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THE DEVELOPMENT OF TECHNOLOGY AND TECHNOLOGICAL NATURE OF SOCIETY AND THE EMERGENCE OF THE INFORMATION TECHNOLOGY ERA

In this article we will look at the concept of "technology". The most universal definition of the concept of technology can be considered the following. Technology is the management of natural processes aimed at creating artificial objects. Technology is effective if it manages to create the necessary conditions for the necessary processes to occur in the right direction. Natural processes are controlled not only to transform the composition, structure and form of matter, but also to record, process and obtain new information.

The purpose of the article is to research how the evolution of technology continues the natural evolution of humanity. The development of stone tools helped shape human intelligence. Metal tools increased the productivity of physical labor. Machines mechanized physical labor. On this path of development, information technology frees a person from routine mental work and enhances his creative capabilities. In the early stages of history, humans required coded communication signals to synchronize the actions they performed. The human brain solved this problem without artificially created tools: human speech developed. Speech was also the first carrier of knowledge. Knowledge was accumulated and passed on from generation to generation in the form of oral stories. information technology information. Man's natural capabilities for accumulating and transmitting knowledge received the first technological support with the creation of writing. The process of improving information media is still ongoing: stone – bone – clay – papyrus – silk – paper, magnetic and optical media – silicon – ... Writing became the first historical stage of information technology. The second stage of information technology is the emergence of printing. It stimulated the development of science and accelerated the rate of accumulation of professional knowledge. Knowledge embodied through technology into machines, machines, and new technologies became sources of new ideas. T.O. The cycle: knowledge – science – social production – knowledge is closed. The spiral of technological civilization began to unwind at breakneck speed.

Key words: knowledge, technology concept, evolution, development, human intelligence.

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РОЗВИТОК ТЕХНОЛОГІЙ ТА ТЕХНОЛОГІЧНОСТІ СУСПІЛЬСТВА ТА ПОЯВА ЕПОХИ ІНФОРМАЦІЙНИХ ТЕХНОЛОГІЙ

У цій статті ми розглянемо поняття «технологія». Найбільш універсальним визначенням поняття технології можна вважати таке. Технологія – це управління природними процесами, спрямоване на створення штучних об'єктів. Технологія ефективна, якщо їй вдається створити необхідні умови для того, щоб необхідні процеси відбувалися в правильному напрямку. Природні процеси контролюються не тільки для перетворення складу, структури та форми матерії, а й для запису, обробки та отримання нової інформації.

Мета статті – дослідити, як еволюція технологій продовжує природну еволюцію людства. Розвиток кам'яних знарядь допоміг сформувати людський інтелект. Металеві знаряддя праці підвищували продуктивність фізичної праці. Машини механізували фізичну працю. На цьому шляху розвитку інформаційні технології звільняють людину від рутинної розумової праці та підвищують її творчі можливості. На ранніх етапах історії людям були потрібні закодовані сигнали зв'язку для синхронізації дій, які вони виконували. Людський мозок вирішив цю проблему без штучно створених інструментів: розвинулася людська мова. Мова також була першим носієм знань. Знання накопичувалися і передавалися від покоління до покоління у формі усних розповідей. інформація про інформаційні технології. Природні здібності людини до накопичення і передачі знань отримали першу технологічну підтримку зі створенням писемності. Процес удосконалення носіїв інформації ще триває: камінь – кістка – глина – папірус – шовк – папір, магнітні та оптичні носії – кремній – ... Першим історичним етапом інформаційних технологій стала писемність. Другим етапом розвитку інформаційних технологій є поя-

ва друкарства. Це стимулювало розвиток науки, прискорювало темпи накопичення професійних знань. Знання, втілені через технологію в машини, машини та нові технології стали джерелами нових ідей. Т.О. Цикл: знання – наука – суспільне виробництво – знання замкнутий. Спіраль технічної цивілізації почала розкручуватися з шаленою швидкістю.

Ключові слова: знання, технологічна концепція, еволюція, розвиток, людський інтелект.

Presentation of the main material. Book printing created the information prerequisites for the growth of productive forces. But the information revolution is associated with the creation of computers in the late 40s. At the same time, the era of information technology development began.

A very important property of information technology is that for it information is not only a product, but also a raw material. Electronic modeling of the real world on a computer requires processing a significantly larger amount of information than the final result contains (Solow, 1987: 36).

The development of information technology can be divided into stages. Each stage is characterized by a certain feature.

1. The initial stage of IT development (1950–1960s) is characterized by the fact that the interaction between humans and computers is based on machine languages. The computer is available only to professionals

2. The next stage (1960–1970s) is characterized by the creation of operating systems. Several tasks formulated by different users are being processed; The main goal is the greatest load on machine resources.

3. The third stage (1970–1980s) is characterized by a change in the criterion for the efficiency of data processing; human resources for the development and maintenance of software became the main ones. This stage includes the distribution of minicomputers. An interactive mode of interaction between several users is carried out.

