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IT&C during the Crisis

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Abstract
The development of the IT&C has been exceptional in the history of industrial changes and the telecommunication revolution leads to a decrease of the price of telecommunication services and equipment. The huge volume of information change the way of functioning of the markets, restructuring of economic activities and to opening of new opportunities for creating wealth by exploiting the available information. The analysis of informational society during a crisis period implies examining the specific philosophical and methodological problems that appeared while using them and especially the philosophy of the Internet, the philosophy of principally open systems.

Keywords: telecommunication revolution, restructuring of economic activities, exploiting the available information, functioning of the markets, a crisis period, open systems

JEL Code: M21, O32, K00

1. Introduction

The informational society means a set of rules, a new organization, a new economy, which have as a central element the convergence of three key factors: informational technology, communications and multimedia production. Moving towards the informational society implicitly means adapting the new economy on the current state of the society, which supposes a bipolar approach:

- at the level of the developed states, of the capitalist societies that have a functional market economy and in which the legislation is clear and flexible
- at the level of the developing countries (including Romania) which are now in the stage of transition to the market economy, going through a process of changing the role of the state.

The rapid development of the informational technology from the last years had an increasing impact on the society and on the global economy, bringing forward the fundamental changes of the production and distribution models, of the commercial conditions, of the occupying of the working force and of the everyday life

The premises of the informational society are to be found in its characteristics, which are expressed from a couple of perspectives, from global to individual ones:

- From a political perspective, the informational society is democratic;
- From an administrative point of view, it offers development possibilities for businesses and public administration;
- From a social point of view, it offers the population easy access to education through the development of the informatics and communications infrastructure;

- From a juridical point of view, it modifies the nature of work, creating conditions for deploying activities specific to the informational age;
- From an economical point of view, it determines increasing the potential of businesses and of the labour productivity;
- From a cultural point of view, it is a society based on knowledge, ensuring the consecration of the human values (tradition, religion, interhuman relationships);
- From an individual point of view, it allows exploiting intelligence with small investments.

2. The analysis of the new economy

For the new economy, important standardization issues concern questions like who determines the network norms, who decides on domain names, how is the compatibility between software programs ensured or how can new improved technological advances substitute obsolete, but still widely spread practices. The overriding principle to answer this question should be the desire to guarantee open network access and open electronic commerce practices. This means, that the use of existing business approaches can yield the benefit of common standards while the possibility of introducing enhanced applications or processes limits the monopoly power of the established firms. The frequent interaction between market participants encourages the formation of uniform standards within networks and e-commerce in a gradual market oriented approach.

The analysis of the current informational society during a crisis period implies studying and developing of new informational and communicative technologies, as well as examining the specific philosophical and methodological problems that appeared while using them and especially the philosophy of the internet, the philosophy of principally open systems.

The question is how to build trust of consumers to e-Commerce and increase security of the Web? Building of trust in e-Commerce is not only a technological or judicial problem. It is related to overall strategies of Internet shops, branch organisations, as well as state authorities. In many countries, apart from branch organisations, that are like the Internet self-government, special state committees for building trust were established (e.g. USA, UE, Singapore), which should help in quick and sound development of e-Commerce.

What the State should do for building trust and security?
Main tasks of state bodies are:

- Law regulations, which create friendly environment, where minimum of consumers. Laws, especially concerning privacy as well as security, are protected by state.
- Promotion of proper behaviours, credibility of Web Sites and culture of security within the Web, what is especially important for private users.
- Big companies feel danger and spend millions dollars for IT security - expenses for IT security and business continuity grow at 35% yearly (Ernst&Young). After 11th September, number of organisations having business continuity plans during the system outage strongly increased (Ernst&Young 2003). Bigger problem is security of private users. It is a problem of lack of money as well as knowledge of proper behaviour.

The informational society based on knowledge means more than the progress of technologies and applying informatics and communications, it involves also different dimensions: *social* (with an impact on continuous learning), *environmental* (with an impact on using resources and protecting the environment), *cultural* (with an impact on conservation and development of the national and international heritage, promoting pluralism, the protection of minors, the development of the multimedia industry and of the production with informational content) and *economical* (by developing new paradigms of the digital economy and of the new economy based on knowledge, innovation, entrepreneurial and managerial culture, education of the citizen and of the consumer).

Electronic commerce has, in a broad sense, a much deeper impact upon the evolution of the business and encompasses, in fact, not only the new commercial acquisitions, but also the total amount of activities, which support the marketing goals of a company, and which can include, for example, advertising, sales, payments post-sale activities, clients oriented services etc. As a result, the range of services, which supports and lends assistance to this new business field, has been expanded. These services refer to the Internet suppliers, to the security systems and the electronic signatures, to the on-line transactions or the shop networks, as well as to the services of a more general nature, such as consulting, web design, site creation etc. This evolution has a major impact upon economy as the creation of new companies, the diversification of the existing ones and, especially, the potential of the labour market and its future degree of employment are concerned.

