

Gorgi M. Manev, Phd
Institute for Sociological, Political and Juridicial Research
University “Ss. Cyril and Methodius”, Skopje
manev@isppi.ukim.edu.mk

KNOWLEDGE MANAGEMENT FOR INFORMATION AND COMMUNICATION TECHNOLOGY BASED TEACHING AND LEARNING TRANSFERS

Abstract

Today's level of achieved development of information and communication technology has enabled the integration between the processes of knowledge transfer, its sharing and learning with the users' needs. Thus, prerequisites to complete their independence from space and time have been created in order to satisfy the economic and state needs in regard to the human capital development and organizational development. The prerequisite to successfully implement and offer this integrated service is based on the prediction that there shall be an organized development plan of the individual and their networking in order to achieve successful career and placement at the labour market. They will be sustainable if the opportunities of the learning management system are used. Consequently, needs for management and storage of different types of data, information and knowledge shall be handled as well as their networking within the work processes. All this provides prerequisites for creative work and creation of new applicable knowledge.

Keywords: Knowledge management, Knowledge transfer, learning, information-communication technologies

1. INTRODUCTION

Leaders' intention of today's modern society is to be as more connected as possible and prestigious thus implying that they should maintain their personal dynamics in the world striving to use knowledge for the needs of the necessary competitiveness and development. This is followed by the fast development and real implementation of modern information and communication technologies (ICT).

These are in fact computer systems and networks, internet usage (as a unifying system of mutually connected computer networks geographically widespread on different locations), web-based services acting as collection of different types of resources which are hyperlinked, software applications to access them, different storage places and explorers of digital content (multimedia files i.e. images, audio, video and text documents as well as software components). They are together mutually connected where most of the documents are stored and millions of web pages whose number is constantly increasing. Their successful use, follow-up and development will not be possible unless adequate systems for learning transfer are provided and are practically used so that they could be transferred to their users named as knowledge and learning transfer systems (Piña 2013). This is especially important when the acquired knowledge and skills have a purpose for a practical implementation of the everyday work processes (Dixon 2000) where academic and technical skills acquired via the learning process are necessary to be applied.

It is actually about the possibility of integration of educational programs and curricula with the work post needs and use of information and communication technology (Comer 2015) for an enriched method of knowledge transfer and continuous devotion to learning for connecting theoretical achievements with practical needs of the work post. In doing so, the activities linked to career planning, professional development and acquiring the necessary knowledge, skills and competences are to be supported.

This shall enable the recipients of knowledge easier accessibility to the desired positions, personal development, self-sustainability and response to the challenges from everyday surroundings, which undergo constant changes that ask the individual certain adjustments. That is why, the individual should possess the ability to devote to learning and practical application of the acquired knowledge and skills. All this can be completed by the help of the available information-technology tools. They are especially adequate for easier achievement of the personal knowledge goals.

For this, for example, internet technologies can be used (Miller 2014) based on TCP/IP protocols and connections, such as web conferences, web applications and classic tools to access and navigate the webs. They enable communication between the participants and exchange of different types of documents and media files at close and remote locations, but also useful information-technological integration.

This way, prerequisites for mutual meetings are created, through which knowledge transfer is possible between the participants, such as lectures, conversations and consultations, seminars, presentations, transfer and sharing of documents and similar educational activities.

The enabled and achieved integration which relies on web-based technologies, creates

conditions and basis for a different organization of the educational institutions, enriched interaction between the participants, better accessibility to the educational material and its administration, computerized activities, possibilities for assessing and testing students, approach management and most importantly, achieving the necessary quality in the effort of knowledge transfer.

All this creates conditions for an individual approach to the learning needs and consequent knowledge transfer. Information-communication platforms which enable this method of approach to knowledge transfer and its management (Graff and Jones 2011) today can be generally acquired on a commercial basis, then, there are accessible applications and platforms, but also one can call i.e. rent the service.

European experience and situation in the USA show that as a result of the invested effort to use the application of new information-communication technologies for the needs of knowledge and learning transfer, they are actively used in classic universities (which are usually associated to lectures in a classroom and campuses) and in the newly appeared universities and other educational units which only base on programmes delivered to students through the internet and different computerized media and internet-intranet technologies. Consequently, the general division of educational institutions to those which exclusively base on computer and telecommunication equipment and those which apart from the traditional method of knowledge and learning transfer are complemented by new information opportunities.

The first especially emphasize the individuals who from different reasons have not been included in the traditional universities. Then, effort is made to overcome the expenses arising from the student's accommodation, transport to the institution, reduced expenses for tuition and aids as well as accessibility from home or work to the educational institution and its resources and knowledge. This way they try to meet students' needs for flexibility of the educational institution.

2. KNOWLEDGE AND LEARNING TRANSFER ENABLED BY KNOWLEDGE MANAGEMENT AND INFORMATION-COMMUNICATION TECHNOLOGY

Traditional communication media, such as TV, telephony, radio, press and mail, during the last decades gained their companion in the information-communication technologies, i.e. the Internet.

Namely, survey conducted during the 60s of the 20th century, for the purpose of modernization of communication, resulted in development of communication networks.

It brought to their further development enabling connection of individuals, institutions (private, academic and governmental) and ICT equipment by using copper cables, fibres-optical fibres and wireless connection (Jones at al., 2016).

This way, they managed to structure and build computer global network which is geographically widely spread and consists of more different types of networks.

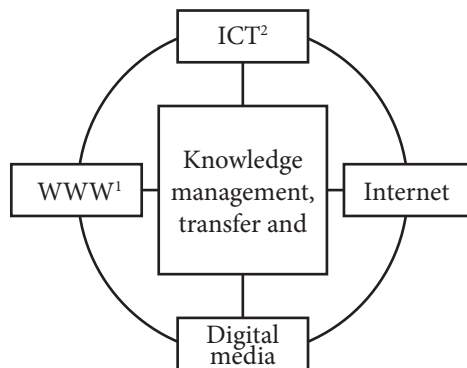
It was actually a fertile ground and basis for the web occurrence and different service applications such as sending mail via the Internet, supporting telephony, internet radio and

TV and sharing digital content and documents (Feldman 2005). The further development is associated with social networks and learning i.e. Teachers in charge of knowledge transfer became able to access internet communication, web work (full of media files), and tools for sharing digital contents and similar technical achievements which enable the knowledge management (Deng 2012; Jennex 2009) learning managementsystem (Baker 2014).

So, predictions for the introduction of different models of learning were created (different and not based only on traditional learning method), transfers and knowledge sharing such as for example remote learning, the so called “online” learning, bidirectional or dual or also known as hybrid learning (Huang at al., 2008), and electronic learning which enable instructors, students and digitalized contents to be relocated in different locations.

Foundations were laid so that instructions i.e. knowledge and learning transfer can be independent from space and time and all this added a new value and availability of the traditional communication media.

The integration of information-communication technologies, presented in graph 1 and which is today intensively used for research purposes and knowledge transfer consists of the internet and its services, web technologies (Godbole and Kahate 2013), digital media and information-communication technology to which processes of knowledge and learning management are attached. Their development is based on a constant engineer logic which enables processing, saving and sharing information to be done via two digits 0 and 1.



¹ICT, Information Communication Technology

² WWW, World Wide Web

Graph 1: Connection of four bearing pillars of the information infrastructure which are used for transfer and sharing knowledge, information and learning

Basis to which the information infrastructure lies as well as network connections are the digital media.

They are intended for the purposes of processing, analysing, saving and communicating information in or via digital electronic devices.

It is in fact about computers, modern phones, digital cameras, photo cameras, and different types of memory devices, scanners, printing equipment and since recently drones.

