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CES Working Papers

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*Suggested Citation:* Popescul, Daniela (2009) : Information and Communication Technologies – One Engine of Globalization, CES Working Papers, ISSN 2067-7693, Alexandru Ioan Cuza University of Iasi, Centre for European Studies, Iasi, Vol. 1, Iss. 2, pp. 20-36

This Version is available at:

<https://hdl.handle.net/10419/198058>

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# INFORMATION AND COMMUNICATION TECHNOLOGIES – ONE ENGINE OF GLOBALIZATION

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**Abstract:** *Technological changes are “the main engine of capitalism and evolution” (A. Toffler), “the fundamental driving force in transformation of an economy” (C. Freeman). The paper proposes a theoretical investigation of information and communication technologies evolution and their impact on the globalization of economy. It defines terms like globalization - with special attention focused on its economical dimension, technological change, and information and communication technologies.*

**Keywords:** globalization, information technology, communications, internet, digitization

**JEL Classification:** F02, O33, M15

*“Nowadays there is no such thing as the First, Second or Third World. Everything that is left is a Fast World – like a wide field, without any frontiers – and a Slow World – of those who either fall on their way to this field, or choose to live faraway from it, in artificially built valleys surrounded by walls, because, for them, life in this new world is far too fast, too scary, too homogenizing and too demanding.” Thomas Friedman*

## 1. GLOBALIZATION – AN INEXORABLE PROCESS

Globalization is one of the fashionable terms nowadays, a term which, like all the concepts with a high degree of novelty, experience various definitions and often shadow the experiences they are trying to clarify (Bauman, 1998).

The concept of globalization is an abstract one. It does not refer to a concrete object, which can be highlighted starting from its normal dimensions that are easy to identify by means of the well known units of measurement. Therefore, *it has never been easy to define* (Postelnicu & Postelnicu, 2000, p. 59).

One possible way to draw a definition of globalization is to *identify its characteristics*. In the definitions they suggest, authors from various fields identify distinct characteristics of the studied phenomenon.

According to Axford Barrie, globalization *connects people and collectivities previously separated by time and space*.<sup>1</sup> The characteristic easily drawn from this definition is *(inter)connectivity*.

Jan Aart Scholte<sup>2</sup> sees globalization as a new term capable of describing the relationships among countries, relations characterised by the *increase in the international exchanges and interdependences*. Pragmatically speaking, it can be considered *a process of the economic integration at a lower cost*, resulting in the decrease of the autonomy of the nation-states (Morales-Gomez, 1999). To this progressive internationalization we can add a continuous *liberalization*. Globalization can be regarded as a way to cut the restrictions imposed by governments on the inter-state exchanges, in view of creating an open, worldwide economy, without any frontiers (Scholte).

Globalization represents the *multiplication of the connections and interconnections among the states and societies which are currently part of the worldwide system*. It describes the process by means of which events, decisions and activities that take place in a certain part of the world have significant consequences for individuals and communities which are at long distances away from one another. From the point of view of its *scope of action*, globalization defines a *set of processes which involve almost the entire globe or operate all over the world*. To the social space it adds a supraterritorial domain, without including any distances (Scholte).

From the point of view of its *depth*, globalization involves the *intensification of the levels of interaction, interconnection or interdependence among the states and societies that form the worldwide community* (Dunning in Postelnicu & Postelnicu, 2000, pp. 76-77).

Globalization is *a complex phenomenon, a combined effect of the liberalization of commerce, international flows of capital, and of foreign investments, of the integration of national markets, production internationalization, of the increase in the products and services mobility beyond national borders* (Hart in Meșniță, 2002, p. 14). Nevertheless, the phenomenon *cannot be limited to the interaction between the economic factors and agents*, and must be analysed from the point of view of the impact it has on the social and cultural systems, on the social politics and reforms.

Moreover, globalization has the *characteristics of an irreversible process*, which affects us all to the same extent and in the same manner, whether it makes us happy or sad. According to

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Zygmunt Bauman, it is only a euphemism used for the new world disorder, where world's problems will have an undefined, inorganizable and auto-propelled character, and a centre, a controlling unit, a decision-making council will be necessary, though absent (Bauman, 1998, p. 9).

According to Thomas Friedman, globalization is not just an economic caprice, or a transitory trend, it is *a system with its own pressures and stimuli, own unique and logical rules*. It is *a dominant international system*, which replaced the Cold War system after the fall of the Berlin Wall (Friedman, 1999, p. 7).