E-commerce illuminates differences that may exist between products, industries and countries, there by highlighting the need to reform inconsistent regulations. While e-commerce can dramatically reduce some production costs, it does not offer a "friction free" environment. Rather, owing to new costs associated with establishing trust and reducing the risks inherent in this type of activity, it requires new intermediaries. Widespread "disintermediation" (producers selling directly to consumers without aid of any intermediaries) is not likely, but the nature of intermediary functions is expected to change. The translation of cost reductions into price reductions is not automatic. It is contingent on sufficient competition. Currently, price reductions attributable to e-commerce have only been evident in a few sectors However, the lower costs associated with e-commerce should lead to greater product, market and international competition, especially in services, and thus to greater price competition. It is clear that electronic commerce will change the structure, if not the level, of pricing as more and more products are subject to the differential pricing associated with customised products, fine market segmentation and auctions, and as the ease of changing prices increases.

3. Direction of the knowledge

The new economy suppose e-commerce is transforming the marketplace by changing firms' business models, by shaping relations among market actors, and by contributing to changes in market structure. Given the dynamic nature of these processes, the impact of electronic commerce will be firm-, sector-, and time-specific. Even if cyber-traders do not present a new commercial paradigm today, they play a catalytic role for other, more traditional companies that are entering electronic markets. Key market actors can thus contribute to the evolution and diffusion of e-commerce by forcing e-commerce solutions in sectorial and national contexts and, particularly, on suppliers. Electronic commerce does not always lead to greater market competition, but it changes firms' competitive advantages, the nature of firms' competition, as well as the market on which firms compete. The open, and potentially global, nature of electronic commerce is likely to increase market size and change market structure, in terms of the number and size of players and the way in which players compete on international markets. However, the extent to which firms can reorganise in the new electronic environment will crucially depend on the flexibility and adaptability of the work force. The impact of e-commerce on the marketplace will also depend on the existence of a critical mass of consumers. A novel aspect of e-commerce is the emergence of virtual communities in online networks. E-commerce favours the combination of streamlined business processes, flat organisational hierarchies, continuous training and skills acquisition, inter-firm collaboration, and networking. All these elements contribute to a favourable environment for innovation and improve performance.
Two main classes of vectors of the knowledge society have been identified: technological and functional vectors.

The technological vectors of the knowledge society are:

- The Internet, developed by geographic extensions, using transmission bands up to the largest possible, switching from one communication protocol to another, up to incorporating every institution, home and citizen in the network
- The technology of the electronic book, different from the internet book, although its distribution is done not only by Internet but also by CDs
- Intelligent agents - expert systems with artificial intelligence used for data mining and even knowledge discovery
- An intelligent environment for people's life and activity
- Nanotechnology and nanoelectronics (which will become the main physical support for processing information and also for many other functions, not only in the area of the knowledge society but also in the consciousness of the society.

The functional vectors of the knowledge society are

- Knowledge management for enterprises, organizations, institutions, national and local administrations;
- Management of the moral use of knowledge at a global level;
- Biological and genomic knowledge;
- Protecting the environment and ensuring a lasting and sustainable society through specific management of knowledge;
- In depth knowledge about existence;
- Generation of new technological knowledge;
- Developing of a new culture of knowledge and innovation;
- An educational system based on informational society methods (e-learning).

The number of functional vectors will increase because more and more branches of activity will become more dependent on knowledge. The penetration of informational technology is more significant because it draws financial resources from the university system and other educational systems. It should also be noted the relevance of the e-health sector, because the population uses Internet to search for information about health and the savings brought by such systems are felt by the patients as well as by the medical system. It can be also mentioned the improvement of the services of e-health through a better evidence of the history of the patients, the improvement of their awareness and the decrease of doctor appointments.

Both the public and private sectors need a fuller understanding of the requirements for fostering confidence in electronic markets, particularly among consumers. E-commerce and other information and communication technologies reduce the importance of time as a factor that dictates the structure of economic and social activity. It both raises the potential of saving time as consumers shop more efficiently, but also could reduce leisure as the technology provides a continuous electronic link to work. Regardless, many find that the pressure to perform tasks quickly is increasing. Linked to this is the broader question of the ability of policy-making apparatuses to accommodate. In spite of its complex and multidimensional nature the e-commerce should be approached with complete seriousness by the political decision factors as well as by the business community in Romania if there is wished the capitalization of the opportunities that it is opening in terms of economical growing, of competitiveness and integration.

