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THE GLOBAL AFFECTS OF SCIENTIFIC-TECHNOLOGICAL REVOLUTION ON THE SOCIAL ALTERNATIONS

GLOBALNI UTJECAJI ZNANSTVENO - TEHNOLOŠKE REVOLUCIJE NA DRUŠTVENE PROMJENE

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Abstract

The global affects of scientific-technological revolution on the alternations in contemporary society are indicated by this study. Accelerated and enormous technological changes emanated especially after the Second World War, such as the discovery of atomic energy, the configuration of electronic computer and the defining of communication and management theory bases, caused significantly accelerated technological and economic development, yet enormous alternations in society as well, considering all levels and parts of its organization and function. Those alternations are most frequently manifested in: economic structure, social structure and dynamic, politic life, social awareness and culture, family relationships and people lifestyles. The essential trend of these alternations, especially towards the end of XX and in the beginning of XXI century, produces the process of globalization which is manifested throughout the accelerated development of economic, politic, cultural, scientific and other relations among people and nations of the world.

Sažetak

U ovom radu se ukazuje na globalne utjecaje znanstveno-tehnološke revolucije na promjene u suvremenom društvu. Ubrzane i velike tehnološke promjene koje su nastale osobito poslije Drugog svjetskog rata, kao što su pronalazak atomske energije, konstrukcija elektronskog računala i definiranje osnova teorije komunikacije i upravljanja, uzrokovale su izrazito ubrzani tehnološki i ekonomski razvoj, ali i velike promjene u društvu, na svim stupnjevima i u svim dijelovima njegovog organiziranja i funkcioniranja. Te promjene su najčešće izražene u: ekonomskoj strukturi, socijalnoj strukturi i dinamici, političkom životu, društvenoj svijesti i kulturi, obiteljskim odnosima i u načinu života ljudi. Osnovni trend ovih promjena, osobito s kraja XX i početkom XXI stoljeća daje proces globalizacije, koji se izražava kroz ubrzani razvoj ekonomskih, političkih, kulturnih, znanstvenih veza između ljudi i naroda u svijetu.

Enormous alternations in contemporary society after the Second World War emanated with the discovery of atomic energy (1945), and then with the configuration of electronic computer (1946) and the defining of communication and management theory bases (1947) represent the synthesis of organized scientific and technological discoveries marked in social literature as the Third Technological Revolution or the scientific-technological revolution. Alternations caused by scientific-technological revolution are manifested throughout: the utilization of new energy sources, especially atomic; the chemistry of work objects and process; the development of genetic engineering, electronic, means of communication and traffic, especially throughout the development

of informatics technology which advanced most rapidly and most universally applied together with its microelectronics. These alternations also have social implications on contemporary society structure and dynamic especially reflected throughout alternations in: economic structure, social structure and dynamic, politic life, social awareness, family relationships and people lifestyle. The essential trend of these alternations, especially towards the end of XX and in the beginning of XXI century, produces the process of globalization manifested throughout accelerated development of economic, politic, cultural, scientific and others relations among people and nations of the world, which is all together reflected on local and global level.

Alternations in economic structure are primarily expressed in work objects and means, as well as in the way of entire manufacturing. By the process of chemistry, work objects are all the more in direct contact with robots than with people. Automatic machines (robots) drastically exceed universal or specialized mechanic machines and make complete productive complexes, all the while it leads to larger exclusion of human being from the execution of direct operational functions of serving a machine and enlarge his or her function of surveying and regulating the process of production. These alternations are closely engaged with discoveries of new energy sources, development of new technologies, informatics, cybernetics, specialized means of communication and science development. Expressed throughout massive implementation of informatics and cybernetics, electronic computers and electronic webs, means of massive communication, appliance of mathematic methods in social planning and development, new *intellectual technology* marches more and more on a stage. Alternations occur in the way of production, which substantially changes the traditional structure of industrial society. The essence of these alternations lies in comprehensive automation and robotics in the base of which is microelectronics that enabled high progress of work tools and generated great changes in the division and productivity of labor. It induced: higher shares of tertian activities in economic structure, significant increase of invention and professional knowledge shares in human labor, changes in employment structure, curtailment of working day and expand of unemployed people, expand of spare time, as well as the promotion of people life standard. In the structure of the employed it came to important shifts from primary to secondary and tertian sector. It also came to changes in the labor division and the economic structure of society. The tertian sector becomes the most important, and the importance of primary and secondary sectors descends because the number of employed people in those sectors incessantly descends. Simultaneously with these changes it comes to alternations in professional and educational structure of employed people. The tendency of curtailing the number of industrial employees and expand of "non-manual employees" /1/ are indicated by many researches. These changes cause the altered position of employee in new circumstances and "the end of labor society" /2/. Simultaneously, these changes also cause the increase of unemployment, higher qualifications and qualification modifying of labor force, increased capability, creativity and sociability of a human being in general. In these conditions science has