To conclude, we can define globalization as being *a complex phenomenon of concentric expansion of certain values and/or practices generated by a nucleus and spread by more and more individuals and/or nations, a phenomenon based on several factors with interdependent action and which is characterised by (inter)connectivity, liberalization, wide scope of action, intensity (depth), complexity, interference among various subjects, speed, mobility, risk, insecurity, flexibility and irreversibility*. As a result of the various natures of its values and practices – the object of the globalization, the phenomenon has multiple dimensions whose explanation is necessary in order to clarify it.

## 2. VARIOUS DIMENSIONS OF GLOBALIZATION

In the literature which deals with this phenomenon we can identify at least *five different points of view* to consider globalization (Chase-Dunn, 1999).

The first point of view we are going to analyse is that of **global issues**. The *common environmental constraints* are the global threats caused by the more and more fragile ecosystem. The effects of the environmental degradation became perceptible on a long term, affecting the social evolution of mankind, as well. But this environmental degradation started to operate widely no sooner than recently, determining the emergence of a set of systemic constraints which require a collective, coherent and convergent social action, at a worldwide level. Such actions are required by the *endemic poverty, management of limited resources, the management of critical situations*, the most terrifying of them being terrorism – „a self-destructive virus produced by globalization itself” (Baudrillard in Codiță, 2004, p. 7).

Secondly, phenomena such as:

1. *the proliferation of individualised values*, values expressed in national constitutions which acknowledge the human rights and the transnational and international rights in order to protect them, and

2. *the adoption of western institutional practices* (such as the bureaucratic organisation and the rationalisation, the observance of law, valuing of the economic efficiency and of the political democracy) determined the emergence of a tendency that characterises mainly the 20<sup>th</sup> century: **cultural globalization**. In earlier times, the cultural homogenization took place on a regional basis – for example, the romanization of Western Europe and of the Mediterranean world, the islamization of the Central Asia, Northern Africa and Middle East by arabs and, later on, by Ottomans, the propagation of the Christian faith, the russification of Central and Eastern Europe, as well as of certain sub-soviet regions of Eurasia. From a cultural point of view, globalization nowadays is likely to engage the propagation of the controversial *americanization*.

Another meaning of the phenomenon, related to the new era of information technologies, is the one referring to the **globalization of communication**. The rapid decrease of the communication costs improved the relations among states and is an important basis for the formation of a stronger global civil society. The global communication facilities have the power to move visible and invisible things from one part of the world to another, regardless of the nation-states' opinion about this. This applies not only to the economic exchanges, but also to the ideas – by means of more and more extensive communication networks we can create political groups and alignments. The supraterritorial domain, regardless of distances, that Scholte was mentioning, becomes possible by means of the communication globalization.

**Political globalization** refers mainly to the institutionalization of the international political structures. From the beginning of the 19<sup>th</sup> century, the European inter-state system developed both an international normative order with a consensual character, and a set of political structures that were regulating all types of interactions. This phenomenon was called by Craig Murphy “global government” (Murphy, 1994). He refers both to the international organizations having a general purpose, and to more specialised ones. Examples of organizations with a general purpose that developed are the League of Nations and the United Nations. In time, we can notice a weak, though persistent, concentration of the states' sovereignty in international institutions. If this continues, the result could be a global state by means of which the situations of belligerence would be effectively taken out of law. The problem of the relative balance of power between the global political organizations and nation-states makes the optimistic vision of a global peacefully-governed state not seem achievable, at least for the moment.

The **economic globalization** means the spreading of the economic relations worldwide. Its most important manifestations are the intercorrelation of the financial markets and of those of goods and services, as well as of the networks created by transnational corporations. Although the worldwide capitalist system has essentially been an international one for centuries, the dimensions

and the degree of spreading of global exchanges and of investments increased essentially no sooner than the latest decades.

According to Charles W. Hill (Hill, 2000, pp. 5-7), economic globalization has two fundamental components:

- The globalization of markets;
- The globalization of production.

