

SOCIOSYNERGETICS IN NANO-TECHNOLOGIC DEVELOPMENT OF MATERIAL AND PRODUCTIVE ENGINEERING

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ABSTRACT: Value-creating process reproduction of the companies linked with the second level of social division of labor and with productive process micro-technologic base is becoming to be economically, energetically and socially intolerable. Company transition from micro-technologic level of productive process to synergistic, biosynergistic, sociosynergistic and psychosynergistic nanotechnologies is the challenge of the time. This transition is objectively requiring multidisciplinary and transdisciplinary evolution of cognition as in the sphere of material as in productive engineering. Sociosynergetics as the system entire paradigm immanent to nano-technologic quality of value-creating process is the core of such transition. Material and productive engineering incumbent only on multi-disciplinarity of scientific cognition is becoming historically overcome quality. Business subjects that do not manage to replace micro-technologic quality of material and productive engineering by nano-technologic quality will cogently fall into the red numbers and gradually cease to exist.

KEY WORDS: nano-technologic, sociosynergetics, material engineering, productive engineering

1. SOCIOSYNERGETICS IN NANO-TECHNOLOGIC DEVELOPMENT OF MATERIAL AND PRODUCTIVE ENGINEERING INTRODUCTION

Sociosynergetics as the system entire paradigm immanent to nano-technologic quality of value-creating process is the core of such transition. Material and productive engineering incumbent only on multi-disciplinarity of scientific cognition is becoming historically overcome quality. Business subjects that do not manage to replace micro-technologic quality of material and productive engineering by nano-technologic quality will cogently fall into the red numbers and gradually cease to exist.

It is inevitable to study managerial theory, managerial practice as well as manager's profile by itself by the prism of concrete level of social division of labor in which the company and its material-technological process inhere. Up to now, sociosynergetical conception of the history defines three basic levels of social division of labor:

Level of simple connection of live work with natural sources

Level of three productive factors integrity – live work, natural sources and the capital

Level integrated by the fourth productive factor – by sociosynergetical information

In the early 21st century, the civilization is typical by the fact that there exist all three levels of social division of labor mainly in so-called economically advanced countries. Whereby, the proportions among individual levels of social division of labor are different for each individual country of the world.

Entry of capital (mostly industrial) to the sphere of social processes reproduction incites the creation and development of chaos economy and its economic cogitation in conjunct with it.

History of economics of chaos economy is possible to date by the epoch of creation of so-called classic economic theory (William Petty, Adam Smith, David Ricardo). Development of economics of chaos economy subsequently copied individual stages of capital reproduction and in fact continues (through Keynes, neo-keynes theory and post-keynes theory) to the present, when, in consequence of deep pervasion of ideology and politics to its structure and contents, finds itself in dead end of its own epistemological-methodological construction. Existing trends of general economic theory are all without exception the forms of political economics and in fact still is not possible to think of them as science, whereas more or less they only quantitatively describe discontinuous reproduction of individual production factors in chaos, whereby the capital, its circular flow and turnover represent dominant position in this chaos.

Profit and surplus value law in connection with market mechanism patterns escalates above all the filling up of subjective customer interest through the maximization of energetic flows, flow of capital and usage of human resources. On the one hand, maximization of energy, capital and human flows is determined by dynamic development of scientific information, which simultaneously develops value-creating process. On the other hand, it is activated by value theft process eventuating into *economic, energetic and ecologic terrorism*.

Chaos economy is possible to identify by following lines:

- Rests on discontinuous connections of three production factors (live work, natural sources, a capital), the process of production factors reproduction is solved in parts
- Contradiction between the value-creating process and value theft process is basic antagonistic contradiction of development
- Backward logistics of value-creating process projection is practically not realized
- Rests on maximization of energetic flows
- Material basis of energies and value-creating process rests in many respects on using the elements and their allied substances dangerous for life of human and biodiversity of planet
- Materialized work done comes to be an important part of value-creating process
- Technologies of value-creating process are based on scientific information (normally partial) and intelligential levels of the subject corresponding to it (remark /6/)
- Value-creating process is determined by "micro technologies" and the product is in "micro tolerance"
- Capital subserves dominant function from among production factors
- Subjectively motivated customer's interest making towards the maximization of consumption is determining
- Is thoughtless toward the human and biodiversity of planet
- Value-creating process is projected and realized only in light of final product usage
- Degrades human factor (live work) to the commodity
- Solves the remuneration only depending upon the profit
- Rests on maximization of aggregate demand of households, companies, states and of foreign trade
- In final phase of its development, it bases the extension value-creating process reproduction above all on growing depth of all factors of aggregate consumption
- Social processes reproduction is determined in crucial margin by the value theft process
- Is characteristic by destructive chaos of world-view, value, ideological and political customer's interest
- Law of the power predominates over the power of the law

