

Revisiting the Distinctive Features of the Information Society's Technological Structure

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Abstract

The paper dwells upon the distinctive features of the information society's technological structure, with the main focus being put on a comprehensive analysis of this structure as it considered within the framework of the modern social and philosophical discourse. The specific of techno and technological structure's impact on human nature is also under consideration as well as the specific of information society as a continuous conception refinement process.

Keywords: information society, technological structure, information, information culture, critical theory

1. Introduction

The information society's high technology has greatly contributed to the making of a new social reality, which, by its ontological features, differs widely from the previous historical types of society and impacts practically all areas of present-day life, modifying objective reality (Amini, 2013). The new civilization has transformed spiritual life, metaphysics, as well as politics, science, art, and ideology. These changes need a careful consideration and a critical philosophical reflection to conduct an in-depth analysis of the latest technology in the light of the current worldview, the current set of sociocultural norms and axiological aspects of modern life. The philosophical analysis is supposed to establish the directions in which modern society is moving alongside the aims, the ontology and axiology of this movement. The research essence of the analysis undertaken is to offer an explanation of how advances in technology influence social phenomena. We are also endeavouring to make the case for the insufficiency of technocratic approaches alone to understanding the nature of the information society (Lukina & Samokhina, 2013).

The subject is undoubtedly vital and highly topical for the conceptual status of the information society theory is being under consideration. According to Beniger's observation currently there exist about seventy versions and conceptions of this theory (2009), Zins defines about 130 (2007). The peak of the research into this subject area fell on the 1960s-1980s, but since then the theory of information society has gradually found itself on the fringes of social, philosophical and sociological research. Therefore information-based terminology, a wide range of nominations is being applied to modern society, with the most frequent ones being *creative society*, *knowledge society*, *non-knowledge society*.

Under the circumstances, the prospects which are opening up for the theory of information society are as follows: either become a thing of the past, or integrate into one of the current versions of the present-day social reality, or reinforce its own conceptual basis through perfecting methods of category analysis.

As the latter option seems the most preferable, the aim which is pursued in this paper is to clarify the theoretical and methodological potential of the technological structure concept, as this potential will make it possible to define the essential characteristics of the information society, thus working towards the cognitive aspect of its theoretical explanation.

The technological structure concept plays an important part in the modern social and philosophical studies (S. Lash, A. Toffler, C. Freeman, T. Shanin, S. Glaziev, etc).

2. Materials and Methods

The major focus of the paper is the identification of social, cultural and anthropological components of the information society's technological structure and the way in which these components shape the key features of this type of society. In the pursuit of the aforementioned aim we proceed from M. Weber's assumption, which we regard as highly instrumental in that respect, that the greatest value in sociotechnical systems lies in the discrete and individual rather than the typical, therefore the study of the discrete and individual ensures the objective nature of social and scientific knowledge (Вебер, 1990).

3. Main Body of the Paper

3.1 What is "Technological Structure"

The term "technological structure" originated with West European and North American economists. The theory of technological structures conforms to the evolutionary paradigm of economics, whose development was greatly contributed to by C. Freeman, R. Nelson, and S. Winter. The founders of the evolutionary economics refer to the idea of "natural selection", as through this selection a certain "organizational genotype" of the economy is formed, while the economy itself is seen as the transition from one technological structure to another (Freeman & Soete, 1997; Freeman & Louca, 2002; Nelson & Winter, 1982).

This paradigm's distinctive feature is the evolutionary approach to the economy as a system of mediated technological, industrial, commercial and social relationships and interconnections, which implies understanding their inner logic, rhythm and mechanisms of their driving forces.

Russian economist S. Glaziev put forward an original interpretation of the evolutionary paradigm. In compliance with his approach, social progress is a transition from one technological structure to the next by means of prerequisites.

