

UDC 657(082)

DOI <https://doi.org/10.26661/hst-2022-11-88-02>

## FORMATION OF DIGITAL SOCIETY AND DIGITAL MAN VALUES IN THE GLOBALIZATION CONDITIONS AND INDUSTRY 4.0

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### Abstract

The relevance of the formation digital society and digital man values in the globalization context and INDUSTRY 4.0 is not in doubt, as the economic globalization process in digitalization context has accelerated in recent decades. Markets of capital, technology, goods, labor have become increasingly interconnected and integrated into the multilayered Internet network, globalization and INDUSTRY 4.0. The aim of the research is to conceptualize the formation digital society and digital man values in globalization and INDUSTRY 4.0. The research methodology on the digital society values formation and digital man in globalization and INDUSTRY 4.0 can be analyzed phenomenological, logical and historical, which together helped to penetrate new phenomena. An analysis of the growing pace of change in the globalization and digitalization era, which contributed to the digital values formation associated with the new processes INDUSTRY 4.0. The digital economic transformation model, which requires the formation of new values, has been studied. 3. IT forecasts that contribute to the formation to digital transformation values of the economy are clarified. Transformation result of these processes is the transition to networking and the values creation in the digital society – the ecosystems of suppliers, partners, consumers and competitors around network companies. The introduction rate of new products on the market is constantly increasing. New business models based on the “consumer economy” principles and electronic platforms are being developed. The digital economic transformation model is a economic model based on the digital technological values, including the electronic field of goods and services. A necessary condition is the values formation of joint participation in the digital public sector processes of the economy, the private sector and civil society. Companies are striving to increase cloud efficiency and achieve efficiency, competitiveness and new values, as cloud technologies will be central to corporate clouds.

**Keywords:** digital society and digital man values, globalization, INDUSTRY 4.0, digital economic transformation model, IT forecasts.

### Problem statement in general and its connection with important scientific or practical tasks

The globalization of the world economy has led to the formation of a single market and information space, world trade liberalization in goods and services and the formation of the digital person and the digital society values. Consumers have gained access to a wide range of products and deepened their network characteristics, dictating their preferences to manufacturers. Globalization and increasing volatility (an indicator that characterizes trends in market prices and incomes over time) is one of the most important financial indicators in financial risk

management (global markets), increased competition, which led to new values of business models less prone to negative factors from globalization. The business sustainability models were determined by the effective use of values: natural, material, financial and intellectual.

**Analysis of recent research and publications, which initiated the problem solution and on which the authors rely**

**Highlighting previously unsolved parts of the general problem to which this article is devoted to**

The globalization development and INDUSTRY 4.0 has led to the formation of new values, due to the fact that: 1) 1/5 of the world's products and services are produced by multinational corporations – Microsoft, Oracle, Procter & Gamble, Mars, General Motors, McDonalds; 2) the number of people living in cities exceeded the number of people living in rural areas; 3) more than 80 billion devices are connected to the Internet, widespread availability of information increases transparency in all areas; 4) in the economic and political globalization context, migration flows are increasing every year; labor

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migration predominates, but a third of migration flows are refugees from hostilities; 5) a huge number of companies are moving their production to China and today it is possible to obtain goods from anywhere in the world (Andriukaitiene, Voronkova, Kyvliuk, & Nikitenko, 2017).

### **Purpose and formation of the goals in the article (task setting)**

The aim of the research is to conceptualize the values formation of digital society and digital man in the globalization context and INDUSTRY 4.0.

#### **Objectives of the research:**

1. To analyze the growing speed of change in the globalization and digitalization era, which contributed to the digital values formation, associated with the new processes of INDUSTRY 4.0?

