SOCIAL ASPECTS OF AN INFORMATION SOCIETY FOR ECONOMIC DEVELOPMENT: A VIABLE FRAMEWORK

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ABSTRACT

The information society (IS) is a new framework that includes the development, management, use and processing of information. Different types of information are being used in organizations, academic institutions, schools, financial institutions, etc. Various activities on information offer various paradigms that affect the economy, politics and social culture of any country. The information society is an essential element of the knowledge economy as it allowsthe implementation of an efficient management of available data to meet the economic needs, improves therelationship between citizen, individual state, and global environment. It plays very important roles for trade, culture and unified civilization. The existence of visibleaspect of IS totally depends on Internet and its principles can implement the economic development of the country.

1. INTRODUCTION

The information technology has played a very important role in the society for economic development and is continuing providing an integral role for the implementation of added value ofmost goods and services, and increasingly, it affects households and citizens. The emergenceof the first Personal Computers (PCs) in the seventies of the twentieth century has enlarged the paceof change. In over 40 years, computers have become a regular desktop device available in bothcompanies, as well as in households around the world. Adding the access to the internet hasgreatly improved the ability of these devices. In addition to the desktops, very quicklygrowing number of mobile devices with similar capabilities (laptops, netbooks, tablets, kindle for PCs, iPads, cell phones, etc.), ischanging our world more rapidly. Information has become one of the basic components ofmodern software and application development for these devices.

Realizing these changes, in 1975, the Organization for Economic Cooperationand Development (OECD) discussed new concept of the Information Society (IS)that was formally introduced by World Economic Forum, 2012-213 [1-3]. This new concept soon became one of the key components for creation of knowledge-basedeconomyand culture in the society of any country. The services or products based on this were designed, developed and marketed using knowledge-based information technology for providing a quality of people's lives and the generation of revenue at local and global levels. This requires the structured skill of transforming information intoknowledge-based framework. The framework is based around the basis component of information as data. It is this data or set of data that makes information to be useful for understanding as it depends on relational phenomenon of cause and effect. Thus, there is a need for transforming this data to create knowledge. Often the transition from information toknowledge is negligible, but the data became the basis of this action. For thisreason, during building a knowledge-based economy, it became necessary to consider the concept of Information Society (IS).

European Union convinced its members to the implementation of the principles of theinformation society. However strategic objectives of IS are differently put into practice inmember countries. The leading role in the construction of the Information Society play very important role in theNordic countries. This is due to the low population density and long distances that forced these countries to usethe latest communication technologies. Nowadays, though a significantslowdown in the paste of development, many countries are implementing procedures for the construction of the information society,as well as for the benefits of its use, thus becoming competitive countries in the WorldDespite the leading position in this regard the central authorities believe thatMany European countries [1-2] are still on the way to achieve the fully operational model of new society.Today's strategic plans assume that this may happen within this decade, but one should remember thatcreating an information society is an ongoing process, that requires monitoring and updating.

2. INFORMATION SOCIETY CONCEPT AND THEORETICAL ASPECTS

The growing importance of information, knowledge and its use in our lives has been playing an important role for a long time. All human civilization achievements have been based on knowledge, logical reasoning and desire for innovative ideas. However, untilrecently storing, manipulating and accessing information has become commonplacein all applications. This is due to, among others, themass of press, television, radio and many other communication channels. In the last few years we have seen a rapiddevelopment of the new medium - the internet. This tool not only caused the unprecedentedconvenience of performing a number of operations on information, but also led to the creation of new communication platforms for handling different types of data and its use. The intelligent use and efficient implementation of various operations on all the channels of information is the basis for the existenceof the information society.

Although, there does not seem to be any universally accepted definition of Information society, but in most of its applications, we have seen a big and different effect of information society on the economic, political, culture and diversity aspects of society of various countries. This may be one of the reasons of not having a universally accepted definition as it allows us to defineand interpret different types of applications, presentation and interpretations of information.