The gains related the productiveness and efficiency generated by the e-commerce on the economy ensemble are so promising so that practically any attempt to ignore this new channel of business life development would be against productiveness and the pressure exercised by the big companies do not let to the Romanian companies other option than the one of the fast integration in the new electronic environment, if they want to maintain their competitiveness. The Romanian companies that are involved or that are intending to involve in the international commerce and want to derive gains from globalization must accelerate the incorporation of the new technologies and e-commerce in their business strategies. As the result, by the adopting of

the electronic commerce the Romanian companies have the possibility to be part to the global production and distributing systems. At present, this seems to be the most efficient solution for the integration in the world economy and for the rendering more valuable the advantages of the present globalization wave.

A more rapid adaption supposes an increase in the individual trust in the organization and in the society, while learning the necessary abilities for accessing and efficiently using information. The technological evolution constitutes the origin of the informational society based on socio-temporal independence of the human activity, which would offer multiple economical, social and political possibilities, whose anticipation can inevitably be a problem.

Developing digital technologies, in the context of a flexible work force in EU, of the market capital and of reducing the legislative obstacles in the way of competition, lead to an increase of productivity and offer the possibility of a lasting, strong and noninflationary economical development. This economical development has to be harmonized with the promotion of the cultural heritage, combining the digital culture with the advantages of telecommunications.

The change of the nature of work and of organizations (which evolve in the same time as the society and are the main mechanism for evolution) imposes the necessity of performing activities as collecting, integration, memorizing, changing, creation and exchanging information. Work proves to be more and more discretionary, being harder and harder to draw the borders of the labour activities. Routine work has become a rare thing, while there is more and more need of teamwork, and the individual division of labour cannot ensure the workflow of all the activities.

Disaggregation of information requires cooperation, while the excess of information could surpass the cognitive capacity of the employee. The evolution towards discretionarily does not imply the fact that the collective informational work is reserved only to professionals and to specialized services. More or less clear, this activity is also present in the productive environment where the production, the control of quality, the management of stocks and the management of the society generates multiple informational flows. In this context, the employees are to manager, integrate and do the acceptance, to obtain and communicate the information, all these becoming even more acute under the conditions of the current crisis.

The pessimistic image of a society in which individuals communicate and interact exclusively through a virtual environment should never become real, because the initiatives in the area of teleworking have shown that the social contacts can endanger the whole program of implementing the informational society.

4. Social interaction through IT&C

The need for social interaction, physical closeness and human affection will win over the electronic communication. Information technology will allow, through the new communication channels, the possibility of communicating and working. People will be capable of choosing the most convenient environment to suit the scope of their action, with the interaction partners, the need of information etc, in many occasions choosing the direct communication. Nevertheless, the information and communication technology (IT&C) will allow individuals to adapt to different social hypothesis (family, religion, and work, speeding the spare time, civic responsibilities etc, and leading to growth of the individual's personality). The ethical and legislative problems are not to be neglected taking into account the harmful information accessible through Internet, such as child pornography, terrorist activities, murder techniques, suicide methods etc.

The community of Internet users is as volatile as an object of study and, at least from a multicultural perspective, it does not seem to suit the classical study methods. Most discussions

on the infrastructure of information disregard the fundamental aspects *of stocks and flows* of information, *human capital* and *organizational capital*. That is why a special attention should be given to creating, maintaining and improving these three entities, which should be added a fourth one, the *cultural capital*.

Implementing the informational society supposes adopting a good management of IT&C use. Using IT&C on a large scale and, in consequence, large investments in this field, have led to a „paradox of IT&C productivity", which record a growth under potential and, as a consequence, can lead to the possibility of not recuperating the investment. This can happen because there exists a difference, sometimes quite a big one, between the „technology offered" (the one that is bought and installed) and the „used technology", (what the employees get to use, depending on their level of education, culture, adaption).

The computers not the Internet themselves cannot make an economy more productive or more competitive as well as the e-commerce is not a substitute for the export strategies. The on-line access to the markets and information do not themselves solve the ensemble of the issues related to the companies' competitiveness. Radical productivity and competitiveness bonuses may be expected providing that Romania shall built its capacity to exploit in a real manner the potential of the new IT&C and of the e-commerce to make more efficient the economical processes. Making valuable the new opportunities inherent to the e-commerce in terms of efficiency as well as the globalization advantages by a more intense involvement in this commerce is not an easy task, because it depends on a huge variety of factors and conditions and the expected positive changes shall appear in time. Romania should have to confront numerous challenges and to cross over the many obligations that need to be approached concomitantly on more domains: economical, social, judicial etc.

Romania must develop and consolidate its technological and informational infrastructure (facilities of telecommunications, IT&C equipments, computers, etc.) needed by the acceleration of the diffusion of the e-commerce at the level of the whole economy. This means, firstly, the extension of the access to the telecommunications and Internet services at the level of prices, quality and speed supposed by the e-commerce. Related to this, Romania should develop the last technological progresses as well as the positive international experience related the reforms in the field of the regulation the telecommunications and the other infrastructure services.