2. Investigate the digital economic transformation model, which requires the formation of new values.

3. Find out the IT forecasts that contribute to the values formation of digital transformation of the economy.

#### **Research methodology**

The methodology of research on the values formation of digital society and digital man in globalization and INDUSTRY 4.0 can be analyzed using a set of synergetic, structural, functional, systemic, phenomenological, logical and historical methods, which together helped to penetrate new phenomena. The rise of new trends in digitization challenges existing hypotheses as the nature of digital technologies pushes boundaries that are similar to utopias and fantasies. The methodological basis of the research is a set of general scientific methods, namely: analysis and synthesis, abstraction, generalization, principles – objectivity, specificity, science, integrity, humanism, human center. In the context of the system method, digital strategy is presented as a resource for economic growth in the country. The synergetic method helped to reveal the digital economic transformation model problems, that require new value formation using the synergy principles, manifested in the nonlinearity, bifurcation, stochastic information. The comparative analysis method allows you to compare the content and methods of IT forecasts that contribute to the values formation of digital economic transformation. The structural-system method allowed to explain the digital society and digital man values in the globalization context and INDUSTRY 4.0 as a complex system that represents a dynamic process that develops in the digital society and globalization context. The digital development of man and society is a tool

for economic growth, efficiency and productivity through the digital technology and the formation use of new values and digital competencies. The current economic, social, spiritual, cultural situation in the modern world has a number of problems and requires radical changes – institutional, infrastructural, ecosystem, managerial (Voronkova, Kaganov, & Metelenko, 2022).

**The main hypothesis of the research**, which is proposed to solve the research problems, which is new and can change the theory, is the idea of finding and further elaboration of the main innovative mechanism drivers for implementing a new model of digital sustainable development society which demonstrates the high-tech basis of society and can contribute to the development of self-regulation mechanisms in the society through smart (breakthrough) technologies capable of managing innovation in society, as we live in the midst of the digital revolution and require new values in the digital age (Voronkova, & Nikitenko, 2022).

#### **Presentation of the main research material with obtained scientific result**

**1. Analysis of the growing change speed in the globalization and digitalization era, which contributed to the digital values formation associated with the new and INDUSTRY 4.0 processes.**

INDUSTRY 4.0 is based on peer-to-peer, peer-to-peer and peer-to-peer computer network models based on peer-to-peer peer-to-peer computer networking. Often in such a network there are no dedicated servers and each node (peer) as a client acts as a server. The members of the network are all nodes, i.e. the joint creation, production, distribution, trade and consumption of goods and services by different people and organizations. Mass production and consumption since the early 1990s. replaced by a new personalization trend of consumption and production customization, which began to rapidly gain momentum in world markets and form new values. The scale of this concept will increase in the coming decades as the development and reduction of advanced production technologies and the spread of personalized consumer values of new types of goods and services (Voronkova, Puchenko, & Azhazha, 2020).

In the globalization period, tourist services are also expanding. The company gives travelers the opportunity to consider offers from homeowners anywhere in the world and rent it; Car sharing saves up to 70% of the transport costs for their customers,

as they pay only for the time when they actually use the car; cars are used more efficiently, the number of casual trips increases. Digital technologies, which significantly change the usual actions in various fields, from industrial production to the life organization, fascinate their consumers with new tourist values and services at an increasing rate. Under the pressure of the innovation speed of, companies are forced to change existing business models, develop new approaches to products and services and support business operations (Kyrychenko, 2019).

An introduction rate of new products on the market is constantly increasing. New business models based on the “consumer economy” principles and electronic platforms are being developed. There are a number of barriers to business transformation: lack of competencies, inflexible management structures, uncertainty. Many companies do not have time to adapt to change and leave the market: pressure from consumer demand, rapid development and spread of technology has increased the importance and innovation process complexity in companies, making it more expensive and risky.

Examples of the growing pace of change in the globalization and digitalization era have led to the digital values formation associated with these processes:

1) The Internet has reached the mass consumer in 7 years, while the advent of the telephone and radio took more than 30 years;

2) Knowledge and skills that were important 10 years ago, in the globalization context and digitalization are obsolete and require the new values formation;

3) The life expectancy of large companies has decreased by 1.5 times, and the 1/3 activities from the top 20 companies have been undermined by new technological platforms;

4) If 10 years ago it took a day or more to spread the news, today – just one “click” with the mouse;

5) 60% of new vacancies in the market require skills that 20% of the population still has (Nikitenko, Vasilchuk, & Merzhinsky, 2022).

Globalization has accelerated the outsourcing process and transferring financial flows offshore; led to the development of general lifestyles and consumer habits; promotes the public structure privatization and goods, such as health care, security, negatively affects the realization of universal human rights everywhere. Conclusion: Mutually reinforcing globalization pillars should be provided – economic development, environmental protection – at the local, national, regional and global levels.