In all these applications, it has been observed that the implementation of Information Society includes five basic description aspects of the information society: The first of these descriptionsinvolves the technical aspects, the second relates to the economic one. The third is connectedwith professional activities and in particular the issue of specialization in the field of work andthe need to continuously improve the skills. The fourth aspect concerns the spatial issues, theability to spread information and thus to exercise supreme power in the territory. Thiscriterion applies to the ability to obtain data on a specific area, its resources andgroups as such may need at least 3of the people inhabiting it. Last aspect concerns cultural issues. Today, culture is no longerstrictly tied to a specific location, or organization [3-5].

Thus, the phenomenon of the information society can't be limited only to narrowlyconceived ability to use the Internet; this ability is one of the most important elements of theinformation society. However, it is only a tool to achieve certain social objectivesthrough the use of available information. In today's world, incomplete or outdated informationcan result in serious consequences. This applies mostly to particular sectors of the economy,but is also associated with the social aspects of life. The idea of an information society is also skillful assessment of the information andthe ability to search for answers. In the modern world, the amount of available data is usuallytoo large to read in a certain period of time. Therefore, it is necessary to train the skills forsearch of information as well as screening and dividing primary, secondary sources andunproved evidence.

3. CHARACTERISTICS AND FEATURES OF INFORMATION SOCIETY FRAMEWORK:

Based on the various applications and available frameworks, it looks that the basic characteristics of the informationsocietyshould include (not limited) [1,4-6]:

- Production of information
- Storage of information
- Processing
- Communication
- Information retrieval
- Presentation and interpretation of Information
- Use of information.

The last four of these characteristics are usually counted as part of the knowledge society.However, the distinction is not well-defined, because each type of society is based on theexploitation of knowledge. If the process is not greater than in other population centers, wehave to deal only with the aspect of information and as such the problemswith defining knowledge based society and information society look very similar. In both cases it isdifficult to establish any strict difference between them.

As said above, the information society is identified only with the flow of information and as such it is recognized by the following processes:

- Education
- Communication
- Socialization and activation
- Participatory

• Organizational
• Protection and control

Educational process irrespective of its use depends not only on the dissemination of scientific knowledge,but also to raise awareness about the need to constantly upgrade their qualifications. In today'sworld, even the unique skills in a short time become widely known and imitated. For thisreason, it is necessary to keep learning and the development of knowledge which will also need to change the approach to the learningprocess. In the information society, factual knowledge becomes less important than the abilityto search for information. This allows the individuals easily customize to the changingconditions of life usually through self-education.

Communication process is needed for creating opportunities tocommunicate a wide variety of groups within the global society as a whole. This applies notonly to business processes, such as the relationship between the manufacturer and thecustomer, but also the strengthening of cultural and social ties.

Socialization and activation processes are associated with an attempt to mobilizepeople temporarily or permanently excluded from freely functioning in society. For personswith disabilities, especially physically (but also young mothers), information technology,especially the internet, provide opportunities to interact with the environment. In the case of the development of appropriate instruments, such a person may undertake professional work,if necessary, may obtain the advice of a doctor on the phone, shop online, or visit the virtualgallery.

With so many mobile devices and availability of internet access on tips for a variety of applications, it has become quite obvious that the widespread use of technology has already created effects, in particular the exclusion of social aspect from within the society. This applies to people for whom access to modern equipment can be a majorbarrier. It is a source of financial issues (inability to buy the equipment) or psychological(reluctance to use new technologies, inability to use machines, fear of new products, etc.). Thesecond important issue is concerned with the elderly, who are reluctant to change their habits andlow-educated people who have no need to learn.

The participatory process means the ability to participate in public life through theuse of modern communication technologies. In this regard, the opportunity to debate and voteover the Internet should be highlighted. It is assumed that in the future, it may even lead to thedevelopment of such information technology that the state will operate in a system of directdemocracy, i.e. the law will be adopted on the basis of a vote.

The primary objective of an organizational process is to create of the conditions forthe best competition on the market. Increasing access to information makes it larger than thecurrent number of players are aware of risk (opportunities and threats) associated with theproject. It is assumed that such knowledge increases interest in a particular activity, and thusimproves the conditions of competition.

