



Knowledge Management Impact on Sustainable Development

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ABSTRACT

The modern world is changing rapidly, and one of the most important changes conditioning development is knowledge and awareness. This article analyses sustainable development as the main long-term link of society's development ideology towards knowledge management. It is stressed that knowledge, experiences, competences, civic liability motivate people to comply with the environmental, social, and economic sustainable development requirements. It has been noticed that one of the ways to study cognitive sustainable development dimension is thinking about development as a social process of learning, which on the individual level, helps people to control their personal experience of sustainable development by independently applying it to solve problems and create their future. On the organizational level, by applying knowledge management means and techniques, the intellectual knowledge of workers is transformed into sustainable competitive advantage of the organization. On the global level, the principles of sustainable development are applied when creating sustainable international community.

INTRODUCTION

The contemporary society experiences a transformation to new, cohesive, sustainable society by trying to provide opportunities for humankind to create safer, healthier, and richer world with continuous teaching and learning, new knowledge, values, provisions, and need to know, understand, and act meaningfully and responsibly (Chakori, 2017). The resolution "Transforming Our World: The 2030 Agenda for Sustainable Development", adopted by the UN General Assembly and signed by the President of the Republic of Lithuania and 192 Heads of States, officially entered into force at the beginning of 2016 by offering sustainable development goals for the governmental authorities. This is the result of thorough and comprehensive three-year negotiations that included international, national, regional players from intergovernmental, governmental, regional institutions, private and public sectors, civil society.

Sustainable development encompasses three main dimensions: economic, environmental, and social. Economic sustainable development dimension defines such development that provides conditions for long-term stable economic growth. Environmental is when the natural resources are

used in such amounts that there would be left some for the future generations. Social sustainability dimension requires that the person's basic needs would be satisfied, and a qualitative life would be created (Streimikienė, Vasiljeviene, 2004; Mikalauskiene and Streimikiene, 2018).

Constant changes are peculiar for sustainable development; they are conditioned by people's personal abilities as well as regulation and assurance of social and economic speed development in governmental and organizational levels. The application of knowledge management to the implementation of sustainable development goals attaches great importance to the intellectual capital, creativity, innovations that encourage sharing good as well as bad experiences, ensuring interaction of technologies, talents, and tolerances that are useful for the organization and the whole economy, and culture of lifelong learning (Molodchik, Shakina and Bykova, 2012; Kok, 2007; Bischoff, Vladova and Jeschke, 2012; Ming-Chang Lee. 2017; Johannessen, 2017; Byukusenge and Munene, 2017). The theme of knowledge management application to sustainable development is relevant and analyzed in the works of scientists (T. Auer, I. Caddy, K. Sbarcea, A. Charles, M. Cushman, T. Chun Wei Choo, Cornford, N., S. Ferreira, T. Davenport, L. Halawi, M. Neto, G. Probst, Polley V., H. Prusak, Y. Malhotra, R. Marshall, P. Maston, N. Mitev W.M. McElroy, M. Neto, M. G.Krogh, J. Roos, D. Kleine, K.Sbarcea, R. Smith, J. Stiglitz, K. Sveiby J. Swart, W. Venters).

The article defines the impact of knowledge management on sustainable development by revealing the relations between sustainable development and knowledge management, the definitions of knowledge management and cognitive sustainable development dimension and foresees the impact of knowledge management when aiming to increase organization's competitiveness. When analyzing the impact of knowledge management on sustainable development, the importance of intellectual capital is stressed; the concept of cognitive sustainable development and its relations to knowledge management are highlighted; it is revealed how knowledge management conditions the organization's goal of sustainable competitiveness and its realization. This article has been prepared by applying systematic scientific literature analysis, logic analysis, analogy, and summary methods.