They all have really quick development. In the 90s of the last century, their participation in the means of saving the digital contents was insignificant so as today to have an impressively large part i.e. to dominate. Possibilities were created to create, exchange and access the digital contents which affected the improvement of work processes and the offer of new services in a line of activities such as publishing, political communication, TV, medicine, banking, telecommunication, trade, family communication and of course, education.

The second element of information-communication infrastructure is the Internet (Wilks 2014) which is also important for the learning management. Its basic purpose is to connect digital devices from geographically widespread computer networks by using adequate protocols for that purpose. This being said, integration is enabled by private, public, governmental, business, academic, research and educational networks and devices in the geographically widespread computer network connected via routers with wireless connections and copper wires and optic cables.

Web is a server application which enables connection and access to digitalized contents through the internet. It is based on “Hypertext Markup Language (HTML)” and connection through the so called hyperlinks. Contents can be accessed by user’s software application named as internet navigation explorer.

This is how access is allowed to a wider range of services based on web client – server architecture. By its numerous information resources, based on hypertext documents and applications, it offers different services.

Some of them are: sharing files and documents, transfer of digitalized mail, trade via internet, radio and TV, transfer of sound and telephony (internet telephony), online music, internet publishing, financial services, vide method for digital media delivery through a network with continuous flow, accessibility to different digital contents and software applications, accessing webs, software games, communication through computers and internet-enabled knowledge and learning transfer. All this has been complemented by networking of the social networks (Lipschultz 2015) and internet forums enabling the data exchange of data, information and files by using standard internet protocol.

An important element for the integration of information system for knowledge, learning and management transfer is the information communication technology (ICT). This technology for the purpose of the knowledge and learning, transfer, is used for activities such as saving, processing, simulations, research, management and transfer of digitalized contents, data, information and knowledge.

For this reason, computer hardware is used, software operative systems and applications, different telecommunication equipment, audio-video equipment, equipment for sharing documents and the internet.

This is the way to significantly help the effort to improve the traditional formal education and needs of knowledge and learning transfer during the individual’s lifetime (Anaya 2006; Longworth и Davies 2013; Oserloh 2007). This is especially because everyone needs constant upgrade of their level and knowledge which can later be used in everyday life and work.

That is why dedication to complementarity of human’s knowledge and its development understands exploitation of the possibilities offered by the formal (classic institutional

learning which was based on a previously prepared curriculum and resulted in acquiring certain degree of education and diploma), informal (learning acquired outside the usual educational system and is short-term and self-initiative) and information learning (where learning can be acquired by mutual understanding, collaboration, mutual creative work and exchange between colleagues).

That is why integration of learning processes and of course knowledge transfer is real if possibilities of modern information-communication technology are used.

More precisely, it can enable integration between communication and telecommunication systems (modern telephone devices, watches, tablets, TVs, and accessibility and presentation devices), information and computer systems (mobile computers and servers), systems for saving digital contents and processes of knowledge and learning transfer. This is how prerequisites for organization, management, saving, transfer, access and sharing information and knowledge is created through the internet and which are at disposal in digital format. It is the approach that can enable quality and efficient knowledge transfer and education, its management and easy accessibility that should lead to a successful professional development of the individual.

All this should result in an adequate development of society, more efficient economy, increased investments and employment followed by inclusive politics. This should be achieved through inclusion at highly competitive markets, their development and benefits of the achieved added value. Also, possibility is created for connection of ICT infrastructure and creating knowledge through social activities (connected for the ICT implementation in the educational processes, learning and knowledge transfer) and supported by the policies in the field. The result of these commitments should be improving productivity and network society specialized for knowledge and learning transfer in accordance with the individual needs.

They usually apply to planning people's career which needs to respond to the market needs of the economy and state institutions. These activities should also be in accordance with the telecommunication technology which is used for information transfer between the participants in communication. Today, for these needs, phones, tablets, static and mobile phones are used, as well as communication equipment (such as router) by using analogue and more digital transfer of signals and their network performance. This satisfies the social (e.g. user communication), economic, cultural (access to music, film, magazines etc.), governmental and business needs.

For a successful implementation of these commitments and goals, it is necessary that there is information system that would enable processes of acquisition, documentation, and execution of knowledge, access to knowledge, following finances, and notification for everything connected to the process of knowledge transfer and instructor's needs.

These systems can also integrate with the information systems which are intended for planning the organization and learning management system (LMS). They can be found today as a property of the educational institutions or obtain as an external service.

The information systems pointed out most directly help the process of knowledge transfer important for the development of career, human capital (Becker 1993) and the organization.

With its acquiring, the individual is equipped with knowledge which is useful to satisfy

work place's needs and the ability of teamwork.

This understands development of talents and their skills, abilities, knowledge, functional orientation, management ability, analysis and readiness for future work.

In this case, these activities are especially supported by knowledge transfer at work, helped by instructor, software applications for simulation, learning is web-enabled and using already prepared studies of cases for which specially designed work duties. This way changes are enabled in the organization in order to respond to the competitive threats and challenges.

3. COMPLEXITY OF MANAGEMENT AND KNOWLEDGE TRANSFER IN THE EURO-ATLANTIC COUNTRIES

Previously noted needs for knowledge transfer and dedication suggest thematic direction. It can help learn more areas important for the upgrade of the individual and it needs adequate goals. They are useful in the development or usage of the existing curricula which also need to be followed by adequate designed individual plan. This way, a conceptual integration of knowledge transfer is achieved.

The offer of this type of advanced educational services would not be possible if there weren't the internet and communication technologies. This way the users were enabled easy, fast and reliable access to them and transfer of digitalized data, information and knowledge. It is in fact an information-communication technology which enables simultaneous connection of the static and mobile phones, tablets, communication devices, publishing equipment as well as other hardware through which the offer can be used which can be accessed via the internet. This created conditions for exchange of digital files in different formats such as videos, images, audio files, different types of services and documents.

The designed development of the individual should be in direct dependence on the acquired level of education. Due to this, worldwide, and especially in developed EU countries and USA, there is increased need of education, knowledge transfer and devotion to learning which should result in new prestigious knowledge. Today it is clearly visible the occurrence of all those who want to be successful in their career and have a good placement at the labour market (Schwab and Samans 2016) that eventually they will face the financial challenges, with more and more increased usage of ICT in the process of acquiring level of education in the transfer of new knowledge and in the process of automation of work positions.

In the public, there are some predictions that in future, half of the work positions shall be automated which seeks adequate response from the knowledge management (O'Dell and Hubert 2011).

That is why, it is important that the individual is successful in the networking and is prepared to use the possibilities arising from the occurrence of increased offer of internet enabled and accessible courses i.e. the so called "Massive Open Online Courses - MOOC" (Kim 2015). This is a training which is digitally delivered through web based services available even at mobile computers and phones and tablets. They can answer the challenge

coming from the needs for web continuous learning accessible via the Internet.

In the research, education enabled through the internet and LMS is the knowledge and learning transfer with more than 80% of the offered content delivered through this medium. On the other hand, in dual learning or also known as hybrid learning, 30 to 70% of the course contents are done on the Internet.

They were identified so as data shall be analysed which refer to the EU countries and USA. They refer to the data available for the period of 2003 to 2012 when the information communication technology started to be used more intensively for the needs of internet enabled knowledge and learning transfer and communication.

Chart 1 shows the total number and range of students who use ICT in the process of acquiring level of education in both public and private institutions in the USA. It can be noted that in the USA during the period of examination, there was increase of number of students for 16.4% who had the opportunity to make knowledge transfer and learn in classes and have trainings with internet courses and LMS. This increase is also present in students (visitors) in business and management and social sciences. During the same period, there has been increase in the total number of students for 34.82%.

Data for undergraduate education in the USA show that exclusively internet organized lectures in the period from 2011-2012 is equal to 8.4%. Compared to this, the educational programmes with a full offer available on the internet in the school year 2003–2004 show 4.9% and it grew by 1.6% in 2011 – 2012.

