

## REFLECTIONS ON THE IMPLEMENTATION OF INFORMATION SOCIETY IN ROMANIA

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### **Abstract:**

*This paper aims to synthesize main aspects regarding the implementation of the information society in Romania in the current period of post-accession to European Union. This approach of scientific research is based essentially on a set of official documents between which are highlighted National Strategy on the Digital Agenda for Romania 2020, corroborated with Digital Agenda for Europe. In this sense, it is important to mention that the Information Society (IS) involves not only a rethinking of the way in which Romanian companies should identify efficiency and performance solutions to requirements of more ever specialized consumers, which could allow to maintain on the advantageous positions ahead of stiff trade competition intra and extra EU trade competition but also a greater awareness of behavior and valorisation mutations generated by the complexity of globalization phenomenon which could appear at national consciousness level. Also in the equation process of Romania's integration into the paradigm of information society, the innovation and technological changes have an important role in achieving economic performances and changes in their dynamic, that can irreversibly influence the mechanism for implementing the strategies of modernization, growth and sustainable development. Finally, it is important to emphasize that from this perspective it is proposed only a schematic approach to the framework of IS implementation in Romania, without the intention of making an exhaustive presentation of the issue highlighted in this paper.*

**Keywords:** *information society, information and communication technologies, innovation, technological progress, National Strategy on the Digital Agenda for Romania 2020.*

**Classification JEL:** *O3, O31, O33, D8, D83*

### 1. INTRODUCTION

The development of information and communication technology (ICT) combined with the proliferation of the internet on a global scale has led to a new phase of society development -Information Society. In the same order of ideas, ICT is more and more used in all human activities, that are in an indissoluble connection with economic growth.

Although there is in the specialized literature a wide variety of authorized opinions formulated in sphere of conceptual approach of information society (Ramsamy, 2010; Webster, 2014; Hilbert, 2015), however it is widely spread the idea that IS is considered to be a society in which the creation, distribution, use, integration and manipulation of information is an economical, political and cultural activity, with high degree of complexity registered at contemporary international community level. In the same time, it is important to note that the driving force of information society, essentially consists in digital information and communication technologies, that lead in an irreversible way to explosion of information and profound changes in all aspects of social organization, economics, education, health, environment and administration. Moreover, all members of IS that have the necessary means to participate at this type of society are suggestively called digital citizens.

This is one of the many labels that have been used to suggest that people enter into a new phase of evolution of society. Also, it is a truth universally acknowledged that the international economic environment is currently characterized by outstanding mobility, determined by several factors, which are distinguished: the acceleration of technological innovation; the stronger impact of information society and its imperatives in the field of capitalization of human resources; the appearance of new service activities; improvement of operating conditions of companies, that can stimulate the dynamic of entrepreneurial activity, and any specific requirements resulting from the new objective of world development respectively sustainable development, namely integrating the various components of growth in a framework that confers of policies and development programs to long term viability. [7]

An empirical analysis of the characteristics of the international economic environment shows that some indicators, such as accelerating the growth of multifactor (global) productivity, the increasing importance of

technological progress incorporated in goods and equipment, primarily the development and spread of ICT, enhancing the competence of human capital, demonstrates that innovative activity and technological change are fundamental factors for the improvement performance in terms of sustainable economic growth.

## 2. INNOVATION AND TECHNOLOGICAL PROGRESS - KEY FACTORS IN THE IMPLEMENTATION OF THE INFORMATION SOCIETY

In the building process of information society is highlighted the innovation factor that has a leading role in the performance level of firms and hence for the economic growth. The innovation activity is mainly supported by market, becoming nowadays more than ever increasingly faster and more intense, being closely connected to scientific progress and knowing a widespread in the entire national economy. In general, the innovation is reflected in the development, introduction and economic use of products, processes and new services. Thus, range of innovations is very wide, including both radical innovations - creative products, processes and entirely new services, as well as innovations that contribute to the upgrading of products, processes and services, which are already on the market. Innovative ideas are manifested in technology, manufacturing processes, products, and forms of activities organization, qualification and professional specialization, marketing forms and also all types of market demand.