Values formation of the digital person and the digital society in the globalization context and INDUSTRY 4.0 requires the activation and of socio-technological development acceleration. The digital age is transforming all social segments: markets nature and products, production technologies, delivery and payment for goods (products), the capital and human resource needs scale. Manufacturing companies use breakthrough digital ideas and technologies, modern management models and business strategies, as well as modernized access channels to various markets. IT-transformation of tangible and intangible sectors is focused on building a digital economic transformation model.

An important digital transformation element of the economy is new ICT generation, which accumulates virtualization with centralized program management (CPU). The digital economy is defined by economic activity based on digital (information) technologies [1]. To compete successfully, organizations are increasingly implementing the values of management information systems, which are accumulated through electronic distribution channels. Almost all entrepreneurs recognize that the use of information technology when used properly has a positive effect on business and its values. This process is called the digital transformation of both society and man and his values (Nikitenko, Oleksenko, & Kivlyuk, 2022).

## **2. Digital economic transformation model, which requires the formation of new values**

The digital economic transformation model affects the activities of organizations working in all sectors of the economy, which requires the economy to increase competition in domestic and foreign markets. The digital economic transformation model is a long process, which should result in the values formation of the “digital organization”. The digital economic transformation model is understood as a process-oriented process of creating organizations. The digital economic transformation model as a “platform” of innovation and information stage of economic development of systems of different levels is created on the basis of effectively functioning information space taking into account digital values of economic and social needs and new technological basis of business and society (Nikitenko, Andriukaitiene, & Punchedenko, 2019).

The digital economic transformation model depends on the industrial and neo-industrial development stage, which is able to form the basis for the digital economy formation. Management of its development should also include two areas:

the first – focused on the formation of the transition from the values of the neo-industrial to the values of the digital economy, the second – to develop the transition from the digital values to the innovation and informative economic values. This conclusion requires a more detailed description of the management features of the formation and digital economic development, including the purpose, directions, regulatory tools and an indicator system that reflect the completion degree of intercycle and interphase transitions in the digital economy

Thus, the digital economic transformation model is an economic model based on the digital technological values, including the field of electronic goods and services. The second approach is extended: digital model values of economic transformation as economic production using digital technologies. The digital economy is based on the generation values, processing, storage, data transmission, digital computer technology. She emphasizes that within the framework of this economic model, the existing market business models are undergoing a radical transformation, value added model is changing significantly, the importance of intermediaries at all levels in the economy is declining sharply. The digital economic transformation model forms the governance values, among which are the blockchain, the big data method, expert systems, and general decentralization (Nikitenko, 2020).

These methods are promising and in the near future are likely to become widespread. However, new governance methods provide both opportunities and can pose significant threats to businesses and governments. They do not always fit into the framework of existing management technologies. According to the authors, the most promising is the network management concept for the implementation of the digital economic transformation model values. The European economy is growing faster than expected, but the prospects for recovery remain uncertain. According to analysts, the digital economic transformation model is still threatened by factors such as a new surge in coronavirus and war, rising energy prices and congestion in the supply chain. The recovery pace varies from region to region and depends on the pandemic and war situation.

In the European economy there is an important resumption trend of production. Atala, based in Lombardy, the largest high-quality electric traction bicycle manufacturer, is setting up assembly in Italy, but has problems with component supplies. Investing in green transport is one of the priorities

of the EU's economic recovery plan. To ensure the overall project success, the EU is promoting investment in high-speed broadband, teaching people digital skills, helping start-ups and small businesses to innovate and develop, and promoting digital values in education, medicine and business (Maksymenyuk, & Nikitenko, 2016).

Broadband can be seen both technically (as a set of advanced network technologies) and as a driving force for far-reaching revolutionary transformations that renew existing services and give life to innovative services. In today's world, broadband is becoming a critical infrastructure that determines the competitiveness of the digital economic transformation model. There are many difficulties in assessing the scale of the digital economic transformation model (Oleksenko, 2017).

First, there is no generally accepted definition of the digital economy.

Second, there is a lack of reliable statistics on its key components and aspects, especially in developing countries. Although a number of initiatives are already being implemented to remedy this situation, they are still insufficient, and they are barely keeping up with the rapid digital economic development (Tagmark, 2019).

