



# Knowledge Society: Essence, Conceptual Models, and Potential for Implementation

## Sociedad del conocimiento: esencia, modelos conceptuales y potencial de implementación

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#### ABSTRACT:

This article examines the concept of knowledge society by comparing it to information and postindustrial societies. Despite the similarity of characteristics, these concepts are different and they contain distinctive contents. The article also explores the essence of the categories of "knowledge" and "information" in science and philosophy, in particular, those embedded in the concept of "knowledge society". Knowledge contains information, but it cannot be entirely reduced to information. The deeply interconnected notions of information and knowledge become constituent features of the new postindustrial stage in the development of the world mega-society. Their relationship is based on the understanding of the fundamental nature of these notions. Modern society is called information society due to the development and wide use of information technologies. Problems and risks arising during the construction of a knowledge society are also studied. Risks are primarily related to the different levels of countries' development. One of the main risks is the commercialization of science since in this case science becomes one of the branches of commodity production. Knowledge becomes a commodity, i.e. a product intended for exchange and sale. In commodity production, demand and supply becomes its driving forces. What is not in demand is not produced, and this might define the driving force for knowledge creation.

**Keywords:** Knowledge society, postindustrial society, information society, knowledge, information, risk, commercialization of science, information technologies, network society.

#### RESUMEN:

Este artículo examina el concepto de sociedad del conocimiento comparándolo con la información y las sociedades postindustriales. A pesar de la similitud de las características, estos conceptos son diferentes y contienen contenidos distintivos. El artículo también explora la esencia de las categorías de "conocimiento" e "información" en ciencia y filosofía, en particular, aquellas integradas en el concepto de "sociedad del conocimiento". El conocimiento contiene información, pero no puede reducirse completamente a información. Las nociones profundamente interconectadas de información y conocimiento se convierten en características constitutivas de la nueva etapa postindustrial en el desarrollo de la mega sociedad mundial. Su relación se basa en la comprensión de la naturaleza fundamental de estas nociones. La sociedad moderna se llama sociedad de la información debido al desarrollo y al amplio uso de las tecnologías de la información. También se estudian los problemas y riesgos que surgen durante la construcción de una sociedad del conocimiento. Los riesgos están relacionados principalmente con los diferentes niveles de desarrollo de los países. Uno de los principales riesgos es la comercialización de la ciencia, ya que en este caso la ciencia se convierte en una de las ramas de la producción de productos básicos. El conocimiento se convierte en una mercancía, es decir, un producto destinado a intercambio y venta. En la producción de productos básicos, la demanda y la oferta se convierten en sus fuerzas impulsoras. Lo que no está en demanda no se produce, y esto podría definir la fuerza impulsora para la creación de conocimiento.

## 1. Introduction

There is no consensus on the question of what place in the evolution of society is assigned to knowledge society or to the society based on knowledge. The author of the idea of a postindustrial society, which replaces the industrial society, D. Bell writes that technology is one of the axes of a postindustrial society; another axis is knowledge as a fundamental resource. According to D. Bell, knowledge and technology are "embodied in social institutions and represented by persons" (Bell, 1976). From this statement it follows that the occurrence of a postindustrial society is nothing but the occurrence of a knowledge society. However, in another of his works, he argues that "knowledge and information become strategic resources and an agent of the postindustrial society transformation" (Bell, 1980). Consequently, the postindustrial society is only one of the phases of society development, and this development is promoted by knowledge and information. But what kind of society is this?

Many researchers note that the concepts of "postindustrial society", "information society" and "knowledge society" are very close and almost synonymous. The concept of information society was proposed in the early 1970s by the Japanese theoretician K. Koyama, while the concept of knowledge society was introduced by R. Lane back in 1966. According to J. Naisbitt, "a postindustrial society is an information society..." (Naisbitt, 1982). K.Kh. Delokarov does not see any difference between information society and knowledge society. He writes that "knowledge-based society" does not essentially differ from information society, because knowledge is a constituting factor both for the former and the latter" (Delokarov, 2010).

The majority of other researchers believe that information society replaces postindustrial society, and knowledge society comes to replace information society. For example, G. Bekhmann argues, "the modern stage of information society development should be understood as knowledge society" (Bechman, 2012). We also support this view and believe that despite being close, the notions of information and knowledge are nonetheless *non-identical*.

