The Long Way of Knowledge Society

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I think, therefore I am. Our ancestors said Cogito, ergo sum, in a Latin form of René Descartes' expression "Je pense, donc je suis", in Discourse on Method (1637). The same did Thomas Davenport, when gave his book the title Thinking for a living. Probably he didn't prefer the direct form in English of the above mentioned expression: "I think, therefore I am", but one that in essence is more poetical and more anchored in the reality of the third millennium's early days, in the way that only thinking we can exist. The title is also a commercial one, because the previous ten books also basically referred to knowing or knowledge. They used the research done in the following fields: knowledge management, process management and innovation. The opening of his last book, a best seller of 2005, is also interesting. The author gives the first chapter the title "What's a Knowledge Worker, Anyway?". We could draw the conclusion that after so much effort, including a publishing one, the author remains with the doubt on the terminology so much used at the end of the 2nd millennium and the beginning of the 3rd one or leaves an open way to the next volumes. It is not by chance that there are voices that say he might be the next Peter Drucker. The last one said that the future society would be the knowledge society (see also Managing in the Next Society, 2002).

A well-known journalist, rewarded with three Pulitzer prizes, Thomas Friedman, is also printing and re-printing his last book in millions of copies, in more and more languages. *The World is Flat* was also published in the Romanian language, by Polirom Printing House, under the title *Pământul este plat*. The main idea is the same: by using the knowledge in a different way that until now, and with the help of information and communication technology, the ratios of success in business are the same everywhere, irrespective of the social or economic status of the country or person. Yes, the author speaks about a Globalization 3.0, in which the individual can compete with the large corporations. His knowledge, ideas and courage can launch him directly into the successful business world. We might be tempted to say that he is right, if we think about the business of the two young Estonians, Niklas Zennström and Janus Friis, known world wide under the name of *Skype*, which reached a market value of almost 3 billion dollars, in only two years, due to the original idea of the two founders. By comparison, the Romanian Commercial Bank was taken over by Erste Bank with only 3,75 billion Euros, despite of its many tangible and intangible assets accumulated over the years and others acquired through the merge with another Romanian bank, Bancorex. There may be enough reasons to believe the specialists' assertion that the countries will not be ranked anymore in underdeveloped, developing and so on, but in *smart, smarter and smartest countries*, the differentiation being done by the level of knowledge possessed, the level of innovation, the quality of scientific research etc.

From this point of view we come closer to a very hot issue: who and how can define or influence the rules of the game? Who and on what basis will determine how smart countries are? The countries in the current third world have the same power as those that are members of the G8? We hope so, but, for now, the subject in discussion is the knowledge society: it exists or it will be built in passing? And on what basis?

Looking though the time spiral and with an eye to Philosophical terminology, one can come to some useful conclusions. About two hundred years ago, the neoclassical economy acknowledged the major importance of only two production factors: the labor and the capital. Later on, they turned into another two: the capital and the energy. Now, we discuss again about two production factors: the information and the knowledge. The capital, in the economic sense, refers to the material

aspect, some saying that it consists of "goods used for making other goods". Here are included equipments, buildings, raw materials and materials etc. Simplifying, we could say that from the philosophical standpoint, the Fundamental Existence means Substance, Energy and Information. The same tendency is in categorizing the human societies through the view of the most important revolutions occurred in time: society/industrial revolution, society/information revolution, society/knowledge revolution (also found as society/information and knowledge revolution).

One may draw the conclusion that we witness the transition from the *tangible assets-based economy to the intangible assets-based economy*. This trend was signaled even from the beginning of the 20th century, in papers published by Ludwig von Mises and Friedrich Hayek, indicating the role of knowledge acquisition and use by the society members, as well as the way in which the knowledge is collected and disseminated in economy. This would be a first series of materials in which knowledge plays an important role in economy, including in society. But, if we think at the Renaissance period, which is almost half of millennium before the above-mentioned current, we come to a similar conclusion. Knowledge played a crucial role. Leonardo da Vinci expanded the area of problems to be solved from the Earth to the macro-cosmos. In the same era, Pico Della Mirandola claimed that he knew everything in the world, and even something more. It was the time when the concept of *uomo universale* was developed.

