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Knowledge economics

Why are we speaking about knowledge economics? Why is it important?

First because the financial and banking community is more and more confronted with new elements to be taken into account and measured in a way or another : the « intangible assets ». Intangible assets are becoming indeed an important factor in the stock market evaluation of the company shares. The majority of the banking and financial community worldwide is thus reflecting on this new concept. And we want « Banking and Finance » to join this discussion in trying to propose a future oriented vision¹.

The second important reason is that in March 2000 the European Council (of the Head of State of the 15 EU member states) gathered in Lisbon under the Portuguese presidency decided to embark the EU in the knowledge society. And this Council decided the the Union must become the most competitive market in the Knowledge society before 2010. Subsequent EU Councils (Göteborg and Barcelona) decided also that this competitive strategy of the knowledge society must also be fully sustainable and socially inclusive. How to achieve those excellent political goals? This is not at all clear for many important actors in the field. The reflection is still open. Sustainability and social inclusion in the knowledge society are also important because this corresponds to a real preoccupation among the european citizens.

The third reason is that the actual Barroso Commission has drafted what is called the « Lisbon II » strategy. The mid term report on the Lisbon strategy prepared by the former prime minister of Netherlands Wim Kok has been a wake up call because it has been rather negative and has pushed hard for increasing EU global competitiveness². However the real problem is that competitiveness in the knowledge society is perhaps not the same as in the industrial society. This brings us to a very important question. How to define competitiveness in the knowledge society? Is it the same concept than in the industrial society? Is the actual Lisbon II strategy that the Commission has proposed really boosting competitiveness in the knowledge society? Or is it still using the old industrial concept of competition, and is it on the wrong track?

This is the provisional frame of this new "Knowledge economics" section.

In a first article we will give a general description of the knowledge market and of its fundamental differences from the industrial market.

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1. THE NEW VALUES AND PROCESSES OF THE KNOWLEDGE MARKET (title of this first article)

Our starting hypothesis is the following: almost all values and powerstructures of the

¹ The author has been a member of the « Forward Studies Unit » of the European Commission.

² Here is one reference of this report :

http://www.hillandknowlton.be/HK/pressoffice/presidency/luxembourg_presidency_2004/midterm.html The key message from the Kok Report is that while all three pillars of the Lisbon strategy – economic, social and environmental – remain valid, the priority now is for Europe to boost its economic growth rate and increase employment. Europe faces two enormous challenges – increasing global competition and a rapidly ageing population. In the face of these challenges, if Europe is to safeguard and strengthen its distinctive economic and social model, it must adapt and reform.

modern rational industrial capitalist system are in rapid, but silent transformation. Usually, in the current literature, authors underline one or two new aspects that are slowly being transformed. This article wants however to highlight that *almost all key industrial values and processes are disappearing or have already gone*. The very foundations of industrial capitalism are rapidly disintegrating because the knowledge society is a new vision of society. It functions in a different way. Some would say that it is a "new paradigm". The EU has rightly chosen to use "knowledge society" in order to underline that we are in front of a new society.

The values and powerstructures on which the knowledge society or knowledge market is built are very different from the values and procedures of industrial capitalism, although there is a strong temptation for us all to function in this new market with the old values and the old vision.

Here is a table (Figure 1) giving a general vision of this values and powershift, which is underway. It shows that almost everything is changing at the same time. The value creation process is completely different, the tool of production has also completely changed. The very definition of power in the business is different. The concept of trade is transformed into the concept of sharing. The scarcity concept on which the whole industrial economic logic is based...is gone. Same thing for the patenting. The role and importance of the human factor is upside down. Even the basic notion of progress is also transformed and possibly sustainable. Ethics is coming back unexpectedly and the whole relation with nature is also different. This is the reason why the measurement policy is also in deep transformation.

We prefer to give the financial community a global vision of the change going on before to give more details on the debate on measurements. The vision of the transformation going on is too important to be bypassed.