4. The fourth stage (1980–1990s) is a new qualitative leap in software development technology. The center of gravity of technological solutions is transferred to the creation of means of interaction between users and computers when creating a software product. The key element of the new information technology is the representation and processing of knowledge. Knowledge bases and expert systems are being created. Total distribution of personal computers

Note that the evolution of all generations of computers occurs at a constant pace – 10 years per generation. Forecasts suggest that the pace will continue until the beginning of the 21st century.

Each generational change in information technology requires retraining and a radical restructuring of the thinking of specialists and users, a change of equipment and the creation of more mass-pro-

duced computer technology. IT, as an advanced field of science and technology, determines the rhythm of time of technical development of the entire society (Abernathy, 1983).

Accordingly, IT influences the economy, leading it towards knowledge intensity, while IT determines the labor-saving nature of the development of society, since IT takes over the management of many types of work and technological operations (Smith, 1937).

IT also affects the environment. It is a means of creating an artificial world, and therefore exerts environmental pressure on the natural environment. The main danger of this is the narrowing of the diversity of life forms. An example of the influence of IT is the influence of computers on human ecology. But IT, on the other hand, is a possible way to save the ecological balance of nature. Formation of the information structure of the technosphere will improve efficiency and security of technological production (Berndt, 2000).

We discussed IT from the point of view of the concept of “technology”. Now let's discuss IT from an information perspective. The term “information” comes from the Latin “informatio” – explanation, presentation, awareness. The concept of information must be associated with a specific object, the property of which it reflects.

Information is relatively independent of its carrier, since it can be transformed and transmitted through different physical media by different physical signals. The content of the information is not important (Carroll, 2000).

Information about any material object can be obtained by observation, natural or calculated experiment, as well as on the basis of logical inference. Therefore, information can be divided into pre-experimental, a priori and post-experimental, a posteriori (obtained as a result of the experiment) (Sutliff, 1901: 3).

The concept of information presupposes the presence of two objects: a source of information and a consumer; It is important that the information is meaningful to the consumer so that he can evaluate it for his own purposes. Therefore, there are three aspects of information: pragmatic, semantic and syntactic:

– The pragmatic aspect is the ability to achieve the goal and use the information received. This aspect of information influences consumer behavior depending on the effectiveness of the information. That is, this aspect characterizes the behavioral side of the problem.

– Semantic aspect – allows you to evaluate the meaning of the transmitted information. In this case, the weight of new information is assessed in comparison with existing information. Semantic connections between words or other semantic elements are reflected in a dictionary – a thesaurus.

– The syntactic aspect of information is related to the way it is presented. Depending on the actual process in which information is involved: collection, transmission, transformation, display, presentation, input or output, information is presented in the form of special signs and symbols (David, 1999).

The characteristic carrier of information is the message – everything that is to be transmitted. This may be an electrical signal, or a signal of another type of energy, transmitted through a selected physical medium (Colecchia, 2002).

Let's look at the types of information.

– Scientific information. This is logical information that adequately reflects the objective laws of the nature of a thinking society.

– Scientific information is divided by areas of receipt or use (technical, biological, political, etc.); by purpose: mass and special; by type of media: on paper – documentary, on magnetic tape, in computer memory.

– Technical information. It is used and arises when solving new problems (design, technological processes, etc.).

– Scientific and technical information – a combination of the first two.

– Technological information – it circulates in the sphere of material and technical production.

– Planning and economic information contains integral information about the progress of production and economic indicators.

The top level of information is knowledge. Knowledge arises as a result of theoretical and practical activity. Information in the form of knowledge is characterized by a high degree of structure. As society develops, information as a body of scientific and technical knowledge turns into the basis for informa-

tion services for society in all types of its activities (Epstein, 1928).

Along with energy, minerals, etc. information is a resource of society. As technological progress advances, information resource becomes the most important national resource. The efficiency of industrial exploitation of information resources determines the economic power of the country (Filson, 2001: 462).

Conclusions. The technological basis for the formation and operation of information resources is created by the computer industry. However, the transfer of labor resources from the spheres of material production to the information sphere leads to an era of “information crisis.”

Now the amount of information entering industry, management, and science is reaching alarming levels. This can lead to an “information explosion,” that is, such rapid growth will quickly cease. You can show the approach to a crisis:

The time for doubling the volume of information and accumulated scientific knowledge is 2–3 years (Kehoe, 2001: 6).

Material costs for storing, transmitting and processing information exceed energy costs.

The level of radio emissions in certain areas of the earth is approaching the level of radio emissions from the sun.

In such an information state of society, the effective use of information resources is very important. Three leading industries are responsible for the exploitation of information resources: computer technology, industrial electronics and communications play the same role for developed countries as heavy industry used to play (Gordon, 2000: 51).

Active information resources are that part of national information resources that are available to users on a commercial basis in one form or another. The ratio of the volume of active information resources to the total volume of national information resources is one of the significant economic indicators of the state of the country.

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