Especially from the end of the 20th century, the maximization of energetic flows in material-technological processes of companies accelerated in so-called the most advanced industrialized countries in consequence of extremely dynamic and extensive pervasion of “micro technologies” into the value-creating processes of civilization. Energetic flow maximization is closely associated with extensive reproduction of consumption of all aggregate factors – of the households, the companies, of the state also of foreign trade. Chaos economy is typical that produces the final product to fill subjectively developed customer’s interest, to which also the production of weapons and economic, energetic, ecological, fiscal and military terrorism linked with that integrally belong.

All so-called advanced industrialized countries of the world are in dead end of economic growth because they got stuck in “micro technologies” that are energetically extremely challenging not only at the production of the product but also at its usage and accordingly in the process of its liquidation after usage by customer.

“Micro technologies”, as technologies immanent to second level of social division of labor, became energetic nightmare for so-called advanced industrialized countries (USA, Germany, Russia, Canada, Japan, Great Britain, Italy, France and Australia). Escape from this dead end is possible only by the prism of entry of technologies of new social division of labor – nanotechnologies, biotechnologies, psychosynergetical and sociosynergetical technologies.

On the present, it is already possible to say that all attempts to solve economic, energetic and ecological fastidiousness of value-creating process only by other development of “micro technologies” failed. Also in the 21st century, motor vehicle is one of predominant final product for the customer; therefore it is logical that the costs of the science led to another development of “micro technologies”. World automotive factories, especially Ford Motor, General Motors, Daimler Chrysler, Toyota Motor, Volkswagen, Honda Motor, are ranked among the first twenty companies that donated the most of the means to the science and research to make the production of motor vehicles economically, energetically and ecologically more efficient. They are pressed to do that not only by concurrence within the frame of the sector but also by the growth of energy prices, by saturation of world market caused by this product and latterly also by increasing threat of the sanctions for widespread impact of this production and of this product usage on the environment. Meanwhile, world automotive factories derive the most profit not from the results of scientific research but from the displacement of existing technologies to the territories with cheaper manpower and with higher tolerance of environmental deterioration.

Kyoto protocol countries’ attempt (35) to stop 5% from the emission by twenty years bellow the mark in 1990 was not successful and already in 2004, the emission volume of these countries got closer back to the situation in 1990. Nevertheless, the USA that refused to sign this protocol, spew so much carbon oxide (7,067 milliard of tons – in 2004) as all signatory states of Kyoto protocol together [(1) 18]. Also in the 21st century, economically the most advanced country of the civilization continues in the intensification of ecological, energetic, fiscal and military terrorism by the prism of technologies of historically overcome social division of labor..

Thus, without the change of technologies (from micro- to nano-), they will cease to exist. However, the transition to advanced technological level is not real in many companies because they got stuck in the second level of social division of labor by their huge aggregate invested capital. For example, all automotive giants in the USA, that latterly found themselves in red numbers, found themselves in this situation. Automotive factory Ford in the USA is pressed to slash the volume of production at existing technologies and in the 3rd quarter of 2006 showed 5.8 milliards of dollars of deficit (165 milliards of Slovak crowns), whereby following last information 1.8 million of cars

should be produced in the 1st half of 2006 but it is planned to produce only 1.3 million of units in the 2nd half of 2006 (TASR, 3.11.2006).

Also in Slovakia, we should learn from these trends of world monopolies that are technologically only in the second level of social division of labor. Anyhow, we should refuse to transfer of these technologies into our economic space. What we can obtain by this transfer today, tomorrow we will loose doubly-threefold in economic, energetic, ecologic as well as in social field.

It is necessary to accentuate also the other tendency in the economy development of actually the most advanced industrialized countries and that is the increase of expenses for scientific research of the technologies of incoming new level of social division of labor. These technologies score mainly in the field of pharmaceutical industry, in electrical engineering, in the field of the electronics, in the software, hardware, telecommunications, in genetic engineering and especially in the field of genetic food production. All of these are the technologies of nano space and nano tolerance of the product, which is not possible to project and realize without sociosynergetical flow of information and without sociosynergetical intelligential level of the subject.

Finding that such pharmaceutical giants as Pfizer – USA, Johnson & Johnson – USA, GlaxoSmithKline – UK, Novartis – Switzerland, Sanofi-Anetis – France, Roche – Switzerland appeared among the first twenty world companies according to the aggregate invested capital in the science and research, was the biggest surprise for British Department of Trade and Industry, which compiles above mentioned scale from 1992. Technologies in value-creating processes of these companies are based on system-entire flow of information – flow of synergetical, biosynergetical, psychosynergetical and sociosynergetical quality. Similar technologies, the technologies of nano space, provide high competitive advantage also for the companies from the other spheres of the production, for example Microsoft USA – software, Siemens Germany – electrotechnics, Samsung Electronics South Korea – electrical engineering, IBM USA – hardware, Intel USA – technologies, hardware, Nokia Finland – telecommunications, Sony Japan – electronics.

Material-technological equipment of value-creating processes of these successful companies is immanent already to the new – 3rd level of social division of labor and these companies are belonging by their research subject in the new sociosynergetical economy and in its economic science – sociosynergetical economy.

Sociosynergetical conception of science makes it possible to form the new paradigm also in the space of economic theory and economic practice. Formation of new economic theory – sociosynergetical economics is possible to date to the beginning of the 21st century. Its real basis in the reproduction processes practice is formed from the 40's of the 20th century. Sociosynergetical economic theory as well as sociosynergetical philosophy is objective consequence of the processes of the concentration, centralization and integration of transdisciplinary scientific cognition and scientific intelligence.

“We found ourselves at the time of big transformation: already about twenty years the economy transformation from industrial to new usually called as knowledge economy runs....All around, the organization of companies, the management and employees wherein, the way of work and of management, everything rises higher standard of intelligence” [(3) 67-73].

Sociosynergetical economic theory is a paradigm about the third level of social division of labor substance. But simultaneously, sociosynergetical economic theory is only relatively independent subsystem of entire sociosynergetical science and as such rests on achieved level of cognition not only of partial socio sciences but also of all synergetical, biosynergetical and psychosynergetical sciences

as well as of the sciences of system-entire sociosynergistic human substance. Otherwise said, sociosynergetical economic theory is strictly transdisciplinary cognition product.

Sociosynergetical economics identifies sociosynergetical economy as the economy of transdisciplinary system entirety by following lines:

- Rests on spatial integrity (not discontinuity) of four production factors (live work, natural sources, the capital and sociosynergetical information)
- Process of reproduction of all production factors solves within the frame of system entirety
- Backward logistics becomes necessary integral part of spatially system-entire projection of value-creating process
- Human individual has all assumptions to reach the qualities of self-managing subject as being the system entirety
- Value-creating process technologies are based on sociosynergetical information and the subject of sociosynergetical intelligence becomes historically determining production factor (remark /7/) whereas equal status of all production factors in value-creating process is respected
- Eventuates inevitably in the minimization of energetic flows
- Energetic base is based on environmental safe natural sources usage from the space of synergistic elements determining the life as fourth dimension and on alternative sources usage from the space of planet biodiversity
- Value-creating process is determined by nano technologies, biotechnologies and modern product is mainly in the nano tolerance
- Solves remuneration pursuant to exactly defined volume and quality of live work on surplus value of the product
- Objective customer's interest, as being sociosynergetical phenomenon, is determining in light of the final product production and usage
- Projects the reproduction of social processes to the extent that everybody should have inalienable right to the process of values creation and nobody should have the possibility to alienate the values
- Power of the law predominates over the law of the power

Sociosynergetical economics as economic science of the third level of social division of labor does not solve only the problems all-economic evolution but enables fully-fledged epistemological-methodological orientation in contemporary civilization evolution complex problems solving. It enables to us the system-entire view not only of value-creating process reproduction and value-theft process in the society but it is also starting point for entire spatial projection and for solving of the complex of productive-economic, social-political, moral-ethic, aesthetical as well as environmental relations.

2. CONCLUSION

Since the beginning of new millennium, sociosynergetics as a system entire paradigm predatory asserts oneself in the role of universal know how of cogitation and action of modern human. It performs as epistemological-methodological base of system integration, concentration and centralization of scientific cognition within the frame of galaxy of partial science branches of the nature and society.

3. REFERENCES

- [1] OSLO (REUTERS, eri): OSN: *Znečistenie sa nedari znižovať*, Prevzaté: Pravda 31.októbra 2006, the page 18
- [2] TURAN, D.: *Exodus z Chaosu*, Bratislava IRIS 2002, ISBN 80-89018-33-5, the pages 182-183
- [3] JIRÁSEK, J.A.: *EVROPA A MY V EVROPE*, IN. SBORNÍK GEMAN 06, ACTA EVIDA N° 51, SDRUŽENÍ EVIDA PLZEŇ, THE PAGES 67-73