

# THE IMPACT OF NEW TECHNOLOGIES IN THE KNOWLEDGE SOCIETY

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## Abstract

*We live in a society where information and knowledge are dominant characteristics. The information revolution has most clearly invaded our homes and is hard not to agree that life has improved substantially. Society is becoming “knowledge society” and information has played a central role and had a great impact in all aspects of life. Economy, society, education, science and technology are all changing. New technologies will continue to play a key role and influence society. Adoption and implementation of the new technologies in the countries of Balkan region is an imperative and essential for achieving a knowledge and information society. This paper describes ways how the usage of new technologies have a wide influence in society, as well as how they impact on social and economic development and education. This components are defined and discussed in the paper, while the usage of these technologies in the countries of our region are proposed as the matter of urgency.*

**Key words:** *New technologies, Internet, Knowledge society, Information Technology, Education.*

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## 1. Introduction

We are entering a period of change in all spheres of life as far reaching as any we have seen where usage of new technologies plays a central role. Society is changing rapidly and become more dependent on new technologies and Internet related technologies. Information has become a critical resource, synonymous with power and basic input to progress and development. Society is becoming “knowledge society” with workforce largely of a wide variety of “knowledge workers”. New technologies had a great impact on all aspects of life and the global economy is undergoing a fundamental transformation. Our life has improved substantially and most of these changes have been driven by technologies. New technologies has the potential to be a powerful enabler of development and offer possibilities and opportunities for ensuring sustainable socio-economic development. Therefore, world wide countries are using new technologies to successfully explore the opportunities it presents for their social and economic transformation. Society is never the

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same again. We have new society, new economy, new business, new tools and new rules. The first section of this paper discuss the impact of information technology on social and economic development, while the second section look in detail at the impact of new technologies at education.

## 2. New technologies and knowledge society

The term “knowledge society” has now been in so much use in recent years that we are expected to know what it means. The information revolution has most clearly invaded our homes and our live has improved substantially<sup>1</sup>. The growing importance of new technologies result with the acceptance of the idea of a new kind of society, with a new age known as knowledge society [Krishan Kumar:16]. Knowledge society is a society that creates, shares and uses knowledge for the prosperity weel-being of its people and it’s a society with workforce largely of a wide variety of “knowledge workers”. In the knowledge society, technology is one of the most important factors of any production and service activity.

Technology brings economic growth opportunities and introduces social changes in society in general [C. Avgerou and T. Cronford, 2002:124]. Several theories elaborate on connection between technology and economic and social changes<sup>2</sup>. Even critics of the knowledge society concepts agree that new technologies has very real impact into our live. While, some authors argue that what makes today the knowledge society is the fact that so many people rely on computers, especially since the advent of personal computers and the Internet as network of networks, which opens completely new opportunities for enterprises, businesses and costumers.[15 ].

The convergence of computer and communication technologies have a wide ranging influence in society and is playing a critical role. As a result of development of new technologies<sup>3</sup> also known as information and communication technology (ICT) and their usage over the last few years, society has changed rapidly<sup>4</sup> and has been transformed into a knowledge society with a knowledge economy<sup>5</sup>, where knowledge is the most important resource. Knowledge<sup>6</sup> is what people know about a specific technology as well as the various kinds of things can do using that technology. As economies move from industrial society to information and the knowledge society and post-industrial era, information and knowledge become important and crucial resources [C.W.Holsapple]. While, technological developments have transformed the majority of wealth creating work from “physically-based” to work “knowledge-based”, information had become a priceless product and technology and knowledge are now the key factors of production [19]. Information technology defined as the technology required for information processing is a vital feature of the move to a knowledge society.

As noted earlier, information technology is a generic term covering computers, broadcasting, information systems and telecommunications and computer networks and is used to store,

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<sup>1</sup> TV is still the most obvious symbol of new live, but Internet usage, telebanking, teleshopping and teleworking are also now making considerable inroads into our lives. (See: Krishan Kumar, pg.16).

<sup>2</sup> See: Crisanthi Avgerou & Tony Cronford: Developing information systems, issues and practice, pg.125.

<sup>3</sup> Without being too pedantic we need to clarify a point of terminology. The term “new technologies” is often used in the literature to denote the means for information and communication technology (ICT).

<sup>4</sup>Technologies that have particularly experienced expansion include telephone infrastructure and service, mobile and cellular telephone and Internet café service. Advances in information technology over the last thirty years have lead to the televison, for example being more widely used today than thirty years ago.

<sup>5</sup> Knowledge economy is economy in which growth, value and an improving standard of living are inextricably tied to knowledge, its creation and its distribution.

<sup>6</sup> Knowledge means the skills and judgement of all workers at whatever level was to be gathered from every part of the organization.

manipulate, distribute or create information. Information technology<sup>7</sup> has played a central role in enabling the growth of the knowledge society where information and knowledge are increasingly becoming the key resource, global product and the gold of the knowledge society [13].

