

THE IMPACT OF ICT SECTOR ON THE SOCIAL PILLAR OF SUSTAINABLE DEVELOPMENT

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Abstract

The human being is the main axis in setting sustainable development goals. Sustainable development, through its components - economic and environmental, has only one beneficiary - the human factor who benefits of income, education, good quality environmental factors, and enjoy inter and intra-generational equity.

Information technology and communications contributes to fulfilling the goals of sustainable development through access to information society services (e-health, e-government, e-learning), access to education.

This article presents the sustainable development objectives and the impact of ICT sector on the social pillar of sustainable development. I used a theoretical research and qualitative analysis of the data. I presented values indicators at the european level, the lowest and highest value, and recorded values for Romania.

Keywords: ICT, sustainable development, information society

Classification JEL: I00, Q01, D60, D83, O1

1. Introduction

The social pillar is the principle axis of sustainable development. The main objective of sustainable development is sustainable economic development achievement, to improve the living conditions of human communities and to contribute to social and ecological balance. Healthy and educated human resource contributes to economic development of a country.

The dynamism and complexity of the new type of society, which leads to a continuous increase in the volume and diversity of information processed and widely used information and communication technologies (ICT) have led to the concept of Information Society [9].

ICT contributes to achieving sustainable development. The impact of information society on social pillar is felt through access to its services: e-health, e-government, e-learning.

Being a multidimensional concept, the importance attached to a pillar over another is directed depending on the specific area: for economics prevails profit, for ecology care for natural resources ranks first, improving living conditions is paramount for social.

The challenge of sustainable development is combining all the economic, environmental and social objectives benefic for the present and future generation.

2. Impact of ICT

Information society requires changes in all fields: administration (e-government), business (e-commerce and e-business), in education (distance education), culture (multimedia centers and virtual libraries) and the way to work (telework and virtual commute) [5].

The transition to the information society is essential in achieving maximum benefit through the use of digital technologies and the Internet in order to achieve sustainable development [4].

Information and communication technology presents the following positive aspects of the social pillar [6]:

✓ transforming the way we communicate, both socially as well as the business. Thousands of Internet users have access to information, financial transactions occur. In the era of globalization and information transfer, virtual communication is paramount.

✓ transformation the modality of access to information. With access to databases, libraries online, anyone can get the desired information. Information can be referenced and processed, can be incorporated in many ways, can be added value can be analyzed by instruments existing software and can be transformed into knowledge.

- ✓ changing the way we learn, regardless of age, physical limitations, due to the existence of educational programs online. Anytime you can access necessary information from different material stored in the computer.
- ✓ transformation the way to trade. Through electronic commerce have won both buyers as well as commercial companies.
- ✓ changing the way we work. In some states, working from home using virtual environment, tele-conferencing, phone for information transfer is practiced. Thus, an employee is not compelled to change their residence with access to a job in another village. It eliminates geographical boundaries in this case. Another positive aspect for sustainable development is caring for the environment, pollution occurred by using transport is diminished.
- ✓ transformation healthcare practice. Telemedicine applications, video conferencing and remote consultation methods are a reality. Patients have access to medical libraries. Computer assisted surgery can be transmitted via the Internet to be known and practiced worldwide.
- ✓ transform the way goods manufacturing. Products can be designed by computer simulation, so consumers take advantage of safe goods at discounted prices.
- ✓ transform the way research is done. Researchers operates in virtual laboratories without geographic limits. Their access to equipment, access to information in the digital library allowing evolution research in any field. In their turn readers are aware of new innovations, research results through their online access.
- ✓ transformation human-environment relationship. Armed with certain climate models, developing innovation and research, weather forecasts can be made. Sophisticated models provide the answer to climate change. Researchers in the field can access information on demographic trends, evolution climate, resource use. By processing this information, decisions can be made on adaptation techniques effective in adapting to climate change.
- ✓ changing the way of working of administrative management. The population has access to information in different documents, may come in contact with easier administrative services.

Besides these positive aspects, like any technology, ICT shows, unfortunately, negative aspects: reducing the number of jobs, creating an environment that facilitates crimes, changing conditions of supply of services to the customer (by eliminating contact with human), loss of privacy of operations, operating errors [7].

For 2007-2013 the funds allocated to ICT for EU countries amounted to EUR 15 billion, representing 4.4 percent of the budget for cohesion policy. The interest in infrastructure investment for both the public sector (e-government e-health) and for SMEs (eLearning, eBusiness) is obvious.

3. Access to information society services

Using information and communication techniques, the population has access to information society services in order to improve quality of life, sustainable development target.

E-Government is a component of the action plan “Digital Agenda for Europe”, flagship initiative of the Europe 2020 Strategy. This strategy was launched in March 2010 by the European Commission in order to sustain interest in the ideas of sustainable development through smart, sustainable and inclusive economy. E-Government Action Plan i2010, launched in 2006 was designed to improve the exchange of information between the population and public authorities. The europeans interest for e-government service increases in 2008-2010. Online interaction with public authorities is an indicator that highlights the e-government. 31% of europeans interacted online for this purpose, in 2010. 28% of individuals have obtained online information from the authorities in 2010, up 3 percent from 2008. The highest result was recorded in Denmark, where 68% of residents have appealed to the e-government in 2010. The lowest level of use of the service was in Romania, where only 9% of Romanians have obtained information on-line from administrative authorities. In 2015, 40% of europeans used the Internet to obtain information from public authorities. On average, 13% of residents of European Union member states sent completed forms online by administrative authorities in 2010.