In comparison, in postgraduate studies, LMS usage or knowledge and learning transfer through any kind of organized classes available on the Internet increased from 16.5% in 2003–2004 to 36.01% in 2011–2012. For the exclusive lectures in classes through the internet there is only data for the school year of 2011-2012 which show 20.1%. During the research period, there was an increase of the programmes which are fully organized and are offered on the internet by using LMS. Fully organised online programmes by using LMS have increased from 2003–2004 to 2011–2012 for 12.1%.

All this happens in a situation and conditions when the tuition expenses in private universities for the period 2002 to 2012 in the USA increased for 28%. In public universities in the period from 2007 to 2012 those expenses increased for 27%.

The data illustrates that in the period from 2000 to 2013, the income of the universities significantly increased for 200%. Also the sources of the university income provided by public funds, increased for 16.6%.

(in 000)

Year	2003	2004	2007	2008	2011	2012
Number of undergraduate students in USA						
Total, all USA students in fall enrollment	15312	17272	18248	19103	21011	20644
Number of und. students in Public institutions	11523	11650	12137	12591	13694	13347
Number of und. students in Private for-profit institutions	610	740	995	1237	1663	1370
Number of und. students in Private Nonprofit institutions	2346	2389	2470	2536	2718	2753
Percent of undergraduate students in USA taking any distance or online classes and degree programs						
Total, any distance or online classes	15.6 (0.29) ¹		20.6 (0.23)		32.0 (0.33)	
Business or Management	18.7 (0.58)		24.2 (0.55)		39.3 (0.75)	
Social or Behavior Science	12.5 (0.63)		17.1 (0.68)		31.8 (0.93)	
Exclusively online classes		-		-	8.4 (0.20)	
Entire degree program is online	4.9 (0.17)		3.8 (0.16)		6.5 (0.18)	
Business or Management	7.0 (0.43)		6.4 (0.45)		11.4 (0.40)	
Social or Behavior Science	3.4 (0.33)		2.3 (0.31)		7.0 (0.48)	
Percent of graduate students in USA taking any distance or online classes and degree programs						
Total number taking any distance or online courses	16.5 (0.76)		22.8 (0.76)		36.0 (0.74)	
Business or Management	22.6 (2.31)		27.6 (2.90)		40.0 (2.09)	
Social or Behavior Science	8.5 (1.42)		21.3 (3.66)		36.6 (2.22)	
Exclusively online classes		-		-	20.1 (0.64)	
Entire degree program is online	6.1 (0.58)		9.5 (0.68)		18.2 (0.63)	
Business or Management	10.3 (1.98)		13.9 (2.68)		25.1 (1.83)	
Social or Behavior Science	3.4 (1.11)		12.7 (3.68)		21.7 (1.89)	

Source: U.S. Department of Education, Institute of Educational Sciences - National Center for Educational Statistics

¹ Standard error appear in parentheses

Chart 1: Internet enabled learning in the USA

The second global leader in the digitalized internet education are the EU countries. Data which shall be presented are based on the research conducted with mutual efforts of the International Council for open and remote educations, UNESCO Institute for Lifelong Education, International Association of Universities, World Base of High Education and Portal of Studies. The mutual project was accepted and supported by ERASMUS programme in the period from October 2013 until September 2015. The basic goal was to research the offer of the European institutions responsible for sharing the educational contents through the remote education in order to satisfy the wider interest and needs. That would enable better access to the educational programmes based on basic right to education, enlargement of its knowledge and possibility to choose educational institution.

In the preparation of this research, the European strategy for development 2020 was taken into consideration, as well as Bologna process, UNESCO commitments for equality in accessibility and building inclusive education based on quality and lifelong education that would enable open educational system for everybody. Although, in the analysed documents there is reference to the alternative method of delivery of educational contents to wider range of interested subjects, it still should be pointed out that there is also reference to the educational and information possibilities applicable in the existing system which can actually be noticed by the existence of different types of education.

The results obtained which have occurred as a result of three studies, display the European condition in the educational transfer of knowledge and learning supported by the new information possibilities from where increased needs for education arise. For this purpose, in order for the public to gain precise insight in European situation, data from the remote learning portal were used, and this portal accommodates information and data for 3006 European programmes and courses, from the additional survey questionnaires that were distributed to 4000 generally highly educational institutions (with and appropriate response to them by 134) and students. Their classification is made in the educational institutions which work only through remote education, institutions which apply the dual method of education where remote education is included but also personal presence, institutions which cherish education with mandatory personal presence as well as high education institutions which do not offer possibilities for remote learning i.e. they are generally organized in a classroom i.e. the campus.

From the acquired results, and the completed analyses, it can be stated that the biggest participation in remote education with adequate programmes and analyses performed, enabled through the internet or courses enabled through the internet, are located in Great Britain with 59,48%, then the Netherlands with 14.1 percentage participation, Germany with 5.58, Spain with 3.79% and Italy with 3.49% percentage coverage in the offer. All other 32 EU countries and Russia which were taken into consideration in this survey cover the rest 13.56%.

Regarding the level of education, most used is the one at postgraduate level, with 56%. This coverage is really good in the Business programmes and Economy with 25%, in Social Sciences with 17%. In these programmes and courses, non-regular students cover 50.09%, whereas regular 25.8%.

What is interesting is the time used to complete the courses which with 59.5% lasts from

1 to 12 months.

All these programmes and courses with 66.4% are delivered only by accessing the Internet and devices which allow that communication.

28.34% is the percentage delivery done through dual method where also Internet is used and telecommunication equipment to access the student contents.

Students who acquire knowledge like this in 68% are in some kind of work duty and finance themselves completely on their own.

The obtained results of the examined 426 interested students who have access to the programmes and courses of the base, showed that they are generally employed with 60.79% and want to improve and upgrade their career (with 62% who answered positively). Their special tendency to education helped by information-communication technology is because they can: achieve their goals, fulfil the requirements at work, and have access at the same time to educational contents from anywhere (68% consent of the examined students).

This created conditions to organize platforms useful for teaching, learning and sharing information and knowledge helped by digitalized courses and programmes. The beginning of this way enabled cooperative development, is based on the need to enrich the offer of educational contents, programmes and courses in the current system of education and new types of offers. And in fact, by doing active research in the information-communication equipment and computer-network installations, conditions are created to apply the modern methods of lectures in traditional educational institutions, a possibility to introduce the interactive lecture and learning, using online education (Moore at al., 2011), and creating new social culture in terms of learning and sharing knowledge globally.

Their practical realization is really impressive, especially changeable through different disciplines in different professions, business subjects, for a wider way of communication and sharing, and of course in the university education and research. Also, this method allows individuality, self-direction in life, encourages devotion to learning accordingly the interest and is a basis to reach sustainable decisions.

Usually, knowledge and learning transfer can be organized through individual knowledge transfer, plenary lectures, by using the internet services based on information-communication equipment and through dually-integrated method which in smaller or larger range includes previous two methods of knowledge and learning transfer. Data from "Distance Learning Portal" where there are information and data from 3140 courses and programmes whose transfer is done through the internet shows that 50% of the analysed institutions use the traditional method of knowledge transfer by presence in class and helped by the advantages of education and knowledge transfer through internet as well as remotely. Also, 21% of them offer programmes which enable simultaneous education at distance and personal education, 9% offer exclusively knowledge transfer at distance through the Internet whereas 20% of them do not offer knowledge transfer through technologies which enable that.

With this, conditions were created for knowledge and learning transfer which can be used at different levels and educational institutions, as well as for research. It is useful for more sophisticated method of follow-up of the trained (students) and also in the introduction of different methods of knowledge transfer (Harper at al., 2004). It supports the differences in the organization and ownership in different types of educational institutions and can

follow their development and displacement, thus enabling the access to digitalized contents.

