

# Information Challenge of Doing Business in Global Conditions

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## Abstract

In the face of the globalization of the economy, society relies on previously built sources of information, which are disseminated through the latest communication and information transfer technology. So, in the conditions of contemporary globalization, in the first place comes the new competitive factor - information. One of the indispensable conditions for the development of economic relations is the recognition of all market participants, because unpredictable situations can lead to serious economic consequences. It should be noted that the distribution of information among participants in the economy practically always carries an unequal character. The availability of scarce information offers significant competitive advantage that provides additional chances in the fight for competition. So, they represent an economic resource used in the production of goods, services, offer, demand, and the formation of the basic productive forces that are essential for doing business in contemporary conditions.

**Keywords:** Information, data, cybernetics, knowledge, goods, services, IT etc.

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## Introduction

It is traditionally known that the following economic factors are shared in the economy: **land, labor, capital and management skills**. If we consider more of the aforementioned factors in the light of the historical development of society, then it is implied that some factors lose their meaning in the light of new and more progressive factors. Similar has happened in the world and at work when new factors of productivity-capital and management skills have emerged that have strengthened prior factors and improved their functioning. Factor change occurs in accordance with the evolutionary processes of economic systems.

- In the pre-industrial economy the leading position has had the arable land and labor, while in the industrial economy the dominant position belongs to capital and management skills. In the post-industrial economy the new factor, information, prevails.

- In contemporary business development conditions, including the commercial sector, information technology is one of the key factors in achieving business success and efficiency. Businesses that compete in various markets including local, regional or international ones, must necessarily have an IT infrastructure, including at least some of its key elements.

The distinguishing features of this stage of development are high speed and accuracy, coordination in an ever-expanding network, increased production and reduced costs, the transformation of some existing services and the emergence of new services, and above all, for a growing range services labor market competition is growing globally.

This current stage of industrial development appears in different directions:

1. Cybersystems. A cyber system is a system in which computers, networks, and physical processes are integrated. It essentially represents a mechanism that is monitored by computer-based algorithms closely integrated with the Internet and its users (Lee, Seshia, 2011)<sup>1</sup>. Examples of cyber systems include networks, automotive autonomous systems, production process control systems, robotics systems, autopilot, etc. (Hancu, Maties, Balan, Stan, 2007)<sup>2</sup>. The economic and social potential of such systems is much greater, which has driven increased investment to develop technology in this field.

2. The Internet of Things. The Internet has enabled the connection to the same network of electronic devices, vehicles, and machines that are equipped with programmed sensors, which enable them to connect and exchange data in real-time<sup>3</sup>. Everything is uniquely identifiable through the computerization system and at the same time is able to interact with the entire existing internet infrastructure (Brown, 2016)<sup>4</sup>. The Internet of Things term was coined by Procter & Gamble Kevin Ashton in 1999 (Hendricks, 2015)<sup>5</sup>. Things that are influenced by the

<sup>1</sup> Lee, E.A., Seshia, S.A.: Introduction to Embedded Systems – A Cyber-Physical Systems Approach. LeeSeshia.org, 2011.

<sup>2</sup> Hancu, O.; Maties, V.; Balan, R.; Stan, S. (2007). "Mechatronic approach for design and control of hydraulic 3- dof parallel robot". The 18<sup>th</sup> International DAAAM Symposium, Intelligent Manufacturing & Automation: Focus on Creativity, Responsibility and Ethics of Engineers.

<sup>3</sup> "Internet of Things Global Standards Initiative" ITU. Retrieved 26 June 2015

<sup>4</sup> Brown, Eric (20 September 2016). "21 Open Source Projects for IoT". Linux.com. retrieved 23 October 2016.

<sup>5</sup> Hendricks, Drew. "The Trouble with the internet of Things". London Datastore. Greater London Authority. Retrieved 10 August 2015  
Lindner, Tim (13 July 2015). "The Supply Chain: Changing at the Speed of Thecnology". Connected World. Retrieved 18 September 2015

internet are diverse and expanding. Among them we can mention heart monitoring implants; security and production monitoring cameras; vehicles with integrated sensors; DNA analysis equipment for monitoring the environment, food, pathogens or; field operations equipment, assisting firefighters in search and rescue operations, etc. (Lindner, 2015).

Innovations in the field of information technology are developing at such an intense pace that every innovation created enables businesses to carry out their business activities in more efficient and effective ways. The process of producing either modern products or services through information technology enables the quality of products to be much higher, as technological excellence affects the different combinations of raw materials used in the final production to make the final products more accurate and appropriate and the services to be delivered in a faster, safer and more appropriate way, which has a great impact on the consumer's benefit from consumption and utilization of these products or services reach the level of maximum satisfaction. Information processed and utilized by information technology enables businesses to increase competitive advantage, minimize operating costs and at the same time ensure a continuity of time for their businesses.

## Literature review

### *Understanding the information*

- For the development of business processes, and especially for management, information is useful only if it is relevant in terms of acceptance within a given time and the purpose for which it is used. At the same time, it is also necessary to have access to information, because if there is no access to information then any information is useless. That means that, considering the location, access to information must exist and function. Also, the information may have different character, in which case it can be internal character information and external character information.