## 2. Methodology

The study uses a classical methodology, including such principles and methods as the principles of concreteness, historicism, and integrity, the methods of comparison and constructive criticism, as well as the categories of essence, necessity, quality, measure, and others.

A critical analysis was made of the theoretical concepts of knowledge society and information society by investigating a number of existing domestic and foreign resources in the literature. Various definitions of the notions of information and knowledge were reviewed, and the main differences between them were determined. Based on the literature review, problems and risks arising during the construction of knowledge society were considered.

## 3. Results and Discussion

### 3.1. The notions of knowledge and information

According to G.L. Smolin, in general scientific (non-mathematical) terms, information is usually associated with obtaining new data about an object, phenomenon, or event (Smolin, 2010). In the theory of information and its various technical applications, the central concepts are those of the *amount* of information and its *measures*. When it comes to information society, the concept of information is taken neither in its philosophical sense, nor in information theory sense. It is taken in the sense of message flows in one or other sign systems.

Knowledge is certainly information. According to V.L. Abushenko, knowledge is "selected (1), ordered (2), acquired in a predefined manner (method) (3), formalized in accordance with some criteria (norms) of information, which has a social significance (5), and recognized as knowledge by certain social individuals and society as a whole (6)" (Abushenko, 2003). Even from this definition, it is clear that not all information is knowledge. We can even say more: knowledge *is not limited to* information. This or that specific information, surely, can differ from other specific information in its content and even form. But by and large it is *indifferent* to its form, and

therefore in this aspect it does not have a cultural and historical content. This is the message itself. It can be both *truthful* and *untruthful*, and then it is called *misinformation*.

Knowledge, however, has a specifically cultural and cultural-historical character. Each culture and each epoch have their own answers to the questions "what is knowledge?" and "what does it mean to know?". A. V. Smirnov notes that in traditional Arab culture, the "category of "knowledge" is often studied inseparably from the category of "cognition". Another feature of the understanding of knowledge and cognition is a close connection with the theory of meaning indication: knowledge is considered as "knowledge of meanings", revealed in things as their "hidden" (Smirnov, 2001). Specifically, it was the culture of Western European Middle Ages that answered the questions "what is knowledge?" and "what does it mean to know?". The world for a man of this era appeared as a hierarchy of creations, in each of which God, during the creation of the world, put a definite value addressed to man. Therefore, the world also appeared as a hierarchy of symbols. The expert of this epoch P.M. Bitsilli writes, "Everything that a medieval man sees, he tries to interpret himself symbolically. Everything around him is full of special meaning, mysterious meaning, and in accordance with this relation to reality he creates his own science about it" (Bitsilli, 1995).

B.I. Pruzhinin draws attention to the fact that different cultures and different periods of knowledge had different social statuses. Such attitude towards knowledge, which in today's world is dominant, developed in Europe, in ancient Greece. It was preached by Plato and Aristotle. The Middle Ages somewhat lowered the status of knowledge, highlighting faith, but the New Age not only restored its former status, but also strengthened it. "Knowledge is power," says the motto attributed to F. Bacon. B.I. Pruzhinin notes, "Our understanding of knowledge, our ideas about the notion of knowledge, even our everyday notions of knowledge are conditioned by the role of science in the life of modern society to a large extent. I would even say they are conditioned by the role of science in the modern sense to a decisive extent (Sherembaeva et al., 2016). Meanwhile, the understanding of knowledge changed in history" (Pruzhinin, 2012). However, even at the present time, different types of knowledge differ from each other: "One is experiential knowledge, another is theoretical knowledge, the third is experimentally constructed. And this corresponded to the changes in science as a cultural phenomenon" (Pruzhinin, 2012).

Thus, knowledge is, of course, also information, but it is not reducible to information. The key factor that allows us to identify the difference between knowledge and information is that knowledge is acquired only through subjective comprehension. Information is independent and does not always reach the stage of awareness. In our understanding, information may be viewed as any data that have an abstract character and are accessible for human perception. Knowledge, on the other hand, is transformed from information in the process of human cognitive activity and represents formulated judgments, concepts or principles that are available for transfer in the process of communication. Thus, the concepts of information and knowledge are not equivalent, and information cannot be recognized as knowledge until it is processed by a person in the course of mental operations.