At the same time, it can reach organizational integration which depends on the displacement, size and institutional equipment with ICT which can also be accessed from outside. This can be realized by using software which enables access through the internet (Passerini and Granger 2000).

Therefore, more interested for knowledge and learning transfer were given conditions for individual learning or in groups. It is a good chance to acquire additional knowledge and skills, when one can learn from another. Based on the mutual interaction and sharing, creating knowledge is possible helped by individual interaction, forums and conversations via internet, different analyses and projects, or helped by explorer tools. For a successful achievement of the goals it is necessary that there is participation by all interested individuals which has to be followed by adequate coordination. Also, it might be necessary or every individual to get certain duties with some tasks. This suggests the existence of an instructor, digitalized contents (enriched with bases and graphics) and ICT, through which the transfer and sharing is possible.

4. MANAGEMENT SYSTEM FOR LEARNING AND ITS SURROUNDINGS

An important element in creating knowledge and further transfer via the process of teaching and learning is the existence of network between the current knowledge and its users. There are more shapes of networking. They have their own development starting from the physical systems for data transfer, traditional mail and today's internet based systems. They all need management of their activities. In the field of knowledge and learning transfer, it is done by the learning management systems (Kats 2010). They can be supplemented by systems responsible for preparation and implementation of knowledge and learning.

In reality, for example, learning process can happen and can be directed due to fulfilling the needs in creating new and unknown knowledge in the interest field. Also, learning process is useful in managing the existing knowledge, its connection or in the need for finding and further using. So the existence and availability of libraries and databases is the basis which can be a starting point in the organization of knowledge and its consequent transfer. All this creates prerequisites for a successful learning of the individual which can be also in a digital shape.

The existence of libraries and archived material is the basis for realized learning and directions to its usage. For all those who have the need and want to learn, it is a strong recommendation that they stand to their intentions, and dedicate to research and of course to be able to understand the curriculum. Besides, learning can happen through experiments, consultations, collecting data and information from media and internet based learning systems. They are especially useful in situations when the institution has already arranged and digitalized its educational knowledge intended for a certain group of future customers. Also, in cases when there is need of refreshment of knowledge, in usual learning systems, work on projects (where there can be lack of knowledge) or for the need of some analyses.

All these cases show a knowledge transfer helped by the process of learning. It happens

that knowledge for a possible problem can be transferred and in future used for its resolution. The success of this individual and level of knowledge that they possess (acquired through experience and research) and of course, the surroundings i.e. conditions under which learning takes place (i.e. the equipment used and methods on how to use it). Due to these reasons, there is need of learning management system (Luecker 2018).

Each individual can acquire knowledge in different ways, for example through formal educational system, by research activities, self-initiatively, at work, through social exchange of knowledge, work on projects etc. That leads to the application of information-communication technology innovations, and acquired knowledge might affect the social and economical development (Atkinson и Stewart 2013; Di Battista at al., 2015). It can become sustainable if developed learning systems apply based on the Internet, information-communication technologies and software applications with purpose. That should enable enrichment of the knowledge, their advancement, cultivation and usage. This way, prerequisites for creating and transferring new knowledge are created that should be enough to satisfy the future needs.

Achieving these goals is possible if one is able to use to web-based tools. There also should be a method and knowledge for the problems to be approached from different aspects and at the same time there should be motivation for research.

It should be an adequate approach that would lead to achieving sustainability of the individual and their development.

Creating further knowledge transfer for this need is possible if there is organization and adequate culture which will cherish and enable this process. So, there are educational institutions nowadays, with different ownership, equipment, staff, programmes and knowledge. They can be special in terms of their content, method of transfer and how that process is being performed.

There are different for their socio-economical and business surrounding they work in, the structure they shall be applied in and types of educational strategies of knowledge which shall be used.

Of course, the goal is to fulfil the needs of knowledge through its transfer and learning. It should be based on collaboration, systems usage to support thinking, as well as persistence in the conduction of control of quality. This should lead to enriched learning conditions, research and creating new knowledge adequate for a further transfer (Means at al., 2013).

It depends in the organizational design, integration system which is enabled by ICT, educational dynamics and type of methodology and dynamic used.

Like this, the intentions of competitive organizations can be supported and individuals can save their sustainability. This cannot be realized easily and not to pay attention to training for the employees i.e. the individuals. This is especially important when it comes to the social sustainability and continuity. They face more challenges such as material, financial and regular market changes caused by the sharp requirements of the clients as well as the increased level of knowledge in the job-seekers.

It is because of this, there is need of constant training, transfer, sharing of knowledge and learning. Today's modern ICT offer the response to these challenges and they can actively be used by the government, educational institutions, and business subjects as well as for individual purposes. The goal is to achieve better business processes, improved institutional

culture, mastering new knowledge and creating conditions for comparative analyses. The same can be realized through development of educational courses and programmes by using the mutually integrated information systems which are visually shown in image 1.

That is why there is need of modern software and hardware tools that would manage the knowledge and learning transfer systems. Their basic task is to be equipped with tools which enable interaction between the participants in the activities, administration in the processes, to be equipped with design tools, development and management with educational content and if they enable quality with their deliverance (King and Kovacs 2015). It creates prerequisites for sharing and transfer of knowledge by using the software-server platforms. It is allowed that lectures and learning is done exclusive online and internet-enabled learning or by dual methods of content delivery intended for learning.



Image 1 *Visual presentation of the knowledge and learning transfer systems and supporting learning*

They should be designed in a way so that they could provide the necessary level of skills and knowledge.

It can be achieved by designing adequate educational processes and programmes which should be compliant with the individual goals connected for the career's development. It is also quite important which of the educational contents and tools for sharing and communication should be transferred and shared so that the individual acquires the necessary knowledge and understand and accept it.

ICT is necessary here which is in charge of design, integration, and distribution of the educational contents to the interested individuals.

Today, on the market for these types of services, they can be found in a shape of a commercial product, as services that can be received by suppliers (named as providers) who are present at the internet portals and as initiatives which support the so called freely accessible software. It is the basis through which transfer of knowledge is offered based on the internet accessibility, wish to learn and acquire new knowledge.

In order for this to happen, it is necessary to include instructors who are also involved in the preparation of subjects and programmes which are to be delivered. Their task is to connect knowledge to the needs for individual knowledge, skills and capabilities.

The process of successful presentation follows for which an adequate communication with students i.e. the interested individuals is needed.

Actually, it is the method how to answer the challenge of time and fast changes caused by constant technological innovations and development of new knowledge which brought to more modern way of executing work processes and their automation.

This should be followed by knowledge transfer and fulfilling the needs for learning. They are caused by the increased mobility requirements, geographical prevalence of modern companies which have the conditions for new transfer and sharing of knowledge on the internet and networking on time.

Successful usage of the ICT abilities means adjustment to the processes of learning and knowledge transfer. In that respect, possession of certain knowledge for the operational systems that are to be used, is useful, as well as the type of internet connection, possession of adequate software tools for exchange of digital content, their display and sharing.

Consequently, the possession of advanced ICT equipment, adequately chosen programme and training as well as showing capability in the engaging instructors who know how to transfer knowledge are just some of the elements which enable learning and create conditions for upgraded knowledge and skills of the students.

All this should be in accordance with the needs of the organizations for the introduction of new technologies and following staff fluctuation and improvements. That is why knowledge transfer is focused on upgrading the existing knowledge with purpose.

While preparing the design of knowledge transfer enabled by the internet-based system of learning, the significance of digitalized contents should be taken into consideration. They should be transferred to the interested individuals. The method on how should that be done is also something to consider. Whether to go with the internet enabled learning or should it be combined with the classic method or maybe research should be the choice. This process should consider the possibilities of synchronous and asynchronous ICT and how they allow and enable knowledge and learning transfer.