The process of innovation is expanding in geometric progression in all economic sectors, service sector also tends to increase its share of total research and development expenditures. Thus, fields as financial services and those registered in the companies are on the first places in terms of ICT investments. Certain elements tend to suggest that, for service fields such as banking services, transport and retail trade, ICT investments have enabled innovation of products and processes that stimulated productivity growth. In the same time, the success of innovation act directly or indirectly depends on extent and quality of the investment effort in the research and development field, associated with the evolution of investments in development and modernization of production capacities, marketing activity and human resources.[4]

Innovation is not always based inevitably on the activity of research and development it involves often a technological and organizational change and requires a large volume of investments in complementary areas such as: (qualification of workers, manufacturing process, marketing activity). However, a higher intensity of research and development activity favors a better economic performance. In addition, the research and development grows in importance as the national economy is based more and more on knowledge and the industrial activity with sustained dynamics is founded mostly on science. In these circumstances, the specific characteristics of national system of research, development and innovation have an important role. Considering the increasing trend of costs and risks resulted from innovation activity, Romanian companies involved in ICT must become more specialized, focusing mainly interational economic environment. Also, it is necessary a change in the direction of rising role of scientific research in trade strategies of enterprises from our country, in the conditions of accelerated diversification from the range of technologies required for innovation activity and the enhancement of complexity level of those tehnologies. In these circumstances, for Romanian economic environment, it becomes imperative to provide a favourable framework for innovation, receptive to new technical inventions that allow more efficient use of advantages resulted from exploitation of information and communications technology. Therefore, the information and communication technology is one of the best examples of major technology that transforms substantially the activity throughout the economy.

In these circumstances, the new technologies determine profound transformations in all fields of activity, and the government of our country is called to assume the new challenge and ensure the adoption of adequate policies to enable for domestic entrepreneurial environment to obtain the benefits offered by these technologies, and in the same time, minimizing the negative effects resulted inexorably from economic activity. More than that, the new technology represents the catalyst for profound changes, by essence of international business environment, partially responsible for a major restructuring of companies modification of work organization, reorganization entrepreneurial activity associated with cost reduction, rationalization and restructuring the value chain of products and generally, of supply.

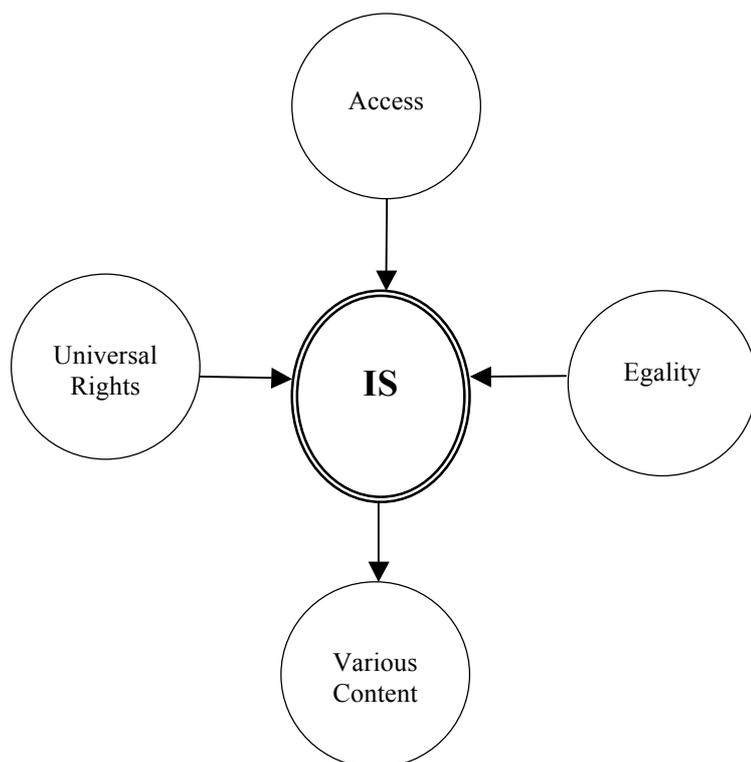
In these conditions it is important to note that ICT consists in technologies with high power, wide range of applications, whose productivity becomes maximal if they are disseminated and used in combination with organizational transformations, education and training (increasing professional competence). Obtaining the benefits from implementation of new technology depends on investments in complementary fields of action and the activity of public and private companies.