1. KNOWLEDGE MANAGEMENT, INTELLECTUAL CAPITAL AND SUSTAINABILITY

The changes of 19th-20th centuries in the work sector were focused more on the sustainable economic growth. When reviewing the transmission from an agrarian economy towards industrial, knowledge society, organizational knowledge, intellectual capital acquires greater importance and approval that they are some of the most valuable resources for sustainable economic future (Bontis, 2000). The society required new information that would clarify the previously unexplained and intangible processes (Auer, 2004). The growing interest in the intellectual capital coincided with the creation of knowledge economy, knowledge society, and the noticed importance of knowledge and skills possession and usage. The use of knowledge means that relations (social capital) and processes (structural capital) are very important and necessary for knowledge transformation to product or service. This is as well related to the process of conversion: from possessing knowledge (frequently referred to as human capital) to the use of knowledge that is named as Intellectual Capital (Figure 1). The theory of human capital (HC) is based on economic logic aiming to analyze individual decisions related to the investment in more efficient skills and knowledge. The knowledge capital of the organization that is providing professional services is the knowledge and skills of professional staff employed to create services. The workers are payed for their time, energy, and mind input into the process of product or service creation (Davenport, 1999, Davenport, Prusak 1998). If HC is viewed from the social perspective; then, the human capital is perceived as an object peculiar not for the organization, but for the staff network; the workers' knowledge, skills, and abilities spread, depending on the level of specificity, and contributed to the growth of the organization and its clients' strategic abilities. The social view towards the creation of knowledge and the development of skills shows that processes of individual level (skills development) cannot be understood without regarding their social context.

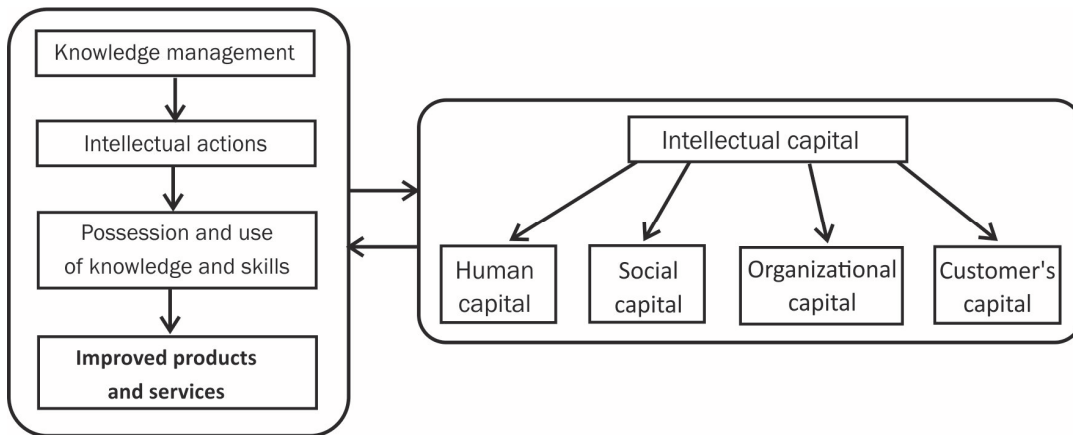


Figure 1. Conversion of knowledge management and intellectual capital

Source: Auer, 2004.

The knowledge is created by employing organizational or network relations; thus, they are kept on individual as well as collective level (individual, business, consumers, community level relations). Social relations are named as social community when communication and trust contributes to the society's development. Social relations are formed to increase innovations and competitiveness of economic and institutional actors and form organization's identity (Swart 2005). Structural and organizational capital encompasses intellectual property as well as infrastructure made of the organization's strategy, processes, and policy (Sveiby, 1997). Customer and network capital are frequently described as a component of social capital (Rezvan Hejazi, Mehrdad Ghanbari and Mohammad Alipour, 2016). It is defined as the organization's potential that encompass knowing how to work with customers and team: the reliability of information exchange is evaluated regarding the competitiveness and trust criteria. In literature, it is named as cooperation of relationships when the members of network want and are ready to combine individual and collective goals (Benedikt Morschheuser et al., 2017).