It is recommendable that experiences cases are used (helped by simulation software, games, tests etc) for awareness of the surroundings, their applicability (through lectures, trainings and lessons) and methods of sharing the educational process.

To satisfy these needs, the learning management system can be used. It is a software web-based application available via internet or intranet.

It can generally be successfully used for lectures, knowledge and information transfer through courses, and for administration of the process of learning and knowledge transfer. It is used for documentation, following the progress of the programme and generating the different reports. It is good for courses design, support of the communication process and sharing knowledge, organization of time dynamics and events. It can also be used for testing and assessing students.

It can also be successfully used in the classic education with classrooms but as support to dual education which understands that more of the time for knowledge transfer shall be done via Internet or Intranet-enabled learning and LMS.

The instructions are conditioned by the design and abilities of ICT, as well as of what shall be used, so they can synchronous or asynchronous.

The goals of this type of transfer refer to the need to enable quality lectures, shaped

in programmes and courses which need to be compliant to the needs for knowledge, capabilities and skills. This way, all interested individuals in the process of knowledge and learning transfer shall be enabled easy access to the educational contents from anywhere in the world and anytime as well as being informed for the process itself.

The affected students are given the necessary conditions to use the modern ICT, hardware and software applications for the needs of receiving the required instructions in the shape of courses as well as support to the administrative process of their realization.

LMS owns tools to follow the activities of the training and communication tools embedded in it.

They provide meetings in the virtual space of the instructors and students as well as with other engaged people in the process.

At the same time it connects different types of software tools and a possibility for media presentations. It offers support to the educational activities for usage of the operative possibilities.

It covers the management activities in the knowledge transfer. It integrates with the external bidders of applicative software.

It can also provide standardized training design implementing different methodological approaches.

And what is its special feature is that it allows different levels of access.

5. MANAGEMENT SYSTEMS AND KNOWLEDGE TRANSFER BASE

The wish to learn and transfer knowledge is based on the need to do some kind of work for which there is lack of knowledge, skills, information and data. It can also appear due to necessity for awareness and research of some occurrence or problem.

It is present when there is wish to be worked on self-development in the personal career, following the changes in the surrounding, as well as entering competitive relationships. This can be done in a classic way through lectures in a classroom or laboratory, amphitheatre etc. However, as it was already elaborated helped by the ICT and its hardware and software, as well as the Internet, the offer can be enriched with educational contents; their transfer, management and accessibility can be extended.

ICT can be successfully used for individual implementation of these systems. This way, classic learning can be complemented but also exclusively internet-based learning can be formed as well as combined i.e. dually-integrated learning. It is based on computers, computer equipment and mobile devices which have access to the web applications, social media, and introduction of connection technologies, collaboration, transfer, knowledge sharing and management and usage of computer networks and introduction in virtual networks and their knowledge storage.

As an addition to this, personal mobile phones can be used, LCD projectors, modern digital photo cameras and interactive digital boards for presentation. Also, client-software applications are useful like simulation software and analyses which can be spatially distributed.

This way there can be enriched collaboration, accessibility to a larger number of digitalized documents, usage of communication software for transferring images, audio and video files, sharing screens, meetings and work in virtual classes through web conference software applications, then video conferences enabled by web cameras, microphones, software tools for reporting a discussion, as well as web-based knowledge and learning transfer. This creates conditions for creating surroundings (Mc.Neal 2015) which should be enough to overcome the spatial location as an obstacle in the knowledge and learning transfer.

Instructors are enabled this way to exhibit their digital transfer of knowledge to the interested individuals or students. Simultaneously, they can work on their enrichment using the possibilities of different software applications good for this purpose.

Also they will be able to visually improve their presentations, introduce different tests, use questionnaires, or quiz questions. This creates conditions for a full or partial usage of the possibilities of ICT for the process needs of knowledge transfer and learning through software and hardware asynchronous (Roxanne и Goldman 2004) and synchronous technologies (Hofmann 2003).

Their introduction to the educational process can be realized through individual investment and at commercial basis or through some provider which offers similar type of services.

Investing in such an access to management and knowledge and learning transfer creates special conditions for a successful structure of the educational and research subjects. They will be at disposal for rereading and additional using. For this purpose, methods can be used such as digitalizing books, web portals, preparation of standard lectures, using video conferences, giving homework, by using different types of survey methods and software which is helpful in the analyses.

They can be attached through last innovative improvements of modern phones, tablets, laptop computers and similar devices for personal digital assistance. They can be used for the needs of both synchronous and asynchronous learning.

With their help, digitalized contents and documents can be easily accessed. They are also good when there is need of communication no matter the location. They successfully enable collaboration between students and knowledge transfer. Many software applications can be used which are quite useful for the audio and video communication and integration as well as access to other devices which support wireless transfer of information, done by the system integration.

This can be complemented by approaches which enable richer choice of exploring documents and their further usage for the needs of knowledge and learning transfer. They are usually easy to transfer; they can be equipped with different operative systems and memory storages.

Therefore, by adequate usage of the ICT and digitalized contents, conditions for enriched knowledge and learning transfer are created which is easy to access and is designed according to the needs. The access is easier and using the right to find it and use it for personal improvement from anywhere.

This occurrence which connects to the learning and knowledge transfer by using the ICT has had its beginnings since the time of using classic mail services to deliver educational

contents. It brought to development of the studies and introduction of levels of different locations or from home. In time, they became more interesting and are used in cases when students need specific knowledge and flexibility. They are also used by companies when they need to use advanced applicable knowledge based on innovations. The goal is to offer individual knowledge transfer with the intention of competitive advantage.

Due to these reasons and by active application of internet based technologies, their additional development follows which can be seen in the occurrence of educational institutions which offer exclusively trainings and level of education that can only be acquired through the internet. However, there are such which combine the classic method of knowledge transfer with applying and using the opportunities of the internet supported knowledge and learning transfer (Simon et al. 2013).

Modern ICT allows that knowledge and learning transfer needs are satisfied by personal presence but also by using hardware technologies and software applications.

Knowledge and learning transfer by using information-communication technology and the Internet depends on the type of internet is used (communication, software or hardware technology).

This offer of internet-enabled learning suggests usage of synchronous and asynchronous tools and technologies. It refers to devices and applicative programmes which enable the synchronous and asynchronous method of knowledge and learning transfer and they are classified in Chart 2 where comparison was made to the classic method of knowledge and learning transfer.

Information and communication technologies for knowledge management, transfer and learning		
Asynchronous technologies	Synchronous technologies	Traditional approaches
E-mail	Interactive chatting	Mail correspondence
Blogs and microblogs	WWW online	WWW through stick or CD
Social networking using web	Connecting people over IP	Consultation
Internet and web archives on demand	Virtual Libraries	Libraries
Discussion boards	Web conferencing	Physical classroom
Wikis	Webinars	Class notes and references
Games	Web interactive simulation and games	Game and case studies in classroom
Audio and Video Podcasts	Live audio and video podcasts	Audio or video files on CD or USB

Video or audio streaming	Live video or audio streaming	Audio or video recorded courses
News aggregators	Internet online news	Bookshop
Television on demand	Smart TV	TV and projector
Mobile phone	Smart phones and voice over IP	Telephone
SMS	Internet shopping	Teleshopping
Digital cameras	Web cameras	Cameras
Dictaphone	Speakers	Lecturing

CD, Compact Disk; SMS, Short Message Service ; TV, Television; USB, Universal Serial Bus; WWW, World Wide Web.

