

Coming of the Global Knowledge Society: Prospects and Promises

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Introduction

Information is becoming one of the vital necessities (if not a basic need) in the contemporary world. With globalization and the growing interdependence of human life, reliable and easy access to information becomes crucial for people who have to adapt their livelihood strategies to continuously changing conditions. Access to information is a prerequisite for survival in the modern world that is increasingly characterized by global economic and political dynamics. Access alone is, however, not sufficient. Making adequate use of information (which involves critically organizing a set of given data), transforming such a string of information with the data (again, critically and purposefully organizing these with value-added statements) in order to use it productively at the end -- is just a simplified form of a chain, of what might be called a "global knowledge society".

Creating knowledge requires a set of critical competence, continuum of creativity and capturing emerging opportunity. Being empowered involves being capacitated to making meaningful use of information in view of improving and sustaining one's livelihood. Empowerment, therefore, is a simple prerequisite for "knowledge-path" and sustainable development as the fundamental paradigm shift for emergence of a global knowledge society. At the current state of challenges and time of deepening global economic crisis when the overall welfare of many countries is at the risk of long recession and declining standards of living the "knowledge-path" could and should provide certain viable solutions.¹

Flow of Global Information -- Creation of Knowledge Society

Most agree that information (with meaningful data) and knowledge (with meaningful facts) are crucial assets and valuable decision making tools of the global society. Knowledge is increasingly produced within the private sectors, in fact mostly by rather small, agile, flexible and forward looking entrepreneurial firms, or by highly creative individuals bringing about new inventions, new services, or solutions to mankind's problems. With the growing tendency of privatization, knowledge and information are being transformed into a private good for exclusive use. The losers are those that do not take advantage of valuable and useful information, which promise market gains, or even huge profits. And the profit, as a proverb says, is "applause", a reward for taking care of the customers. The „digital divide“, is in part the manifestation of this complex dynamism. It reflects the persistent inequalities between the "haves" and the "have-nots". This divide stands for the constrained access to knowledge and information sources for the poorer segments of the global society.

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¹ Swiss Development Corporation (SDC) in 2003 and edited by W. Fust, Director SDC. Full text on web: www.deza.admin.ch/ressources/resource_en_23628.pdf

Coming of the Global Knowledge Society: Prospects and Promises

The idea of the knowledge society presents a vital alternative to many orthodox beliefs regarding the organization of social, cultural, economic and political life. With the formation of a global market and institutions there is a need to examine how interests determine the use of information and communication technologies and intellectual property.

It should be mentioned at the outset that it is very difficult to compare knowledge to other commodities. Knowledge has multidimensional characteristics and properties, quite different from the outputs of the industrial model. This process may have strong non-linear effects with deep social and political impacts. This is why the so-called "digital divide" is in essence a social and economic divide that could get aggravated by the mere (and not adequately harnessed) power of information technology, (IT). Because of this deep social impact, a knowledge society has both political and economical dimensions.

On the one hand, globalization allows for and benefits from growing returns, snowballing effects and competitive gains, which in some cases do lead to obvious (and natural) monopolies. This is the "Winner Takes All" effect, at the world, or global level. On the other hand, globalization does not always answer, nor respond to local needs. This is what some call the "Global Gainers - Local Losers" effect. In other words globalization does allow enormous gains for the global winners, but one suspects that if no proper action is taken, it aggravates the situation of local losers in many ways, especially for those not familiar with rules of the game nor capable to extract the rent or profit from the inevitable market change.

Universal Access

Some examples might be useful. Internet access disparities are considerable and global progress, though clearly taking positive strides, is still rather slow. Although telecom privatization and deregulation have made traditional operations more efficient, they are not a guarantee for local universal access to the Internet. Furthermore, the very nature of telecom industry is more favorable to those who can impose revenue terms because of their advanced technology, high-speed Internet backbones and net-concentration, developed over a period of time. This advantage has allowed a few dominating operators to exert pressure on others to shoulder their access costs, making it even more difficult to provide the most basic services – especially in developing countries, but also many emerging market economies in the world.