qualitatively new position; it represents the key factor in production and comprehensive economy of contemporary society. Production all the more depends on science and scientific results appliance, than the amount of invested labor and means. Therefore science appears as "the key parameter in the growth of contemporary civilization" /3/. The development of science and technology also caused changes in technological structure expressed throughout concentration, centralization and integration of capital, knowledge and labor, which onwards caused its internationalization and creation of multinational companies that emerge as powerful technologic, economic and even politic forces in contemporary world: "Well-known world companies (...) have much bigger economic power on their disposal than the majority of world states" /4/. Technological changes also caused the alternations in property relations, instead of individual property the corporate form of property is all the more emphasized, which brought about the transformation of classical enterprises into stock companies. Instead of big companies and corporations the Universities and Researching Institutes take the significant place in development of society. Fundamental developmental resource is not capital any more but scientific employees, and instated of technique and capital accumulation the creation and expansion of knowledge emerges at the fore front.

Alternations in social structure and dynamic unequivocally occurred as a result of labor division and changes in the way of production. Traditional classes and ranks were modified, since knowledge and information like developmental resources instead of human work and capital all the more have the decisive role, and thus social structure becomes completely different. Social structure is branched into the multitude of different social ranks and groups. The middle ranks had the biggest expand and attached great importance. New middle ranks mainly occur as a consequence of tertian activities development, division of function of management from property right and recuperation of the role of state apparatus. These ranks are highly heterogenic and usually recognizable by certain social groups such as intellectuals, technocracy and bureaucracy. Members of the middle ranks establish their existence on knowledge sale, work on different activities and partially on the adoption of somebody else's value excess if he or she takes high status in the social hierarchy, as it is the case with represents of technocracy and bureaucracy /5/. In any aspect the social dynamic of contemporary society is dictated by knowledge and science /6/. Social conflicts, which determined

the dynamic of industrial society by constant threat of social revolution, were considerably mitigated. Along with the technological changes, changes in the structure of the employed and new methods of management, the employed had cooperative attitude with capital owners by the means of various forms of participating. At the same time, throughout evolutionary changes in postindustrial society, their social-economic position was significantly remedied so today we can hardly discuss about exploitation and possible conflicts in relation between class and capitalists. Nowadays we use to discuss the exploitation of "intellectual work in international proportions" and concurrence by means of which "the transfer of talented experts from the countries in progress to the high developed countries is urged and stimulated" /7/. Today there is another kind of exploiting and possibility of conflicts on completely different relation: the developed and undeveloped.

Alternations in political life are most expressively reflected in recuperation of state role and new forms of political engagement. By means of state interventionism policy, a state in developed societies is directly engaged on fulfillment of economic development aims, employment, providing the social insurance and protection of minimal standards concerning incomes, nourishment, dwelling, health and education for all citizens. This new role is based on the ideas of Keynes' economic policy of state interventionism (J. M. Keynes) and social-democratic policy of reforms in capitalistic society by means of a state. Additionally, the following affected the role of a state: direct assumption of economic sectors in which private capital were not interested (production of arms and military equipment); organization and supporting public activities (infrastructural objects, social standard, communal works etc.); allotment of national incomes and providing fundamental social and health protection of citizens. Because of the assumption of mentioned functions, this concept of a state is marked as *social state* or *the state of prosperity* /8/. Taking in consideration the other side of a state reflected in branchy bureaucratic organization and developed apparatus of authorities, which directs enormous military, referential, informational and other centers and works, two sides of a medal can be noticed: the firsts in a form of human common social service and the second in a form of the organization of legitimate repression. At firsts sight it seems contradictory, yet it is the only way to preserve social peace, regulate and supervise all relations in society, which is basically an aim of every modern country. New forms of politic engagement are displayed in the appearance of new social movements and initiative by means of which there is pretention to affect the policy of a state or more regarding the