The protection and control processes serve to secure the citizens and institutionsagainst virtual crime. This new kind of violation of the law can be a major barrier to thedevelopment of the information society. It is the duty of government or regulatory agency to take steps tomarginalize or eliminate this phenomenon. Only a person who is certain of safety over internet will be involved in bankingtransactions, medical services (wherethe security of confidential personal data must be particularly observed), paying taxes, etc. The implementation of the protective function entirely rests on the shoulders ofgovernment (at all levels).

4. DESIGN AND IMPLEMENTATION OF INFORMATION SOCIETY FRAMEWORK

The creation of a fully developed information society takes time and goes through the following stages:

• Access to technology and communication networks
• Ability to use available tools
• Provide full participation.

In the first stage, we need to provide access to technology and communication networks. Havingthe right infrastructure, telephone and internet are prerequisite for the development of theinformation society. This concerns not only the infrastructure but also the access toinformation about its use. The ability to use different technologies is an admission ticket tothe information society. At this stage, we should consider these indicators: the share of

spendingon information and communication technologies in the country's GDP, the number ofsubscribers of fixed and mobile telephony, equipment in the country's broadbandnetwork, etc.

In the second stage, we need to provide the link the skills andknowledge of the potential use of equipment and infrastructure. In addition to theimprovement in the use of technology, it is equally important to acquire the skills necessary toperform the work in the information society. Determinant specifying this level ofimplementation is measure of the percentage of citizens using the computer. This informationis an important indication for the implementation of more advanced services at a distance.Currently, most of which is done via the internet. Examples of uses of the network include:banking, settlement with the tax office, access to the patient's medical history, etc.A prerequisite for the realization of this stage is for citizens to have certain skills and the absence of such skills can lead to social exclusion. The higher the percentage of people who are ableto operate computer and mobile electronic devices, the greater are the chances to enter thepath of the information society. Usually there is a sharp decline in the percentage of peoplebelonging to this category with an increase in the age of the respondents.

The third stage requires the instruments to create the greatest possible use of the available information. It is often called amembership card, because it also brings additional benefits. However, the transition to thisstage is a major challenge, as only this phase leads to a full participation in the communitiesof the information society. Wide access to the data is possible at the first stage that is at thelevel of providing adequate infrastructure. However, the ability to get quick and high qualityinformation, in the form of meeting the needs of the user is only possible at this level. It istherefore considered that the achievement of this step demonstrates the sense of belonging andtaking along with other efforts to build a common future. The allocation of digital library for the membership allows you toget to the source documents, fully demonstrating the process of converting data intoinformation, knowledge creation, and then based on it to draw new conclusions. Wide accessto these processes and the possibility to modify them at any stage allow different institutionsto obtain the greatest possible knowledge about specific problems and eliminate the need tore-explore the phenomena have long explained. However, achieving this level of progress ofthe construction of the information society requires the use of high-quality data protection [1,5-7].

4.1. GUIDELINES FOR IMPLEMENTATION OF INFORMATION SOCIETY

For the implementation of Information Society, the following guidelines may provide some useful strategic information [2,6-7]:

• Information technology and computer networks will be the primary source ofincome andprimary public sector modernization tool
• Information technology industry in the future will be an important source ofincome for any country
• Technology ICT has to be competitive and put on the highest professionallevel
• All citizens must be able to use the services of the information society and haveaccess to the basic skills
• ICT infrastructure should be competitive in all respects and available for delivery services
• The creation of advisory committees and forums specialists is needed
• Involvement of local, state and federal level agencies for establishing appropriate strategies detailed
• Take appropriate plans and commitments by local government agencies and theirassociations.
• Large investments in research and education.

Factors that may increase the competitiveness of the government economy are:

• Open society,
• Environment providing a good and safe life,
• Flexibility to combine work, family life and leisure activities,
• Opportunity to continuous improve of knowledge.