At the national level, the object no 13 of the National Strategy for Sustainable Development, "Administrative capacity and quality of public services", reflects the importance of information technology on sustainable development.

The availability of e-Government indicator contributes to measuring the information society in the context of the Lisbon Strategy. Target strategy is accessing virtual public information by the public. The indicator reflects the ability of the 20 services provided by the e-government. Thus, in Romania, in 2010, 60% of them came to help citizens [12].

The indicator reflecting the use of the Internet in order to charge the official forms ranks Denmark on first place. 39% of individuals used the Internet for this purpose, unlike the romanians (only 4% had this purpose in 2010).

In public administration, system auctions for public procurement is the best example of introducing ICT.

The term *e-learning* has been proposed by Jay Cross, founder of Internet Time Group, in 1998. The field of e-Learning has experienced explosive growth due to information technology and communications. The educational benefits of modern methods of teaching-learning-assessment, specific to information society.

"Computer Training (IAC) is a teaching method that capitalize the principles of modeling and analysis of cyber training activity in the context of the use of information technologies and communications, characteristic of contemporary society [1].

E-learning is the interaction between the teaching / learning and information technologies, covering a wide spectrum of activities, from eLearning up to the education provided entirely online [2].

E-learning process includes the hardware and software for transmitting knowledge, training materials in electronic format, the system administrator, instructor and trained people. To participate in this modern method of training, trained people must have basic knowledge of computer operation. Other requirements are technical endowment with equipment of educational institutions, existing companies specializing in organizing training courses.

The "digital literacy level" reveals that, in 2015, 23% of europeans have low digital skills, 27% of europeans have medium digital skills, 28% of europeans have advanced digital skills. In 2015, Luxembourg, state with one of the most developed educational systems, had the highest percentage of residents who owned an advanced level PC, 56%. The lowest result of this indicator was registered in Romania, 9% of people owned advanced digital competence.

Digital literacy gap existing between European Union member states was a topic debated by the *European Commission in March 2015* in Riga at the conference "*eSkills for jobs from 2015 to 2016*". It is imperative to find solutions to improve digital literacy in order to achieve the goal of owning a knowledge economy by 2020. In 2014, 81% of households in the EU had access to the Internet, the highest result was recorded in Luxembourg (96%).

Another positive impact of ICT in education is the development of online systems on the situation at school where parents can access. Also, video systems installed in schools and kindergartens allow parents watching activities performed. The educational system has different internal applications in schools and universities that are a real support for communication between students and teachers [8].

The first plan at european level on *e-health* service was intended for prescriptions and medical cards for 2004-2011. The second plan of action in this area (2012-2020) aims to support research, innovation, development, promotion of international cooperation.

According to the report *eEurope +*, in December 2003, 16% of the general practitioners had Internet access in the medical office, and 5% used the Internet to swap the medical records of patients. Also, share of physicians who use electronic records of patients was 49.2% in Romania, compared to 59% in the new Member States.

According to *e-health* study, 92% of hospitals in Europe have access to broadband Internet, and 80% have implemented electronic patient record, in 2011. The weakness in this area is the small percentage (4%) of hospitals that provide patient access to electronic files.

Regarding health programs, it is important to identify the percentage of the population aged 16 and over using the Internet to search for information related to health. The result was 2% in Romania, compared to 4% in the countries of Central and Eastern (December 2003).

In 2015, 46% of EU inhabitants used the Internet for providing medical information, up 2 percent from 2013. Denmark is in first place with 66% of people accessing the Internet for health purposes. Romania is ranked last in the ranking, with 27% of romanians who sought health information online.

Worldwide, *e-health* applications showed a solid increase. In 2011 these applications market was around \$ 11 billion, and the forecast for 2016 is 27 billion dollars.

An important component for market dynamisation is the mobile applications associated to health monitoring. New businesses can be developed around the use of wireless technology associated with medical devices leading to social and economic benefits (<http://politicidesanatare.ro/impactul-economic-al-ehealth-pentru-romania>). In the medical system impact of ICT is projected on the possibility of patients to schedule online to get references about different medical settings.

4. Conclusions

The objectives of sustainable development are geared towards the welfare of the human being. The human being must enjoy a good state of health, education, good conditions of the environment, income.

ICT contributes to achieving sustainable development. The impact of information society on social pillar is felt through access to its services: *e-health*, *e-government*, *e-learning*.

The article presents a picture of the impact of ICT on the social pillar in theory. I presented the indicators that reveal the impact of ICT on information society.

In 2015, 40% of europeans used the Internet to obtain information from public authorities. The biggest indicator result of online interaction with public authorities was recorded in Denmark, where 68% of residents have appealed to the *e-government* in 2010. The lowest level of use this service was in Romania, where only 9% of people have obtained information online from administrative authorities. Denmark was ranked on first place regarding downloading official forms. The romanians have used the Internet for this purpose in 4%.

To participate in the modern method of training, *e-learning*, "trained people" must have basic knowledge of computer operation. The "digital literacy level" reveals that, in 2015, 23% of europeans have low digital skills, 27% of europeans have medium digital skills, 28% of europeans have advanced digital skills. Luxembourg, state with one of

the most developed educational system, had the highest percentage of residents who owned an advanced level PC, 56% for 2015. The lowest result of this indicator was registered in Romania, 9% of inhabitants owned advanced digital competence.

By 2015, 46% of europeans used the Internet for the provision of medical information. Denmark was ranked on first place with 66% of people accessing the Internet for health purposes. Again, Romania is ranked last in the ranking, with 27% of romanians who searched health information online.

Looking at these results, it is imperative for European Union Member States ranked last places to have strategies to remove the existing disparities.

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