Table 2: *Asynchronous, synchronous and traditional technologies and ways for Knowledge management, transfer and learning*

So, synchronous learning refers to a group learning of students i.e. users of the services in the process of knowledge transfer which happens simultaneously for all of them. It usually happens through lectures and asking questions. These lectures and learning suggest presence of an instructor and students at specifically agreed time and the type of transfer depends on so many things. It is done by using tools which enable transfer of prepared digitalized documents on a computer, written or audio conversation, vide conference and other tools for meetings in the virtual space.

Synchronous technologies are for example applications which enable integration of internet audio and video communication between computer and mobile devices, applications for synchronous conferences and applications for video conferences which enable having virtual classes etc.

Using this method, we can develop the discussion between the participants in the educational process. Media through which this can happen are the Internet and web conferences, interactive TV and radio, modern phones, transferring voice through the internet as well as satellite systems.

The second method of knowledge and learning transfer by using the information-communication technologies can be realized through asynchronous technologies and that such type and method of knowledge and information sharing, organized as educational contents that could be transferred in a way which surpasses the boundaries connected to space and time.

Asynchronous method allows knowledge transfer between the instructor and individual not to happen simultaneously but delayed. This transfer is enabled to be done individually (generally helped by the allowed access to any digitalized shape of documents and software applications), through personal communication with the instructor, lectures and organization of conferences (where conversations, discussions and presentations are possible).

All this can be complemented by other support systems of these methods of knowledge and learning transfer that are used to find information, to exchange messages and documents,

systems to support communication processes between the instructor and students and similar to them. Like this, instructors are created conditions to approach students individually and in a group.

It is a great possibility for self-development and enrichment of the traditional learning, organized usually in campuses, and can be useful for the support of education at distance and in lifelong learning.

Today, it is implemented through the so called modern internet based technological tools such as internet mail and conference systems, internet forums for discussion, blogs, support group works and web based platforms and sites which are present on internet as hypertext documents. They are all equipped with possibilities for presentation and usage of images, audio and video files as well as other documents which are created from different programmes. They can be available at webs i.e. the internet.

Also, there is possibility to use social networks. They enable course and programmes management i.e. educational contents, discussions, databases access, digitalized virtual libraries, web work, sending text messages and using media files and graphics.

This way instructors and students are enabled access to digitalized contents from anywhere. Also, digitalized services supported by ICT are allowed to be dislocated at distributed locations enabling realization of knowledge and learning transfer independently from space (geographical distance) and time.

With their help, offer of knowledge transfer is possible which is realized by faster or gradual completion of the training according to the needs and time at disposal for students. Anyway, by using the management based on internet, the enabled studying and knowledge transfer, offer of educational products is possible to wider range of interested individuals. This creates conditions for a dual method of education. The classic education in classrooms and such educational configuration through the internet and web based tools.

This way, both public and private profit and non-profit educational institutions are enabled to use the advantage of ICT innovations in the field.

For the students, a special benefit can be the usage of sophisticated creative and analytic tools and possibilities of LMS. It is useful for the reduced costs for tuition, transport, accommodation, equipment and in cases of physical disability. Users i.e. students are given surrounding which offers equality in the approach and conditions for further development of their career and a method how to become a respected member of the community. Like this, a virtual ICT community is in fact created which in its professional development is devoted to knowledge and learning in accordance with its needs and personal strategies which should be in accordance with the market needs.

Practical implementation of these commitments happened with the achieved level of today's ICT and Internet. That contributed to enabling networking of devices and systems as interactive access.

Those are digitalized technologies, software applications and hardware which enable knowledge transfer, create knowledge, define and enable access to it, but also sharing, localizing, right to self-improvement and storage. This is the approach which provides conditions for instructors, students and educational institutions to organize their digital base and to make it accessible for the interested individuals. As it was already mentioned, for this purpose, the possibilities of the internet can be successfully used, the personal computers,

webs, tablets, phones, laptops, drones, network devices, video cameras, scanners, printers and other equipment.

This creates conditions for personal creativity, expression, artwork, recording in different formats, forming base of knowledge, information and data that can also be applied successfully in other fields as well.

It is the way to encourage personal development and enrichment of the personal knowledge (Pauleen and Gorman, 2016). Apart from that, conditions for applying that knowledge in a work environment are created and support in the implementation of the planned strategies. At an institutional level their role is upgrade of programmes (curricula) and subjects helped by different hardware and software tools and systems.

It most directly contributes to improvement of the individual preparation for self-improvement and directing their future, independence in work, dedication to self-development and enabling quality knowledge and learning transfer.

All this can be achieved from anywhere and in accordance with the time at disposal. This leads to strengthening the individual knowledge, skills and capabilities which should be put at disposal as a response to the competitiveness and refer to the staff and to those who learn.

This all can be implemented by using the mentioned methods, by digitalizing the programmes, creating conditions for research helped by digitalized libraries accessible through the internet or intranet, as well by tools and systems for check-up of the knowledge transfer. A serious approach is also necessary to this process, its planning and organizing (Shen et al., 2008). It should result in individual preparation for inclusion of the labour market and business organizations. The individual equipped with the necessary knowledge is prepared to work and adjust in order to answer the challenge. On the other hand, companies should know how to manage their worth capital. There should be compliance of the individual capacity with the needs of the organizations. It is of special importance for their creativity, dedication to the challenge of news and quality in products or services. All this should contribute to satisfied and motivated employees.

6. KNOWLEDGE MANAGEMENT IN THE PROCESS OF KNOWLEDGE AND LEARNING TRANSFER

These developed systems for providing and implementing knowledge and learning transfer via the Internet by intensively using the ICT, present the basic platform where all participants might meet. It is based on mutual respect devotion and sharing which can lead to other knowledge. Also, additional conditions can be created for the learning and sharing to be realized in different space, and can be reached via the internet and modern devices for that purpose, then to have choice when to realise it and simultaneously to give a personal contribution for the personal career and organizational development. That can be successfully achieved if adequate attention is paid to the introduction of knowledge for organization based on the usage of possibilities of modern ICT (Gell and Cochrane 1996). Moreover, one should follow the changes that are present or occur in the process of

restructuring the organisation i.e. Improvement of their business processes. Individually, it refers to the awareness and usage of knowledge to upgrade their personal career and enrich their personal knowledge.

These needs' sources can also be found in the wish for an easy access to quality work positions and providing answer to the competitive threats. This can lead the organizations and individuals to their wishing purposes which should base on connection of distributed information and knowledge as well as use of ICT for their management, transfer and application, All this should affect the sharing of contents which can lead to new creativity and knowledge (Wang and Noe 2010). Moreover, comparative analyses should be made and one should persist in the follow-up of the inovations in the field. Nowadays, this can be done in a more sophisticated manner via information systems with a purpose. They enable management and approach to certain knowledge as well as its sharing by which conditions for generating reports for the learning and knowledge transfer's activities are being created. They can be used to make sophisticated reports based on integrated knowledge database of different geographically remote sources. One can also use different information devices to search for digital contents.

They can also be helpful for the organizational leadership which should have the same vision as how, when and where knowledge should be used (Cavaleri at al., 2011), i.e. how to be able to successfully use for its sustainable strategies. Attention should be paid to the organizational culture which fosters an easy access to the educational contents and which shall continuously expands in terms of knowledge for the interested. All this is to be supported by the maintenance process of knowledge, its preservation and sharing. There should be awareness for its importance, meaning and useful value. Those means are actively used to support the different processes of knowledge and learning management and should be supported by people and the organization itself. They are usually used to code the knowledge and connect it to different and adequate organizational logic. The process itself starts by identifying the knowledge sources, then their adjustment which is later used for the purpose of the needs of more sophisticated analyses and syntheses of knowledge.

Its organization, storage and sharing is something that has to be constantly worked on. Also, ICT can be used which enables the Internet, the access to different databases connected to knowledge, different shapes of documents as well as other advanced tools for knowledge storage.