Market is primarily based on competition and associated with it financial, institutional as well as legal underpinnings. Hence the strongest markets emerge, with a non-linear effect: the fall of weaker competitors creates and enables monopolies or oligopolies to thrive for a given period of time. Problems of monopolies are even bigger in the economy of networks and software with the very strong effect of growing returns. This non-linear effect calls for regulations such as the well known U.S. Sherman Antitrust Act or the Treaty of Rome. This is why the regulators have an important role to play. Though it is more prudent and manageable to apply local regulations rather than a global one. If monopolies do threaten "fair competition" provisions in the US, or in the EU legal system make it possible for the regulation to address these concerns.

Another, perhaps even more important strategy for development of knowledge resources is to increase the volume of public domain information available on the Internet. To this effect the governments and publicly funded institutes such as universities could be equipped and obliged to make their information available in the public domain. The global public domain of information could be freely available, at no cost, to everybody, but should also be protected by a specific body such as the General Public License (GPL) used for instance to protect against predators.

Also, one should consider with the utmost attention the actual trend to patent almost anything. Through the patenting of software, all intellectual methods may be patented in the future, such as business methods, education methods, which are already granted more and more patents in the US and Japan. In the US, for instance one can already patent business methods, or even learning methods. The European Patent Office will likely start considering how to grant such patents in Europe, with the help of American multinationals that will probably suggest new ways to consider a business method as the technical solution of a technical problem. This should provide better incentive structure for people to develop new patents and new inventions.

Until now, we have witnessed a continuous and relatively unchallenged international move in strengthening intellectual property rights, (IPR) laws. It is prudent to open a very wide international debate on the very goals that should be pursued in terms of intellectual property. It is a philosophical and political debate that should not be obstructed by mere juridical constructions, and should be conducted prudently in order to search for the "global common good". For instance the viewpoint of developing countries regarding access to knowledge should be particularly taken into consideration if we are serious about bridging the gap between info-rich and info-poor members of the global society.

With the advent of the knowledge society also the opportunities for life-long education will become one of the most important requirements for the future. Education systems with their traditional approach of fixed courses to make us ready for our adult careers will no longer suffice to meet the demands of the knowledge society and economy. Due to accelerating rate of knowledge accumulation, the education we gain in a given university becomes quite quickly obsolete shortly after we are working, unless we continue to learn. Therefore people will have to have more avenues to obtain continuing formal education at various stages of their careers. This is where the strength of the Internet emerges to facilitate, and an on-line education could contribute the most at the least cost. Education investments in general should not only be raised, but should also include provisions to provide facilities and opportunities for lifelong education along with the required level of information and communication technology, (or ICT) support. Telecommunication and internet service providers, (ISP) could assist in these efforts and promote the development of their own future markets by establishing competitive rates for Internet access in schools, academic institutes and public libraries. Such schemes, sometimes known as "e-rates", have been successfully promoted in several countries, most notably in Europe and the USA.

In a wider sense, the national policies to promote public domain information and to ensure that they provide information and applications to improve education, health, and environment and government functions should be considered a priority. The availability of

Coming of the Global Knowledge Society: Prospects and Promises

public domain and other information is an indispensable investment in education and therefore in the development of a knowledge society.

The importance of the "public sphere" for education is central to ensure re-usability of contents, methods and tools, interoperability of services, quality, and the harmonization of curricula. Educational systems and other public service organizations will have to work closely with industrial concerns to develop standards which are flexible, open, freely available, and meet the needs of both industrialized and developing countries.

The European Context: The Lisbon Strategy and Bologna process

In March of 2000, at the European Council meeting in Lisbon, the Heads of Governments of the Member States of the European Union decided to transform the area of education into the most dynamic and competitive global knowledge-based economy. The European Council has set out a 10-year strategy "to make the EU the world's most dynamic and competitive knowledge-based economy by 2010."² According to this strategy, research and development (R&D) is one of the main sources of innovation and innovation is one of the key drivers of productivity, which in turn drives cross-country differences in per capita income and growth.

To this end, the efficient and lifelong learning systems, Information and Communication Technologies (ICT), along with institutions and funding of innovative (R&D) are all essential components of the National Innovation System (NIS). The foremost aim of knowledge dissemination is securing sustainable growth and competitiveness by stimulating investment in R&D and in appropriate learning systems, which have a key role in developing a country's absorptive capacity--the ability to identify, assimilate, and exploit knowledge from both domestic and external sources.