The aim of the knowledge management is to increase, renew, share, and improve structural, human, and social knowledge for the creation of intellectual capital. Knowledge management encourages people to relate their knowledge when creating accumulation, organization, sharing environments and systems. The sustainability in the context of knowledge management means the precise conversion of economic goals into knowledge goals, refusal of outdated knowledge, identification and maintenance of useful knowledge, preservation of people who have valuable knowledge, knowledge usage in infrastructures, unexpressed (implied) knowledge transformation into expressed concepts and models, encouragement of knowledge sharing. In this context, the question that arises is whether there is a difference between sustainable and unsustainable knowledge. This question could be answered by analyzing the cycle of knowledge existence. The cycle of expressed knowledge existence is not long, and this can be partially compensated (supplemented) through continuous learning. The unexpressed knowledge reveals the bilateral existence cycle; it is accumulated and manifested on the individual level as professional experience. In the context of sustainability, it is the feature of expedience that is peculiar for the unexpressed knowledge. The process of continuous development is as well supported by the fundamental, applied research. The research and the quality of its implementation are inevitably influenced by the level of knowledge and awareness, better understanding, innovative technologies. The continuous development, technological changes are the factors that determine continuous and inevitable management process of knowledge environment (Figure 2).

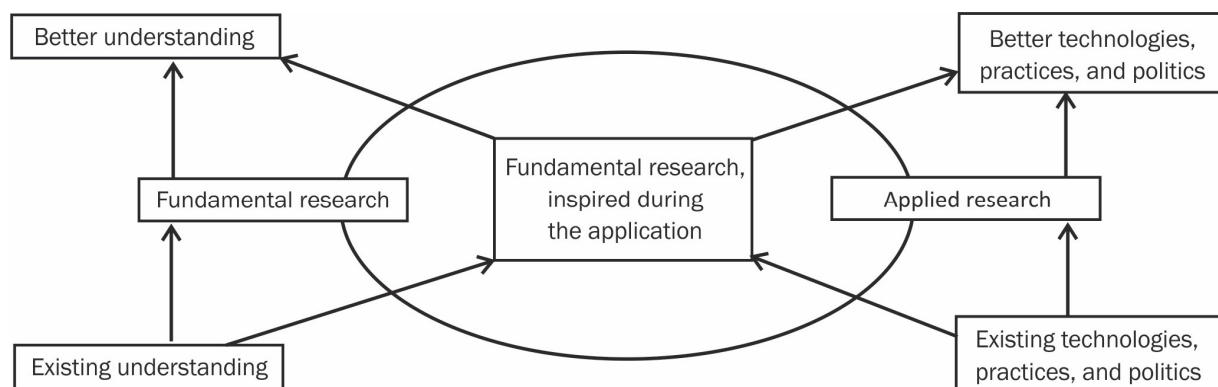


Figure 2. System of human resource environment

Source: created by author under Deadrick and Stone, 2014.

The whole system in the global society is influenced by new knowledge, new knowledge management means, the formation of new attitudes; knowledge direction towards the process of development; learning from experiences; the understanding of public relations; belief, motivation, the wanting to change, the appearance of sociability, etc. (Deadrick and Stone, 2014).

2. SUSTAINABLE DEVELOPMENT AND LEARNING

Sustainable development as the main ideology of long-term society's development can become meaningful in the context of culture, education, continuous teaching and learning. The possibilities to compete with other world countries are becoming more dependent on the country citizens' abilities to use knowledge effectively. From the economic point of view, knowledge is valuable as much as it is applicable. A lifelong learning in various environments, i.e., formal, non-formal (in an organization) and informal (life experience) is necessary for an educated person who is constantly increasing qualification. A. Ausra (2005) suggests evaluating learning in the knowledge economy from four perspectives at least:

- learner's perspective, contrary to the education institution's perspective;
- economy and labor market perspective, regarding social and cultural factors;
- education policy perspective, including the review of the most important competences that are necessary for the knowledge economy, encouragement of appropriate management of education institutions, financing human resources development, creation of learning methods and possibilities, assurance of justice and learning availability during all life periods and in all learning systems (formal, non-formal, and informal);
- wide knowledge economy perspective, the linking of education and human resources development with innovation systems and the information society wellness.

