

THE HUMANISM OF THE TECHNOLOGICAL SYSTEMS

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Abstract. The technological preoccupation of human being is integrated in the domain of cultural values. That is the reason why the creation and development of the Technological Systems/TS/ has a deep humanistic character.

The general present crisis is not due to TS, which are the basic pillars of the civilization and culture.

Recently, the Society for European Dialogue of the Czech Republic, celebrated the first edition of R. Richta's book (15), in which the author writes about the Technical-Scientific Revolution. We can identify it as the revolution of TS, within the analyzed period, which attained high levels, especially consequences. So R. Richta reached the perfectly justified conclusion that civilization is at a crossroads.

Similar aspects have also been analyzed by the **Club of Rome** and also by some meetings dedicated to this subject.

These ideas have been recently discussed again and updated by the American school, /**World Watch Institute** respectively **Earth Policy Institute**/. They are presented in the book entitled **Plan B 2.0**, recently published by L.R. Brown (1).

This sequence of preoccupations emphasizes the idea of a strong conflict between the development of TS and environment, having negative effects on the natural resources of raw materials, energy and food. The aspect of consuming the regenerating resources in a rhythm which surpasses their regenerating capacity is also underlined. We are talking about a crisis which, at present, is very bad and which determined L.R. Brown to launch the idea of **durable development** as a solution regarding the environment, the economy, the social, the consumption and the cultural. The idea is treated at global level by many other authors, too, for example, F. Fukuyama (5). Generally the conclusions are frightening, the difference between the rich and the poor of the planet being the most alarming problem for the beginning of the third millenium. Sometimes there appear effects that can't be controlled such as political, economical and social conflicts, that can affect the international stability especially in the circumstances of a general globalization.

The Club of Prague which appears, in 2006, continues the ideas of R. Richta but adapt them to the present world situation. It sets up in a forum having supplementary, specific tasks, mainly for the East-European countries. Due to the well-known political events these countries pass through different transitional

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phases, from social-economical state systems /*etatiste*/ to the market economies. They have many severe problems which need to be solved. These problems could be one of the future preoccupations of the **Club of Prague**, the author of this paper being one of the club's members.

In the followings we intend to show that **the crossroad** reached by the civilization is not due to the **TS**, which are its basic pillars and engines.

We are starting our approach by accepting one of the multitude definitions, for example, of J. Ellul's (14) as the most relevant, namely that technology represents the intersection of **to know and to make**, being one of the most important factors in the history of humanity. Like other author, V. Hubka (7) and I. Crisan (3), we consider technology a system with all its related aspects. **TS** can be appreciated as an answer to two basic interdependent factors. The first one represents the material and economical scope / the market with its mechanisms, respectively the government politics/. The second factor results from the exploring spirit of the creators of **TS** as a result of their virtuosity. Such human impulses are encountered in other creating fields like painting, poetry etc. The system itself includes the technologies /culture/ of a society in a certain period and it could be described as one of the essential social subsystems decisive for the progress. **TS** assure the objectivity of truth in science, determining, at the same time, its propulsion. Sometimes **TS** has an essential impact, on the social-economic, cultural, and political life of the society being very important in defining a certain level of civilization. It cannot be analyzed separately from the philosophical preoccupation with which it is interdependently related.

The question that raises is about **TS** having a humanistic character or not. We believe that the answer is affirmative. We start from the motive of technical creation act. The human being is the creator of **TS** and his beneficiary, too. **TS** offers him the possibility of adapting to the environment and to modify it according to his own needs in order to assure his existence/ nourishment and shelter as well as his spiritual life and the possibility to conserve and perpetuate his species. According to Benjamin Franklin (10), the human being is a "**toolmaking animal**" but what makes him different from the other beings is the conscious aspect of his acts. The human beings anticipate the usefulness of his action, the modalities of realization and he takes into account to perfect the **TS** created by himself, its humanization, in general, including his environment as well. This fact is also attested by his aesthetic preoccupations of creating **utile dulci** mentioned by Latin poet Horatius (13), in a word, to assure a certain harmony. All these can be specific to a certain epoch, maybe to an ethnic, nationality, a certain moral or even to some political believes of a society to which the human being belongs. For many centuries, the human being has combined technology with arts, both in his productive activities and in providing training for craftsmen given in schools called of **art and trade**, which exist still nowadays. In France they are called schools of

art et métier. This preoccupation of the human beings is integrated into the sphere of cultural values (14) and so **TS** has imposed itself on the social conscience as an essential component of the culture. Technical creations and their applications prove the conscious creating genius of human species. It may be concluded that along with **TS** development realised by him, the human being has passed through the aspects of **homo faber, homo sapiens, homo socialis, homo poeta** and, at present, **homo informativialis**. All these aspects are specific to the humanizing activity, regarding his environment, in other words of achieving what we call **civilization**. The more developed and flourishing the civilization, the more valuable its spiritual values.