Therefore, policies that support the development of inter-firm linkages, and the capacity to absorb new knowledge³ that can be gained through linkages, are crucial elements, which would provide for the following:

- Sustainable development,
- Improved social conditions
- Generation of employment,
- Political and social harmony,
- Catching up with the United States' level of economic development.

These tasks, as determined by the European Council in Barcelona, to increase investment in research and development, R&D, to 3% of gross domestic product (GDP). In 2002, the

² European Commission, *Raising EU R&D Intensity*, Report 2003.

³ A. Krasniewski, *Proces Bolonski: Dokąd zmierza Europejskie Szkolnictwo Wyższe*, (Where to is Heading European Higher Education), MEN, Warszawa 2006, s. 24

countries of the European Union earmarked for this purpose on average 1.9% of GDP⁴ in Poland in 2007 was planned to be 0.33% of GDP (in 1999 it was only 0.5% of GDP)⁵.

Implementing the Council of the European Union decisions and those of the European Commission of March 2000 is often called for short: the Lisbon Strategy, which aims to, inter alia, the creation of the European Research Area (ERA). In parallel, and as a result of the Bologna Process it is expected that the European Higher Education Area will be created⁶. In 2002, the European Commission drew up a document setting out tasks for the European educational system. A year later drew up another document about the role and place of higher education in society, economy and development of modern knowledge⁷.

In March 2005 the European Council reviewed the level of implementation of the Lisbon Strategy. The document has emphasized that the aims are pursued in a sluggish manner, with a significant delay. Therefore, priorities have been redefined and the following have been considered as leading priorities:

- Promoting economic growth,
- Generating higher employment.

Construction will require the creation of approximately 700 000 new jobs in science and higher education by 2010. The European Council asked the governments of individual EU member states to take actions that would allow universities to use their potential to the maximum. Especially as it regards human capital in achieving the objectives of the Lisbon Strategy and the Bologna Process, which lead to the development of socio-economic growth of countries of the European Union⁸. As some of the essential factors in promoting economic growth both development of knowledge and human resource mobilization were considered paramount in contributing to the technological progress.

Universities and research organizations should serve the purpose to the best of their ability.

According to J. Józwiak⁹ implementation of the Lisbon Strategy at the same time requires the development of higher education, including:

- Raising the standards of quality,

⁴ Ibid, p.24.

⁵ www.nauka.gov.pl 2007.04.12

⁶ www.bologna-bergen2005.no

⁷ Detailed work program on the follow – up of the objectives of education and training systems in Europe, Council of the European Union, 20 Feb 2002, and The role of universities in Europe of knowledge. Communication from the Commission, European Commission, 5 Feb 2003.

⁸ A. Kraśniewski, Proces Boloński ..., (Bologne Process), op. cit. p. 25.

⁹ J. Józwiak, Standardy i procedury akredytacji. Przykłady rozwiązań w Europie. [w:] materiały II Seminarium „Zarządzanie Jakością Kształcenia w Szkole Wyższej”, (Standards and Procedures for Accreditation: Examples of Solutions for Europe, in: Materials of II Seminar” Managing Quality of Education in High Education”; UJ, 2007

Coming of the Global Knowledge Society: Prospects and Promises

- Increase the attractiveness of the offer European Higher Education Area (EHEA),
- Unification of standards and procedures EHEA,
- Standardization within Europe,
- The creation of the European network of accreditation bodies.

The relationship between the implementation of the Bologna Process (1999) and the Lisbon Strategy (2000) is obvious, particularly in higher education, where science and education go hand in hand. Therefore, the vision of a Europe of knowledge associated with each other includes:

- The European Research Area,
- The European Higher Education Area,
- European Space Education,
- European Area of Lifelong Learning,
- European Vocational Training.

These inter-linked fields and areas are constantly upgraded and enhance knowledge in order to create an integrated, more uniform Europe.

Organization based on knowledge

A man desires to learn to know, wants to rule, to possess practical and abstract knowledge. The desire to gain knowledge lies in the depths of human nature. Man wants to know, and therefore seek deeper knowledge. Access to knowledge, its practical utilization and application is not, however, all that simple, nor at all easy. If information or knowledge could be simply a matter of passive accumulation, huge and learned libraries would be the wealthiest. Not penetrating the reasons for this state of affairs, we should assess and emphasize the role that knowledge plays in the lives of individual people and societies.