It has been discussed in the researches related to the development that sustainable development can be evaluated as a learning process as well, which is creating local knowledge and/or absorbing and applying external/global knowledge (Stiglitz, 1999; Nordén and Anderberg, 2012). It is obvious that learning from successes and failures, sharing knowledge with others and intelligently applied learnt lessons allow to achieve better activity results. The modern organization is devoting a lot of attention to its improvement. Knowledge management is like a start, increasing the importance of knowledge as a source that is creating the value for organizations, institutions, and society. The main "product" of knowledge management is changing environment that is encouraging workers to share, protect, and apply knowledge and maintaining all the processes, roles, means, and structures to do that (Polley and Smith, 2007).

In the context of development, it is important to provide opportunities for creating spaces that are open from the social perspective, providing working conditions to manage knowledge as the society wellness. The main aim of the Sustainable Business Network, which is established in New Zealand, is to implement the encouragement of consistent application development in business. In order to achieve consistent and successful business development, this business forum is interested in consistent application development in business. This network defines consistent business development as economic growth, social balance, and environment integration when developing new products, services, processes, and systems. The active work of New Zealand business development network is evident by their organized awards for leaders of consistent application development in business. The business development network understanding about consistently developing business perspective is complemented by general public considerations.

Sustainable economic development is conditioned by innovative activities. Knowledge, not technologies or finance, is the main component of innovations. Knowledge innovation is the creation, development, sharing, and application of new ideas to goods and services that are demanded in the market to ensure business success, country's economic vitality, and societal progress. The concept of knowledge innovations is based on the main competence that is necessary for the future. It embodies all main management dimensions in the innovation process: creation of ideas and their implementation by creating perspective commercial products and the formation of the basis for sustainable development. The differences of knowledge innovations from other knowledge and innovations treatment (Byukusenge and Munene, 2017):

- Innovation value system (not a value chain); the value chain is linear and static. The innovation value system is dynamic and displays all interrelations that are necessary for successful innovation development.
- The strategic business network (not strategic business units); the management of strategic business units inclines the creation of separate knowledge islands. Strategic business network encourages knowledge flow between partners, clients, suppliers, research organizations, and other mediators, including competitors in the innovation process as well.
- Cooperation (not competitive) advantage; competitive strategies create win-lose scenarios, when fighting for the last piece of the pie. Cooperation strategies encourage win-win situations through symbiotic relations. Knowledge is growing, and the pie gets bigger for everyone.
- Client success (not satisfaction), the contemporary need is to satisfy the clients. The focus on the client's success helps to identify unclear future needs, sources of growth, and future success.

Development as learning should be understood as a process during which people have the opportunity to express themselves in their activities, learn from their achievements and mistakes and as a way to take care of their experiences and life. Development as learning is as well evaluated as an opportunity to mobilize human minds as a valuable source of the organization and as a way to mobilize local knowledge sources by reducing external dependence and increasing sustainability (Ferreira and Neto, 2005). When aiming at sustainability, social learning requires institutional support of cognitive, social, logistical, and economic sources. Organizations have to learn to encourage such institutional support by transforming social learning into a component of sustainable development process.

3. KNOWLEDGE ORGANIZATION IN THE CONTEXT OF SUSTAINABILITY

The first organizations were created in order to ensure the common good, but during the formation, they began to move aside from their main goal. Common good became the synonym of profit and growth. However, when encountering with such challenges and consumers' reluctance to buy non-organic products; it was understood that organizations have to change in such a way that they would contribute to the wellbeing of the planet, just and humane society development, crea-

tion of work that provides satisfaction and cooperation. The contemporary ongoing destruction of the natural environment and questionable behavior of some companies influenced the rise of new business ethics that is based on the values and defined as “corporate responsibility” (Sbarcea 2000; Choo, 1998).