solution of concrete problems of contemporary civilization, especially in the field of environmental pollution, nuclear programs, economic and investing policy, women rights etc. Furthermore, new forms of politic engagement are also displayed in the increase of non-governmental and other organizations with different politic programs and aims, the appearance of diverse interested groups which put pressure on the government of certain countries in order to make or not certain decisions, as well as the occurrence of terrorism in the function of certain politic aims.

Alternations in social awareness indicate the increasing importance of education and scientific way of thinking. Furthermore, those alternations are also displayed in the domain of set of values, region loses its power, and the formulae of traditional culture all the more disappear. In the development of education and scientific way of thinking, science is of a great importance. By the implementation of scientific accomplishments in the processes of production, research project constantly progresses which consequents to alternations in the structure of students engaged in work process, alternations in education and educational policy of certain societies. The importance of knowledge is all the more indicated in contemporary society so it is generally regarded that the wealth of a state will soon depend on knowledge instead of natural resources /9/. Knowledge becomes fundamental resource of development, and education the most significant social activity. The greatest wealth of society becomes intellectual potentiality which can provide its balanced social-economic development. In strategies of many countries education and educability became one of the key factors. Therefore, within its programs and reforms many governments put education on a very important place and endeavor to make their educational systems and concepts adequate for real developmental needs and expected social alternations. Education all the more becomes an object of consideration and agreement on international plan within regional and international organizations (ex. *the Bologna Declaration*). The set of values rapidly changes in contemporary society, regarding particular societies as well as planetary global societies by their elementary attributes. It is the case particularly with the development of service activities where it comes to the encounter of different cultures and massive culture the concepts of which are being broadcasted all around the world: "Nowadays, people from all around the world have easier access to direct worldwide information they are interested in. They themselves can come to believe what are the styles and aspirations in other countries, fashion styles, sports and lifestyles" /10/. Besides that, cultural diversities are being equalized

or profiled to the pattern of cultural formulae of the most developed Western countries. The formulae of traditional culture are being decomposed by forceful penetration of massive culture values and goods; all the while it comes to the creation of new cultural formula which exceeds the frames of particular societies and keeps intruding as unique formula for global society. By the penetration of rational way of thinking and the development of science and education, it comes to the secularization of society; therefore religion is less important in contemporary society. In many regions there is anxiety over penetration of rational way of thinking and its foundation in social awareness, so the demands for protection of regional values are kept emphasizing or it goes to religious and fundamentalist offense which was the case in the Middle East countries after the Islamic Revolution in Iran, 1979.

Alternations in family relationships are displayed in many segments and have diverse consequences. Firstly, the fundamental social function of a traditional family as manufacturing unit is transformed into consumerist function. The adult family members become economically independent and they earn their incomes out of the family, therefore they spend more time outside the family. According to many opinions it causes the decay of family member's cohesion, especially marital cohesion of couples, because of which it comes to frequent adulteries and divorces, small number of children and decay of family breeding role. Families in contemporary society are less numerous and consisted of parents and children, and there are more and more families consisted of one parent and children. Therefore, many sociologists forewarn us of the fact that "it is no longer possible to unambiguously define what family, marriage, parenthood, sex or love mean, what it suppose or should mean" /11/. Social relations in a family are less regulated by customs, moral, religion and other values of traditional culture but legal norms. It often comes to conflicts and abusing within family in the resolving of which a state is also included (the police, the Court of Law, social institutions etc.). Many sociologists are preoccupied by those alternations in family relationships, so it is often emphasized that a family of contemporary society is in crisis.