Knowledge based on facts, figures and events is a prerequisite for efficient and effective operations. In the epistemological sense, knowledge, which is the sum of the information and related relationships, comprises the basis of wisdom, which can not be simply captured, such as data and information. Wisdom, as once Benjamin Franklin quipped, is “a common sense stretched to an uncommon degree”.

In "everyday" life, knowledge is meant to be a sum of experience gained, with a set of critically transformed information, along with data organized in a meaningful and pragmatic fashion. In philosophical terms - knowledge is a set of reasonable beliefs, convictions, and attitudes. According to Karl Popper knowledge (in scientific terms) is meant as a set of reasonable (empirically, or logically) mathematically proven statements, which may be treated,

or verified by experiments and/or criticism¹⁰. It may enrich the knowledge, that it is necessary for making decisions. We can classify and present accumulated knowledge by, among other things:

- Natural language,
- Ontology,
- Survey data,
- Mathematical logic,
- Semantic networks,
- The production rules,
- Graphical concepts,
- Approximate collections,
- Networks of information,
- Framework and scenarios,
- Genetic algorithms.

In particular, an important place in the organization of knowledge occupies the effective management of capacity and application of human intellect and skills in creating value added through the use of databases and data warehousing, online resources, information technology, computer programs, procedures relating to: the design, manufacture, sale, operation, relations with customers, potential regulation. Knowledge is an important tool in any decision-making process. We must remember that there are no substitutes for sound decision making based on even imperfect knowledge. Contemporary knowledge management in the world of global competition, requires recognizing knowledge and perceiving interdependence of different phenomena and processes¹¹. Conditions of growth and profitability of the organization is to enhance knowledge transfer and learning by permanent workers intelligent organization.

B. Nogalski¹² included in the characteristics of intelligent organizations - the existence, or use of:

- Strategic management,
- Participative management policy,
- Free flow of communication,

¹⁰ M. Maruszkiewicz, „Społeczeństwo wiedzy?”, referat wygłoszony na seminarium doktorskim w Instytucie Społeczeństwa Wiedzy, „Society of Knowledge?”, a paper presented at the doctoral seminar in the Institute of Society and Knowledge, Warsaw, 18. 01. 2006 r.

¹¹ E. Skrzypek, Wpływ zarządzania wiedzą na jakość, [w:] „Problemy Jakości”, Impact of Knowledge Management on Quality, in: *Problems of Quality*, 1999, nr 11, s. 9.

¹² B. Nogalski, *Kultura organizacyjna, duch organizacji, TNOIK, Organizational Culture, the Spirit of Organization*, Bydgoszcz 1998, s. 17.

Coming of the Global Knowledge Society: Prospects and Promises

- The free flow of information,
- Climate of learning and self-improvement,
- The possibility of self-actualization,
- Development by senior management,
- Accounting management,
- The learning structures.

According to J. Koch¹³ modern organization must:

- Very accurately determine the purposes for which knowledge is collected and knowledge that is indispensable for its functioning,
- Identify the knowledge that is to collect existing knowledge in the organization and define its importance,
- Gain new knowledge, new competencies and skills,
- Develop knowledge,
- To allocate the knowledge of the organization,
- Make full use of the knowledge,
- Maintain the knowledge and evaluate its status.

Organization of knowledge-based features¹⁴:

- High competence,
- The possession and creating the experience, knowledge and skills
- Unconventional methods of working and thinking,
- Rapid adaptation to changes in the environment
- Difficulty in copying organizations.

Knowledge in the organization should meet the wishes, which include useful information. This may be the knowledge process - saying "how?" Or directories - providing answers to questions of "what?", Or historical - the information "it had before?"¹⁵

The importance of knowledge as a source of information in organizations is so large that it must be in the interests of its stakeholders. A.H Toffler believes that investment in knowledge pays off now and even more in the future, because it decreases the demand for capital in cash,

¹³ J. Koch, Innowacja a Rozwój Gospodarczy. Współpraca Naukowo-Gospodarcza, WCTT Politechnika Wroclawska, Innovation and economic growth. Scientific and Economic Co-operation, Warsaw Polytechnics, Wrocław 2001, s.121.

¹⁴ H. Simon, Jak lepiej wykorzystywać wiedzę w przedsiębiorstwie, [w:] „Zarządzanie na świecie”, „How to Better Utilize Knowledge in an Enterprise” in, World Management, 2000 nr 6, s. 30-31.