We can generalize the idea that **TS** created by the human beings and his artificial environment built for himself obviously represents a cultural act also underlined by M. Heidegger (2). The technical creation of human being joins the other components of the spiritual culture like the visual arts, theatre, music, literature etc. The objects of his technical creation gives him similar satisfactions, in this case the human being having the privilege of a more frequent or even a permanent contact with them. Not accidentally T. Johanek (8) entitled his book about the apparently arid field of machine building in a suggestive way, namely “**Technical Aesthetic and Product Culture in Machine Building**”. Also E. Mašek (12) characterized the industrial design very well as a form of **technological humanism**.

Referring strictly to **TS**, it is obvious that in the conception and project stages the preoccupation for the above aspects is obligatory, as well as for those having an economic character. Similarly the charge of **TS** with a scientific content is another aspect of human preoccupations which aims at the whole of his creation as a system but also its subsystems.

The **TS** complexity in the industrial production stage, analyzed in the book of R. Richta (15) also regards the preoccupation for the responsibility of the technical act of creation. This act considered, **stricto sensu**, involves ethics and moral attitudes for those who realize it, but also for those involved in the **TS**. In this case, the final target of the activity is the maximum satisfaction of human exigency which can't be attained by a hasty solving or by half measures, which is even more grave. **TS** creators must know that these have a limited time of life that they have to function well and to assure the necessary safety. To accomplish the purpose specified above, creators of the **TS** are obliged to know and use the recent data and methods offered by science. They will have to use adequate materials and techniques with optimum costs, to meet the deadlines, once they resolved the environment problems that appeared by using, for example, clean technologies. It is necessary to take into account the optimizing methods for **TS** and its subsystems by using modern technique of calculation. Sometimes to find the optimum solutions it is necessary the functional simulation of products on prototypes or to use modeling techniques, which need modern methods of investigations based on precise means. The above mentioned aspects are a part of the ethical behaviour of

both the **TS** creators and the industrial designers of products (13). They have to avoid the uncertain aspects, the dissimulation or even trickery, the hiding of some compromised components or the physical or moral depreciation of the products. All these represent an act of moral fraud which is inhuman.

The people who are involved in **TS** must be fully informed and know the current trend as it is well-known that the technological information does not last long, being known that the new information replaces the old one. The role of information in modern **TS** is essential both from the point of view of its quantity and quality and also for the speed it is spread within the system and between systems. The use of the database and its transmission by internet and intranet etc., essentially improves the contribution elaboration period of the new **TS**. The scientific preoccupation /**R+D**/ has an essential contribution to the generation and transmission of the new scientific information. It is obvious that the faithful use of economic, social and other information is beneficial to humanity, too. Unfortunately, **TS** information can be also manipulated, changing even its original message. This happens when individual, group, private and even state interests interpose thus appearing a direct contradiction to the principles of ethics, morals and humanism. At present we sometimes assist at an information fraud under various forms such as practicing an unloyal competition or even using them against the social interests of humanity.

It is known that products have a life cycle that starts with the appearance of ideas /creation/ followed by development /maturity/ and finishes with saturation. The last phase has important social and economical implications as the products get to their limits once with **TS** to which they belong. They cannot surpass these limits so they become unefficient. The technological crisis can be resolved only with another, more efficient **TS** based on new principles. A situation like this happened, for example, with the decreasing value of **TS** based on the mechanical-electrical principles that dominated the last century. They have been replaced by **TS** based on mechatronics, whose dominant are informatical technologies / artificial intelligence, with application on robots/, new materials respectively the preoccupation for new more efficient forms of energy ,etc. It is known the attitude of the **Club of Rome** (1), who sounded the alarm of the negative social effects, starting by what was named **microelectronics** (4), suggesting a zero growth level. Adding to these, there appeared the oil crisis together with the expansion of the globalizing tendencies. It is not a wonder that the current known as **endism** appeared. This is manifested by pessimism generated by the produced crisis. These strongly affect the humanity and civilization and demonstrate that the situation described by R. Richta (15) has greatly amplified. All these made possible the appearance of debates regarding the end of history. ideology, state-nation, authority, public space and even politics, / A. Grambles (6)/. In our opinion all these ideas are doubtfulies,