Thus, the development of a digital economic transformation model is an ongoing process involving the development of various IT sectors in order to stimulate the creation of innovative technologies for cooperation and development at the international level. A necessary condition is the values formation of joint participation in the digital processes of the public economic sector, the private sector and civil society. The key advantage of developing a digital economic transformation model is the implementation of the automatic control values at the entire system (or individual components), as well as its virtually unlimited scaling without efficiency loss, which significantly increases the economic management value (economic activities and resources) – and macro levels.

According to the analysis, the development of a digital economic transformation model does not include individual industries or IT companies that are digital. This is, first of all, the existing economy – all traditional industries and companies (manufacturing, agriculture, construction, transport, etc.), which under the influence of digital transformation due to technological evolution revolutionize their production and business processes and gain new opportunities for productivity growth all production and business efficiency areas.

Digital space shapes the values of “smart” IoT-based products, such as home appliances and cars. Investment in “smart” infrastructure is growing by 40%, according to Forrester. Building on the high government spending on smart infrastructure for post-pandemic recovery in the US, EU and China, city planners will share priority initiatives that connect citizens to the Internet, addressing health and developing important resources. According to Forrester, IT companies will include cyber insurance policies in their contracts to offset third-party costs associated with the breaches (Tapscott, & Tapscott, 2019).

As they attract new suppliers or sell contracts with existing third parties, organizations will require a special cyber insurance policy in which they will be listed as beneficiaries, which is a vital part of the supply chain. IDC named 10 major trends in the IT market in the coming years. Digital technologies have become a constant and dynamic element of our world, and the ICT industry itself will be one of the most transformed in the coming years. CIOs need to create teams for procurement, development and operations. These teams must conform to value-based technology models as a service and focus on the end result.

### **3. IT forecasts that contribute to the values formation of digital transformation**

1. Introducing a digital approach to customers and operations: by 2024, companies will switch to digital technologies to provide a sensitive customer experience and sustainable operating models by transferring 70% of all costs to technology and service model values, as well as a focused model on the final results. These values are needed to support a variety of customer engagement scenarios and data-driven operations (Tetlock, & Gardner, 2018).

2. New values of cloud technologies: by 2023, 40% of companies will restructure the process of choosing cloud products, focusing on business results rather than IT requirements. Management, optimization and protection of various cloud resources and data sets will be the most important operational tasks for IT companies.

3. Management is becoming a major challenge for the IT team: by 2023, 80% of companies will use the cloud service values with artificial intelligence (AI) to manage, optimize and protect resources and data. Unfortunately, 70% of companies failed to achieve full output due to a mismatch between the skills of IT professionals and a small number of highly qualified IT staff, as well as the active

successful employees recruitment from medium to larger businesses.

4. All-as-a-service values are becoming public: by 2022, 40% of large companies' IT budgets will be reallocated through integrated service packages based on security, cloud platforms, virtual desktops and communications.

5. Systemic technological transitions are projected: by 2026, managers of companies that have faced systemic or other transitions are spending on the development of new IT technologies, but will fight to achieve the required 6-fold increase in the efficiency of operational technologies. IT organizations working with clients from different industries are already recommending thinking about how several systemic changes, such as 5G networks, electric vehicles or blockchains, will affect technology plans and business priorities, and which, accordingly, values should be formed in companies (Tovarnichenko, 2020).

6. Shape the investment value in technology: 70% of companies will get twice as significant results from investment in technology, expanding the activities of employees and customers, in accordance with investments in the individual processes automation. The greatest effectiveness will come from a comprehensive effort to expand the experience and decision-making activities for clients, patients, students and ordinary workers.

7. Develop data management values that create both challenges and opportunities: by 2025, regional differences in privacy, security, hosting, use and disclosure requirements require 80% of businesses to restructure their data management processes autonomously. Successful companies will use digital sovereignty for new investments in resource and data management strategies, as well as for IT automation projects.

8. Rethinking the values of past experience: by 2023, 50% of multinational companies will spend half of their spending on new technological equipment and communications, as well as on modernizing and rethinking the experience of interaction with customers and employees. By optimizing digital technologies in terms of work, health and entertainment, companies gain long-term benefits in attracting and maintaining customer loyalty and opportunities to increase their number (Chandran, 2020).