Alternations in lifestyle are mostly displayed in: the way of using our spare time, expressing new requests where consumerist mentality dominates, and more ample consuming of massive culture concepts. Spare time is issued as a result of accelerated technological development of society and curtailment of working day. Time unbounded with working duties provides the possibility of qualitative alternations of human life, which are

manifested by vacation, entertainment and activities that contribute to development of an individual. On the other hand, spare time more and more represents a social problem which is to be concisely resolved. For many people spare time stands for spellbound circle within which they cannot manage, so they find the way out in passive acceptance of massive culture concepts, most frequently of those broadcasted on television channels, than in excessive nourishment, alcoholism, hedonic vices etc. In the aim of organized spending of spare time some new social activities are being created such as tourism; numerous sport-recreation activities in clubs, fitness centers and similar; diverse activities and the intercourses of hobbyists, pet fans are being organized etc. Consumerist's mentality is displayed in the domain of material goods and services consumption, as well as in the way of spending spare time within which goods produced by massive industry are also consumed and where consumers appear in extremely passive attitude. That mentality is systematically constructed in order to modify people behavior as consumers in modern conditions. It is especially indicated the importance of consummation all the while people deceive themselves that they will acquire higher position and respectability by purchasing more expensive and plushy objects as symbols of status. The basic trend of structural alternation in contemporary society, especially towards the end of XX century and in the beginning of XXI century, issues the process of globalization manifested throughout accelerated development of economic, politic, cultural, scientific, and other relations among people of the world, which reflect on enormous social alternations on the local and global level as well. The process of globalization is a part of even more dependent world where politic, social, and cultural relations are not confined in boundaries of a territories or countries and neither state or entity are out of activities affects which take place beyond its direct control.

References

- /1/ B.Marković, Nove tehnologije, radnička klasa i sindikati, Beograd 1989, p. 29.
- /2/ A. Gorc, Zbogom proletarijatu, Beograd 1982, p. 75-78.
- /3/ M. Pečujlić, Budućnost koja je počela, Beograd 1966, p. 21.
- /4/ L. Sklair, "Going global: competing models of globalization", *Sociology Review*, 41:7-10, November 1993, p. 7.
- /5/ V. Cvjetičanin, Klase i klasna struktura suvremenog društva, Zagreb, 1974, p. 99.
- /6/ Lj. R. Mitrović, Savremeno društvo- strategije razvoja i akteri, Beograd, 1996, p. 94 -124.

/7/ Ibid, p. 98.

/8/ M. Gunnard, Beyond the Welfare State, New York, 1958.

/9/ F. Major, Sutra je uvek kasno, Beograd, 1991, p.32-33.

/10/ K. Ohmae, The Borderless World, London, 1994, p. 19.

/11/ Beck, U; Beck-Gernsheim, E: The Normal Chaos of Love,
Cambridge 1995, p. 5.

Literature

1. Beck, Ulrich; Beck-Gernsheim, Elisabeth: The Normal Chaos of Love, Polity Press, Cambridge 1995.
2. Gidens, Entoni: Posledice modernosti, "Filip Višnjić", Beograd 1999.
3. Gorc, Andrej: Zbogom proletarijatu, Radnička štampa, Beograd 1982.
4. Gunnard, M: Beyond The Welfare State, New York 1958.

5. Cvjetičanin, Veljko: Klase i klasna struktura suvremenog društva, Školska knjiga, Zagreb 1974.

6. Held, David; A. Mc Grew, The Great Globalization Debate, An Introduction, The Global Transformation Reader, Polity Press, Cambridge 2000.

7. Major, Frederik: Sutra je uvek kasno, Jugoslovenska revija, Beograd 1991.

8. Mitrović, R. Ljubiša: Savremeno društvo – strategije razvoja i akteri, Institut za političke studije, Beograd 1996.

9. Ohmae, Kenichi: The Borderless World, Harper Collins, London 1994.

10. Pečujlić, Miroslav: Budućnost koja je počela, Institut za političke studije, Beograd 1966.

11. Sklair, Leslie: "Going global: competing models of globalization", Sociology Review, 41:7-10, November 1993.

12. Soros, George: On Globalization, Public Affairs, Oxford, 2002.