Information technology can contribute to income generation and enables people and enterprises to capture economic opportunities by increasing process efficiency and creating opportunities for employment [24]. The “digital” and “virtual” nature of new technology can reduce costs and is leading to creation of new products and services and distribution channels within traditional industries as well as innovative business models and whole new industries [24]. We can mention here businesses that start up where not possible without online access such as Amazon.com, eBay.com etc. and many of jobs such as Web designers, Internet consulting, network administrator etc. did not exist prior to decade ago. These technology is having potential impact in individuals, organization and society [James O. Hicks, 1993:90].

Usage of new technologies is revolutionizing the rules of business, resulting in structural transformation and playing an important role to foster innovative products and business processes. Challenge has now shifted to incorporating information technology in both the internal and external activities of organizations [20].

Information technology creates linkages and networks that bring together people, markets, goods or even countries and enable individuals and groups to engage in activities which were previously impracticable and inaccessible [13]. The enormous advantages information technology has in easing the delivery of information around the world, as well as the central role of information in the knowledge economy [16]. Today, the rate of technological change in information technology is so rapid. Most new technologies become absolute only few years after it was introduced, requiring organizations to change to new technologies [James O. Hicks, 1993:535], since new technology is having a profound effect on business and business is conducted on a global environment and are increasingly becoming global in scope. Research over many years have confirmed the influence of new technology on organizational structures and on the way they operate [Terry Lucey, 2005:298].

New technologies are necessary to internationalization of business [James O. Hicks, 1997:11], has offered new business opportunities<sup>8</sup> and the value of information to business organizations has greatly enhanced. Therefore, accurate, rapid and relevant information are considered to be vital to improving performance and competitive advantages of businesses [Martin R. Combs, 1995:67]. Modern businesses are not possible without help of new technologies and Internet and new technologies plays a significant role in the way the product is produced, promoted and provided and enables firms to perform tasks even when individuals are located in many different countries or geographical locations [James O. Hicks, 1993:11]. Hundreds of products are designed for a wide range of world markets. While, appropriately used new technology can reduce cost, lead time and improve the performance of the processes, services and products of many sectors of economy [16]. Implementation of these technologies is helping to transform users of information and communication technology from consumers to producers of new knowledge as an important resource in the knowledge society.

According to Terry Lucey, new technology is playing an important role for the development of the country in general, while the use of appropriate technology in properly planned systems can have effects on day to day operations and in our social and economic life [Terry Lucey, 2005:29].

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<sup>7</sup> Information technology mean the tools we use to perform calculations, to store and manipulate text and to communicate. In the broader sense information technology refers to hardware and software that are used to store, retrieve and manipulate information. In particular, information technology means the use of computer and computer software to convert, store, process, transmit and retrieve information.

<sup>8</sup> See: Panian, Željko (2005): Poslovna informatika za ekonomiste, pg. 295-296.

New technologies are at the centre of the present wave of change for many countries [C. Avgerou and T.Cronford:2002:126] and new technology is helping people to improve their lives, take advantage of new opportunities and realize their full potential. Countries have been empowered through rapid development and usage of information technology [13].

Recently, some countries of Balkan region have begun to stress the role of information and communication technology as an enabler of social and economic development and to utilize new forms of business through the Internet. With regard to information technology and Internet technology usage, there is an evident distinction between Balkan countries<sup>9</sup>. Slovenia has made substantial progress in this regard, followed by Montenegro, Croatia and Rumania, while in Kosovo a strong emphasis has been put on the expansion of telecommunication infrastructure and the telephone penetration rate as a measurement of the information technologies readiness of the country. The Government of Kosovo took measures towards implementation of the programs aimed at improving information and communication technology infrastructure and services<sup>10</sup>. At the same time, the country has made several efforts to increase information and communication literacy, because widespread computer illiteracy among the general population is viewed as inhibiting the diffusion of new technologies. But, currently information and communication technology sector does not appear to have the potential to have significant impact on the economy as a sector itself [USAID, 2007:10].

New technologies are playing an important role for the development of the country. As a country progresses towards developing a knowledge society most industries are changing, while economy and society continue to undergo considerable changes too. In the future, new knowledge base industries will develop based on genetic engineering and biotechnology. [13]. These industries will have a high ratio of knowledge workers<sup>11</sup> and jobs will have a high knowledge requirement in particular areas. This applies to all work sectors.

### 3. The impact of new technologies on education

Historically, since the industrial revolution people have had to locate themselves in large centres where they could learn, study or work with others, but now new technologies are rendering distance unimportant [13]. Knowledge society is promising and challenging education sector which is dependent from information and communication technology usage. Effective use of information technology involves changes to economy, society and organization and play an important role in achieving the objectives of policies in the area of work, health, justice and as well as education. Many basic activities and processes in education are now being redesigned to take advantage of the productivity increases that are available through the use of new technologies [James O. Hicks, 1993:2].

