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Cover Page Footnote

ANALYSIS OF TERMINOLOGICAL CONCEPT OF INFORMATION TECHNOLOGIES IN DOMESTIC AND FOREIGN LITERATURE

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Annotation: In this article, the conceptual and terminological apparatus of information technologies in domestic and foreign literature has been studied and the concept of "Information technologies" has been analyzed using a comparative method. In addition, proposals are made to improve legislation in the field of information technology.

Keywords: information technology, computer information technology, internet, information and communication technologies, science, civilization, telephony.

Аннотация: ушбу мақолада маҳаллий ва хорижий адабиётларда ахборот технологияларининг атамаси ўрганилган ҳамда ахборот технологиялари тушунчаси қиёсий усул ёрдамида таҳлил қилинган. Бундан ташқари, ахборот технологиялари соҳасидаги қонун ҳужжатларини такомиллаштириш бўйича таклифлар киритилган.

Таянч сўзлар: ахборот технологиялари, компьютер ахборот технологиялари, интернет, ахборот-коммуникация технологиялари, илм-фан, телефония.

Аннотация: в данной статье изучен понятийно-терминологический аппарат информационных технологий в отечественной и зарубежной литературе, а также с помощью сравнительного метода сделан анализ понятия «Информационные технологии». Кроме того даны предложения по совершенствованию законодательства в сфере информационных технологий.

Ключевые слова: информационные технологии, компьютерные информационные технологии, интернет, информационно-коммуникационные технологии, наука, цивилизация, телефония.

In connection with the increased attention to the information component of the activity, the term "information technologies" can be found in a huge number of texts of different levels (scientific works, regulatory documents, business correspondence, educational materials, etc.), and in different meanings. It is statistically proven that the number of meanings of a word is directly proportional to the square root of the frequency of its use.[1]

When using the term "information technology" the following situations are observed:

− extremely broad meaning, the definition through the "aggregate" or "complexes" of heterogeneous objects;

− several different narrow meanings in a variety of definitions;

− use as synonyms of the terms "new information technologies", "computer information technologies", the exception of the use of out of computer meaning;

− the uncertainty of the relationship with the concepts of "communication technology" and " information and communication technology ";

− the instability of the use of the term in the definition of the plural or singular.

Term of "Information Technology" (IT) is given, apparently, the Mizin I.A. [2] According to the authors, the term "information technology" appeared in the late 70s of the twentieth century and began to be widely used in connection with the use of modern electronic technology for information processing. "But already in the 80s, terms used in the same sense were used: "modern information technologies" and "new information technologies" (NIT), which testifies to the acceptability of the use of the term IT also in the broader non-computer sense, including "paper" technologies: "Information technology has always been an integral and essential part of human civilization, and its centuries-old development has been mutually

dependent on the parallel development of production, science, art and education." In turn, the computer interpretation of IT is differentiated in a wide and many narrow meanings that exist to date and to some extent developing.

In a broad sense, as the area of human activity related to the creation of systems and term for processing and transmitting information, the term is mainly used in conceptual and regulatory documents: scientific and journalistic reflections on the informatization of society, development programs of corporations, states, groups of states requiring a multidimensional view of informatization task.[3] Today in the concept of IT includes microelectronics, development and production of computers and software, communications and telephony, mobile services, access to the Internet, provision of information resources of the Internet, as well as various cultural phenomena related to the listed areas of activity and rules (both formalized and informal), regulating these areas of activity".

Famous scientists like E.V.Stas and A.K.Aylamazyan believe that the reduction of a broad interpretation to a narrow sense can be considered the definition of information technology "as a combination of methods and means of implementing information processes in various fields of human activity"[4]. Note that in the above definition there is no indication of the use of technology that appears in modern versions: "Information technology is understood as a set of methods and technical means for collecting, organizing, storing, processing, transmitting and presenting information, expanding people's knowledge and developing their ability to manage technical and social processes.

All variants of interpretations of the term "information technologies", except for one, have corresponding analogues of interpretations of the term "technology". In narrow interpretations three such directions are revealed.

Technology – a set of methods. The most common is the opinion that technology is "a set of methods for processing, manufacturing, changing the state, properties, form of raw materials, materials or semi-finished products carried out in the process of production" [5]. Accordingly, information technology is defined as "a set of systematic and mass ways of creating, accumulating, processing, storing, transmitting and distributing information (data, knowledge) using the means of computing technology and communication". There are many close modern variations.

Technology is a process of targeted change in the properties of material objects: "the operations of extraction, processing, transportation, storage, and control, which are part of the overall production process" [6]. A similar interpretation can be traced in the most generalized, according to B.P.Saushkina the definition of technology formulated at a philosophical level: "Technology as a special form of matter movement (technological) is a natural and social aggregate of processes of purposeful change of various forms (mechanical, physical, chemical, biological) of matter, energy, information flowing in the systems of technology in accordance with their specific laws of structure and functioning".[7] Accordingly, "information technology - processes associated with the processing of information"[8].