Figure 1: An important mental shift with two scenarios

INDUSTRIAL CAPITALISM	KNOWLEDGE SOCIETY: POSITIVE SCENARIO	KNOWLEDGE SOCIETY: NEGATIVE SCENARIO
VALUE CREATION Adding value to objects, with enough capital and technology.	VALUE CREATION: Human persons interacting in networks creates knowledge from knowledge through sharing (win-win).	VALUE CREATION: Through manipulation of human brain which <i>must</i> follow the old machine logic
TOOL OF PRODUCTION: Capital + technology.	TOOL OF PRODUCTION Human brain in network. Goes back home every night!	TOOL OF PRODUCTION: Human brain manipulated
POWER is linked to availability of capital and advanced technology. (Win loose approach)	POWER Linked to availability of human creative people able to create new knowledge, in networks of excellence. (Win-win)	POWER/ Efforts to exploit human brain in the old structures and the old industrial vision. (win-loose)
TRADE: the object which is sold is lost. <i>win-loose logic</i>	SHARING: Knowledge that is shared is not lost. Exchange and sharing of knowledge in networks are the only way to increase	STEELING: Danger of taking without exchanging. People try the "old" way first.

	knowledge. <i>Win-win logic</i> . Or	
SCARCITY: All industrial policies are based on scarcity and exclusion.	ABUNDANCE: All policies are based on abundance of information and inclusion, because sharing is the only way to produce more knowledge. Or ...	SCARCITY: People keep the mentality of scarcity. They try to steal knowledge without sharing. New Dangers of virus and pirates of new kinds.
SECRECY/PATENTING All industrial policies, defence and business, are based on secrecy. Patenting is the norm.	NO SECRECY Disappearance of secrecy and of patenting! Information always <i>leaks</i> . Or ...	KEEPING SCRECY Refusal of this evolution. Soft Fascism. Wars and violence.
LEFT-RIGHT DEBATE: Who owns the means of production? The right-left debate.	DEBATE IS OVER: Because the means of production have become the human brain. Or ...	DOMINATION: Subtle or violent manipulation of human brains.
HUMAN CAPITAL = COST Human capital is not an asset: it is a social cost.	HUMAN CAPITAL = KEY ASSET Human capital becomes a central asset in production, management and new measurements and accounting. Or ...	MANIPULATION OF HUMAN BRAIN: This is the other alternative. It is easier to manipulate human brain than to transform our set of values and our power structures.
MANAGEMENT Is machine centered	MANAGEMENT Is human centered	MANAGEMENT Is machine centered
PROGRESS The concepts of <i>industrial progress, growth and competition</i> are quantitative .	PROGRESS Progress, growth and competition become qualitative . Or...	OLD CONCEPT Refusal of this qualitative definition of progress, growth and competition.
ETHICS IS OUT Objects on the market have no ethical value.	ETHICS IS KEY Knowledge has an ethical value. Or ...	MANIPULATION OF ETHICS Manipulation of ethics and meanings, even religions.
PYRAMID of POWER The "natural" shape of organizations is a pyramid	FLAT NETWORKS The natural shape is here a flat network. With no control possible.	HIDDEN PYRAMIDS All efforts will be made to keep the existing structural shapes.
MEASUREMENTS: Are quantitative and rational. Mathematics are a useful tool. <u>Tangible assets</u>	MEASUREMENTS: Are more and more qualitative. -Because the quality of knowledge is crucial. - <u>Intangible assets become more</u>	MEASUREMENTS: The temptation is to keep the quantitative industrial measurements (tangibles) and not caring for intangible assets.

Column two shows the chief characteristics of a positive view of the knowledge society compared with industrial capitalism. But let us not forget column 3! This third column indicates that all the new values emerging in the knowledge society can be, and are already partially subverted into their opposites. Knowledge society is not a pie in the sky. But it can be oriented positively.

A new value creation process

The core of any economic and financial system is the value creation process. And precisely this process is changing completely. In the industrial society, value is created by adding value to an object. For example from a piece of steel a car is created. The value is created by adding technology and knowledge (know how) to the object, which is put to the market at a much higher price. This price is the measure of the amount of created value

In the knowledge society, the starting point is not anymore the object. There are no objects. The value creation processes consist in adding knowledge to existing knowledge. The value is created in the process of applying knowledge to knowledge.

Here is what Peter Drucker says: "*The traditional "factors of production" - land (i.e. natural resources), labor, and capital - have not disappeared, but they have become secondary. They can be obtained, and obtained easily, provided there is knowledge. And knowledge in this new sense, means knowledge as an utility, knowledge as the means to obtain social and economic results. These developments, whether desirable or not, are responses to an irreversible change: knowledge is now being applied to knowledge. This is the third and perhaps the ultimate step in the transformation of knowledge. Supplying knowledge to find out how existing knowledge can be applied to produce results is, in effect, what we mean by management. But knowledge is now also being applied systematically and purposefully to define what new knowledge is needed, whether it is feasible, and what has to be done to make knowledge effective. It is being applied, in other words, to systematic innovation.*"³

This is in our opinion the best definition of the Knowledge society we have read so far. Peter Drucker, an Austrian emigrated in California, has been for many years a world authority in management. His opinion has really to be taken seriously.

