TRENDS AND DIMENSIONS OF DIGITAL ECONOMY

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Abstract:
Modern means of electronic communication and online services are the main factors of change for present economies and societies. They contribute to economic growth, employment, increase of productivity, to the reduction of public expenditure and in general to the welfare of the population. In this context, the paper aims to outline the characteristics, the effects and the principles of digital economy as well as the degree of development of digital economy and services at EU level.

Key words: digital economy, e-Commerce, digital technologies, competitiveness

JEL Classification: B22, O10

1. Concept
Modern means of electronic communication and online services, including e-Government, are the main factors of change for our societies and economies.

Electronic Data Interchange (EDI) has existed since the 1960s and can be considered the ancestor of Electronic Commerce (e-Commerce). Due to increasing accessibility to the Internet, e-Commerce has captured the interest of individual consumers and companies, and along with the advanced technologies available at present, they shape the Digital Economy.

Digital Economy encompasses markets based on digital technologies that facilitate and carry out trade in goods and services using the electronic commerce over the Internet.

The concept of Digital Economy or New Economy refers especially to the current transformations of economic activities as a result of the use of digital technologies, which ensure easy and cheaper access, processing and storing of information. The New Economy is characterized by the intense absorption of knowledge into new products and services, by increasing the importance of learning and innovation, globalization and sustainable development. The enormous amount of information changes the operation of markets, facilitating the reorganization of enterprises and the emergence of new opportunities for creating values by exploiting the information available.

Thus, Digital Economy includes those companies which obtain income partially or entirely from activities directly related to the Internet or from the sale of goods and services used in the Internet sector. Digital Economy implies the creation of new markets, new market regulations, and new models of behavior for producers and consumers, new money, new distribution networks.

2. Features of Digital Economy

The components of Digital Economy are: infrastructure, supporting infrastructure (hardware, networks, telecoms), Internet applications (software, consulting and training activities, etc.), economic activities, business mediation activities ("market makers", search engines, etc.), transfer of goods or e-Commerce.

Digital Economy, as a result of the interaction between personal computers, telecommunications, Internet and electronics, is characterized by a number of features completely different from the traditional economy. They can be summarized as follows:

- it creates a new business model (e-Business, e-Commerce, e-Banking, etc.) via Intranet and Internet which radically efficiency, due to the reduction of costs, including transactional costs. Lately, e-Commerce has developed extensively as a form of conducting business, to which we might also add the shaping of scientific knowledge markets, bolstered by the unprecedented pace of developments within the research sector.
- Digital Economy has an interactive, participatory character, creating more rigorously the interface between supply and demand based on volume and structure, on space and time. The role of the consumer is more important meaning that he may become a significant source of innovative ideas for producers, with the aim to maintain or extend the market, to increase comfort or, more importantly, to raise the level of sustainability of economic development.
In the case of Digital Economy, the forms of competition among producers are radically changed by the priority that is given to a consumer in his continuous and rapid change in terms of needs, tastes and requirements, so that he challenges competitors to cooperate.

Digital Economy implies a higher consumption of concepts, high skills that create a greater added value, new jobs, unlimited segments of business opportunities and creativity through the existence of flexible and interconnected standards that facilitate the need for integration and/or personalization of different consumers.

In the case of Digital Economy one may also notice a reduction of resource consumption, an enhancement of the innovative and entrepreneurial spirit, an increase of labor productivity, of production speed and of changes of economic phenomena and processes, as well as an increase of the value added. The effects of Digital Economy at micro and macroeconomic level are based on a number of general valid development principles: conviction (awareness); accessibility; availability; the existence of the necessary resources (affordability); appropriateness.

The contribution of Digital Economy, nowadays, to the economic growth and to the creation of jobs at the level of any market economy, is undeniable.

A great part of the world economy is now digital. (Chart No. 1)

The share of ICT sector expressed in total gross value added (2011 or the most recent year available)

Source: European Commission, OCDE

The huge potential of ICT can be mobilized through the proper functioning of a circle of activities. ICT makes a business environment conducive to investment and entrepreneurship; the advantages of digital technology are immense for any economy.

The role and the importance of Digital Economy are given by the fact that all sectors of economy are dependent, in various proportions, on information technology and communication- (ICT). (Chart No. 2)
3. Digital Economy at European Union level

The crisis has overturned years of economic and social progress and has outlined the structural deficiencies in Europe’s economy. Today, Europe’s main objective should be a comeback on the right track. In order to ensure a sustainable future, Europe must already look beyond short-term priorities. Confronted with aging population and global competition, we have three options: work harder, work more or work smarter.

In this context, Digital Economy contributes to development and employment, to an increase of productivity, to the reduction of government expenditure, to consumer’s welfare, providing new opportunities for personal expression. In addition, it represents significant economic sectors operating individually.

Digital Economy can make European industry grow; it can provide future enterprises with infrastructure and it can stimulate the development of newly established enterprises.