The technological crisis can be solved, in time, but occasionally it can have a catastrophic character being accompanied by a high **TS** mutation, having negative effects on society. They may affect the organization of work and enterprises, consumption and sometimes even the forms of state organization respectively politics. The globalization and sometimes the slow spread of information can contribute to the intensification of the negative effects. Oil crisis in 1973 /recently the gas crisis/ and in general energetic crisis can have this kind of bad effect. Obviously, the human being implication in these situations, with social and economical consequences, can be very bad and difficult to solve. Situations like deprivation of the members of societies of the possibility of working, social insecurity and general decreasing of life quality, must be solved by managers, politicians, statesmen and governmental policies. They have to predict the crisis, a thing possible if there is an interest and preoccupation in determining the necessary modification of **TS**, some of them with essential character. Quality of life, human fundamental materials and spiritual needs have to be in the centre of the preoccupation of all the factors involved in **TS** management. As we can see, at present, there are cases in which the adopted political solutions can sometimes have an immoral character, contrary to humanistic principles, determined by opposed individual or group interests, by using **TS** as instruments of social domination in the profit of the oligarchic minorities. The social aspects occupy a secondary position or sometimes are resolved under the pressure of the events, shocking the society. The history of humanity demonstrates that human being has used **TS** in destructive ways just like the atomic energy. It produced high damage being used intentionally as a weapon or occasionally due to negligence like Chernobyl case, that became **Chernobyl syndrome** (11). In authentic democracies such situations generated by political intentions, are generally punished by electors. The problem is getting worse in the situation in which, politically speaking, the arbitrary dominates, the democratic aspects being neglected or even absent / example totalitarian ideology/.

The society can interfere by its decision factors to correct directly **TS** development for the benefit of humanity, by actions that can appear as compulsory: laws, state standards, norms, etc., but also to intensify the cultural act, including the instructive-educational process developed in schools. We don't have to neglect the role of the family, the social environment and mass-media etc. Education, in a large sense, must address to most members of society but mainly to people who have the political power. It is important that especially the large public be able to assimilate and use at maximum, the material and spiritual offers of the society in a continuous evolution. Human beings, creator and the beneficiary of **TS**, all must have a positive and active contribution.

The solution of these problems request optimization preoccupations, available for TS and their afferent informatics subsystem, that must have, as a first function, the aim to maximize, in general, the utility.

Decades ago, TS creators were considered supermen (3), capable to assure the human beings the comfort /automobile, electricity, TV, phone, computers, home equipment, etc. /, which contributed, at the end of the second millennium, among other things, to double the human beings lifetime. Now the same supermen, start to be like apprentice sorcerer, incapable to control the forces that he has produced .TS creators are hold responsible (9) for pollution, mass destruction weapons, the penury of electricity, traffic jams, etc. Some technologies are starting to be seen with prudence because they can affect the humanity negatively, such as genetic manipulations / clones, artificial and controlled manipulation of species /, industrial culture of vegetables and artificial soils even excessive automation, etc. Some of them by similar effects can generate specific, possible, situations like **Chernobyl syndrome**.

The question that arises is if TS are guilty for these consequences. From the above discussed ideas, it obviously results that the creation act has a deep humanistic character. Getting out of this trend is not due to the truth on which it is built. It is due to the factors that used the results of TS creator activities, sometimes political and state systems, the factors that own the material means. Philosophically speaking, TS won't go beyond consciousness but in its service.

The solution of this problem is in the hands of the members of the society /several civil association/in their control of the phenomena that can influence their general situation and political factors, able to assure the future of the humanity. The present globalization with its doubtful economic and social effects should oppose to the one, capable to defend the human interests of negative consequences. Production methods must respect the environment and the human beings and permit all the citizens to satisfy their fundamental needs: food, clothes, education, work, the possibility to live in a healthy environment (1). It is also necessary to impose the existence of some technological, ethic and professional codes by which, specialists from different fields are obliged to use their competence to assure a good state of humanity and improve the living and cultural conditions. From these codes there mustn't miss the specialists' obligations, to evaluate the social, economic and ecological consequences. They should also be obliged to inform and warn efficiently, mainly the decisive factors of some negative effects that can appear by using the results of their work.

Obviously, such theories must be taught in schools as well.

If we see the problems in the way they are presented above, the only solution of all these aspects can be generated by a generalized **humanism, which should be the third millennium characteristic** and to accept the axiom by which the only successful policy will be the one that will be based on science which has already

become a force of democracy and rationality. This involves that regional or global strategical decisions, aim first at **TS** and be rigorously established, by dialogue and debates, and general human consenting, acquiring humanistic solutions with a scientific base.

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