- External information is information that explains the external environment and business environment surrounding the organization, while internal information is information that explains one or more specific activities in the organization. The process of creating relevant and useful information for businesses and its management goes through several stages<sup>1</sup>:

**a) Input** - means processed data or some data processed from inside and outside the organization.

**b) Processing** - means the process of converting data (inputs) into information that is usable and understandable to the user.

**c) Output** - means the transfer of processed information, i.e. creating information that is sent to the user for use or participates in certain activities to be carried out.

**INPUT----- PROCESSING-----OUTPUT**

Figure 1. The process of processing data into information

The process of processing data into information from the user point of view, information differs and can be classified into different forms. We will address some of them<sup>2</sup>:

**a) Transaction information** constitutes information pertaining to a single business process, and is responsible for supporting day-to-day activities, e.g. withdrawing money from ATMs<sup>3</sup>, booking tickets online, purchasing products, etc. In this case the organization records the transaction information in the database and this enables the users who want to see the flow of daily activities and make any eventual decision.

**b) Analytical information** means information pertaining to sales trends, product statistics and potential future projections regarding the quantity of products produced or sold. The characteristic of accurate information is that it can influence and change management and business decisions.

- The characteristics of information are<sup>4</sup>:

- *the information must be accurate; relevant and information should be up-to-date and coherent.*

Some business decisions require weekly or even monthly information, but some decisions require daily information, e.g. some organizations like service providers, banks, etc., need up-to-date information every second, minute, 24/7. Business decisions can only be successful if they are based on accurate and complete information.

- Accurate information consists of several factors that create relevant information for business decision making. The information should be accurate in terms of data placement, it should be complete, it should be unique in terms of its access and use, and it should be coherent which means that the information needs to be updated or renewed so that they are valuable to management in order to provide them with a solid basis in the decision-making process.

- **With the globalization of the economy**, society relies on previously built sources of information, which are disseminated through the latest communication and information transfer technology. Information occupies the

<sup>1</sup> In the same source, p.73

<sup>2</sup> Kremington Bob & Silver Mark (2000): "System that support decision makers", p. 163

<sup>3</sup> ATM: from English language Automatic Teller Transaction, automatic withdrawal cash box

<sup>4</sup> Berisha Mihane (2007): "Business computing", p. 48 – 52

leading place among the factors of progress as well as the means of acquiring, processing and utilizing it. From the foregoing, it can be concluded that in the context of globalization, information is an important source and factor of socio - economic development, which differs from the traditional ones and influences further economic development. Indeed, it has been proven that the information phenomenon is at the forefront of the development of society in its economic, political, scientific and cultural aspects. One of the key roles of business information systems applications is to provide effective support to company strategy using IT to develop products, services and capabilities that give the company great advantage over the competitors it faces in the global market.

- The role of the information system is important in the economic development of an economy, which also includes such product areas that do not produce tools of this technology but have an indirect impact. The benefits of new communication technologies have prompted some developed countries to strive to transform their society into an information society<sup>1</sup>. Until the end of the 20th century, local scientific literature did not consider information as an important source of economic development.

Since the early 1990s, innovative information technology has led to changes, a structural change in the social and economic realm through the digitalization of information and computer networks (Hagel & Singer, 1997; Tapscott, 1996). So, very soon, the computers, from professional tool, through the Internet, smartphones and smart TVs, have now become part of the daily lives of the majority of the people.

- Today there is another approach: - **information** represents important views of economic source, which are used in the production of goods, services, the formation of the basic productive force, and also represent numerical data, certain economic indicators, and the like, that is necessary to collect, process, transfer and store it in order to prove the decisions regarding the economy of powers. In this way, information has become an indivisible factor in the process that stimulates the formation and development of the information-economic space which forces us to examine some phenomena from a new perspective. One of these phenomena is information as an economic category, which every day plays an important role in the formation of the contemporary development module.

**Table-Specific overviews of the information and industrial economy**

Type of economy	Nature of work	Source of added value	The developmental nature of the branch	The role of man in production
<b>Industrial</b>	The essential difference between physical and mental work	The physical work of the employees	Priority is given to local production	The importance of the human super ability
<b>Information</b>	Almost difficult to underline the difference	Management and engineering work	Development of fundamental research	Increase of the role of information activity

As we can see from the table above, the information economy has more innovation than the industrial one. Its function is based on fundamental principles. " The new economy and society rely on information and knowledge, born and developed in prior societies, where the basis of computer technology is based, which conditions the rapid expansion of telecommunications and information technology, the Internet and mobile telephony which highlights the transition of society to a new mode of production technology.<sup>2</sup>

As a result of the analysis of worldview - information as an economic category which is further studied in the paper, the following definition of information is proposed:

- **Information is the product of human intellectual action which remains his intellectual property and can be used as a resource of economic system, commodity, capital, instrument and object of economic mechanism.** If information has previously been equated with categories such as economic system resources, goods, capital, then only in the context of economic reports, information is reported as an intellectual product and a subject of intellectual property. Given the increasingly numerical characteristics of information, we will note that with the development of economic reports, information acquires new qualities, manifesting validity and events. This enables the creation information characteristics of the transitional society's economic reporting system to be manifested, providing a deep and comprehensive and contemporary understanding of the essence of information as an economic category.