The ICT sector generates directly 5% of the European GDP and has a market value of EUR 660 billion annually, but with a much greater contribution to the global growth of productivity (20% coming direct from the ICT sector and 30% from investment in ICT). This is due to the high degree of dynamism and innovation inherent in this sector and to the role played by this sector with respect to the operation of other sectors of economy. At the same time, the social impact of ICT has become significant: for example, the fact that practically all Europeans have a mobile phone and that in Europe there are more than 250 million internet users has changed our way of living. [3]

The development of high-speed networks nowadays has the same revolutionary impact, the development of electrical networks and transportation had a century ago.

The single market and Digital Economy support each other. It is much easier to purchase goods and services online and at the same time, it is much easier to identify the shortcomings of the single market and to see what the costs of fragmentation are.

Even in periods which register a high rate of unemployment, the Internet creates five new vacancies for every two jobs lost.[2]

By 2020, Europe's GDP could increase by 4% by stimulating rapid development of the single digital market, while public authorities could reduce costs by 15-20% by switching to e-Government. [1]

A particularly relevant index for measuring Digital Economy is DESI (Digital Economy and Society Index) which synthesizes about 30 relevant digital performance indicators of Europe and oversees the development of the Member States of the European Union, in terms of five main dimensions [4]:

- Connectivity—measures the development of physical internet network infrastructure and its quality;
- The human capital – measures the abilities of a country’s human resources to take advantage of the opportunities offered by a digital society;
- The use of Internet – refers to the variety of activities carried out by people online;

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Chart no.2

ICT expenditure on economic sectors (% of the total ICT expenditure in 2012)

Source: European Commission, OCDE
Integration of digital technology – determines the level of business digitalization and the exploitation of online sales;

- Digital public services – measure the digitalization of public services laying emphasis on e-Government.

The DESI study aims to help EU countries identify areas that require priority investments and actions, with the aim to create a single digital market – which is also one of the main priorities of the European Commission.

DESI 2016 summarizes data collected in 2015 and thus determines the ranking of EU Member States with regard to the degree of development of the digital economy and services. Each score in this ranking is between 0 and 1, and the higher values represent a better performance. (Chart no.3)

![Chart no.3](https://ec.europa.eu/digital-single-market/en/desi)

The ranking of EU States with regard to the degree of Digital Economy development


The main outcomes of this study can be summarized as follows:

- EU as a whole and Member States are individually progressing towards a digital economy and society. However, Member States are on different levels of development and they are advancing at different speeds.
- Denmark, the Netherlands and Sweden are the countries that register very good scores both regarding internet connectivity, access to digital public services and high quality of infrastructure and human capital training in the use of technology. On the other hand, Greece, Bulgaria and Romania are the countries that have recorded the lowest results.
- There are also countries that display better scores than the European average or whose score grew much faster than the European average. These are countries which have performed very well and have developed infrastructure at a pace that allowed them to break away from the countries of the European Union, such as Austria, Estonia, Germany, Malta, the Netherlands, or Portugal.
- Other countries register increased performance as compared to the European average but the pace of development is lower (Belgium, Denmark, Finland, Ireland, Lithuania, Luxembourg, Sweden and the UK.)
- The report also points out the countries with lower scores than the European average but which have developed much faster over the last years. This category includes Romania, Spain, Croatia, Italy or Slovenia.

At the same time, we must keep in mind that, lately, the ICT sector has become more and more significant for the economy of the European Union. (Chart no.4)
As I have previously reported, **Romania** occupies the last place among EU Member States as regards the DESI index, with an overall score of 0.35 out of the maximum 1.

In terms of **connectivity**, Romania has recorded the best performance according to the DESI 2016 ranking, with a score of 0.5, increasing from 0.47 in the previous year, which ranks the country 23rd among EU States.

Romania has also exceeded the EU average in terms of **Internet access speed**. Thus, almost three-quarters (72%) of the population benefit from speeds of at least 30 Mbps, which is above the European average of 71%.

As regards the **human capital** and according to DESI 2016, Romania has registered a score of 0.36, which places the country on 27th position among EU Member States. Moreover, as far as the use of the Internet is concerned, Romania has recorded a score of 0.34, rising from 0.31, which makes the country occupy the 27th position at EU level.

At the same time **the integration of digital technologies** in the business sector, has obtained a score of 0.2, the smallest value in the Union.

Last but not least, in the case of **digital public services**, the country has recorded a score of 0.33 (as compared to 0.27 in the previous year), ranking 27th.

**Conclusions**

Smart use of technology and exploitation of information leads to finding solutions to the challenges faced by society.

Digital society must be imagined as a society with more advantages for all its members. The implementation of ICT is becoming an element of the critical importance for the attainment of strategic objectives such as the support for the ageing society, the fight against climate change, the reduction of energy consumption, the improvement of transport efficiency and mobility and the insertion of people with disabilities.

In addition, we should acknowledge the constructive potential of digital economy in terms of added value, economic growth and employment.

Thus, in perspective, for the development of digital economy, one should consider the following:
- Developing a well-structured telecommunication infrastructure, based on free competition
- Promoting the use of electronic commerce and services
- Providing reliable and efficient payment and delivery systems
- The use of ICT by the public authorities could lead to a significant reduction in the costs incurred by public administrations
- Increasing digital literacy, developing digital competences and inclusion

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