On the other hand, it is difficult to say exactly when the knowledge society began, from a different reason this time. Blaine McCormick, in his book on Thomas Alva Edison, speaks about a Pre-corporatist America (before around 1920), about a Corporatist America (1920-1980) and a Post-corporatist America (1980-present). It is interesting to see the similarity between the time when Edison lived, the greatest innovator in the last thousand of years (over one thousand innovations), in a Pre-corporatist America and that of the present America, a Post-corporatist one. The secret of success at that time was the knowledge, innovation, creativity, and entrepreneurship. The entire planet was influenced by such a success. Its key is rendered in the ten lessons inspired from the business model of Edison, which was later adopted by Bill Gates, except that it was more appropriate to the present times. Here it's in what consisted the success of Edison, in the vision of McCormick:

1. Limit your way to greater creativity.
2. Talent comes and talent goes, but mediocrity accumulates.
3. Creativity is all about making connections.
4. If you want to invent, build yourself an invention factory.
5. The greatest innovators have made a lot of Fs (failures).
6. In a capitalist economy, whoever attracts the most capital wins.
7. The best-promoted technology will often beat the best technology.
8. The price of freedom is a premium most customers are willing to pay.
9. Play is to innovation what rules are to bureaucracy.
10. Glow, but don't consume yourself.

Knowing that Edison lost the hearing in his childhood, but that he had many achievements in the acoustic field, including the phonograph, the saying „Listen with your teeth" is more than justified. McCormick launches the challenge of making connections between the life and world of Edison and that of today.

But there is another question arising: if Edison's world can be found in today's world, why we didn't start to talk about the knowledge society since the end of the 19th century and the beginning of the 20th?

The journeys through time can be countless, and as a result the conclusions pro-knowledge would multiply. Even Adam and Eve, our protoparents, did a capital sin, by eating the forbidden fruit form the tree of the knowledge of good and evil, and then being exiled in the desert of non-communication

with God, trying to survive with material goods, in a sinful way, and without access to the tree of life. Thus, we could say that even from the beginnings, the man had this temptation of knowing.

However, what is entirely new at this moment in the humankind history so that we all can say that we see the born of a new society, that of knowledge?

Again, we can come up with some explanations through the achievements registered in the last period of time: he extended his hand, through the industrial revolution, and the brain through the information revolution and he will give strength to hand through the power of brain, in the knowledge revolution – which is still taking shape, in our opinion.

The Library of Alexandria, that of 2300 years ago, impressed the world with its huge dimension of acquisition and storage of knowledge available at that time, but also with the way in which it was valued through different events and places specially designed. Today's libraries have the same function, except that through the information and communication technologies, we cant talk about the largest library of the world, but a virtual one.

The Egyptians have a saying: Man fears time, yet time fears the pyramids. We can rephrase: Man fears time, yet time fears information, with some very convincing arguments. The measure units for information quantity become more and more "contracted" in the attempt to seize the volume of information appeared in the world during one year. From megabytes, to giga- and terabytes it didn't pass a long time, and the statisticians are already working with petabytes (10^{15} octets) or exabytes (10^{18} octets). In 2002, 5 exabytes of new information have been produced all over the world (about 500.000 American Congress Libraries – the printed collection), in its printed form, on film, magnetic and optical support (92% of those are on magnetic support and only 0,01% on paper, on film 7,988% of the information and on optical support 0,002%). Also in 2002, another 18 exabytes of new information have been registered going through electronic channels (telephone, radio, TV, Internet) – of which 98% through telephone channels, if digitally stored. World Wide Web covers 170 terabytes (17 times more than the materials printed of the United States Congress Library). The E-mail generates about 400.000 terabytes of new information in one year.

The American adults use the telephone 16,17 hours/ month, listen the radio 90 hours/ month, and watch the TV 131 hours/ month. About 53% of them use the Internet at home at an average time of 25 hours and 25 minutes/ month and at the office at 74 hours and 26 minutes/ month, which is 13% of their time.