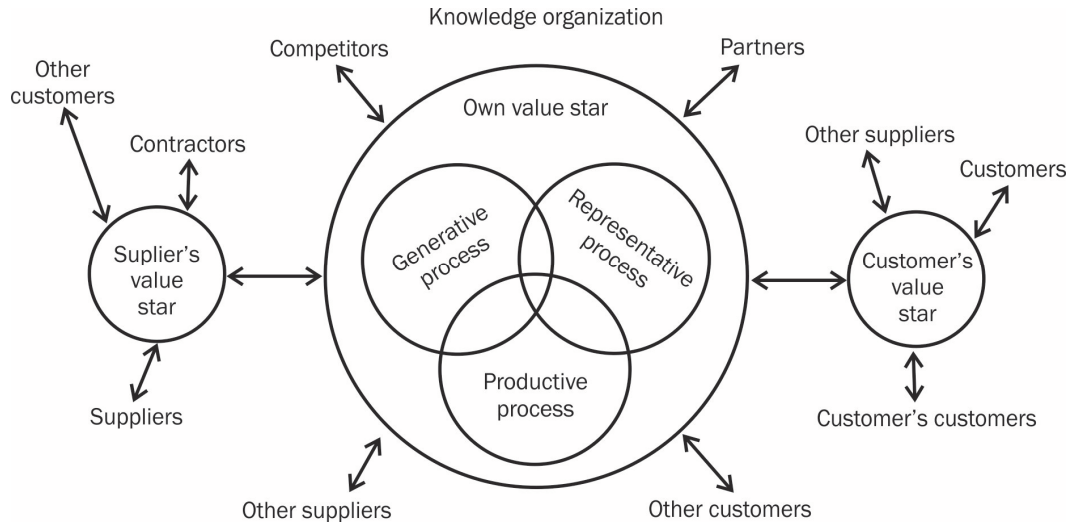


Figure 3. Knowledge organization's value star

Source: Chun Wei Choo, 1998.

Nowadays, the organization's responsibility encompasses shareholders as well as its mediators, i.e., users, workers, business partners, local communities, nongovernmental organizations, groups of activists, nature on its own. In order to have a prospering business, the organization has to follow the adoption and implementation of new standards. In the modern organization, the relations with clients from linear value-added activities sequence should transform into the value star (Figure 3), where client value creation processes would depend on many various components. The knowledge flow can be represented as a star, where the processes of organization's value creation appear influenced by numerous other incoming knowledge flows. This knowledge can be transmitted by various new cooperation, training and learning, information sharing methods through different users, suppliers, and other networks (Choo, 1998).

Thus, it is not surprising that together with globalization and new business ethics, a perspective, conditioned by knowledge management, was formed that people is the greatest asset contributing to the strategic success and wealth of the organizations, towns, and regions. Knowledge management enabled organizations to understand that a worker is the main mediator that should be developed, respected, and grown. The behaviors of people and organizations had an influence on every aspect of life: property (the increasing gap between rich and poor), health, pollution, urbanization, human rights, etc. The world is changing its values: it becomes more tolerant for differences, more caring for individual and society, more sustainable rather than destroying and invading. These are the changes that need to be evaluated by every organization. First of all, every organization has to acknowledge that there is an open system related to the environment that is made of many other systems. This means that the old values need to be changed by the new ones:

- Cooperation, not competition;
- Understanding the whole picture, not step-by-step linear planning and micromanagement;

- Co-evolving with the environment, not controlling it.