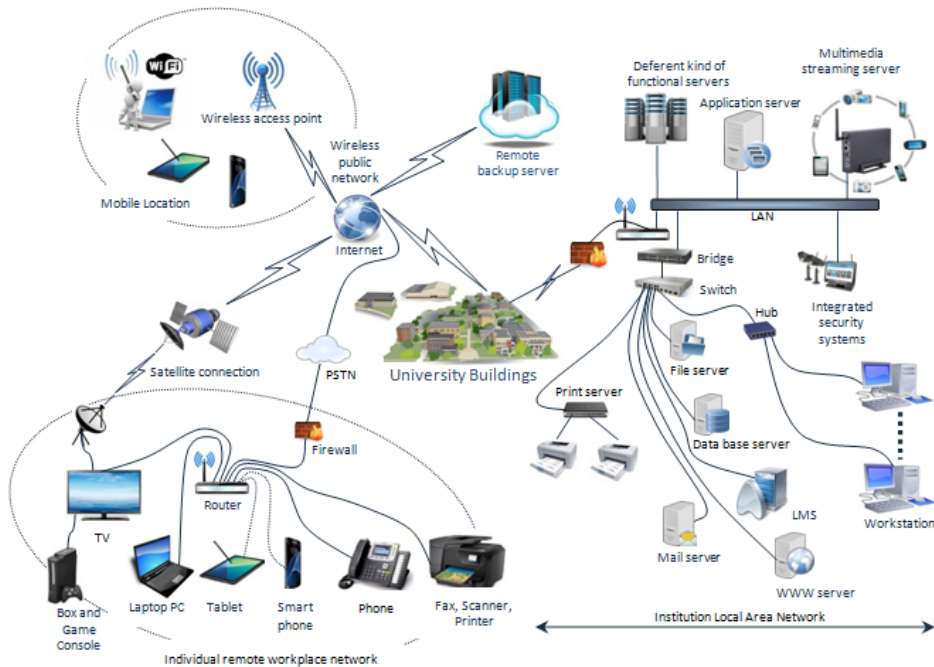
Hardware implementation of this commitment and suggestions is presented in image 1. It shows the integration between the knowledge-seekers and the knowledge-offerer and the presented case refers to a university. The availability of the knowledge is designed in a way so that the educational institution can be approached from outside (usually by using the mobile devices adequately noted). Communication can be realized via cable links and wireless technology and the Internet (Maier 2007). For the needs of organization, support of working processes and knowledge management important for the knowledge transfer to the interested ones, there are more functional servers pointed out which are also adequately noted in the image.

This practical implementation of knowledge and learning transfer would not be possible to realise with the help of ICT if there were not adequately trained teams for such a purpose. They are actually a kind of an integrated vertex which connects the organization

to its employees. They are most directly included in designed activities and work on its integration and network. They are dedicated to a constant improvement of the processes conditioned by new innovative solutions. This means that they are most directly included in the process of knowledge collecting, they participate in different projects which lead to new knowledge (Nakamori 2013) and are active participants in the process of knowledge and learning transfer.

On the other hand, there should be individuals (no matter whether they are members of the team who perform the knowledge transfer or learn) who know how to focus, receive and use knowledge, exchange it and use it in the working process. They will often face the need of new research; they will work on new methods of approaching information and knowledge; they will use different technique devices (Fox and Hao 2018) in order to communicate them and will meanwhile have to actively use the already acquired knowledge. They are actually thought to be organizational and individual estate. Their usage can happen where it is needed. Such are the different types of working processes in the integration of organizational strategies at work or introduction or usage of ICT network installations. The goal is to realize what was wished and planned for. Their management should pay more attention to its dynamics, methods on how it will be perceived, ICT usage and their networks, capacity of the method it is being approached and how it solves problems as well as giving enough time to self-development and enrichment of knowledge via knowledge and learning transfer.

Regarding the organization, apart from paying more attention to their processes, employees and owners, it should be concerned about its surroundings as well. Fulfilling this goal can be realized by dedicating to a mutual collaboration which has to be followed by an adequate competitive organizational structure for that purpose. Through this collaboration, knowledge shall be exchanged; new knowledge shall be created and further used. In order for this to be realized, people should work on the organization, who will respond to all demands equipped with adequate knowledge for the tasks set and functions of the organization (Szostak et al., 2016). This can be supported by new shapes of networking due to usage of the mutual knowledge. It is in fact matter of intensive ICT and knowledge management usage to answer the needs of networking and knowledge transfer in order to reach and maintain their competitiveness, by enabling these connections, links and effort of the participants for a larger collaboration. This collaboration can successfully become a network of knowledge.



Abbreviations: LAN, Local Area Network; LMS, Learning Management System; PSTN, Public Switched Telephone Network; WWW, World Wide Web.

Image 1: *Integrated computer network for the needs of knowledge transfer and management, information and data as well as enabled learning via the Internet*

It is important and necessary to be a management system to support the knowledge and learning transfer (Argote and Ingram 2000). With its help, increase of value of information and knowledge is possible. It can be realized anywhere and at anytime with enabled access to the digitalized contents. Also, it is simultaneously possible for the knowledge management to store, use sophisticated software tools and transfer apparatus of knowledge and infrastructure network connection. These installations can also be used as a tool to generate and find workers for market needs and their conduct. It is in fact an approach which can respond the needs through individuals and organizations, based on knowledge transfer, knowledge management, and dedication to upgrading and learning. This will enable a better organization of the knowledge in individuals and organizations which should result in a result connected to new competitive products and services. All this does not lead to business sustainability. It can be realized through quality processes, investments, successful communication with the surroundings and using the possibilities of ICT improvements. Therefore, dedication to learning and self-development as well as applying the learned in business environment i.e. its commercialisation is what is necessary. The result of this effort should be presented in a better GDP, increased number of improved and advanced processes

and products based on knowledge as well as increased employment.

Due to this, there is the need in knowledge management for a continuous preservation and follow-up of this data, information and knowledge. They should be most directly taken in consideration while planning their individual career (no matter whether it is for the employees or a trained person) and organizational planning. Work can be significantly complicated if there is need of really quality and meaningful integration of ICT with the processes of organization and individuals through their networking and using different methods in this integration. There shall be several levels of integration especially because there is need of a joint work, whether it refers to the instructor-student or similar processes of knowledge and learning transfer in an organization. It is clearly identified the need of already presented synchronous and asynchronous methods and techniques in the knowledge and learning transfer as well as mutual work.

It should be pointed out that they enable us cope with the needs for management in different types of data, information and knowledge and their connection to the business-educational processes. It creates conditions for a priority preservation and individual approach to the applicants for knowledge and learning transfer. This integration includes instructors, trained people i.e. students, processes of knowledge transfer as well as administrative processes, ICT usage and the whole organizational structure (Marshall and Pennington, 2008). Through the process of knowledge and learning transfer and management of digitalized contents, they can most directly contribute to better work, development and satisfaction of clients.

We are nowadays witnesses of this type of knowledge for the needs of knowledge and learning transfer which is actively spread on a wider geographical space. This significantly changes the traditional method of work present in the knowledge and learning transfer. What is especially specific in these platforms is presence of mutual trust between the participants in these complex educational processes and already well-preserved knowledge which is to be shared widely. This can be in the shape of a project documentation, different databases, bases of information and knowledge, follow-up of the research in the field, reports on the follow-up of the need of new knowledge and do. Support of the knowledge management processes is possible as well as knowledge and learning transfer and creating knowledge.