9. Creating sustainable development values: by 2025, 60% of countries will have teams for digital sustainable development, which will assess, certify

and coordinate the use of data and analytical platforms for sustainable business and IT development. By 2024, new tools, data, and analysis will make it easier to set important goals for sustainable development, but achieving business and regulatory goals will still be a challenge for big business.

10. Carry out data control, which is subject to careful research: by 2025, estimates of public company estimates will be the basis for confidence in the control over the correct and efficient data use as well as financial control, which will increase the cost of data-driven solutions. IT leaders need to prioritize the technological choice and service partners based on their ability to address critical business challenges (Cherep, Voronkova, & Kurdupa, 2021).

Thus, the values formation is possible by deepening the digital economic transformation, education, culture, tourism in context of certain programs that develop education, form new cultural parameters – innovative, algorithmic, creative, radically changing the nature of work, affect all areas of human life in the context of human evolution to its digital dimension, which will work in the global challenge context of civilization.

#### **Formation of strategic digital age directions, which contribute to the creation of new values**

Gartner called the strategic directions of the digital age values formation, which contribute to the creation of new values. According to Gartner Vice President of Research David Grumbridge, they will accelerate business development, drive change and strengthen customer trust, and foster new values.

1. Generative artificial intelligence as a new value of the digital age. The values of a new artificial intelligence (AI) model are coming to market – generative, which is the use of machine learning methods focused on the research of content or objects and the data use to create new, completely original, realistic artifacts. Generative artificial intelligence can be used to create software code, identify new products, promote drug development, and target marketing.

2. Data Fabric values. The Data Fabric information management architecture is used for the most efficient access to corporate data. Data Fabric ensures flexible, robust data integration between platforms and business users whose solutions are designed to simplify the organization's data integration infrastructure and create a scalable architecture.

3. Territorially distributed enterprises' values. With the remoted spread and hybrid work models, traditional office-oriented organizations are

transformed into distributed enterprises consisting of geographically dispersed employees. Gartner predicts that by 2023, 75% of organizations that use this model of work will receive revenue growth 25% faster than competitors (Schwab, 2019).

4. Cloud platform values. Gartner predicts that cloud platforms will be the basis for more than 95% of new digital initiatives by 2025 – compared to less than 40% in 2021.

5. Autonomous system values. According to Grumbridge, stand-alone systems that can dynamically change their own algorithms without updating external software will become commonplace in robots, drones, production machines and intelligent spaces.

6. The values of Decision intelligence (intelligence in decision making) combine the best of the applied areas of data science, social sciences and management science for effective decision making. Gartner estimates that over the next two years, one-third of large organizations will use special (AI) to make decisions to increase their competitive advantage (Schwab, 2019).

7. Application values. According to Gartner, the demand for business adaptability will grow and this requires a technology architecture that supports fast, secure and efficient application changes. The architecture of the applications expands the adaptability possibilities, and those who will use the components of the program will be able to stay ahead of competitors by 80% in speed terms of new features implementation.

8. Values of hyperautomation. Hyperautomation systems provide accelerated business growth and sustainability through rapid identification, verification and automation of a huge number of processes. Component programs will allow businesses to achieve adaptability.

9. Computational values that increase confidentiality. Gartner expects that by 2025, 60% of large organizations will use one or more privacy-computing methods. Such solutions protect personal and confidential information at the level of data, software or hardware (Sharma, 2018).

10. The the Cybersecurity Mesh value is to ensure secure human access to any digital resource, regardless of the both the resource and the person location. This decision forms the perimeter of protection around the individual, not around the organization. Gartner estimates that by 2024, companies that use such tools will be able to reduce the financial impact of possible cyber incidents by an average of 90%.

11. ICT values engineering. Gartner notes that developers' teams working on artificial intelligence will be able to create effective tools for their organizations if they can continually increase value through rapid change. According to Grumbridge, developers will focus on component applications focused on modular components – this will increase the development team efficiency. In general experience approach, all discipline managers should have equal responsibilities for meeting aggregate needs of both employees and customers (Shane, 2019).