All this requires authentic dialogue to evaluate all the needs of mediators, and it would be perceived that the value is created based on the long-term sustainable relations with mediators and consulting with non-governmental organizations, etc. Even though organizations and people favor predictability and stability, in order to move towards sustainable development, organizations have to be in the state of non-equilibrium (i.e., instable/chaotic) in order to grow and develop dynamically. The Everest metaphor is used for an organization that aims to become sustainable: it is the same like climbing the Everest because it is a hard work while climbing, maybe a change of course when the weather becomes harsh, wondering if it will be possible to reach the top step by step (Sbarcea, 2007). The organization that is aiming at sustainability goes through the following phases: plunderer, ignorant, compliance, opportunistic, intelligent, sustainable/protector.

Plunderer, it is a selfish organization: not inherently evil, just not understanding or accepting its responsibility, values environment as a free good, disregards the community where it exists and its destructive impact on the environment, sees the organization as a machine, exploits employees for economic gain, does not manage knowledge and innovations, aims to maximize profit in all ways.

Ignorant, it disregards ethics, aims for financial gain; the cost of the labor force is important for everyone; its workforce is compliant, and the training for employees focuses on technical subjects; hierarchy, bureaucracy, command, and control are peculiar to it.

Compliance, it is reacting to the increased legal requirements, but only to avoid inconveniences and quarrels on the environmental theme, does not understand its social obligations, adopts knowledge management as a strategy only because others do the same.

Opportunistic, it sees sustainability as a significant competitive advantage, believes that the emphasized sustainability can be vulnerable, constantly reduces costs in order to achieve gain, tends to reinvest in staff if it sees value for the workers or the implementation of the organization's mission.

Intelligent, it is starting to take responsibility, perceives sustainability as a way for development, chooses knowledge management as a strategic direction, realizes the need to be innovative and adaptable in a complex world.

Sustainable/protector, this organization gets to the top of the Everest and starts to descent into the valleys below; when the organization is sustainable, it contributes to the ecology and society's wellness; it reinvests in its people and values them as the greatest asset; it is a part of a web or relationships; it is aware of its environmental responsibility and aims to protect natural capital (Sbarcea, 2007).

For many organizations it is difficult to understand how to get to the top of the Everest of Sustainability. However, the goal of many contemporary modern organizations is to work aiming at the global welfare.

4. KNOWLEDGE MANAGEMENT: THE MEANS OF ORGANIZATION'S SUSTAINABLE COMPETITIVE ADVANTAGE

The continuous successful growth in business development is usually provided as economic prosperity, the quality of the environment that is surrounding business, and social justice. Regardless where the continuous growth occurs, in academic, business, or politics dimension, the essence remains the same, only systemic development aspects differ (Marshall, Harry, 2005). In one of the interviews, Yogesh Malhotra (2000) defined knowledge management as a critical factor ensuring organization's adjustment and survival in the unevenly changing world. It encompasses the

possibilities of information technologies to process data and information as well as people's creativity and innovation. The continuous growth of competitiveness forces companies to follow market tendencies constantly. However, due to the increasing globalism level, it is no longer enough to follow the market for the continuous development process. In order to retain competitive advantage, there appears a need for the creation of additive competitive value to penetrate into market. This is enabled by the understanding that knowledge exists not only inside the organization; they need to be processed and presented publicly. The outside radiated knowledge networks about the company provide an advantage among partners that are active in the exact part of the market. The most important aspects of continuous growth is the understanding of the change from "individual" to "common group" (Cushman, Venters, Cornford, Mitev, 2002).

The knowledge intensive business has to form groups of specialists and scientists, conduct researches and experiments, create new and qualitative products, closely cooperate with research institutes and universities, encourage workers to seek knowledge and lifelong learning, monitor the environment and react when creating innovations and applying knowledge, invest in workers' skills upgrading and creation of innovations, perform the applied research, patent their created products (Krogh, Roos, Kleine, 1998). Thus, knowledge management is not only knowledge management in its direct meaning; it is the creation of environment that is friendly to perform knowledge processes and purposeful, continuous, systemic management and development of these processes.