In the context of globalization and information technologies, one should not overestimate the importance of information exchanges in modern society. While information is "a knowledge-generating tool, it is not knowledge itself." In the absence of sound and critical thinking skills, as well as the necessary educational foundations, information may remain only a "mass of indistinct data." Then instead of "controlling it, many people will realize that it is controlling them." Excessive attention to information in comparison with knowledge shows the extent to which the spread of knowledge economy models has changed our attitude towards knowledge (UNESCO World Report, 2005).

It can be argued that the society that has received the name of information one, owes this name to *information technology*, which unprecedentedly developed and disseminated in the last decades. According to A.W. Khan, the concept of information society is associated with the idea of "technological innovation", while the concept of knowledge society affects the social, cultural, economic, political and institutional aspects of transformations and better reflects the complexity and dynamism of the changes (Khan, 2003). What is decisive here, it is not information in itself, but knowledge spreading through numerous and diverse information channels. Therefore, if it makes sense to talk about knowledge society, and, in our opinion, it does, then this is a society that is based mainly on the latest information technologies, but it is not reduced to their functioning.

P. Drucker writes, "Knowledge is now fast becoming the one factor of production, sidelining both capital and labor. It may be premature (and certainly would be presumptuous) to call ours a "knowledge society" – so far we only have a knowledge economy" (Drucker, 1994). We agree with

this statement. A.A. Khamidov, who criticized the current concepts of knowledge society as not corresponding to the labor theory of value, nevertheless writes that "it *does not mean* at all that knowledge society is impracticable in practice" (Khamidov, 2017). Knowledge society is actually possible. However, its construction is associated with a number of problems and risks, some of which will be discussed below.

### 3.2. Major risks

The current situation on the planet is a situation of big and small risks. A number of researchers define it as a *risk society*. As G. Bechman writes, "modern societies modernize their future with risk and thereby find their own specific way of handling uncertainty, which distinguishes them from all previous societies" (Bechman, 2010). U. Beck devoted a special monograph to this society. In this monograph, he asserts that "...we are eye witnesses - as subjects and objects - of a break *within* modernity, which is freeing itself from the contours of the classical industrial society and forging a new form - the (industrial) "risk society" (Beck, 1992). What is their difference? Beck replies, "while in the industrial society the "logic" of the wealth production dominates over the "logic" of the risk production, in a society of risks this ratio changes to the opposite ..." (Beck, 1992).

The modern world is divided into two unequal parts. The first (minority) currently includes states ranked as the "golden billion", and the second - all the rest. In this second part, in the early 1950s, the Third World states were singled out, which "being formerly colonies and semi-colonies, gained political independence and occupy a special place in world politics" (Bashkatov and Rodionova, 2008). When this concept was introduced, along with highly developed capitalist states and "the third world" states, there was a commonwealth of states with socialist orientation. Today, after the collapse of this commonwealth, we can assume that all other states are the same for "the golden billion" states. Although, of course, each of them is at a different level of development based on economic, political and cultural grounds.

This means that all these states develop unevenly, there are more and less developed. The building of knowledge societies in them is problematic in many respects. After all, all the resources that support this construction are in the hands and under the control of the globalist states. With this in mind, UNESCO Director-General Koichiro Matsuura in the preface to the UNESCO report "Towards Knowledge Societies" writes, "As the report proceeds, a panorama will open up that paints the future in both promising and disquieting tones, promising because the potential offered by a rational and purposeful use of the new technologies offers real prospects for human and sustainable development and the building of more democratic societies; disquieting, for the obstacles and snares along the way are all too real. There has been much reference to the digital divide, which is a reality. But a still more disturbing factor is that the knowledge divide between the most favored and the developing countries, particularly the least developed countries (LDCs), is liable to widen while, within societies themselves, equally profound cleavages appear or are exacerbated. How could the future knowledge societies settle for being dissociated societies?" (UNESCO World Report, 2005). Such a risk of separation of both states and within states is a real problem. The property and other stratification within the state already creates different access to knowledge from different layers (Rogov, Gumenyuk and Rogov, 2018).

The representative of philosophical postmodernism J.-F. Lyotard writes, "The relationship of the suppliers and users of knowledge to the knowledge they supply and use is now tending, and will increasingly tend, to assume the form already taken by the relationship of commodity producers and consumers to the commodities they produce and consume - that is the form of value. Knowledge is now and will be produced in order to be sold; it is and will be consumed in order to be valorized in a new production: in both cases, the goal is exchange. Knowledge ceases to be an end in itself; it loses its 'use-value'" (Lyotard, 1984). He looks at this prospect very optimistically. But what is the real prospect?