7. CONCLUSION

The wish for quality knowledge and learning transfer is reachable if approached to its management supported by ICT and people who know and want to work in that manner and share their experience and knowledge. Doing this, conditions for development of new knowledge are created which can be successfully placed through different services and products. Therefore, it is of high value for all of us the insistence via ICT on keeping the knowledge, enabling their transfer and supporting the knowledge management. This was achieved by significant increase of the capacity to store, process and find, but also with improved approach, accessibility and advanced administration which expands the possibilities of new knowledge and learning transfer. More precisely everyone interested in learning and sharing knowledge, is offered a rich choice of systems and tools to plan,

predict, analyse, synthesize, do research and organize different types of data, information and knowledge for both their and community's need.

BIBLIOGRAPHY

Anaya PC (2012) *Knowledge Transfer: A Practical Approach*. USA, IN, Bloomington: X Libris Corporation.

Argote L. and Ingram P (2000) Knowledge transfer: a basis for competitive advantage in firms. *Organizational Behavior and Human Decision Processes* (82)1: 150-169.

Atkinson DR and Stewart AL (2013) Just the facts: the economic benefits of information and communication technology. In: Information technology and innovation foundation. Available at: www.itif.org (accessed February 2018).

Baker K (2014) *LMS Success! A Step-by-Step Guide to Learning Management System Administration: Practical Tips, Activities & Resources*. USA, CA, Los Angeles: Resources of Fun Learning.

Becker SG (1993) *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education*. USA, Chicago: The University of Chicago Press.

Cavaleri S, Seivert S and Lee WL (2011) *Knowledge Leadership: The Art and Science of Knowledge – Based Organization*. USA, New York: Routledge.

Comer ED (2015) *Computer Networks and Internet*. England, Essex: Pearson education limited.

Deng H (2012) A conceptual framework for effective knowledge management using information and communication technologies. In: Lee WB (ed) *System Approaches to Knowledge Management, Transfer, and Resource Development*. USA, PA, Hershey: Information Science Reference.

Di Battista A, Dutta S, Geiger T and Lanvin B (2015) The network readiness index 2015: taking the pulse of the ICT revolution. In: Dutta S, Geiger T, and Lanvin B *The Global Information Technology Report 2015: ICTs for Inclusive Growth*. Switzerland, Geneva: World Economic Forum and INSEAD.

Dixon MN (2000) *Common Knowledge: How Companies Thrive by Sharing What They Know*. USA, MA, Boston: Harvard Business School Press.

Feldman T (2005) *Introduction to Digital Media*. USA, New York: Routledge.

Fox R and Hao W (2018) *Internet Infrastructure: Networking, Web Services, and Cloud Computing*. USA, FL, Boca Raton: CRC Press.

Gell M and Cochrane P (1996) Learning and education in an information society In: Dutton HD (ed) *Information and Communication Technologies: Vision and Realities*. USA, New York: Oxford University Press Inc., pp.249-264.

Godbole A and Kahate A (2013) *Web Technologies: TCP/IP, Web/Java Programming and Cloud computing*. India, New Delhi: McGraw Hill Education.

Graff RT and Jones PT (2011) *Introduction to Knowledge Management: KM in Business*. USA, New York: Routledge.

Harper CK, Chen K and Yen CD (2004) Distance learning, virtual classrooms, and teaching pedagogy in internet environment. *Technology in Society* 26: 585-598.

Hofmann J (2003) *The Synchronous Trainer's Survival Guide: Facilitating Successful Live and Online Courses, Meetings and Events*. USA, CA, San Francisco: Pfeiffer.

Huang R, Ma D and Zhang H (2008) Towards a design theory of blended learning curriculum. In: Fong J, Kwang R and Wang FL (eds) *Hybrid Learning and Education*. Germany, Berlin: Springer: pp.66-78.

Jennex EM (2009) *Knowledge Management, Organization Memory and Transfer Behavior*. USA, PA, Hershey: Information Science Reference.

Jones SS, Kovac JR and Groom MF (2016) *Introduction to Communications Technologies: A Guide for Non-Engineers*. UK, London: CRC Press.

Kats Y (2010) *Learning Management System Technologies and Software Solutions for Online Teaching: Tools and Applications*. USA, PA, Hershey: Information Science Reference.

Kim P (2015) *Massive Open Online Courses: The MOOC Revolution*. USA, New York: Routledge.

King NM and Kovacs J (2015) *Improving Learning: A How-To-Guide for School Improvement*. Australia, North Melburn: Quality Learning Australia.

Lipschultz HJ (2015) *Social Media Communication: Concepts, Practices, Data, Law and Ethics*. USA, New York: Routledge.

Longworth N and Davies WN (2013) *Lifelong Learning*. USA, New York: Routledge.

Luecker K (2018) *The LMS Guide Book*. USA, VA, Alexandria: ATD Press.

Maier R (2007) *Knowledge Management Systems: Information and Communication Technologies for Knowledge Management*. Germany, Berlin: Springer.

Marshall S and Pennington G (2008) Teaching excellence as a vehicle for career progression. In: Fry H, Katteridge S and Marshall S (eds) *A Handbook for Teaching and Learning in Higher Education: Enhancing Academic Practice*. USA, New York: Routledge.

Mc.Neal BRJ (2015) Institutional environment(s) for online course development and delivery. *Universal Journal of Educational Research* 3(1): 46-54.

Means B, Toyama Y, Murphy R and Baki M (2013) The effectiveness of online and blended learning: a meta-analysis of the empirical literature. *Teacher College Record* 115-030303(3), 47 pages.

Miller BJ (2014) *Internet Technologies and Information Services*. USA, California, Santa Barbara: ABC-CLIO.LLC.

Moore LJ, Dickson–Deane C and Galyen K (2011) E-learning, online learning and distance learning environments: are they the same? *The Internet and Higher Education* 14: 129-235.

Nakamori Y (2013) *Knowledge and System Sciences: Enabling Systematic Knowledge Synthesis*. USA, FL, Boca Raton: CRC Press.

O’Dell C and Hubert C (2011) *The New Edge in Knowledge: How Knowledge Management is Changing the Way We Do Business*. USA, NJ, Hoboken: Johan Wiley and Sons, Inc.

Osterloh M (2007) Human resource management and knowledge creation. In: Ichijo K and Nonaka I (eds) *Knowledge Creation and Management: New Challenges for Managers*. USA, New York: Oxford University Press.

Passerini K and Granger JM (2000) A development model for distance learning using the internet. *Computer and Education* 34, 1-15.

Pauleen JD and Gorman GE (2016) *Personal Knowledge Management: Individual, Organizational and Social Perspectives*. USA, New York: Routledge.

Piña AA (2013) Learning management systems: a look at the big picture. In: Kats Y (ed) *Learning Management Systems and Instructional Design: Best Practices in Online Education*. USA, PA, Hershey: Information Science Reference, p.p. 1-19.

Roxanne Hiltz S and Goldman R (2004) What are asynchronous learning networks? In: Roxanne S (ed) *Learning Together Online: Research on Asynchronous Learning*. USA, New York: Routledge, pp.1-18.

Schwab K and Samans R (2016) The future of jobs: employment, skills and workforce strategy for the fourth industrial revolution. Report, World Economic Forum, Geneva, Switzerland, January.

Shen J, Roxanne HS and Bieber M (2008) Learning strategies in online collaborative examinations. *IEEE Transactions on Professional Communication* 51(1): 63-78.

Simon D, Jackson K, and Maxwell K (2013) Traditional versus online instruction: faculty resources impact strategies for course delivery. *Business Education and Accreditation* 5(1): 107-116.

Szostak R, Gnoli C and López – Huertas M (2016) *Interdisciplinary Knowledge Organization*. Switzerland: Springer International Publishing.

Wang S and Raymond A. Noe AR (2010) Knowledge Sharing: a review and directions for future research. *Human Resource Management Review* 20: 115-131.

Wilks Y (2014) Beyond the internet and web. In: Graham M and Dutton HW (eds) *Society & The Internet: How Networks of Information and Communication are Changing our Lives*.