In modern philosophy and sociology the tendency of interpreting social progress as development by means of prerequisites has been elaborated primarily in the works of D. Bell and A. Toffler. The latter coined the term "civilization structure" to denote a result of technological mutations that make a revolutionary impact on the social environment, reshaping labour relations, communication, management, and leisure. Technological change germinates slowly, in an evolutionary way, or, as A. Toffler puts it, "by waves", leading to radical transformations of social forms. Innovative technological shifts are brought about by revolutionary prerequisites that set free human intellect and will. A. Toffler points out that the information society (the third wave) is characterized by "the drastic changes we are experiencing" and which "are in no way chaotic or accidental; in fact, they have a clear, easily distinctive structure... These changes are supposed to be of cumulative nature, i.e. they are added up to a gigantic transformation depending on the way we live, work, relax and think" (Тоффлер, 2002).

S. Glaziev's interpretation of social and economic processes is premised on the modern theory of knowledge put forward by Russian methodologist V. S. Stepin, who advanced the post-non-classical scientific and practical paradigm that superseded the classical and neoclassical versions of understanding cognition in various fields of knowledge (Степин, 2000). From S. Glaziev's standpoint, this paradigm's extrapolation to the understanding of particular economic phenomena within the framework of the new standards of economic knowledge is conducive to regarding the technological structure of society on the basis of the extensive knowledge coming from such fields as evolutionary, institutional, behavioural economics, making allowance for social, psychological and environmental factors.

S. Glaziev views the technological structure as a set of groups of technological entities, connected with one another by single-type technological chains and creating self-regenerating integrities (Степин, 2000). Each technological structure has a complex pattern. A set of intrinsic entities of technologically interlinked industries makes up the core of a society's technological structure, with technological innovations which are immediately related to this core and which revolutionize the technological sectors of the economy being the key factor. The industries that exploit the key factor and implement the new technological structure are termed *structural industries* or stable clusters of the new structure production (Степин, 2000).

S. Glaziev's conception proceeds from the vital importance of the technological structure's social aspects: education, healthcare, science, culture, mass media, law enforcement. The matter is how the technological structure built-in system of the protection of human capital reproduction works, how humans self-actualize through bringing education and professional training into alignment with their needs, how cultural and informational environments are created to ensure a smooth innovative development and the economy of knowledge. The abovementioned system is primarily aimed at the transition from the entertaining model of the

mass media to the informative and instructive one, the extension of creative activities in school curriculums and a major emphasis on Humanities in higher education.

Highly relevant to the issue appears to be the standpoint of British philosopher S. Lash, who made an attempt to restore the informative meaning of the term *information society* by way of a critical analysis of the technological structure of this type of social reality. The critical intension of this position is revealed through the idea that the evolution of the information society results in a new technological way of life overriding the anthropological aspect, therefore directly affecting human behavior, values and the meaning of life. One of the priorities of this paper is to make the case for a critical evaluation of the present-day technological fabric, which seems to be a principal objective of modern social sciences as well as Humanities.

3.2 *The Distinctive Features of the Information Society's Technological Structure*

The distinctive features of the information society's technological structure can be explicitly exposed by responding to the question of whether this type of society represents a structurally new model of social system or succeeds industrialism and post-industrialism with all their imminent features and contradictions. We side with the second approach, advanced by renowned social scientists G. Bekhmann and T. Shanin. The former points out that "information society should be regarded as information-based industrial society conditioned by a market economy" (Бехманн, 2010). T. Shanin, a Professor of Sociology at the University of Manchester, sees the issue at a different angle: "The empirical foundation of the epistemology of modern societies is industrialization and its incessant chase for satisfying the ever-increasing needs with the aid of growing wealth, improved technology, advanced science, universal education, and individual freedoms" (Шанин, 1990).

A close examination of the standpoints above shows that the only advantage of the information society over the industrial society consists in its using new ways of interaction, supported by information and communication technologies. The ideology of information society proceeds from the onward march of humanity toward industrialization, its intrinsic fundamental orientation toward progress, standardization, unification, and universalization. On the whole, the theories of information society convey technological optimism, transcendence of advances in technology across all social environments, positive attitudes to information and communication technologies as a defining factor of social progress.