A new tool of production

If the value creation process is changing, it is understandable that the tool of production is also changing. The new tool of production is now going home every evening and the CEO is *hoping* that it/he will come back tomorrow. The new tool of production is the human person and its brain interacting in networks of excellence. Because human brain is creative only if it is able to exchange ideas and knowledge with peers in networks, i.e. in non organised, non top down type of exchanges.

A new power structure

Power functions also in a different way. In the industrial society, the CEO's power is depending on availability of capital and advanced technology. Human workers are a cost not an asset. If the CEO is able or forced to cut this cost he *has to* do it. He has no alternative, at least in the industrial society.

Now in the knowledge society, the CEO's power is linked to the availability of human capital and intangible assets. Technology and capital are still necessary, but they are not at all sufficient, because they are not anymore the tool of production. The CEO has to care for the new

³ Peter DRUCKER (+ 2005) : *Post capitalist society* Haper Business, New York, 1993. Page 42.

tool of production which is the human creativity of his personnel. He has to convince them to come back the day after and not to go to the concurrence. He is also obliged to ease the integration of this personnel in networks, although he is not able to control neither command those networks. He is more of a minister in the original sense of the world. He is at the service of knowledge creation. He is the enabler. Not the "Chief commander" anymore.

Beyond trade towards sharing

Trade is a recent idea. It is a transaction where goods are exchanged for money, and nothing more. Once this exchange has taken place, the transaction is considered as completed. No follow-up is foreseen. This concept of trade seems eternal, because people have never known anything else.

However in the Middle Ages, in Europe, the concept of *commerce* was very different. It was much richer and holistic. It was mainly based on exchange and gift. For example, if a farmer needed seeds and his neighbour had plenty, then the neighbour would give the needed seeds in exchange of something, or for money, or for free. And the farmer would accept to remain in a debt of honour. Which means that, in case of necessity, it is agreed as evident that the farmer would come and help his debtor, or that he would give his neighbour a present on the next good occasion.

It is only during the industrial period, in the 19th century, that the concept of trade became so narrow. Society has shifted from commerce to trade. What has been eliminated completely is the community-building idea of reciprocal debt. This notion of debt has been considered very negatively by industrial capitalism, perhaps under the influence of Puritanism. Popular wisdom today places pride in having no debts. There has been a complete reversal of values.

In the knowledge society, when people exchange knowledge, they do not lose it, and the receiver is linked by a kind of debt. The advantage to the donor is not necessarily money. More important is the knowledge that comes back, enriched by the receiver's creativity. As Verna Allee⁴ shows eloquently "Value networks" are the place where value is *created* in this new society.

Beyond scarcity and exclusion

Capitalism and its money system are based and built also on scarcity and exclusion. The whole of the market functioning is based on those same values. One company has a new product and the other does not. The whole of the concurrence and pricing system is based on this value of scarcity. If goods are not scarce, it is not possible to get a high price for them. And the consequence of this scarcity is the exclusion of those actors on the market who have not got a similar patent or product available. Or those poor consumers who are not able to buy this product.

A very different set of values is emerging. In the knowledge society information is overabundant. The challenge is to transform this information into knowledge, which is less abundant, and perhaps in the best cases in wisdom which is *very scarce*. Only humans can do this transformation, or better, several people acting in network. And so it is a question of survival to circulate information to a maximum of people. The fabric of knowledge is thus built on the value of *inclusion*. The more people are included in the knowledge creation, the better and quicker information will be transformed into knowledge. The industrial behaviour which is trying to cultivate scarcity of information, will be and is tried. It will rapidly result in knowledge impoverishment and obsolescence. The old approach is not working. Some people still try.

Thus here is like a new proverb: "*Knowledge is like love; the more people give, the more they receive!*" This may be shocking to the industrial mentality, and it is difficult to accept for the majority of us, because we all have so well internalised scarcity and exclusion as guiding values. They are deeply embedded in peoples' minds.

