



# ТЕНДЕНЦІЇ РОЗВИТКУ НАУКОВОЇ ДУМКИ В МЕНЕДЖМЕНТІ, ГАЛУЗЯХ СПОРТУ, ОБСЛУГОВУВАННЯ ТА ОХОРОНИ ЗДОРОВ'Я

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**HISTORICAL AND LEGAL ANALYSIS OF THE FORMATION AND  
CURRENT LEGAL STATUS OF COMPUTER NETWORKS AND  
THE INTERNET**

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Information technology, telecommunications and computing equipment have already become inseparable parts of the everyday life of citizens of many countries. In the current lockdown era caused by the SARS-CoV-2 pandemic, employers often have to resort to transferring employees from office, that is, "offline" to home - online work, in order to avoid infections. That is, life circumstances themselves are pushing the world towards complete digitalization and connection to the Internet. It is because of this that the relevance of understanding the operation of the basics of computer networks is more relevant than ever. To clarify, digitalization or digital transformation is the process of creating and implementing digital technologies, as a result of which innovative products are formed, the face of the world economy and social interaction changes. Digitalization is continuously linked to the development of digital technologies, as a result of which such objects of activity as Big Data; Internet of things; Virtual and augmented reality; 3D printing; Blockchain, etc. All these new phenomena relate to elements of the 4th industrial revolution, which is currently taking place in all the advanced countries of the Earth [1, p. 570].

The term "Internet" etymologically goes back to the phrase "interconnected networks". The Internet incorporates computer networks that differ in territorial prevalence, the most common of which are: LAN (Local Area Network), WAN (Wide Area Network). Subsequently, the Internet moved to its next stage of development with the creation in 1990 of the World Wide Web (WWW) or simply the Web by Timothy John Berners-Lee, an employee of the European Laboratory for Particle Physics (CERN). It was originally developed to build a distributed

hypermedia system, that is, an interconnected group of resources, including images and audio recordings, available on the Internet, which can be displayed using software known as a Web Browser.

The development of the WWW is usually divided into 4 periods:

Web 1.0 – The “old” web, which existed from 1990 to 2001, marked the establishment of the Internet for people who did not have scientific qualifications, but it had limited use. The Internet mainly consisted of a small group of people creating web pages in order to transfer information and files to visitors, i.e. one-way data transfer. Web 2.0 – began in 2001 and lasted until the mid-2000s. The term “Web 2.0” was popularized by publisher Tim O'Reilly, who in 2005 published an article entitled “What is Web 2.0?” The significant difference is primarily that it allowed users to be more interactive, useful and involved, to benefit from the “collective intelligence” of the user community. Web 3.0 is a semantic network (from the English Semantic Web), which we still actively use. Semantics studies the meaning, sense and content of symbols. In the context of the Internet, first of all, it is of interest to the meaning of words, sentences and user actions in order to draw conclusions on the content of sites, and not just to compare keywords. In this regard, the volume of collection of "cookies" by site owners to promote goods and services through personalized advertising has increased, and the sale of user data has become a business. Web 4.0 - Smart network. This means that the development of the network is increasingly associated with devices that have artificial intelligence. Thanks to it, it is possible to translate signs, banners and any text through a smartphone camera into any language in real time, and search engines have learned to recognize objects in images and give results. In addition, the network has learned to connect electronic devices to each other.

Thus, the Internet is an artificial system that absorbs all possible combinations of system forms within it, be they linear, ring or hierarchical, while having their own properties and patterns of development. Some of the main properties of systems are:

– Synergism (from the ancient Greek cooperation, assistance) is a state of complex systems that manifests itself in the dynamics of their self-organization in an effort to obtain the maximum effect due to their integrity, that is, to make maximum use of the possibilities of cooperation to achieve results;

– Emergence (from the English Emergence - occurrence, appearance of something new) is the emergence of new interactive qualities in the system that are not inherent in its components, which is similar to the concept of integrity, that is, when the characteristics of one element of the system change, changes occur in all other elements;

– Progressive factorization is the principle of delegation, in which the structure of the system and its elements tend to increasingly independent states, the opposite is progressive systematization, in which the system tends to reduce independence.

The creation, collection, storage, commercial use and distribution of data, whether public (open) data or private (big) data, requires the implementation of a number of components. Most importantly, the data industry needs someone willing to invest in collecting and storing data. Until recently, the data collector was usually a government agency or similar body. Consequently, a public sector body, based on a legal obligation, collecting necessary data for the public, concerning for example land ownership, trademarks, weather information, maps or company data, and storing the data on servers, was until recently a “regular” data collector. While these public collectors gradually, voluntarily or by public sector information directive, began to sell data to consumers on the Internet and to firms that re-use it (e.g. data brokers or data re-users), private parties, with rare exceptions, did not have the interest or the means to collect and store vast amounts of data in a similar way. One of the controversial developments in the modern Internet are all sorts of "cryptocurrencies". Cryptocurrency is any form of currency that exists only in digital form, which usually does not have a central issuing or regulating body, but instead uses a decentralized system to record transactions and manage the issuance of new units, and which uses cryptography to prevent counterfeiting and fraudulent

transactions. Stablecoins have also appeared. Their feature and main difference from regular cryptocurrencies is that the quote is tied to regular currencies or exchange commodities (for example, gold, oil). To clarify, Cryptocurrency is generated due to the computing capabilities of video cards, solid-state drives, or other computer components, consuming a huge amount of electricity. So in the second half of 2021, the Republic of Kazakhstan ranked second in the world in cryptocurrency mining, behind the United States of America, and so on January 26, 2022, there was a short-term power outage in the southern part of Kazakhstan, Kyrgyzstan and Uzbekistan due to a significant emergency imbalance created by the Central Asian power system, there was a power surge on the North-East-South Kazakhstan electricity transit. Unfortunately, the desire for wealth, greed, as well as many vices of human nature, dating back to the animal nature of our gut, often lead to destruction. Corporations like Meta, formerly known as Facebook, which is going to release its own cryptocurrency, as well as create a metaverse, do not strive for the common good of mankind, but are only looking for a way to get even richer. However, the accompanying consumer products can also bring benefits, for example, the technology of non-fungible tokens used in existing cryptocurrencies has huge development prospects, ensuring the protection and privacy of users.

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