T. Shanin formulated an alternative to the technological mainstream of industrialism, with the latter seen as endemic to the West European and North American societies. He put forward the concept of *the informal economy* as an alternative, co-existent economic reality outside the standard industrialized schemes. "The informal economic activities are rooted or dissolved in a broad context of human interaction ... that is why they possess a more social nature, which means they are conditioned by the norms of primary communities and individualized choices made by families or individuals" (Шанин, 1990). According to Shanin, deep social roots and viability of suchlike systems call for an analytical and ideological breakthrough, as these systems are promptly responsive to the demand and highly effective in the family business initiation of generations instead of the initiation through formal bureaucratic and judicial procedures (Шанин, 1990). The question is: What ideological, social and cultural meanings does the term *technological structure* convey if we accept the conception of modern society's industrialized orientation? Within the designated scope of the research trend, the concept of technological structure does not exceed the bounds of its technical and technological specifications which were to ensure a sustainable growth during the transition from the Keynesian-Fordist model of state-supported mass production in the 1940s-1980s to the post-Fordist model, whose characteristics remained unspecified (Бехманн, 2010). In other words, the structure in question presumes the omnipotence of the latest technology in all areas of life, with its proponents demonstrating a commitment to the mythological rhetoric of the break on the assumption that the latest technology will change the world irreversibly.

In their theories, S. Glaziev, A. Toffler and S. Lash adopt different approaches to the technological structure's conceptualization depending on the structure's methodological potential, though each approach is based on the premise of extending the structure's current technical and technological specifications.

S. Glaziev advances the idea of discriminating between five technological structures that humanity has gone through since the Industrial Revolution in the 18th century, while the sixth one is currently being formed. The fifth technological structure correlates with the information society's economic setup and falls on the time span of 1970-2010. The information society's technological structure is represented by microelectronics, software, robotics, and new materials.

The sixth technological structure's mainstreams incorporate such fields as biotechnology, nanotechnology, artificial intelligence systems, global information networks, and integrated high-speed transportation systems within the time span of 2010-50. In this respect, innovations are making their way into everyday life and their

role is determined by the economic tradition, that is, the implication is the transformation of science-based developments into innovations, with the latter being designed to generate new productions and new profits for the economy. The identification of developments with innovative potential implies joint efforts of scientists and economists, and, respectively, the consolidation of scientific and economic types of mentality in the social space of the technological structure. Economically, this period is based on the intellectualization of production processes; socially, the progress is expected in the form of the transition from *consumption society* to *creative consumption society*, *intelligence society*, and *development society* (Глазьев, 2010).

S. Lash's approach is primarily focused on the principle on which the information society is built rather than the social form which it supersedes (Lash, 2002). Proceeding from this assumption, this scholar attaches major importance to the term *information*, thus renewing its methodological potential to stimulate deeper understanding of this type of social structure. In this way, S. Lash refrains from any conceptual analysis of the notions *post-modernity* or *late modernity*, which, due to their amorphous nature, are often thought of as specific to the information society. Information becomes a kind of nucleus of the information society's technological structure and, simultaneously, the kernel category of its theoretical analysis. Despite the classic conceptions of information society (e.g., by Fritz Machlup, Daniel Bell, Yoneji Masuda) treating the concept of information as a technical and technological specification of the information society, S. Lash demonstrates how information transforms the whole structural organization of modern society at all levels. The self-sufficiency of information is established by the fact of its sheer existence, and not by the fact of a particular material object being created on its basis. In industry, the conveyor belt production contrasts markedly with information- and knowledge-based practices of creating new products as constructed artifacts. In politics, national states' privacy collapses under the dominant influence of global, supranational institutions fuelled by the infinite possibilities of the latest information and communication technologies. In social life, the changes are manifested in the form of the substitution of social norms by labile cultural values, with society itself gradually acquiring characteristics of a community. On the grounds of these trends, S. Lash concludes that the information society is characterized by increasing indefiniteness and irrationality. S. Lash has coined the term *a disinformed information society*, the key to understanding which is "a theory of unintended consequences" (Lash, 2002).