With the advent of the postindustrial era and the formation of capitalist systems in most developed countries, education and knowledge have become the basis of power (Koogs, 2018). Nations depend on knowledge as a source of continuous economic growth and development. Knowledge becomes the main source of organizations' wealth as intellectual capital, which is defined by L. Edvinsson and P. Sullivan as "knowledge that can be converted into value." In this regard, as noted by J.-F. Lyotard, knowledge becomes commodified: one can easily visualize "learning circulating along the same lines as money, instead of for its "educational" value or political (administrative, diplomatic, military) importance; the pertinent distinction would no longer

be between knowledge and ignorance, but rather, as is the case with money, between "payment knowledge" and "investment knowledge" [...] (Lyotard, 1984).

The laws of the market, with all the ensuing consequences, extend to science. B.I. Pruzhinin says that modern science has become "a gigantic socioeconomic institution woven into industrial production, with powerful financial flows and financing structures, that is, a customer who hopes to profit from scientific developments and bypass competitors" (Pruzhinin, 2014). Science is a market participant: its products are exchanged in the market, participate in its formation and largely determine its character, "since "science intensity" (not only production, but in general all processes and market elements) is the most important parameter in modern commodity exchange." In this regard, science is "a part of the economy, a specific business, the sector of which is steadily growing (even a fundamental science that certainly cannot enter the market, nevertheless indirectly affects market processes, and in other circumstances determines their direction and intensity...)" (Porus, 2007).

Let us also note the risk of this tendency in the solution to the problem of knowledge society. What risk factors does this tendency include? One of them is the commercialization of science, leading to the erosion of those knowledge and entire scientific disciplines that are not demanded in the knowledge market. This concerns fundamental science, the humanitarian framework adjacent to a common culture, and the whole theoretical education (Panarin, 2002). Funding is residually allocated on these disciplines, but sometimes they are completely deprived of funding. Without these disciplines, knowledge society will prove to be flawed. However, this is only the beginning of the destruction of science as an entity. The risk of science losing its integrity is caused by the tendency of separation of *applied science* from *fundamental science* and further elevation of the former relative to the latter in science as integrity. A.S. Panarin says, "It goes without saying that it overlooks the fundamental research and other forms of general intellectual accumulation, which cannot be predicted in advance to what specific results they will result" (Panarin, 2002).

According to B.I. Pruzhinin, the correlation of fundamental and applied science looks like this: "The goal of fundamental science, as before, is knowledge of the world as it is in itself, that is, an objective worldview. The ultimate goal of applied science is the prescription for production, i.e., an exact and technologically effective recipe. The search for true knowledge is a self-sufficient goal for fundamental research; truth is an instrumental value for applied research, and self-sufficient value is precisely the technological effectiveness of knowledge" (Pruzhinin, 2008). B.I. Pruzhinin notes, "In applied research tasks are put from outside – by the client, the customer. The result, in the end, is estimated by him/her not from the point of view of truth. The customer is interested in a technologically embodied solution, rather than an objective idea of the world. Therefore, the structure of applied research differs from scientific knowledge" (Pruzhinin, 2008).

The source for applied science is the knowledge developed by fundamental science. But there are requirements to formalize this knowledge until it is assigned to applied science. The knowledge coming from fundamental science to applied science should take a special logical form. After all, it is "oriented towards "outsiders", or, to put it mildly, towards the possibility and necessity of using knowledge developed in one area by representatives of other professions who could apply this knowledge without understanding what the "essence of the matter" is, without opening the knowledge package, without climbing "into the belly of the toy," and without being curious "how it is done" (Bibler, 1991). It should be noted that the total commercialization of science threatens to narrow the spectrum of fundamental sciences. Moreover, it causes to threaten the curtailment of applied researches, since they will not be able to obtain any knowledge that is to be translated into results in accordance with demand and order.

In addition, the concept of a "risk society" is also viewed as a characteristic of the modern stage of social development due to a number of objective reasons: (1) the modernization process constantly creates risks that introduce uncertainty into all areas of society; (2) the emerging mechanism of science and technology "self-development" ceases to be controlled by society; (3) science is losing its monopoly on truth, an intermediary arises between knowledge and social practice – a body of politically engaged experts; (4) risk production is "embedded" in the decision-making process; (5) existing social institutions are incompetent in detecting and eliminating risks (Aslanova and Saprykina, 2014; Martynova, 2014).