Technological developments which have occurred in information technology continuously are increasing its influence in most industries and in all aspects of economy, while education and other sectors continue to undergo considerable changes too. While, new technologies are transforming education, making it more interactive and empowering students and professors [14], the traditional education system is slow to react effectively to these changes, which may rise walls against further developments. Information and communication solutions present significant opportunities for enhancing the efficiency and effectiveness of education. Wider positive benefits from information and

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<sup>9</sup> For more information visit Web-site: <http://internetworldstatistics.com/stats4.htm>

<sup>10</sup> E-government conference was held in May 2008.

<sup>11</sup> Knowledge workers have specialist knowledge and skills which represents the major asset of the organizations for which they work.

communication technology have on learning and learners, such as motivation and skills, concentration, cognitive processing, independent learning, critical thinking and teamwork [25].

Nevertheless, the goal of entering the knowledge society is best served by a intensive focus on increasing new technologies and general literacy and focusing on school usage of information and communication technology. Developments of new technologies promote distance education<sup>12</sup> at all levels and education is heavily dependent on new technologies. In the knowledge based society access to information is universal and new methods of transmission and treatment of information had revolutionized teaching, working practices and management. Through the use of information and communication technology staff and student time can be scheduled more effectively, students performance can be monitored more closely, education materials can be easily distributed and used. Opportunities for distance and global learning has increase and the wider use of skilled specialist teacher resources is developing.

The capacity of new technology to reduce many tradicional obstacles in education, especially those of time and distance, makes it possible to use the potential of these technologies for the benefit of education sector to achieve long term success. However, we need to emphasize that providing information technology facilities for schools is a challenge. It is not just a question of the number of computers, but also the age of the equipments, and the availability of modems and telephone or satellite links, as well as operating costs. The rapid rate of change in it is a problem in relation to the adequacy of school facilities [13]. Knowledge society is promoting active life-long learning where an individual skills will be built and documented based on a mix of real-life experience, achivements and formal learning certificates [15].

We consider that opportunities provided to citizens through life-long learning are a potential tool for empowerment and development of education sector [15]. During the last decade the use of information and communication technologies in education and training has been a priority in most European countries<sup>13</sup>. All EU countries have invested in information and communication technology in schools: equipment, connectivity, professional development and digital learning [26]. It was recognized that connectivity and net access have helped to countribute to economic development and to increase computer literacy in schools. These trends are already occurring in countries in the region and they must be forced. At the same time, the Internet has become a major shareholder, which helps all nations to gain and derive advantages form this technologiey, since new technologies offers opportunities for personal advancement and the threat of being “left behind” [15].

In Kosovo, until know, new technology usage in schools and access have been heavily concentrated in urban areas and among international and national government institutions, with no or limited access in the rural areas. Recently, the Government took initiative to increase computer literacy in schools and most of schools are connected to the Internet. However, not every citizen is enabled to use new technologies, because access and technology are available mainly in urban areas and while information and communication technology is improving in some instances, not all schools have infrastructure and computers and even when they do they fall into disrepair, without maintance and there is a short age of new technology literate staff to use and maintain them.

Studies have approved that those countries that have employed new technologies as an enabler of development goals can indeed achieve higher levels of development. While, increase of usage of new technologies on education could have substantial socio-economic benefits for other

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<sup>12</sup> Distance education has been particularly successful model in developing countries.

<sup>13</sup>See: The ICT Impact Report, A review of studies of ICT impact on schools in Europe, December 11<sup>th</sup>, 2006. Available at: [http://ec.europa.eu/education/pdf/doc254\\_en.pdf](http://ec.europa.eu/education/pdf/doc254_en.pdf)

sectors. Therefore, investment in new technology and its implementation on education is the best investment into the future of societies.

## Conclusions

It seems that new technologies which have changed our social and economic life, are likely to continue to be of first importance and to impact society, economy and our live. The world is becoming increasingly dependent upon new technology as is evidenced by the big role it is playing. New technology will continue to play a key role as the knowledge society develops its information infrastructure and will continue to be of first importance in the development of economies. New technologies help to do things better, they show a measure of development. Therefore, if we are going to be plugged into the world economy, particularly during the 21<sup>st</sup> century we necessarily must be part of the information age and information technology is an imperative that our country would miss at its own risk.

Taking into the consideration the full potential of new technologies they may also influence the future. Those who know to use and to benefit effectively from new technologies will be at a competitive advantages. Therefore, it is imperative to use this technology which will affect almost every aspect of our lives: how we do our jobs, how we communicate with each other, how we educate our children, and how we live. All countries and communities should take advantage of digital opportunities.

Without the successful adoption and implementation of the new technologies, future generations in these societies will further lag behind and will find themselves further impoverished. New technologies are essential for achieving a knowledge and information society. Countries of Balkan region must react to the challenges which are results of the impact of new technologies in knowledge society in time and in a proper way. Otherwise the favourable foundations created by social, economic and political transformation, may not serve the real adjustment to the global trends and the prices of social modernization will become extremely high. Therefore, cooperation is needed between countries and regions since new trends will develop rapidly over the next years and capabilities will steadily increase, accompanied by greater and ease of use. It is a dominant believe that the widespread development of new technologies will lead to benefit of all.

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