Concidering the arguments previously formulated, it is necessary to take into consideration one of the postulates of information society according to which, the capital accumulation from the ICT sector by Romanian companies will inevitably lead to increased production and productivity. In other words In other words the, the widespread introduction of ICT equipment in the production process of enterprises from our country, will favorably influence the aspects of performance and competitiveness of Romanian companies on the international market generally and EU single market particularly. [2]

### 3. GENERAL FRAMEWORK FOR IMPLEMENTING INFORMATION SOCIETY IN ROMANIA

The structural transformation of contemporary society in IS requires a variety of elements which must be promoted. As it can be seen in Figure No. 1 The International Telecommunication Union emphasizes four critical factors that are assimilated with the structural elements and principles of the information society. From this perspective, it further appreciates, that these factors can contribute to the successful implementation of information society not only at the macro level national but also in individual sectors and industries plan, and even to the the level of citizens (micro level).

Figure No.1. Key factors in the implementation of information society



Source: <http://www.ict-pulse.com>

From the point of view of implementing IS, it is necessary to refer at two elements that define the new mode of production, namely workforce and innovative technology. These factors are placed into an economic and social context which favors the transition to IS. [6]

Although, obviously the issue of specific characteristics is not reduced at computing and communications, the latter can act as proxy for the following reasons:

- digitization is the leading technology for the knowledge economy and makes possible the transition from the economy of scale to niche;
- information technology enables the creation of networks and systems based on self-organization and democratization of leadership both at micro and macro level;
- information technology is the base of globalization phenomenon. In addition, the network efficiency of knowledge dissemination depends directly on the development of information and communication technologies.

The approach of the knowledge economy development through creation of legal and institutional basic infrastructure (infrastructure of the information society), it is a coherent approach practiced into accelerated rhythm, in accordance with the need of gaps recovery for Romania in the economic plan compared to western developed countries from EU.

The main pillars of implementation policy of information society in Romania are: increasing endowment with ICT equipments in the public sector (especially in education); stimulation (obligation) of interaction by electronic means between companies and administration; generation of a learning process at society level through state action as an exemplary consumer; trying to correlate the infrastructure investments to offer content designed to stimulate the development of online environment.[1]

In addition to previous arguments regarding the fundamentals of policy implementation of Information Society in Romania, are required to be emphasized and identified some aspects with direct incidence on the problem of best practices application established at EU level in the transformation process of Romanian society into a modern IS. On this background it should be noted that Romania, as a member state of European Union with full rights and obligations was active manifested in this direction, through the adoption of the *communautaire acquis* and its implementation in the construction of appropriate institutional framework for e-government, e-commerce, electronic transaction security, telecommunications, intellectual and industrial property rights, etc.

On the other hand, the application of best practice in the implementation of SI by our country should couple by the stimulation of modern technology consumption in the private sector, either directly or indirectly, by creating the conditions for appearance of business forms that lead to innovation such as: the proliferation of green entrepreneurship in ICT.

Although the Romanian ICT market is one of the most dynamic that registers significant increases, however, there is a slowdown of the growth rates at hardware and office equipment, projected for the next period, nevertheless it can be observed today a tendency of market saturation. In order to increase the level of digital economy and society Index (DESI) in the medium and long term, the Ministry of Communications and Information Society, elaborated in July 2014 National Strategy on the the Digital Agenda for Romania subsequently approved by Government Decision no. 245/2015. The strategy has been developed on the basis of Digital Agenda for Europe 2020, which is the reference framework for the development of the digital economy 2014-2020 in Romania.