Therefore, there is a real threat to the solution to the task of constructing a knowledge society. G. Bechmann writes "Modern risk societies are not only a sense of the consequences of technical realization, but also the expansion of research capabilities and knowledge itself" (Bechman, 2010). Consequently, knowledge society is also, to some extent, a risk society. But there is also a point of

view according to which a risk society is a society that replaces knowledge society (see, for example (Kalinina, 2012).

### 3.3. Researchers' view on possible perspectives

Any prospects for social development are determined, first of all, by the available state of society. What is a modern society? For some, it is an information society, for others it is a knowledge society, for the third it is a risk society. M. Castells and J. Naisbitt call it a network society. M. Castells writes, "Networks constitute the new social morphology of our societies, and the diffusion of networking logic substantially modifies the operation and outcomes in processes of production, experience, power, and culture" (Castells, 2010).

The well-known British social philosopher Z. Bauman refers the present modernity to the "liquid" that has replaced "solid" modernity (see: (Bauman, 2000). B. Paulre calls modern society cognitive capitalism (see (Polre, 2008). L. Boltanski and E. Chiapello state, for example, that capitalism is flourishing, but society is degrading (see (Boltanski, L. and E. Chiapello, 2007). A. Bard and J. Söderqvist argue that a new society is really coming, but this is a society of *netocrats* rather than capitalists. In such society, knowledge is available only to netocrats. Netocrats are the new ruling elite, they control the consumer. Thus, netocrats come to replace the capitalist class, and the consumtariat replaces the proletariat (see (Bard and Söderqvist, 2002).

Some researchers believe that modern society *is no longer* capitalism. P.F. Drucker argues that "our society is surely *post-capitalist*" (Drucker, 1994). But K. Knorr Cetina calls knowledge society even *post-social*. She argues that "We are today not only confronted with specific and possibly new meanings of individualization, but with "post-social" developments in more general sense" (Knorr Cetina, 1997). Some authors believe that modern society is somewhat *classless*. So, for example, does J. Naisbitt (see (Naisbitt, 1982).

We, however, believe that modern society is inherently *capitalistic* with all the consequences that follow from it. Its informatization, network structuring, etc. do not change its nature. And the transition to a knowledge society is just yet a transition to it on capitalistic grounds. Some researchers tend to idealize knowledge society. For example, V. A. Miklyaev, who considers, like many others, that information society is a stage in the development of Western society that has replaced the postindustrial society, writes: "The world scientific community has clearly realized the negative features and dangers of the global information society. They include:

- 1) new opportunities for total monitoring and control over information and communication services consumers;
- 2) the growth of economic, political, cultural (including linguistic) obstacles to the freedom of information transfer;
- 3) the transformation of information into a subject of censorship or manipulation for political purposes, a means of advertising and spectacular people's "zombification", a means of conducting international network-centric wars;
- 4) the emergence of new types of offenses: cyberterrorism; cyber fraud, cyber child sexual abuse, cyber-cracking of security systems, etc.;
- 5) aggravated imbalance of information and knowledge;
- 6) the "digital divide", the "cognitive gap" between the countries of the North and the South, between the social strata within society, and so on" (Miklyaev, 2010).

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## 4. Conclusion

The simple continuation of the current trends of global informatization can only exacerbate the contradictions in the world community, where 20% of the population concentrated 80% of the world's revenues in their hands (Miklyaev, 2010). According to V.A. Miklyaev information society contains a lot of negative points. He believes that the future knowledge society will save mankind from it: "Traditional national and international institutions for the generation, dissemination and transfer of scientific knowledge are radically changing. The functions of "custodians of knowledge" change to the role of "seekers of knowledge". Instead of old places of knowledge production and concentration (schools, colleges, universities, museums, libraries), the whole world begins to be likened to a single virtual space of a planetary scale with remote access, where all kinds of knowledge are easily disseminated and assimilated. The world becomes a planetary school and a library" (Miklyaev, 2010). These are purely *utopian* positions of the researcher. The present society is a form of capitalist society. Therefore, the construction of knowledge society in

Kazakhstan should not blindly follow existing models, but treat them critically and develop new forms.

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