*The globalization of markets* refers to the convergence of the national markets, different from a historical point of view, towards a huge global market. The tastes and preferences of consumers belonging to different nations are starting to converge towards a global standard, thus contributing to the creation of a huge market. The acceptance all over the world of products such as the Citicorp credit cards, Coca Cola, the Levi Strauss blue jeans, Sony walkmans, Nintendo games and Mc Donald's hamburgers is mentioned quite often, the above-mentioned examples being typical for this trend. Nevertheless, there are still very important differences among national markets. We can include here the consumers' heterogeneous preferences, the different distribution channels, the cultural values systems. In the case of many products, these differences frequently require that the marketing strategies, the products' characteristics, or the practices themselves be customized, adapted, in order to better suit the conditions in a certain country. The most "global" markets nowadays are not the ones of the products for the consumers, where tastes and preferences are important enough so as to act as an impediment for globalization, but those markets for industrial goods and materials (such as aluminium, oil, wheat, microprocessors, DRAM, commercial planes, all types of software and a great deal of financial products), for which there is a universal need worldwide.

*The globalization of production* refers to the companies' tendency to produce goods and services in locations spread throughout the world, in order to benefit from the advantages of the national differences regarding the quality and cost of the production factors (such as work, energy, land, capital, but also knowledge). Through these, companies hope to lower the total costs and/or to increase the functionality and quality of the product offer, thus "impressing" their competitors. A rather shocking example of externalization at a global level of the production is the one given by the Boeing Company, which produces one of its airplanes out of 132,500 components made by 545 partners worldwide (8 of them in Japan, one in Singapore, 3 of them in Italy, etc.).

### 3. TECHNOLOGICAL CHANGE – A DECISIVE FACTOR IN ECONOMIC GLOBALIZATION

The two major categories of factors (Hill, 2000, p. 9) that seem to have accentuated the economic globalization during the last century are:

1. *the decline of the barriers to the free flow of goods, services and capital*, starting with the end of the World War II;
2. *technological change*, that is, the dramatic development of communications during the latest years, the processing of the information and the transportation technologies.

#### 3.1 The decline of barriers to free flow of goods, services and capital

During the 20's and the 30's, many nation-states of the world imposed restrictions on the international commerce and foreign direct investments. Regarding commerce, they applied high tariffs especially for the import of manufactured goods. The purpose of such tariffs was to protect the domestic industries against the foreign competition. One of the consequences was the “beggar thy neighbour” policy, by means of which countries progressively installed barriers for one another. Finally, this resulted in the decrease of the global demand, a fact which led to the Great Depression in 1930.

Learning from this experience, after World War II, the Western industrially developed nations – lead by the United States of America – raised the barriers to the free exchange of goods, services and capital among nations. This is the way GATT (General Agreement on Tariffs and Trade) emerged. Eight rounds of negotiations among the member states (today, 130 members) took place under its leadership, negotiations meant to reduce the above-mentioned barriers.

More than the reduction of the exchange barriers, many countries also reduced progressively the restrictions on the foreign direct investments.

Regarding the free flow of capital – or the *democratization of finance*, according to Thomas Friedman – it was based, first of all, on the development of the market of “commercial papers” (liabilities which, starting with 1960, corporations and even nations issue directly to the public, introducing a dose of pluralism in the world of finance and reducing the monopoly of banks). The democratization of investments intensified at an international level, as well, when the system of the fixed rates of exchange and strict control of the flow of capital, which appeared at Bretton Woods after World War II, disappeared in the early 70's. The moment when this system turned into a more

flexible one, the developed countries democratized their capital markets, opening them to foreign participants, and the developing countries followed the same example themselves.

These evolutions facilitate the globalization of both markets and production. The decrease of barriers to international exchanges allows companies to see the whole world as a market. The decrease of barriers to international exchanges and to investments allows companies to place their factories in optimal locations for their production, supplying the markets in that specific area. Thus, a company can make a product's components in a certain country and can assemble the product in a different country, exporting it all over the world.

Another phenomenon which contributed to the economic globalization is the *democratization of the countries subject to a restrictive regime, economically and politically speaking, as well as, at the same time, the increase in the mobility of the work force at an international level* (Dunham).

In spite of all the aspects mentioned above, the decline of the commercial barriers cannot be taken for granted neither is it for good. The requests for "protection" against foreign competitors can often be heard from countries all over the world, including from the United States of America. Although going back to the restrictive exchange policies of the 20's or 30's is unlikely to happen, it is not yet certain that the political majority of the industrialized countries will continue to favour the decrease of the exchange barriers.