¹⁵ Knowledge Management Tools, ed. E. Ruggles, Butterworth – Heinemann, Boston 1997, s. 2.

which is gradually replaced by human capital.¹⁶ It is therefore necessary to manage prudently knowledge within the organization. A. Anderson has stressed that what he meant by knowledge management, was the process which has to identify, acquire and use knowledge to improve the competitive position of the organization¹⁷, and E. Skrzypek emphasizes that the processes included in the management of knowledge (and thus the information) must be defined, identified, described, developed, monitored, controlled and continually improved in accordance with the famous method of E. Deming.¹⁸

Society of knowledge

The knowledge society is a concept, which for brevity and clarity of presentation, may be considered as created from a combination of two terms:

- The economy based on knowledge and technological progress,
- The information society, with embodied innovations and inventions.

It is therefore a synthesis of "the economic society" and "information society" - hence the great importance of information in a knowledge society. Economy based on knowledge is a following economy:¹⁹

- Directly based on the generation, distribution and use of knowledge and information to organizations that achieve a competitive advantage;
- A new type, in which the main potential is created by knowledge, rather than capital in the industrial economy, as land and labor was crucial in an agrarian economy;
- The incremental access and creation of knowledge, whose use is becoming a strategic factor in development;
- The success based on the knowledge, information, intellectual capital, quality work, modern technology and science, skills, experience, passion and purposeful activities,
- In which leaders consist of knowledge-based organizations or institutions of learning, constantly increasing their capacity to create and remain creative,
- The post industrial knowledge society, in which the majority of employees work in the service sector.

¹⁶ A. H. Toffler, Budowa nowej cywilizacji, Creating a New Society, „Zysk i Spółka”, Poznań 1996, s.33-38.

¹⁷ E. Skrzypek, Zarządzanie wiedzą i informacją w procesie doskonalenia jakości w organizacji, [w:] materiałach z konferencji naukowej „Info 2001”, Managing Knowledge and Information During the Process of Improving Organizational Quality, UMCS Lublin 2001, s.121.

¹⁸ Ibid., p. 121.

¹⁹ E. Skrzypek, Czynniki sukcesu firmy, [w:] materiałach konferencji naukowej, “Factors contributing to the success of a firm, in materials from scientific”, a conference organized by „SUCCES 2004”, UMCS, Lublin 2004, s. 75-76.

Coming of the Global Knowledge Society: Prospects and Promises

In an age of globalization and market integration for the latter to prevail, will have to have an access to information and skills and among the most important factors of success are: knowledge, information, and intellectual capital, quality: work, processes and products. Therefore, the work, or labor, must include more and more elements of learning. The organization of the knowledge economy will increase their opportunities to participate in the creation of added value and its own future.

C. Mesjasz maintains that it is not possible to give an explicit or uniform definition of "information society", and therefore we may try to describe the information society by defining its specific characteristics, which include, inter alia, the following:²⁰

- The development of information technologies that enable significant change in production methods and management, transforming our daily lives;
- Development of the collection, processing and transmission of information as a reflective perception of the environment;
- Expanding the use of modern computer systems equipped with the so-called: "Artificial Intelligence" (AI);
- Development of new theoretical concepts of organization: the organization network, a virtual organization of social systems (complex adaptive systems),
- Accelerate the development of information technology, biotechnology and nanotechnologies that contribute to the "Support of the New World Order" ("Brave New World") based on the "info-nano-geno-vision", or the "info-nano-geno - fix ";
- Diminishing of the importance of "traditional" industries making products with low and medium level of application technology and the increasing importance of modern technology and knowledge-based organizations, using information in the creation and development of the competitiveness of enterprises ("new economics").

Mobile society of networking

Mobile society of networking is a combination of social networking features with those affording mobility. Generally speaking, it can be assumed that the networked society is characterized by the fact that each and every part, the significant economic, political, religious, scientific, etc., can effortlessly at any time communicate with each other, exchanging data and information in the form of multimedia. In contrast, mobile society is characterized by the fact that any substantial part of its economic, religious, scientific, and other segment can effectively carry out its activities and move in/or outside the permanent place of residence as well as in a stationary environment (in the home, at work, or any other public wireless-accessible place).²¹

The public network appears in the world of networks, where the network, which is a collection of interconnected systems (components), becomes a lever of social change and is

²⁰ C. Mesjasz, Wpływ społeczeństwa informacyjnego na ewolucję metaform organizacji, [w:] materiałach konferencyjnych pod red. A. Stabryły „Zarządzanie firmą w społeczeństwie informacyjnym”, Impact of Information Society on Evolution of Organizational Metaforms, in conference proceedings, ed. A. Stabryła “Managing a Company in and Information Society,” by EJB, Kraków 2002, s. 431-432.