By exaggerating the role of IT&C as an abstract notion, one eludes one of the modern paradigms of the anthropocentrism of the enterprise. All organizations that have bought and implemented IT&C have hoped to rapidly and deeply transform the work style of their employees, to get a significant increase in productivity and profit.

Enterprise management has the task of using IT&C to the maximum extent, but „the paradox of IT&C productivity" can only be explained by the fact that the profit brought to using correctly and as completely as possible, of IT&C and not technology by itself. Most of the times, hyper modernization in IT&C is not followed by the management of its use, either due to lack of knowledge or due to minimizing the importance of management of the human resources.

Managers believe that offering a set of useful instruments, of some performing electronic equipment, of user-friendly interfaces, will lead to the expected profit without many problems. However, all these are subject to failure without an adequate training, by ignoring the psychological profile of the individual and by not knowing the human process of accepting the informational development. Lately, more and more managers are concentrating their resources, attention and effort to correctly implementing IT&C, at the right place and time and, more importantly, for its correct use.

Many executives have become wary of hidden costs based on prior experiences with data warehousing and other enterprise application initiatives and are putting BI vendors to the test to disclose as much information as possible about the expected costs associated with their solutions. Although business intelligence (BI) is becoming a higher priority in many organizations, adoption remains a challenge, particularly in the SMB world (that of small and midsize businesses) as these companies frequently will not have the internal IT resources to tackle the complexities involved with implementation and support.

The cost associated with this data complexity is also top of mind for SMBs. The top business pressure causing SMBs to stand up and take notice of the costs associated with BI is the need to improve integration of data from multiple business applications. Keeping a firm handle on BI project costs from start to finish has enabled substantive cost reductions for the top performing SMBs.

Organizations spend almost two thirds of their budgets allocated for training the employees on transporting them and on the facilities necessary for the trainings. Moreover, the indirect ones, generated by the lack of productivity during the training period, double the direct costs. That is why the weaknesses of a continuous training initiative are sensible enough for compromising the whole process but the complete on-line training solutions are promoted to overcome the shortcomings and the immediate and long-term effects.

Currently, many organisations use information technology in one form or another to manage their knowledge. This is primarily used to store and transfer explicit forms of knowledge. However, information technology is not just about computers. Tools such as video-conferencing may also be useful for the transmission of tacit knowledge. Capturing tacit knowledge and then storing it is vital for effective knowledge management. Some organisations have developed software to encourage social interaction in organisations in the hope that a unique forum for tacit knowledge exchange will be established.

Knowledge management IT&C expanded in the mid-1990s. Subsequent knowledge management efforts leveraged semantic technologies for search and retrieval and the development of e-learning tools for communities of practice. More recently, the development of social computing tools, such as blogs, has allowed more unstructured and self-governing approaches to the transfer, capture and creation of knowledge, including the development of new forms of communities and networks.

In the same time, IT&C can be a threat to employees, by introducing automatisms, a dependence of technique and the intra and intercontinental migration of the work force, especially in the European Community. Introducing and exchanging electronic data will lead to a massive reduction of services, as for example the classical mail and, implicitly, to freeing work force that can grow the unemployment if there are not any absorption programs. Multimedia and computer networks introduce flexibility with no precedent in the classical education, once there is independence in time and space of the learning activity. The disponibillity of information and the role of communication in the local and global networks will lead to the appearance of a variety of facilities connected to the educational process.

5. Conclusion

The new economy has to be understood in the sense of transforming the economic activities, which takes place while the digital technologies solve the problems of accessing, integrating and storing information easier and cheaper. In this context, there are at least 4 ways of describing the new economy:

- digital economy;
- network economy;
- crisis economy;
- informational based economy.

Currently IT&C is the most important industrial sector of transition from the society based on mass production towards the information society characterized by globalization, flexibility and mobility the unique impact of IT&C consist in the role that it plays in transforming the economy and the society as a whole. The global communication technologies and networks transform the economic activities, leading to an increase of productivity, creation of new economic opportunities and the appearance of new jobs. This perspective is valid for developing countries, like Romania, but also for developed states, only when there exists a permissive legislation for exploiting new opportunities.

The ever-increasing interest for demonstrating the impact, supposed to be positive, of ICT, of Internet, of society in general, can be explained by the need to justify the urgent and massive investments in this field and the openness to such services by the international financial institutions. Studies and researches from the last years talk more and more of the challenge of *biometry* as an opportunity for securing information. Biometry offers an alternative for identification in a network by measuring human body parameters, and this identification has the advantage that the attributes of the body cannot be forgotten, lost or transferred easily from a person to another and is hard to falsify.

Each IT&C has its own advantages, but they are too expensive to be deployed at large scale and are not sold commercially. Consumers are reluctant to adopting this technology if they have to pay too much for it and the benefits do not reward the expense.

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