In the modern version: "Information technology is a process using a combination of means and methods of collecting, accumulating, processing and transmitting data (primary information) to obtain information of a new quality about the state of an object, process or phenomenon (information product) "[9].

Technology is knowledge. "Technology – presented in the project form, i.e. in the form of formalized representations (technical descriptions, drawings, diagrams, instructions, ideas, etc.), a concentrated expression of scientific knowledge and practical experience, which allows rational organization of production, social or information process in order to save labor, energy, material resources or social time" [10]. Similarly, the first meaning of the term "technology" in Webster's Explanatory Dictionary: "as it is put to use in practical work"- literally" scientific knowledge as an application to solving practical problems[11]. Accordingly: "IT is presented in a project form (that is, in a formalized form suitable for social use) a concentrated expression of scientific knowledge and practical experience, which allows rationally organizing one or another frequently repeated information process".

Information technology is the means. This interpretation has no analogues among the interpretations of technology: what could be called the means of processing a material object is usually referred to as a technique. "Information technology means any form of technology, i.e. any means used by humans for processing information [12].

Special mention should be made of the interpretation of **technology as a science**: technology is "a scientific discipline that studies physical, chemical, mechanical, and other laws that operate in technological processes" [13]. This meaning is indicated by the very roots of the word "technology": from the Greek technos - art, craft and logos - teaching, science, i.e. the study of the ability, the art of processing raw materials into useful products. It is believed that technological science originated in the 1st millennium

BC.e., and this is due to the emergence of tools from iron. At the end of the XVIII century. The term "technology" appeared: in 1772, the professor at the University of Göttingen, I. Beckman, defined technology as handicraft art, including relevant human skills, empirical ideas about tools and labor operations [14]. It is in this sense (as a science) that the definition adopted by UNESCO is given: "Information technology (IT) is a complex of interrelated scientific, technological, engineering disciplines that study the methods of efficiently organizing the work of people involved in processing and storing information; computational techniques and methods of organizing and interacting with people and production equipment, their practical applications, as well as the social, economic and cultural problems associated with all of this" [15].

Thus, the same phrase designates at least seven different concepts related to the same subject area.

The ratio of the concept of "information technology" with the concepts of "new information technology" and "computer information technology".

In numerous variants of IT classification, division by the type of funds used is always present. Obviously, at the modern level of IT development at the first level of division, three groups can be distinguished:

1) computer;
2) using a certain computer hardware;
3) not using technical means.

Examples of IT without the use of technical means can be ideas on how to create a standard application statement when contacting an official, how to make a calculation of a utility fee and fill out a payment form, how to develop a test task, shorthand technology, etc. Examples of IT using non-computer technical means can be ideas about how photographing or filming is carried out on film, how to fix the values of a certain parameter using a special measuring instrument. The device in a series of experiments, and others. However, such examples have already become incomprehensible today's youth. The division into computer and non-computer IT remains more relevant to the modern world. Those who realized (recognized) the existence of non-computer information technologies called the emerging computer technologies "new IT". Thus, we assume that the *modern term "computer IT" and the outdated term "new IT" are synonymous, denoting the same subset of instances of the concept "information technology", distinguished on the basis of using computer hardware as a means* [16].

One opinion is shared by our scientists and legislation. According to the Law of the Republic of Uzbekistan "On Informatization" dated December 11, 2003 №.560-II, and according to I.R.Rustambekov,[17] A.I.Usmanova,[18] M.M.Aripova, F.A.Kabilzhanova, Z.Kh.Yuldashev, A.A. Iminova,[19] I.M.Karimov, [20] N.A.Turgunova, M.H.Kadirova, M.H.Dzhamatova. "information technology – a combination of methods, devices, methods and processes used for collection, storage, retrieval, processing and dissemination of information."

O.Mamaziyaev believes that information and communication technology (ICT) is a technology that provides a sharp development in all areas through the collection, storage, processing and use of data. The basis of this technology is information and information processing tools (mainly computers). This technology is now widely used in almost all areas. Especially in the educational process, it is possible to use it more effectively in other sectors and to apply widely throughout the world [21].

On this basis, the generic definition is formulated as follows: information technology is a body of knowledge about the organization of the process of creating or modifying information objects in specially created conditions, including knowledge of the structure and possible characteristics of information objects, necessary means and possible methods of achieving the desired characteristics of such objects.

Based on the above, it is necessary to change Article 3 of the Law of the Republic of Uzbekistan "On informatization" in the context of "information technology - a set of methods, devices, methods and processes used for collecting, storing, searching, processing and distributing information" to "information technology is a body of knowledge on the organization of the process of creating or modifying information objects in specially created conditions, including knowledge of the structure and possible characteristics of information objects, is necessary means and possible methods of achieving the desired characteristics of such objects "since the latter includes a large circle of relations.

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