Beyond secrecy and patenting

⁴ Verna ALLEE: *The future of knowledge: Increasing Prosperity through Value Networks*. Butterworth Heineman/Elsevier Science, 2003. Burlington MA, USA.

Secrecy and patenting are core values of the capitalist system: secrecy before applying for patents is the logic. This point is very much debated. Many thinkers are still defending the patenting system and there have been extended negotiations on intellectual propriety rights within the forum of the World Trade Organisation (WTO), where the West is fighting to defend intellectual propriety rights. And it seems to many, a very legitimate fight.

However, Harlan Cleveland⁵ addressed the issue in 1985, when he stated that “*information always leaks*”. This means that secrecy will become increasingly more difficult: “*Information is porous, transparent. It leaks: it has an inherent tendency to leak. The more it leaks, the more we have, and the more of us have it. The straitjackets of government classification, trade secrecy, intellectual propriety rights, and confidentiality of all kinds fit very loosely on this restless resource.*”

Information does indeed leak. And there will be more and more leaks, for example, on the web. It is even possible to learn through the web, how to build a nuclear bomb! It is becoming increasingly difficult to keep information secret. And this difficulty will probably increase, precisely because of the ultra rapid development of information technologies.

Knowledge being the central asset of this new society. If secrecy is not anymore possible, what type of structures will there be? Once again, people are so embedded in the old system, considering it so evidently eternal, that there have difficulties in trying to conceive something else. Perhaps there is a need to rediscover the notion of collective propriety and co-operative management, which tribal societies have been using for millennia.

An excellent example of this is the international agreement on the oceanic bottoms which after years of fighting, has been determined in the United Nations’ Convention on the Law of the Sea, in 1982, and the subsequent agreements and programs following the Rio Earth Summit in 1992. Perhaps the time has come for humanity to rediscover old truths and create new concepts leading to a more sustainable world⁶.

Individual ownership of the means of production

This is the most destabilising new characteristic of the knowledge society, because it means the end of the capitalism and Marxism debate and of the right-left debate. Here lies perhaps the theoretical basis and explanation why the left is so much in crisis in Europe and in the whole world. Indeed, the whole strategy of Marxism and of the left was the fight for the ownership of the means of production by the workers. Meanwhile the right was fighting for the ownership by the entrepreneur or by the owner of the capital.

Now this is all over, because the tools of production in the knowledge society are the individual brains of employees. There is no fight anymore for the ownership of those tools, because every evening employees are going home with their tools of production. Every evening, entrepreneurs remain alone with their capital, their factories, but without the main tools of production. There is still capital, but it is far from being the central asset. Society is definitely not anymore capitalist.

The new challenge for the knowledge entrepreneur is to make sure that the means of production are coming back to work next morning. This also explains why management is shifting towards human-centred management. It is a question of survival for the enterprises, if they do not

⁵ Harlan CLEVELAND, *The knowledge Executive: Leadership in an Information Society*, editor Truman Talley Books, E. P. Dutton, New York, 1985.

See also: Harlan CLEVELAND, *Leadership and the Information Revolution*, editor: World Academy of Art and Science, 1997. Harlan Cleveland has been Vice Secretary of State of John KENNEDY, Head of the Marshall Plan for Benelux and Italy, First US ambassador to NATO in Brussels, President of Hawaii University, etc..

⁶ See the wonderful story of the Fight of Ms Borghese for the bottom of the oceans. Elisabeth MANN BORGHESE : “*The Oceanic circle : Governing the Seas as a global resource*”. A report to the Club of Rome. Editor : United Nations University Press, 1998

want to lose their best tools of production. There is thus a re-humanisation of management.

However the human brain alone is not productive. Humans must interact to create new value. This is the fundamental reason why there is so much discussion about networks. Networks of creative humans are indeed the value creation tools of this new society.

When human capital becomes central

In this new context, one understands the human capital is becoming central. Many entrepreneurs have learned this, by the facts, when they have lost the best brains of their enterprise, and thus, one important part of knowledge creation. They have been forced to completely change their management style. This is the optimistic scenario. And happily it happens often.