- The role of the information system and services has a positive impact on the intensification of all areas of economic activity. During this process, they play important economic functions and represent the nervous system of the enterprise. In addition, information attains the status of a strategic economic development factor of a country and the qualitative construction of the new type of socio-economic development as an information society. In the context of global processes of globalization, information as an economic category presents

<sup>1</sup> (Beynon-Davies, Paul (2013), " Busines Information Sistems;, UK p. 31

<sup>2</sup> Theory as a Mechanism of Realizing International Competition, 2004 " KNEU " Pg 18.

approximately a specific report in terms of its reporting in several aspects:

- *One of the fundamental resources of the economic system; Intellectual product; Object of intellectual property; Subject of sale; Goods; Capital; Instrument and subject of economic mechanisms; The most important factor in the fight for competition.*

If we want to analyze the information as a key development resource, then it is necessary to draw attention to the fact that information is an integral part of resources:

*labor, reprodromaterials, materials, energy, natural, financial, technological, organizational, and more.* Therefore, as we have mentioned many times, the information resource is of a dual nature:

- on the one hand it is only an information resource, while on the other it is presented in a transformed form and metaphors of different views of economic potential. Such transformations of information resources directly incorporate information tools and highly-qualified staff that represent inseparable components of information in the process. Only information that one has gathered possesses the properties of self-magnification. Human capital accumulation is one of the leading goals of the contemporary commercial economy. Information tools, for their part, help build, process and deliver the flow of information, to the highly qualified staff. Implementation of information and communication technologies during information flow processing enables opening up new perspectives for utilization of information resources.

As noted earlier, in the context of globalization, information is one of the most important economic factors and takes the leading position of the economy in relation to other factors. Today, there are thousands of companies operating in the modern information market that generate hundreds of thousands to tens of billions of dollars. We are talking about six global companies that are leaders in this field as manufacturers of information and telecommunication products and software products. Today these companies sell 35% of software products, while according to forecasts for 2013-2015 they control 50% of software products in the world market. The financial market of these companies is given in the table.

#### **Financial status of the world leading companies, information products manufacturers for the year 2011**

Company	Annual turnover	Capitalization	Participation %
Microsoft	50 billion \$	300 billion \$	20%
Oracle	17 billion \$	100 billion \$	7%
IBM	92 billion \$	158 billion \$	6-7%
SAP	12 billion \$	57 billion \$	5%
Symantec	5.2 billion \$	17 billion \$	2%
Adobe	2.5 billion \$	25 billion \$	1%

#### **Conclusion**

It can be concluded that business development without the application and use of information technology is almost impossible in contemporary times and circumstances. Researches in both contemporary literature and various empirical researches of scientific and academic characters prove that information technology is a key factor in achieving business success and achieving organizational goals through quick and effective decision making. In the 21st century, traditional businesses are increasingly moving to contemporary businesses, where the application and use of information technology is an integral part of the understanding of contemporary business. All of Macedonia's economic sectors, and in particular the commercial sector, must bear in mind this fact, since our country is a country in transition, and if we think of a country's economic development in the coming time periods, then we must bear in mind to have as much knowledge as possible about the importance of information technology, and in particular the importance and role of this technology in the commercial sector of the economy, as services are one of the key features of a developed economy. Finally, the main conclusions with regard to the topic dealt with can be distinguished:

- information technology helps to produce information and enables it to be used in the most rational way possible, i.e. a fast, accurate and proper manner.
- information technology helps increase companies' productivity, as it minimizes production time and cost.
- information technology enhances companies' competitive advantage as the process of production and service delivery becomes faster and more effective
- information technology affects the organization and management of the organization's resources as well as the communication and coordination process is done in the fastest and most effective way possible.

Based on data researched by various scientific literature, including various scientific books and articles, it has been established that each undertaking operating in a fully competitive market must have appropriate planning for its strategy. investments in information technology and its designated components.

It should be noted that the use of information enables this process to be long-lasting and productive. The basic characteristic of information is that during its transmission from one system to another, even from one medium to another, **its quantity and quality should not be diminished.** The transmission of information is carried out through circulation. Indeed, this variant satisfies the need to inform more users, whose number may

be unlimited. However, sometimes this characteristic, relatively simple circulation and difficulty of production create many problems in defining property rights within the scope of information activity. However, sometimes information can get outdated. Although information does not lose its characteristics during use, it may lose its value to the extent that it is relevant to its actuality. **Material form means** the objective expression of a given asset as a result of the information product, which may exist thanks to the producer and is part of its property (information commodity).

**Intangible form implies** objective expression as an information service. The parties' relationship is governed by a service contract. Therefore, information and information resources are the basis for the creation of information products that are of a different nature in relation to other goods that are in daily use by man.

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