A paradoxical aspect of S. Lash's conception is his attempt to amalgamate the information society's anarchic, individualist and subjectivist trends with its technological structure's complex, structural and organizational intensions. Nonetheless, this contradiction can be easily explained if we look at it from the author's point of view, according to which the technological structure is implicitly programmed to work towards individualism and subjectivism, whose manifestation in the social being depends entirely on technological systems. S. Lash insists that sociality, which functions at a distance and is itself life-at-a-distance, cannot be achieved apart from one's "machine interface" (Lash, 2002). The information culture does not properly reflect the outward aspects of technological forms of life, but is the result of their intrinsic nature which is aimed at the effect of "merging theory with practice" within the framework of this type of society. Consequently, the information society is becoming increasingly subjectified, with its technological forms of life only growing in importance over time. "In the information age the centrality of the means of production are displaced by the means of communication: the centrality of production relations by relations of communication" (Lash, 2002). Such circumstances accentuate the play-and-the-game nature of the technological culture, with its significance in the information age far outweighing *homoludens* of Johan Huizinga. In the previous ages play was opposed to work. Nowadays it embraces all areas of social life. New forms of culture and the media are not representations of reality, but rather its extensions (Lash, 2002).

What dangers does the information society's technological structure potentially constitute? According to S. Lash, modern life's technological practices result in human beings losing their unique identities, in their dilution in the world of things, while society is turning into a community without a central subject.

In S. Lash's interpretation, the conception of the information society as an unprecedented phenomenon must be analyzed critically rather than apologetically as it amalgamates all the traditional categories and values, which disorients the human being and subjects them to non-human powers and circumstances that hide the technological structure's ideology.

In general terms, the modern social theory is acquiring the characteristics of the critical theory, adhering to the Frankfurt School's traditions of social criticism which is primarily focused on the analysis of the apparent discrepancy between the technological age and the ideals of reason and humanism. Within the critical discourse, the biggest danger is seen in the discordance of the information society's technological and humanistic strategies. The criticism of the information society's technological aspects marks a shift for the traditional social and humanistic paradigm towards the study of human development, the fundamental values and meanings of human

life, the generic principles of self-identity. In this respect, noteworthy are the alarmist intensions put forward in a number of contemporary philosophers' studies concerned with the intrusions of technology into human nature (Хабермас, 2002). German sociologist and philosopher Jürgen Habermas observes that the progress in the latest biomedical technology and the much extended human freedom in the manipulation of natural substances have to be regulated by legislation. A new scope of responsibility is required in the light of the obliteration of clear distinctions between humans and things. Similarly, Francis Fukuyama's central thesis is the concept of human dignity as the right to preserve one's uniqueness in the age when advances in technology make it possible to model human nature and implement new total forms of social control (Fukuyama, 2002).

4. Results

On having completed this study, we have been able to formulate the following conclusions.

Firstly, the critical tendencies in the study of the Information society's technological structure fully comply with the understanding of the fact that social progress comes about not only by way of technological breakthroughs and Innovation, but equally, this progress has to organically fit the intrinsic nature of sociocultural processes.

Secondly, one of the defining features of the information society's technological structure is revealed in its technical and technological pattern's intrusion into human nature, initiating qualitative changes in the latter. With regard to this feature, it appears indispensable to heed the fact that the making of the information society's technological structure coincides chronologically with the intensification of the discussions about the post-human existence as a key sociocultural issue.

Thirdly, attempts to establish the information society's distinctive features with the major focus on its technological structure are an illustration of the effectiveness of conceptualization as a continuous process of deepening the understanding of the study's subject matter. Further to this, the success of the aforementioned attempts depends largely on the use of new approaches within the framework of cultural policies along with humanism-centred technologies.

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