as common expectation. The learning companies can choose from six strategies due to their mechanism of operation [9].

If one overviews the opportunities, they can see that the first four strategies prepare the operation of knowledge management system, the fifth one prefers and the last one complete in innovation [19].

- Developing the infrastructure of information system,
- Management of know-how,
- Stimulus of private learning,
- Strategy of total organizational learning,
- Management based on knowledge (knowledge management),
- Innovation.

The main characteristics of these strategies are summarized in table fourth.
<table>
<thead>
<tr>
<th></th>
<th>Infrastructure of information system</th>
<th>Intellectual property</th>
<th>Individual learning</th>
<th>Total organizational knowledge</th>
<th>Knowledge management</th>
<th>Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Principle</strong></td>
<td>Help of management</td>
<td>Company’s assets</td>
<td>Improving the standard</td>
<td>Preparation for future changes</td>
<td>Efficiency of collective knowledge</td>
<td>Development of creativity</td>
</tr>
<tr>
<td><strong>Focus of intention</strong></td>
<td>Data, information</td>
<td>Marketable intellectual assets</td>
<td>More valuable human capital</td>
<td>Social capital</td>
<td>Improvement of competences</td>
<td>New products and procedures</td>
</tr>
<tr>
<td><strong>Objective</strong></td>
<td>Maintenance of managerial decisions</td>
<td>Profitability</td>
<td>Higher level of human capital</td>
<td>Collective perfection</td>
<td>Extension and transmission of competences</td>
<td>Profit from the new ideas</td>
</tr>
<tr>
<td><strong>Methods</strong></td>
<td>Attainment, storage, application and development of data and information</td>
<td>Selling licenses</td>
<td>Different trainings</td>
<td>Team work, development of organization and quality</td>
<td>Dissemination of the best methods</td>
<td>Brainstorming</td>
</tr>
<tr>
<td><strong>Measurement of efficiency</strong></td>
<td>Spread of information application</td>
<td>Extra profit</td>
<td>Advancement of participants</td>
<td>Decrease of cycles and costs, improving the quality</td>
<td>Improvement in the quality of decisions</td>
<td>Extra profit from the new products</td>
</tr>
<tr>
<td><strong>Type of organizational culture</strong></td>
<td>High tech computing</td>
<td>The ability of making profit</td>
<td>Thirst for knowledge</td>
<td>Preparation for changes</td>
<td>Universal tendency to transmit knowledge</td>
<td>Environment stimulating creativity</td>
</tr>
</tbody>
</table>

Table 4. Strategies of learning organizations [14]
3 New factors of success, possible solutions

The aim of knowledge management is to capture individual and organizational knowledge and use them to create value for the company. An important element of knowledge management is sufficient to suggest tools to fulfil the gap between existing knowledge and necessary knowledge. The authors know that companies can go outside their range accidentally in the process of knowledge management (attainment, development, transmission and utilization of knowledge) and innovation. Nowadays this is not only an opportunity, but the main condition of success. Getting new solutions has become simpler, faster and cheaper which influence the market position of companies. The introduced relationships are completed with such external opportunities that mean new innovative solution and attainment and transmission of knowledge at the same time. The latest international examples are notable evidences for such successes as open innovation, crowdsourcing or inverse/barefooted/frugal innovation. The external knowledge attainment motivates companies to find faster and cheaper innovation solutions [14].

Nowadays the number of initiatives and endeavours coming from the marriage of open innovation and knowledge management has been increasing continuously. (Interesting experiments can be found in Hungary too. For example the open innovation project of accredited clusters.) The relationship between the new opportunities and knowledge management model that serves the objective of attaining and transmitting of knowledge can be seen in figure 5th where the previously introduced innovation – knowledge management models are completed with the relationships outside of the company. These new opportunities mean brand new solutions and drive creativity that often stays in the background [8]. The authors integrated the two models where the connections with the performing steps can be seen and such methods and opportunities of utilization that contribute to the success of both models (figure 5th).

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**Figure 5. Innovation – Knowledge management and external relationship**
4 Conclusion

The creation, utilization, development and transmission of knowledge are basic elements of companies and the whole economy. The theoretical and the practical approach of innovation and innovation processes has changed significantly in the last few years. (This is proved by the third edition of Oslo Handbook, which was published in 2005 with the cooperation of expert from 30 countries.) New approach, broader definition, mutual relationships with other organizational processes are really important factors. No wonder if the successful development of knowledge management and cultural elements supporting operation emerge in connection with innovation. Access to open information in the process of innovation means the attainment and transmission of knowledge. Innovative cooperation requires a cooperation with other companies, organizations and goes hand in hand with purchase of knowledge. In conclusion the authors highlight that the development of knowledge management and the success of innovation link up profoundly. Labour collective that is able to absorb and receptive corporate culture enables the realization of these two areas at the organizational level. Qualitative change can be obtained in the efficiency of organizational operation by taking into consideration the relationship between the introduced models and conscious attention.

References: