

THEORY OF SYSTEMS & EVOLUTION OF THE HUMAN SOCIETY

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If in a frame of a new scientific and philosophical direction for synergetic¹ we will consider the Universe as a big self-organizing system², it is possible to notice a certain hierarchy of enclosed to each other more and more complex systems, scale of which is increasing step by step. Elementary particles have arisen as a result of the polarization of physical vacuum at the first moment of the Universe life, but then there were systems with a certain structure and information³. They were atoms, chemical molecules, and then more complex systems - biological molecules of bacteria and viruses that have not only DNA molecules, but their protective shells as well. The following step was an occurrence of a nuclear cell, and Metazoans organisms. On the top of them there are the animals, *Homo Sapiens* and human social formations: family, clans, tribe, nation, civilization. Continuation of such a process into a future makes us to assume an organization of more large communities in a space scale. So it is possible to state, that the development of life is a part of the common Universe evolution process, that is directed to creation of systems tending eventually to fill by itself all the Universe.

Any element lost some degrees of its freedom, when it became an element of a higher level system because of stability requirements. Considering an evolution of a human society from this point of view, we can notice increasing of scales of social formations and improvement of variants of their organization and managements as well. At first they were constructed according a principle of pyramidal hierarchy, but then such a complicated organisation as “an open society” or democracy have arisen. So we can treat them as a “community treaty” about certain restriction of person rights for a priority of common state interests. It was a pure human invention in contrast to hierarchy systems of the same communities of animals. Therefore it was a new step in a way of self-organising process for a human society evolution.

In such a process the value of information increased in contrast to a value of a rough physical force. The motor of it was a struggle for surviving or a competition. In primitive

societies it was a struggle between different families, then the scale of such communities increased step by step. One of results of the war between *Neanderthals* and new Cro Magnon people (*Homo sapiens sapiens*) was an unification of the last ones into tribes at a face of the common enemy. The families began to exchange with different gifts, and women were the best gift naturally. So in this could be invented the laws, restricting marriage between relatives.

The relations of exchange on a common market mixed more and more the economic systems of different countries. Experience of the two big world wars and invention of nuclear and thermonuclear weapon have made impossible to use any force for the countries possessing with such a weapon. Really it was the end of a period of an international force competition. However nowadays world is standing face to face with another serious problem. It is a global ecological crisis (GEC), main reasons of which have a principle character⁴. It is concerned with an exhaustion of the possibilities for extensive development by the limitation of the Earth resources in our common ecological niche. Moreover nowadays the speed of scientific and technical development is much more than a speed of the biological evolution. This problem can be solved by means of a transition of all the Earth civilization to the global or uniplanet community as a more complex system on the next level. But there is a question: has our civilisation meanings that could be enough for it.

We can notice that in the latest time there were created new digital networks, where all communications are carried out by means of optic lines laid along power lines practically to each house. It will give a possibility to combine home computers, professional supercomputers, telephone, fax, mass media (books, newspapers, magazines, radio and TV) into a global intellectual system of multimedia. Instead of a modern TV set with the satellite antenna, home computer and a telephone in the nearest future practically each house will be equipped with a following complex system: one or several computers with a monitor or videohelmet, videocamera, scanners, printers, sound columns and microphones. Instead of modern mass media it will be possible to receive an interesting for you information (radio, TV, fresh newspapers, magazines and news) at any time by means of a computer network. The main problem at that time will be: how to learn or find out an interesting for you information about news, last achievement in a science area, films, books, programs and teleconferences. Already nowadays the flow of a such information exceeds an opportunity

of a man to learn it more than in a million times, so soon we will be not able at all to solve this problem without help of a special systems of artificial intelligence (SAI). So it is necessary to construct a multistage network with a hierarchical structure. At the low level there should be a man with his personal SAI (for the beginning it could be updating of already existing expert systems). The following level of SAI should be located at communication centres or power substations. There should be SAI of a high enough level that should have an ability to understand a sense or a context of any submitted information and to have ability to keep a communication with an intelligent dialogue with every user simultaneously. Thus there could be constructed a global intellectual neurone like computer network with a certain hierarchy of SAI to be used with more and more higher level. However at each level such a network will have also a certain features of a "democracy", since all SAI centres of this level will be identical. Such hierarchy will not have also the top or the main centre. In a case any failure in any unit of the system it will keep ability to find ways of a communication around of a damaged just like it occurs in our brain. Most important for restoration of the system "genetic" information should be written down with the greatest degree of duplication in various databases stores in different points of the planet. Furthermore such a network could not only undertake an information functions, but a management function also. Probably, it is way of realisation of Stanislaw Lem idea about the whole planet, that could be an alive organism, managed by advanced collective intelligence. The similar situation to some extent is realised in communities of insects such as bees or ants, where everyone separate unit of these public insects has certain individual freedom and ability to solve some tasks independently, but there are general programs of their enough complicated public life. Realisation of such collective or a global intelligence should conduct to rather essential restriction of the personal freedom. The similar restrictions already exist in a human society, but they are on a conscious level and was not transferred to an unconditional genetic level. Therefore all of them are rather weak and frequently are broken. Though present communities of the people - nation and states have a society structure, it is rather weak also and it does not enough care for the people included in the community. Therefore such communities very often spontaneously collapsed because of internal conflicts or revolutions and can be considered as certain systems, but not as united organism. The same we can tell about all the biosphere because it contains a plenty of separate organisms, that con-

stantly compete to each other. In contrast to them in a real united organism there must be no internal competition. So in a Metazoans a freedom of an each cell or each organ is reduced to its function for the interests of all organism as a unit. If a cell begins to live for itself, it leads to a cancer tumour and the whole organism can be lost. For this reason an organism all its life tries to control and to struggle against disobedient cells. On the other hand any organism cares for its cells and organs as for its own. In a community of bees or ants, where each member of a such community carries out only a special function, a competition is absent, so we can also consider them as united organisms.

According to an idea of a St.Petersburg orientologist and science-fiction writer Ve-cheslav Rybakov⁵ nowadays for its association to a global civilization the mankind needs a certain new universal superauthority instead of all former national gods and religions. As far as the Science playing such a role among scientists, a new global network SAI based on the scientific ideology could have a role of the similar superauthority. It could be the following step in evolution of human consciousness and society. If former people created gods in their imagination, now for the first time they can really create somebody with intelligence of a higher than a human level. It is possible to say even now, that a conscious as a common human knowledge comes off a Man as its primary carrier. Nowadays the most part of the human knowledge is in the libraries and computer databases. Computers now are able not to only keep, but to process it as well. Moreover step-by-step a Man himself is turning out into a cyborg (cybernetic organism) as a result of *symbiosis* or *coevolution* of biological and techno-cybernetic forms of life. Even now many people are using plug-in teeth, stimulators of a heart and other bodies. There are researches of an opportunity of implantation of microprocessor superchips right into a human brain. Recently there was a news about development in Los-Alamas of USA National laboratory so-called "alive machines", which have an ability to survive in unfamiliar environment by means of searching for a necessary sources of energy. In principal the size of them can be made about a nonometre, so soon they will be able to operate inside a cell alive, "using" the same sources of energy, as a cell. It gives an opportunity of their constant staying inside a human body. For example, such micromachines could live inside of a head supplying communication of a brain with SAI by means of optic lines coming outside. In this case a man can be constantly connected with a personal SAI (PSAI), that will allow to use it without a monitor or video-

helmet. It will be necessary for you to simply close your eyes or switch off light and then you get yourself in a space of a virtual reality. The situation will be similar to a usage of modern individual audioplayers. A PSAI will be able to manage a human body, using its eyes, muscles and memory of a human person if it is required a speed or accuracy higher than a modern human reaction. For example PSAI could instead of humans be on duty operating an automobile, plane or spacecraft. The same procedure could be made with animals to make them intellectual. So the sphere of intelligence or *noosphere* could be essentially extended, covering not only a global SAI and people with their own PSAI, but intellectualised animals, various robots and machines connected in a common global, but then even large space system.

According to Francis Fukujama⁶ the victory of liberal and democracy ideas in most of countries means that Human civilization comes to the phase of the end its history. Of course democracy is big achievement of the civilization development (communities of animals have hierarchical structures only), however system of democracy or open society has many principal disadvantages as well. They are: necessity of long debates on any discussed question, and then submission of intellectual elite of society to the will of majority, which very often is a more or less incompetent. Very often even in a small audience it happens a consensus is practically unachievable. Therefore in modern community with global scales, it becomes unachievable at all. From the point of view of the systems theory a pyramidal hierarchical structures are much better controlled, than democratic, but their main disadvantage is suppression of an initiative of people, their individuality and internal stimulus for activity. Also it is an absence among the people of a man, which could apply for a role of an ideal manager. If in a human society the managers of any level remain an ordinary people only, thinking first of all of their interests, instead of interests of a big system, a hierarchical computer network system is can be constructed so, that on the centres of each levels are the SAI of an appropriate level and at each level it will be a democracy of identical SAI centres also. So a future cybernetic society will have elements of both democracy and totalitarianism as well⁷.

In this case it leads to a possibility to realise many elements of different projects of an ideal society from Platon and Jesus until to Lenin and Marks. Until now all of these projects required that a man had behaviour programs similar to programs public insects - ants

or bees. Nowadays it is possible to say, that communism experiment in Russia was obviously an attempt to run forward, because at that time there were no other ways to submit the person interests to interests of community except of ideological violence and mass arrests. In the advanced countries the same process goes by a natural way of evolution, i.e. without social shocks and revolutions. Even now many firms use modern computer technology to make effective planned economy. If now the distribution of goods is made by means of money, in the further relations between people will be not in pure market system. In the nearest future paper money can be completely replaced by a unified electronic currency, therefore soon it will be possible to enter more complex distribution of available resources, than that was provided through paper money earlier. Supervising the bank accounts of all members of community and knowing about them all or almost everything, SAI will be able to care for them, just as we care for our body. The competition in it could be stopped, so society of a future will not be similar to modern "society of consumption", because it will be content with a reasonable minimum.

¹ Haken H. Synergetics - Berlin, Heidelberg, N.Y.: Springer-Verlag, 1978.

² Glasdorff P., Prigogine I., Thermodynamics: Theory of Structure - N.Y.: Wiley, 1971.

³ Jantsch E. The Self-Organizing Universe, - N.Y.: Pergamon Press 1980.

⁴ Meadows D.L. et al. The limits of growth, Universe Books. New York, 1972.

⁵ Rybakov V.M. An ideal is urgently required // Neva, 1995, n.4. P.153.

⁶ Fukujama F. The End of History? // The National Interest 1989 n.16.

⁷ Kosarev V.V. Who will live on the Earth in XXI century? // Neva, 1997, n.10. P.135.