### **3.2 Technological change – the engine of globalization**

*Technological change transforms globalization into a tangible reality.* Without these, the complex economic global system nowadays would simply not have existed. The substantial improvements in the communication technology, such as the real-time electronic networks, connecting places from all over the world, direct international phone access, together with the global high-speed and high-capacity transportation networks, determined some authors to state even that *geography is over* (Clark & O'Connor, 1997).

#### *3.2.1 About technological change in general*

Technological change is the "main engine of capitalism", "the great engine of evolution" (Alvin Toffler), "the fundamental force in the creation of models for transforming an economy" (Christopher Freeman). Although technologies, in the shape of inventions and innovations, arise in



specific places, do not keep being related to those places for a long time. Given the current conditions, innovations spread rapidly.

Technology is, undoubtedly, *one of the most important factors that contribute to the internationalization and globalization of the economic activity*. From this perspective, globalization can be defined as an ascending trend of economic and political changes, on a long term, which is affected by cyclic movements determined mostly by the evolution of technologies (Chase-Dunn, 1999).

Through its impact on the production and information flow, technological change influences the industry structure at a national level. This phenomenon is nowadays obvious at a global level, as well. The long-term technological trends, as well as the recent progress, reconfigure the location, property and management of various types of productive activity at a national and regional level. The increasing ease with which technical and marketing knowledge, capital, or managerial control can be extended throughout the Globe, made possible the integration of the economic activities in several locations at considerable distances.

A great part of the technological changes are not even noticed – these are the minor changes, inevitable and progressive, of products and processes. Freeman calls these changes *incremental innovations*. More obvious are the *radical innovations*: discontinuous events, with a high degree of novelty, which can dramatically change the existent processes and products. Nevertheless, one single innovation of this kind does not have a very widespread economic impact.

The most significant are the changes at the level of *technological systems* – that not only affect different parts of economy, but also often generate completely new industries. According to Freeman, the following five generic technologies created such new technological systems:

- information technologies;
- biotechnologies;
- technology of materials;
- energetic technologies;
- spatial technologies.

The fourth category of technological changes identified by Freeman is represented by the *changes in the techno-economic paradigm*. These are long-term and wide-range revolutionary changes. They have persuasive effects on economies, meaning that they change the production and management style within a system. The introductions of electric power or of the electronic calculator are examples of such wide-range changes.

The idea according to which the global economic growth takes place in a series of long (extensive) waves, that can last approximately 50 years, is generally associated with the work of the

Russian economist N. D. Kondratiev. Each wave has four phases, namely: prosperity, recession, depression and recovery.

The element that lies at the basis of the beginning of such a wave is an important technological change. The fifth cycle of Kondratiev, that seems to have started during 1980 and 1990, is mainly associated with the first of the generic technologies mentioned above: *the information technology*. It has a proper geography, in which Japan is the dominant, next to the United States of America, Germany, Sweden and a part of the countries from the Eastern and South-Eastern Asia.

### 3.2.2 *Information technology – an essential premise of globalization*

Owing to the evolutions in the computation and communication technology, more and more companies became global. They attacked the international markets, externalized a part of their operations through partnerships with producers and suppliers “across the seas” and opened subsidiaries all over the world. Electronic business, which highly enjoys the support of such technologies, promises to “narrow” the world even more, allowing people from everywhere to sell and buy products on electronic commerce websites, managing the international supply chains by use of collaborative solutions and increasing productivity by means of e-learning and e-collaboration applications.

*The information technologies* is the most widely used term for the telecommunication-computer integration, defined as a merge of telecommunications (telephones, circuits, cables, satellites, relays), on the one hand, and computers, on the other hand. Nevertheless, Hall and Preston say that the information technology has nothing new since, “for thousands of years, from the first drawings in caves and the invention of writing, people have used instruments and techniques for collecting, generating and recording data” (Hall & Preston, 1988). They launch another term, *convergent information technologies*, in order to refer to the latest accomplishments (in the 70’s and the 80’s) – when computers and telecommunications are integrated in one system for processing and exchange of information. In France and Germany they use the term *telematics* – understood as the technical and economic phenomenon emerged at the progressive intersection of communication and computer science industries. Bell calls the interface between telecommunications and computers *communications*. *Intercommunications* is a term with a wider connotation, that includes several fields.