From the above presentation, we can rather talk about an explosion of new information at an unconceivable rate, circumstances in which the knowledge becomes more and more difficult to get, phenomenon that our scientist Grigore Moisil anticipated few decades ago, by launching the term of „uneducated scientist" or „tunnel scientist". Only the technologies that help producing so much information could control the new information empires. But this time, the requirements are higher, in the way that not just any information is needed, but only that that is the privilege of individual or organizational knowledge, "filtered" information, even because of the huge increase of it, by 30% / year. It sounds strange, but this phenomenon leads to an opposite effect, of defense against the booming. We can talk about a crisis of *information over-production*, much more dangerous than the general goods over-production crisis in 1929-1933.

Information over-production, in our view, would have two major causes: a) the excessive promotion of the new information and communication technology; b) their network effect, which escaped the human control or it is very hard to do.

The *excessive promotion* started at the beginning of 1960-1970, when people like Drucker, Machlup and Moore launched concepts or regulations that influenced human and organization behaviors. The first treats the need for more information, respectively for more knowledge, launching even the concept of "knowledge economy" in his book

The Effective Executive (1966). He makes the difference between the *manual worker* and *knowledge worker*. About the same time, in 1965, Gordon Moore (co-founder of Intel) launched the Moore Law, saying that the number of transistors in electronic circuits on a squared inch will double every year; later on he stated they will double every 18 months. Thus, to the need for more knowledge they responded with the need for more new technology, the behavior of people addicted to more powerful integrated circuits fitting completely this law, because the producers responded perfectly to the Moore law, for many decades.

By chance or not, the distributed data processing systems appear about the same time, with an increasing request for more powerful calculation facilities. The Apple Inc. was founded, shortly after. IBM is launched on the arena of information and communication technologies.

Network effect is registered with the arrival of the first distributed systems, and of all kind of networks. The peak was in late 1980 and beginning of 1990. The network effect gets new dimensions through Intranet, Extranet, Internet, and the computers receiving a different value than before. Following this model, other machinery has been linked together, of which the fax machines played a different role. It was introduced even the "fax effect": one fax machine has no value, but it gets one with a second machine, a third one and so on. More of them, the better. The same thing happened at the beginning with the e-mail, then with the mobile phone, but after some time the excessive use becomes the number one enemy of a network, when its members start to use it selectively, isolating themselves or using different firewalls and other filters.

Lately, due to wireless technology, the Wi-Fi, WiMax, Wideband and 3G Wireless systems abound, through which, with ultra-miniaturized chips (including the smart dust type), we can gather information about things and environments where they are. Thus, a new Internet is created, the *Internet of Things*. It will add, through the "communication" among things, an important quantity of new information, over those 18 exabytes of the regular communication channels (phone, radio, TV, Internet) in 2002, which multiplies by 30% every year. Once again, the man will release a system that can produce unthinkably uncontrollable effects. The biggest problem is that of taking over of data from Internet of things into the existent information databases. A big challenge!

So, after so many networks escaped under control, only that of thinks was missing. The over-production of information is evident. Under these circumstances, we can talk about the need of creating a *knowledge society of good and evil information*, except that due to globalization effects, the systems go global, with inter-connections hard to control. The systems integration will have multiple meanings and will be addressed form different points of view of the users.

By collecting in the computer „brain" more and more information on the surrounding world, the man becomes more and more alienated from it, more separated or isolated from it. Even the tangible, visible things will escape his control, being managed at the level of the network they belong. The data, information and decisions on them will have transmission speeds hard to see and control by the human being, who will desperately try to understand something, in the name of the status of knowledge society citizen. In our presentation we didn't raise the question of security but only that of information over-production. As long as 1,4 billion of billion of information (1,4 billion GB) appear in one second around the world - the quantity of information on all 6,3 billion people on the planet estimated in books, one on another, would reach 10 meters height, the poor man becomes more helpless. Of those 11 billion of bites perceived by our sense organs in one second only 1 million reach the brain, and out of them only 14 bites are consciously processed but eventually only 1-2 bites/ second are memorized.

The conclusion is obvious. Starting with the Garden of Eden and until now, the human being was continuously curious and felt the

need to know more and more. The effects have been very different. Now, at the beginning of the third millennium, we think that man is in the society of need to know the good and the evil. Unlike the beginnings, when Adam and Eve were advised not to taste the fruits from the knowledge tree, in the 21st century he has to take this step, in a practical sense. The over-production of information will force him to undertake such an approach. Thus, he will find himself in a new version of the Babel Tour, after the new Noah's information flood.

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