#### **Conclusion of the research and prospects for further exploration in this direction**

The COVID-19 coronavirus pandemic has led to the active use of the corporate cloud service values as companies expand their digital presence and create new products. Companies are striving to increase cloud efficiency and achieve efficiency, competitiveness and new values, as cloud technologies will be central to corporate clouds. Refactoring of enterprises,

as well as their strategies to promote efficiency and sustainable digital development will be carried out. Cloud technologies go beyond technological areas such as big data, artificial intelligence and the Internet of Things. According to Forrester, the shortage of chips will be in the overall growth of the Internet market by 10–15%. The problem of chip shortages will not be solved by mid-2023, Internet of Things devices will suffer even more.

Global trends analysis in the transition to sustainable development based on digital trends shows that digital organizations are moving from digital to human-oriented transformation. In 2022, the forward-looking company will not only think about digital transformation, but also implement initiatives that bring together an experienced customer and experienced employees. In addition, technology leaders will give priority to investing in strategic partnerships and innovative practices. IT companies are witnessing a slow transition to the talent strategy of the “future”.

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## ФОРМУВАННЯ ЦІННОСТЕЙ ЦИФРОВОГО СУСПІЛЬСТВА І ЦИФРОВОЇ ЛЮДИНИ В УМОВАХ ГЛОБАЛІЗАЦІЇ ТА INDUSTRY 4.0

### Анотація

Актуальність формування цінностей цифрового суспільства і цифрової людини в умовах глобалізації та INDUSTRY 4.0 не викликає сумнівів, так як процес глобалізації економіки в умовах цифровізації прискорився в останні десятиліття. Ринки капіталу, технологій, товарів, праці стали все більш взаємопов'язаними та інтегрованими у багатопланову мережу Інтернету, глобалізації та INDUSTRY 4.0. Метою дослідження є концептуалізація формування цінностей цифрового суспільства і цифрової людини в умовах глобалізації та INDUSTRY 4.0. Методологія дослідження формування цінностей цифрового суспільства і цифрової людини в умовах глобалізації та INDUSTRY 4.0 може бути проаналізована за допомогою сукупності методів синергетичного, структурно-функціонального, системного, феноменологічного, логічного та історичного, які у своїй сукупності допомогли проникнути в нові феномени. Здійснено аналіз зростання швидкості змін в епоху глобалізації та цифровізації, що сприяли формуванню цифрових цінностей, пов'язаних з новими процесами INDUSTRY 4.0. Досліджено цифрову модель трансформації економіки, яка вимагає формування нових цінностей. З'ясовано ІТ-прогнози, що сприяють формуванню цінностей цифрової трансформації економіки. Результатом трансформації цих процесів є перехід до мережевої взаємодії та утворення цінностей цифрового суспільства – екосистем постачальників, партнерів, споживачів та конкурентів навколо мережевих компаній. Швидкість виведення нових товарів ринку постійно збільшується. Розвиваються нові бізнес-моделі, що базуються на принципах «економіки спільного споживання» та електронних платформах. Цифрова модель трансформації економіки – це модель економіки, заснованої на цінностях цифрових технологій, що включають область електронних товарів та послуг. Необхідною умовою є формування цінностей спільної участі у цифрових процесах державного сектору економіки, приватної сфери і громадянського суспільства. Компанії прагнуть до підвищення ефективності хмари та досягнення ефективності, конкурентоздатності та створення нових цінностей, оскільки хмарні технології будуть займати центральне місце у корпоративних хмарах.

**Ключові слова:** цінності цифрового суспільства і цифрової людини, глобалізація, INDUSTRY 4.0, цифрова модель трансформації економіки, ІТ-прогнози.

Стаття виконана у контексті виконання завдань НДР «Цифрова людина і суспільство у контексті глобальних викликів» згідно Наказу МОН України від 21.01.2022 р. № 50 та Технічного завдання ЗНУ № 2/22, № 0122U001432

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Received date 15.03.2022  
Accepted date 01.04.2022  
Published date 15.04.2022

**How to cite:** Voronkova, Valentyna, Kaganov, Yuriy, & Metelenko, Natalia. Formation of digital society and digital man values in the globalization conditions and industry 4.0. Humanities studies: Collection of Scientific Papers / Ed. V. Voronkova. Zaporozhzhia : Publishing house “Helvetica”, 2022. 11 (88). P. 16–25. doi: <https://doi.org/10.26661/hst-2022-11-88-02>