In C. Freeman’s opinion, information technology represents the *new techno-economic paradigm around which the new wave of technological and economic changes will set*. Chase-Dunn

says that the *information technology created a context in which the global market, much to the detriment of separated national markets, becomes the relevant arena for the economic competition* (Chase-Dunn, 1999). Hall and Preston mention that *this convergence of two technologies that have been initially separated is very important for the development of the current and future global economy*. Computers guarantee the processing of the information, whereas telecommunications guarantee its transmission. They can exist independently, but when used together they are more and more regarded as the central nervous system of the 21<sup>st</sup> century worldwide economy, not so much as companions of the future growth and welfare, but rather as a condition for them (Hall & Preston, 1988).

The characteristics (Wilfong, & Seger, 1997, pp. 54-55) of the current revolution brought by the information and communication technologies are the following:

- *Convergence*: computers, telephones and television are starting to support the accomplishment of the same functions. The pre-existent telecommunication systems are starting to converge towards a unique network of global dimensions. Wireless products are starting to bring voice, data, faxes and video transmissions in more and more areas around the world.
- *Omnipresence*: data transmission is possible anywhere and anytime.
- *Specific access*: communications are not intended for a certain location, but for a certain individual – who can be anywhere around the world, by using of the e-mail or mobile phones.
- *Interactivity*: individuals are starting to interact with machines that have been passive up to now.

Many authors consider that the only truly important innovation in this field was the **creation of microprocessors**, which allowed the huge increase in the number of cheap and powerful computers – and, at the same time, the increase in the quantity of information that can be processed by individuals and companies. The microprocessor is also the basis for many recent progresses in the communication technologies. During the past 30 years, global communication was radically modified by the development of the satellites, optical fiber, wireless technologies, and nowadays it is strongly influenced by the Internet and WWW. These technologies use microprocessors for the codification, transmission and decodification of huge quantities of information that run along the information highways. The cost of microprocessors is decreasing continuously, whereas their power is increasing (a phenomenon known as “Moore’s Law”, which says that the power of technologies based on microprocessors doubles, whereas their cost halves, every 18 months). The cost of computer science processing of data decreased more rapidly than the cost of any other network

technology in the history. Between 1951 and 1984, the cost of computer processing decreased with 19.8% up to 28.2% yearly. In 1975, a miniframe computer that achieved 10 MIPS (million instructions per second) cost almost 10 million dollars. Nowadays, PC's operate at 100 times the speed, for 0.01% of the cost. This decrease of 99.9 percent radically changed and will continue to change life, society and (electronic) commerce. The cost reduction for the global communications also reduces the costs for the management and control of global organizations.

*The Internet* and the *World Wide Web* promise to become, from an informational point of view, the spinal column of the future economy. Globally speaking, the Web acts as a huge "equalizer". It eliminates the constraints regarding the location and local time, allowing businesses, either big or small, to expand their global presence at the lowest price ever.

A very important role in the unprecedented development of communication is played by *satellites*. Their use in telecommunications dates back in 1965, when Early Bird (Intelsat I) was launched. It was the first geostationary satellite, located above the Atlantic Ocean and capable to support up to 240 phone conversations or 2 TV channels simultaneously. Since then, this capacity grew exponentially. The effect of satellites on costs was amazing – nowadays, satellite communication is the cheapest, the cost being independent on the location of information and the distance it covers.

If, several years ago, the presence of satellites in the aerean space was associated only with the military or scientific research domain, during the recent years, by the multitude of commercial satellites – often constituted in networks with a well-defined objective, their range of use expanded. Basically, there is no socio-human activity not to have major advantages by using satellites. Of different types, placed at variable hights, with multiple objectives, satellites are present even in the Internet services.

The visible advantages (Oprea, 2001, pp. 198-199) of satellites as compared to landlines are the following:

1. the data amount transmitted/received is much higher;
2. transmissions have a considerable speed, without needing physical connections between the satellite and the receiver station – there are only limits generated by the satellite's capacity to manage a huge amount of data;
3. the coverage area is an enormous advantage, the connection to the internet not being conditioned by the presence of a wired communications system, the reception being the same as the TV signal.

Moreover, the proliferation of electronic environments that send all types of messages (television, radio) creates the *global state* (according to McLuhan), within which the participation in

the events that take place all over the Globe is immediate (the event can be even a sale transaction between partners at a long distance from one another).

Besides microchips, Internet and satellites, the compression, digitization and miniaturization technologies were also famous, especially during the 80's.