The general objectives during the implementation of Information Society may include (not limited):

• Complete the transition from an industrial to an information society
• Achieve a high level of social trust (in terms of reciprocal relations, in contactswith the state administration and security of using web services)

• Increased self-esteem achieved through widespread public access toinformation that allows verifying the knowledge. This will allow moreindependent decisions. At the same time the state will continue its efforts tofacilitate access to expert services
• To promote "responsible citizen" for whom initiative, creativity and self-dissolutionof problems are routine activities.
• Creation of the belief in the world with the highest quality of services providedby participating partners.
• Setting the development of the state by the ICT sector, which may be the basisfor the state's/ country's economy.
• The use of new service opportunities in the sectors of education, health care,logistics, environmental protection, tourism and energy.
• Every citizen of shouldhave access to the Internet with a capacity of at least three megabit per second.

5. ROLE OF THE GOVERNMENT IN CREATION OF INFORMATION SOCIETY

The idea of information society is mostly connected with economy, globalization andincreasing speed of living. In addition, a rising number of information comes to a citizens andincreasing abilities to share information result in depreciation of institutions. Usually they arenot able to follow the pace of change. This makes feeling of lack of their usefulness tocitizens. Furthermore many representatives of elites don't behave in a proper way. Earlierin the past, scandals had limited range. Nowadays, due to the internet and mass media thewhole world can be informed about extraordinary situation in just seconds. The best exampleis the spread of news about terrorist attack in USA on 9th September 2001. The same appliesto the scandals which became major part of breaking news/information delivered to the mass audience. Mostlysuch situations apply to domestic affairs, but they rapidly undermine the reputation ofinstitutions.

The rapid economic changes made by the access to information create a new relationin society. The most important of them is participation. Single citizens, thanks to theincreasing amount of information, can improve the standards of living of the whole society.People just should have the need to act. It is difficult to encourage them, but the growingnumber of social networks shows, that this is possible.New relations between people and authorities should be based on at least five basicrules, which are: collaboration, openness, sharing (knowledge exchange), integrity andinterdependence (mutual dependence). The first applies to citizens, thesecond to the institutions. The authorities must learn to collaborate with people on a newbasis, where a single person becomes a partner, not just a customer.

Examples from last few years show that social participation is increasing, butinstitutions have a lot of difficulties in introduction of cooperation. The best illustration is theidea of Ushahidi and the problems with delivery of help after the 2010 earthquake in Haiti.Special international, governmental and non-governmental organizations (NGO), includingUS Army, aimed at delivery of help faced unexpected problems connected with lack ofinfrastructure and information. They had no idea where the people need medical assistance,food or other sorts of help. The solution was made with a support of NGO named Ushahidi. Itis an on line platform which develops free and open source software for informationcollection, visualization and interactive mapping. Many volunteers in a real time collectedshort messages and e-mails, translated them into English and then marked problems on digitalmaps. Thanks to this action, help could be delivered much faster than in any other situation[6-7]. Nowadays the system is used in many ways, it can be usefulin helping victims of natural disasters (e.g. in Russia), control of elections (e.g. Bulgaria,Ukraine), crime control (e.g. Tamuko) or even as a mobile news application for events on andaround the campus (San Diego State University) [8].

It is clearly visible that countries which are interested in the idea of welfare state havemuch lower differences between rich and poor. This illustration shows that in situations wherecountry is active in promoting equal development of society some social problems can besolved easier than in other countries.Nordic countries believe that the solution is the idea of the welfare state, which givespeople equal opportunities to realize their potential and protection against the randommisfortunes of life. That means the citizens have equal chances to get a certain standard ofsuch services as education, health care, and financial aid. Such activities are expensive, butthey also bring a lot of positive effects for the nation and society. This is particularly important in the field of education.It means that the state should still play an active role in creation a modern society.However the institutions change much slower than surrounding environment. That is why it isvery important to allow civil servants to be creative. Many people especially at the low levelof organizational hierarchy know better disadvantages of procedures, than their authors. Inmany cases simple civil servants can act as innovators.