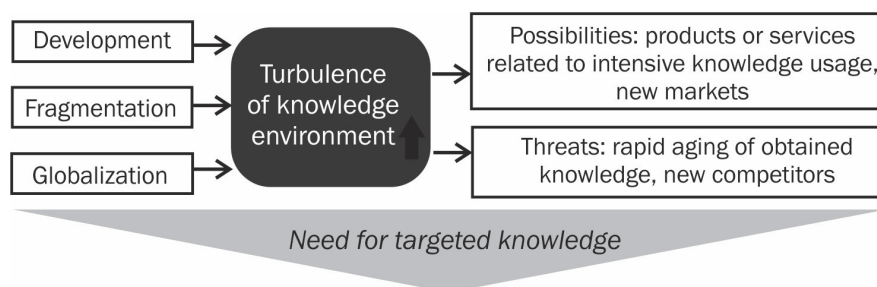


Figure 4. Tendencies of the knowledge society

Source: Probst, 2006.

Knowledge environment where companies are competing today is structurally much more complex than the one which existed few centuries ago. It was mostly influenced by the rapid growth of knowledge quantity, knowledge fragmentation level, increasing knowledge globalization. The number of workers in research and development field significantly increased during the recent year. The growth of the general knowledge quantity encourages specialization of scientific disciplines. The constant global economy tendencies encouraged knowledge globalization. Figure 4 reflects the tendencies of sustainably developing society.

The continuous knowledge development as if raises the question whether bigger knowledge quantity is a threat or a possibility. Most of the companies perceive the growing complexity of the knowledge environment as a threat. However, it should be noticed that by employing dynamic knowledge development, it is possible to create new competitive possibilities. Companies that are creating innovations help to understand that by linking products with intensive knowledge usage, there appears a possibility to increase its value. If a company that has a well-developed knowledge basis works in an environment where knowledge is used intensively, there is a possibility that a specific company's competence will acquire its own dynamics and create new strategic possibilities. Knowledge and innovations that are properly accumulated and applied create knowledge growth cycle that is presented as a continuously spinning knowledge spiral, which is increasing the level of society's life, health, and education.

The sustainable knowledge societies apply the accumulated knowledge (Sztangret, 2016). The most important of all is that they employ knowledge accumulated by the other communities and in such a way quickly progress and acquire advantages. This reveals the evident importance of cooperation and knowledge sharing (Sustainable Societies, 2007). The development of knowledge management and practical activity is continuing and expanding in all modern organizations. The greater need to find competitive advantages through knowledge appears due to the knowledge management progress. Competitive advantage can be acquired in many ways: the occupied position, access to resources or direct success (Halawi, Aronson and McCarthy, 2005).