By means of **compression technologies**, the amount of data that can be stored on a square inch of the disk surface has increased with 60% yearly, starting with 1991. Meanwhile, the cost of this storage capacity decreased from 5 dollars to 5 cents per megabyte, making the computer power more and more accessible every day.

**Digitization** is the process by means of which voices, movies, sounds, television signals, music, images, colours, words, documents, numbers, computing languages and any other imaginable form of data, are changed into bits, and then transferred all over the world by means of phone lines, satellites and optical fibre cables.

Bits are the basic units in computing and nothing more than combinations of 0 and 1. Digitization involves the reduction of any sound, image, numbers or words to various codes of 0 and 1, their transmission by means of telecommunications to another point, where these 0's and 1's are decoded by a receiver and re-built into something very close to the original. The tendency towards the digitization of information is not a new one – it goes back to more than one decade ago and keeps growing as personal computers become standard business equipments in more and more organizations. Nevertheless, it takes part, together with *computerised business practices* and the *Internet* in a *significant synergy*, which makes possible the *electronic commerce*.

**Innovations in the field of miniaturization** reduced the size and weight of computers, telephones and pagers substantially. Nowadays, they can be taken to more and more places and people with lower and lower income can afford them – miniaturization changes average people into potential beneficiaries of the electronic and mobile commerce, enhancing the wide availability of these types of virtual interactions between the consumer and the vendor.

### 3.2.3 *Transportation technologies*

Besides the communication technologies, an essential role for overcoming the spatial and time constraints is played by the *transportation technologies*. Their role on the way to globalization is distinct, though complementary. Transportation systems are those by means of which materials, products and other tangible entities (including people) are transferred from one place to another. The communication systems allow the transmission of information (as ideas, orders, images, etc.) from one location to another. The development of both technologies changed the world we live in,

determining an unprecedented mobility of materials, products, as well as the globalization of markets (Dicken, 1992).

In economic terms, the most important events related to these technologies are probably the *development of the commercial planes industry* and *the introduction of containerization*, which much simplifies the passage from one means of transport to another. To these we can add the *development of transport by means of large capacity maritime ships*.

#### 4. CONCLUSIONS AND PERSONAL OPINIONS

Technological changes globalize the economy. The emergence of the microprocessor, digitalization, miniaturization, the development of satellite systems, compression technologies, Web technologies, wireless technologies are incremental or radical innovations which, together, determined changes at the level of technological systems, starting a new cycle of the economic activity.

Globalization nowadays does not only refer to the fact that less developed countries send raw material to the developed countries, which they process, obtaining final products which they send back. On the contrary, owing to the democratization of technologies, all countries have the opportunity to assemble their technical knowledge, raw material and funds, in order to be producers or subcontractors of highly finished goods and services, and this specific process becomes another subtle factor that connects people more and more tightly.

Globalization brings a series of **benefits** and **challenges** for the economic organizations. Some of the potential *advantages* are listed below:

- participation in new markets, as a result of the decrease of access costs, of legal barriers, of the fall of totalitarian regimes;
- access to a wider area of resources (capital, knowledge, work), currently available worldwide;
- participation in global networks of production, more and more frequent nowadays in various industries (automobiles, textile, toys, etc.)

Among the *elements* of globalization that *could have a negative impact* on companies, we can mention the intensification of competition, starting from two directions: foreign competitors are present on local markets, and local competitors reduce costs and make their activity more efficient by a worldwide externalization.