Unfortunately there is another scenario, which must be taken seriously. It consists of modifying humans, through life engineering, to make them conform to the technological system. Andrew Kimbrell⁷, founder of the *International Centre for Technology Assessment*, in Washington DC has said, *“Corporations, academics, and researchers came to realise, albeit slowly, that current technology is not compatible with life [...] To deal with this historic dilemma, the techno-utopians and their corporate sponsors outline a breathtaking initiative. This initiative was not to change technology so that it better fits the needs of living things, as we were so eagerly advocating. No, they had and have a very different and stunningly self-serving approach. They decided to engineer life, indeed reality itself, so that it better fits the technological system. It is in this chilling context that the enormous significance of the current revolutions in technology can be fully appreciated. Here we have the key to the otherwise bewildering high-tech headlines and to much of our social malaise.”*

Thus a shift of values does not necessarily imply a rosy future. Every value can be used for the good or evil. This depends on the free choice of humans. And the evil forces in people and in society cannot and should not be underestimated.

Towards qualitative progress and sustainability

Another basic value of industrial capitalist society is an unshakeable faith in progress. In the pre-modern agrarian society, the dominant time value was stability, and change was seen as undesirable. The astronomers Copernicus and Galileo had negative experiences as a result. In modern and industrial society progress has superseded stability, almost to the point where stability is subject to ridicule. And capitalism has added a turbo drive to this concept of progress, by introducing the new undisputed value of unlimited quantitative growth.

The problem is that in a finite world, infinite growth is mathematically impossible. Many people feel this, but people prefer not to mention it, as the benefits of growth continue to be reaffirmed.

The good news is that in the knowledge society, knowledge can be of excellent, good or poor quality. This means that knowledge, like human creativity, are measured in *qualitative* terms, and very poorly in quantitative terms, precisely because the productivity of knowledge is linked more to its quality than to its quantity.

This will be another watershed for the global society. This new definition of progress is changing the way society will be seen in the coming years. This means that there is a shift underway from a society that aims at producing the maximum quantity of goods, and finding a market for them, towards another society that aims at increasing the quality of knowledge. Does this

⁷ Andrew KIMBRELL: *“Technotopia”* In *“YES, a journal of positive futures”* N°19, Fall 2001, p.14. Mr Kimbrell is President of ICTA : “International Centre for Technology Assessment”, 666, Pennsylvania Avenue, S.E. Suite 302, Washington D.C. 20003. Phone: 202/ 547-9359. www.icta.org

mean that more globally, the aims of world societies will be to increase the quality of life for everybody? This is one possible option, which is probably one of the only ways to prepare a sustainable future.

Ethics, meaning and transparency

In the industrial logic, objects have no ethical connotation. For instance, a block of steel can be produced in a German factory, where all workers are protected by strict social laws, are very well treated, and earn a very good living. Or it can be produced in an Indian sweatshop. No difference can be seen however: it is the same block of steel.

In the knowledge society, objects are increasingly linked to information, to knowledge and to meaning. People are interested to get information from the Word Wide Web on how *Nike* shoes are produced, by whom and in what circumstances. The same applies to food such as chicken; people want now to know how the chickens were raised.

New measurements in this new logic?

Industrial society aims to produce and sell a maximum number of material goods, or objects. And the industrial economic approach is thus limited to a materialistic view. Economic discipline is built on reducing everything to numbers, or even equations.

Now, there is a real problem, because knowledge is immaterial. Some economists are making great efforts to express and measure knowledge into quantitative terms. Their work however does not seem to convince the majority of the economic community.

Economists do recognise openly that an increasing part of the economy is *intangible*. Baruch Lev states in a book [5] on intangibles⁸: “*An intangible asset is a claim to future benefit that does not have a physical or financial embodiment. A patent, a brand, and a unique organisational structure [...] I use the terms intangibles, knowledge assets, and intellectual capital interchangeably.*” Lev also observes: “*Intangibles are frequently embedded in physical assets (for example, the technology and knowledge contained in an aeroplane) and in labour (the tacit knowledge of employees), leading to considerable interactions between tangible and intangible assets in the creation of value. These interactions pose serious challenges to the measurement and valuation of intangibles. When such interactions are intense, the valuation of intangibles on a stand-alone basis becomes impossible.*”

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The classical capitalist quantitative (material) measurement methods are not working easily with knowledge and with intangibles.

Some economists are still sticking to the more classical approach. Others are trying new methods and new concepts.

This is the theme of our next article.

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⁸ Baruch LEV *Intangibles: Management, measurement, and reporting*. Brooking Institution Press, Washington D.C. 2001