A suitable and robust platform should be built that should connect different platforms into a single tool forcommunications. In addition, it involves not only civil servants, but also ordinary citizenswilling to give advice.Usually people seek the advantages of information society in the field of economy.Fast access to information and ability to create a flexible group for solution of a singleproblem helps to be more efficient and competitive. But the real advantage of this idea is onthe social side. Usually contacts with authorities are most demanding. One can establish a
company, pay taxes, writes a question to localauthorities without living a home. The same is with other services. Internet banking is knownworldwide, but electronic health services are not so common. A patient canelectronically make an appointment to the doctor. All the medical records are available in thecloud, so every doctor can have access to them. When the case is more complex, the generalpractitioner is responsible for contact with specialist. The patient does not have to travel fromone doctor to another. In the case of chronic diseases, for prescription even visit to a doctor isnot required. You can get it via the internet. What's more electronic prescription can beimplemented in any pharmacy. Such a system means that the patient does not have tobe tied to regular visits to the doctor, but they can deal with other activities.

These achievements have been realized using a single platform. A citizen using onlyone number assigned to each person may have access to different information and databases.The importance of education is manifested not only in the financial aspects, butalso the approach to the student, which primarily learns the ability to independently search forinformation, analysis and activity in public life and flexibility in the approach to knowledge.In short, it means not learning as memorizing, but teaching the skills to acquire information.In this way, a large part of the students during their studies undertakes first business. Not allprojects are successful, but many of them permanently add to the economic system of any country [5-7].

6. CONCLUSIONS

Objective of Information society is to create the economy of the country with thehighest ratio of international competitivenessto be achieved by a large share of thestate in the economy and development planning. The need tomaintain high taxes does not rule out the ability of the economy to have a competitiveadvantage in global markets. This is due to the development of innovative solutions,unparalleled in other participants in global trade and production.However, to the social aspects placed as much emphasis as on economic issues.Friendly living conditions, providing a flexible approach to working hours, taking intoaccount the needs of families and individuals lead to increase productivity. In addition, itshould be noted that, a high standard of education ensures the acquisition of adequate capacityto function in a highly advanced society.
It is necessary to emphasize that the results may be achieved due to expenditures that could be incurred for many years. This requires dedicated process of not only building the technicalcapacity, but also creates appropriate conditions, such as the ability and willingness to use theproposed tools. The process of use is not immediate, but also continues to grow over time.The social participation and activity of citizens is so huge, that the citizen should say thatthey are living in a welfare society instead of welfare state. This slight change in the nameshows that during last twenty years people became less dependent on the state, but morebelieve in their abilities.
Modern theories of development of the countries can be divided into two streams. Oneleading to price competition based on reducing costs and the second aimed to achieve acompetitive advantage through knowledge. In this case, it is advisable to create the conditionsto maximize the flow of information between citizens. More work is aimed at the constructionof the information society. The concept is very broad and it is difficult to define. It deals withtechnical aspects such as transmission and storage capabilities of information and humanskills to download and convert them into knowledge (as well as redundant data sifting). Theymake it possible to create economic and social relations to a new level of quality to facilitatethe operation of all interested parties.

7. REFERENCES

1. Burch B. (2005), Information Society and Knowledge Society in Ambrosi A., Peugeot V. and Pimienta D. (Eds.), *Word Matters: multicultural perspectives on information societies.* C & F Editions.

2Schwab K. (2012), *World Competitiveness Report 2012-2013*, World Economic Forum

3. Dutta S. and Bilbao-Osorio B. (Eds.) (2012), *The Global Information Technology Report 2012: Living in a Hyperconnected World*, World Economic Forum.

4. Castells M. (2000), *The Information Age: Economy, Society and Culture*, Blackwell, Oxford.

5. Fountain J. (2005), Central Issues in the Political Development of the Virtual State, in Castels M. Cardoso G. (Eds.), *The Network Society. From Knowledge to Policy*, Johns Hopkins Center for Transatlantic Relations, Washington, pp. 149-182.
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.
6. Tapscott D. and Williams A. D. (2010), *Macrowikinomics: Rebooting Business and the World*, Penguin Group.

7. Young Government Leaders (2012), *YGL Press Releases* http://younggov.org/news/ygl-press-releases/ (Accessed 12 November 2012).

8. Ushahidi (2012), http://community.ushahidi.com/index.php/deployments (Accessed 20 December 2012).