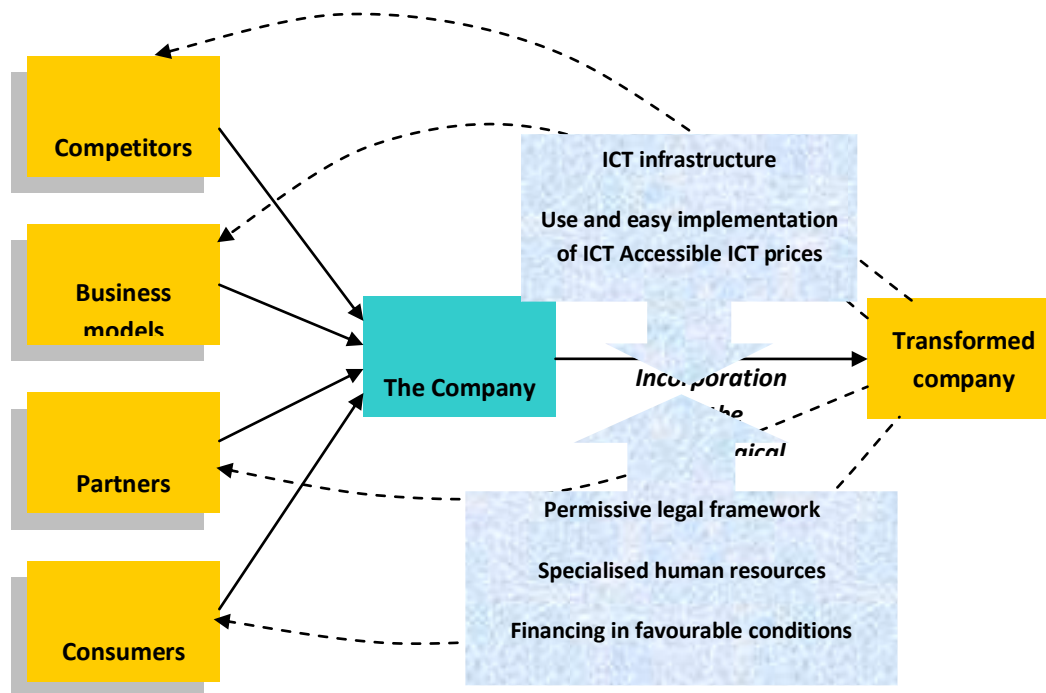
Globalization, with all its advantages and challenges, forces companies to restructure their activity in order to expand their production and sales in other countries, as well. In our opinion, the **factors that determine a company to consider the improvement of its activity** are the following:

- *competitors*: it is a harsh competition both on the local and international markets, as a result of globalization; national markets can reach saturation, forcing the company to move to new growing markets;
- *business models*: companies notice the necessity to reduce costs, seeing the profitability of other actors in the economic environment (through easier access to information, in the context of globalization);
- *business partners*: foreign companies cooperating with an organization can force it to adopt various technologies and business practices;
- *consumers*, that can require products or services offered by the company on other markets except for the traditional market.

One way to penetrate the new markets, to manage and coordinate the activities at a transnational level is the *exploitation of the technological changes' advantages*. Among the technologies with an impact on the companies' activities, the information and communication technologies are the most important – being, as it was shown above, cheap and easily enough implement.

As a result of the incorporation of the evolutions of computation and communication technologies in their activity, more and more companies become global. They attack the international markets, externalize a part of their operations through partnerships with producers and suppliers “across the seas” and open subsidiaries all over the world.

**Figure 1 The impact of globalization on economic organizations**



According to what has been ascertained above, we can notice that the dependences between globalization and economic organizations, and the information and communication technologies have the shape of a **cycle** (as seen in Figure 1), with the following phases:

1. *various external* (competitors, partners) and *internal factors* (the necessity of an efficient and profitable activity), whose action is strongly intensified by globalization, force companies to adopt ICT;

2. *technologies are incorporated in the activity of the companies in various ways, according to time and technological process* (the increase in the number of computers, their connectivity to the network, implementation of EDI, the transfer of the company's activities to the Internet, the adoption of ERP solutions, of wireless communications, etc.);

3. more and more companies that improved their performances by means of the incorporation of ICT are becoming global, turning into competitors, partners or models. They act as factors and attract more and more companies in the process of globalization. Their offer trains consumers as well, modifying their preferences and turning them into factors that influence other companies.

In our opinion, the adoption of technologies capable to turn the company into a global organization is influenced by a series of **factors**:

- *access to infrastructure* (telecommunications network, Internet) – where a proper infrastructure is missing, the transformation of the company is impossible to achieve;



- *accessibility of the technologies' prices* – the moment of transformation of a company depends on the relation between its available finances and the cost of the technologies it needs;
- *the ease of the implementation and use of technologies* – too complex technologies will be difficultly adopted by the company;
- *permissive legal framework for the ICT* – many activities in the information and communication area need support from Governments (the support for the activity of software experts, actions for the elimination of monopolies, etc.) in order to have an accessible price for more and more companies;
- *availability of the human resources* accustomed with the technologies in the company's field of production;
- *availability of the financing resources* at prices which allow investments, etc.

The globalization cycle suggested by us reduces the duration once technologies are evolving. Currently, more and more organizations expand their activity beyond their current markets. The more the companies transformed into global companies, the more the organizations likely to be “recruited”.

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