²¹ Ibid.

accessible everywhere where there is a network for communication and data transmission environments. We must remember that the network changes the interaction patterns towards the "sward model, adaptability and speed of action, and not to seek to be ever bigger and expanding (i.e., Silicon Valley culture). At the same time, the network becomes a platform, or tools for organizing political movements, social and religious movements: feminist, green, separatist, fundamentalist, nationalist and other terrorist activities driving social change in either good or bad direction.²²

The man in today's world is a member of at least one network, which links people with the similar characteristics (i.e., religion, opinion, passion, hobbies, the hierarchy of values, profession, etc). As part of this network people can communicate with other players via the media on a variety of systems, such as health, education, insurance, law, and the rest. Virtually all processes can be seen in the category or the system as distinctive among other things: the structure, strategy, hierarchy and function²³.

Mankind may not yet be able to fully connect to these systems into the global network. Most people become the users of some network - for example, a member of a particular political party, or a certain university, or social, civic, or religious community - all abide by the rules occurring in these networks. The evolution of networked systems can be slow, or in special circumstances quite fast. The owner of the hotel may exchange the hotel chain to which it belongs and join one of existing networks, and remotely manage their hotel through the mix of fiber optic media and internet telecom providers. Uses of the mobile technology and platforms are based on the principles of communication, economy and efficiency, using the mix of facilities. The public network is the result of cooperation of three processes:

- Information Communication technologies (ICT) and media convergence,
- The restructuring on the economic structures in order to overcome the development constraints,
- Cultural and social movements in the developing world,

The mobility of the network society to decide, inter alia, the following components of the mobility of the network:

- Individuals and groups of people on the move, or working outside the state, or the place of work and housing,
- Artificially, mobile agents who operate on the network (i.e., perform orders of users on the Internet);
- Portable, electronic terminal equipment, which allow processing of information and communication (i.e., mobile phone, laptop, PDA, instant messaging, (IM), from 1 to 4 generations),

²² Ibid.

²³ As is the book by a well known Harvard author, A.D. Chandler's classic titled: Strategy and Structure- Chapters in the History of the American Industrial Enterprise, The MIT Press, p.480, 1969.

Coming of the Global Knowledge Society: Prospects and Promises

- Communication systems (networks), for example, a wide network connecting one network terminal equipment or terminal equipment super-network connecting different networks (3- rd generation and 4-th),
- Services available via mobile terminal equipment (i.e., implementation of the invoice).

In our contemporary modern market economy, as in many capitalist countries, which join the global community, are most clear in two sectors:

- The commercial market sector
- The public, nongovernmental sector.

The body of the economy based on social capital, functioning under the single roof, which is known as the society at large. In the present form of undeveloped sector, organizations often combine private and public capital. The basis of such social capital includes:

- Ethical principles
- Relationships between people and organizations (networking),
- Communication to the omni-axis society and economy, people and organization,
- To provide network created by people and organizations.

Technology and mobile platforms can support the construction and development of social capital because it is based on communication, which is the core of information and knowledge.

The emergence of the network leads to the closer integration of society because it includes growing parts of it, and the rest is covered by the existing available information. The emergence of the Internet has resulted in the explosion of information that does not require anyone to have permanent access to the stationary Internet. The implementation of mobile technology has reduced the importance of the scale of this phenomenon. The development of mobile social networking, to a large extent, enables the development of information technology and democracy that allows complete access to the information as a whole, not just the selected (it is more expedient). This progress in the democratization of social and economic life in the country and in the world means "to transition from the network, from access to property"²⁴ on the one hand, and the increasing importance of commercialization and symbolic (culture), on the other. This is a natural process of transition from a network covering the country, organization, or group of people connected with each other in competitive or co-operative networks, convergent or divergent.

24 A. Stabryła "Managing a Company in and Information Society," by EJB, Kraków 2002, p. 433-435