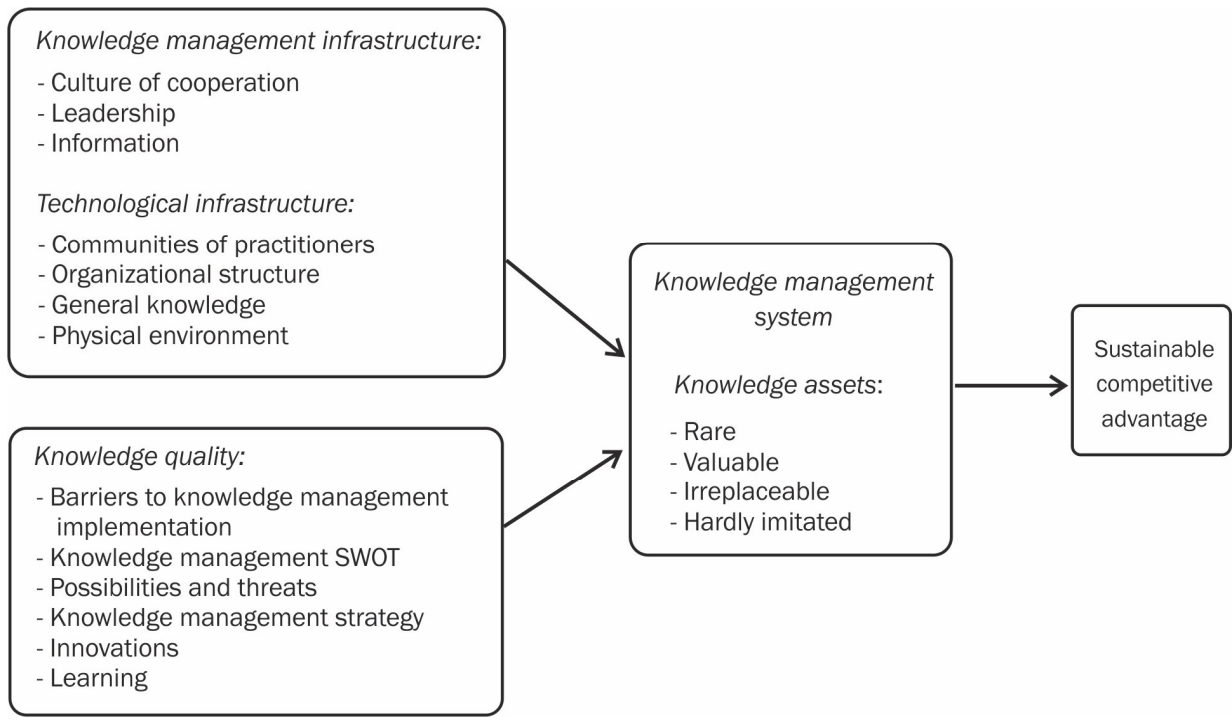


Figure 5. Sustainable competitive advantage

Source: Zehr, 2016

Business has understood the importance of unexpressed knowledge. The development of brands, relations with workers, reputation and organizational culture are becoming the main sources for the creation of sustainable business. The organization is a source of hardly replicable sources and talents, and its competitiveness arises from the ability to develop these resources and talents and organize them by creating and applying added value strategies. It is clear that knowledge and its proper application are what determine creativity encouragement, facilitating innovations and activity based on competence in public, private as well as non-profit organizations. The main goal of knowledge management in an organization is to transform intellectual knowledge or organization’s staff into sustainable competitive advantage, Figure 5.

Sustainable competitive advantage is an effective directing of intellectual capital towards the correct direction (Zehr, 2016). The long-term sustainable competitive advantage of the organization appears by using knowledge management systems, strengthening the existing advantages and increasing the value of resources that the competitors do not have. The properly accumulated and applied knowledge and innovations create other knowledge growth cycle that is presented as continuously increasing spiral, which is increasing the level of society as well.

CONCLUSIONS

The basis of sustainable development concept in the article is named as the sustainable growth of three equal components, i.e., environmental, economic, and social, development. As a problematic direction of sustainable development is named the orientation from individual to group understanding. Organizations that earlier existed as the individual units are, at the moment, treated as open systems, stressing the aspect of sharing workers' maintained practical competence, a close mutual cooperation between clients and workers. Sustainable knowledge communities apply accumulative knowledge. The most important of all is that they employ knowledge accumulated by other communities and in such a way quickly progress and acquire advantages.

The application of knowledge management in order to implement sustainable development goals attaches great importance to creativity, innovations, and as a consequence, structural human and social knowledge increase, renew, and improve.

When analyzing knowledge management in the context of sustainable development, it is important to stress cognitive sustainable development dimension: development is valued as a learning process that is creating local knowledge and applying global knowledge when opportunities to form spaces that are open from social perspective and manage knowledge as common society wellness appear.

The organizations aiming to contribute to the creation of common society wellness have to perceive themselves as a part of the whole open system, contribute to ecology and the creation of society wellness. Knowledge management is not only knowledge management in its direct meaning; it is the creation of environment that is friendly to perform knowledge processes and purposeful, continuous, systemic management and development of these processes.

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