Furthermore it is required to remember that National Strategy on the the Digital Agenda for Romania, directly aimed at ICT sector, and at the same time aims at contributing to economic growth and competitiveness of the national economy, both through direct actions oriented towards the development emotional Romanian ICT sector and by the indirect actions such as: increasing efficiency and reducing public sector costs in Romania, improving the private sector productivity by reducing the administrative barriers in relationship with state and increasing the labor force competitiveness in Romania and not only that. The principle on which the National Strategy is based consists in creating a competitive environment that will encourage and attract the citizens and companies that pay taxes and which in turn, provide a sustainable growth in long-term. Some of the objectives set by the European Digital Agenda were taken and adapted at the current context from Romania, to the extent that they are relevant and aligned with the strategic vision of ICT Romania for the period 2014 – 2020. The purpose of this action is to ensure the development OF ICT sector in Romania at the level of European Union countries namely to establish the premises of Romania integration, in terms of ICT, in European digital single market. [3]

In the current period of EU postadheration, Romania has made significant progress in ICT sector, but regarding the digital economy and society Index (DESI), in 2015 registered a total score of 0.32 being situated on 28<sup>th</sup> place of the 28 EU Member States. Although compared to last year, a larger proportion of population are subscribed to broadband networks, nevertheless the low level of skills and confidence of consumers seems to be an obstacle in the digital economy development of our country.

Using the Internet has increased, mainly due to the higher participation into social networks. On the other hand, Romanian enterprises should exploit better the advantages of social networks, online trade and cloud applications. The share of users who interact with the public authorities increased, but is still the lowest in the EU.[8]

In relation to, the issue of specific technology must be analyzed also the quality of human factor that is important in the light of double role of knowledge producers and consumers. Thus, the characteristics of human factor are also elements that can support K-exclusion in Romanian society and especially the need to stimulate knowledge demand incorporated goods or their specific qualities to information society. The negative demographic evolution at national level reflects reducing and aging population, resulted in the risk of knowledge gap into between generations, which in turn requires major investments in the supplementation and development of continuing education offer in order to reduce them. Underutilization of highly qualified labor is an issue that is felt acutely in the case of Romania and is reflected in the phenomenon of "brain drain".

Enhancing the share of computing products, as well as those from education and culture category in the structure of household expenditure, although significant, should maintain the upward trend and continue to provide the critical mass necessary for the information society functioning. On supply side, the knowledge production is circumscribed to research-innovation. The research activity at the firm level, as well as innovation is a relatively low stage of development. In particular, small and medium enterprises, although theoretically are the main innovators, by their natural dynamism, are inhibited through the state of undercapitalization in which they are and barriers that affects the business environment. [5]

Finally it must also add that the research budget funding is decreasing and the overwhelming preponderance of budget funds and research fund of enterprises draws attention to the lack of quasi-competitive innovation market, with specific funding mechanisms.

#### 4. CONCLUSIONS

In the specific context of the information society is transformed digital information into economic and social value creates the new business opportunities and simultaneously profoundly changes people's lives. Information society is a new higher quality lifestyle that involves an intensive use of information in all areas of human existence and activity, generating a major economic and social impact. This pattern of contemporary society development allows the amplification of entrepreneurial activities in a sustained rhythm

amplification, and offers them the opportunity to take the best decisions, which could lead at sustainable economic growth, taking into account the fact that the information society offers a complete and rapid system of informations for business environment. In relation to the implementation of information society in Romania should be noted that through measures introduced by the public authorities in particular after 1 January 2007 through various normative acts was build a system of sufficient prerequisites for starting of sustainable development process of knowledge economy. Thus, it becomes obvious that the state has assumed the leading role in the process of Information Society construction in Romania.

In this regard, it can be notice many positive results obtained so far, among which are distinguished, those registered in direction of infrastructure development and reform of the education and administration system. The problem that arises increasing clearly, is that the state intervention does not generate sufficiently fast behavioral changes at the company level. As a corollary of all the scientific arguments previously formulated it can be said that the information society will have to become finally a reality of authentic democracy and of the free market, where actors and main authors are citizens, civic initiative and private economic enterprise - essential ingredients for sustainable development.

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