FORMATION OF SUSTAINABLE DIGITAL ECONOMICAL CONCEPT: CHALLENGES, THREATS, PRIORITIES

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Abstract. Analysis of the theoretical studies results of sustainable digital development leads to the conclusion that the topic is extremely relevant, innovative, problematic, as modern society faces significant challenges and threats. The concept of sustainable digital development economy is today the most powerful and important, as it can lead a country out of the crisis on the path of sustainable digital development and develop strategies and priorities for the future that cover large-scale digital industries. The works of Maxton Graham and Randers Jørgensen «In search of prosperity. Managing Economic Development for Reducing Unemployment and Climate Change» (Kiev: Pabulum, 2017, 320 pp.) And Meadows Donella, Meadows Dennis, Rangers Joergen. «The limits of growth. 30 Years Later» (Kiyiv: Pabulum, 2018. 464 pp.) Addresses the challenges of digital economic growth and climate change, which is fundamental to the concept of a sustainable digital development economy. The authors of these works use the term «sustainable» development of society. Critical Approach and Scientific Discoveries by Donella Meadows, Dennis Meadows and Jørgensen Randers are based on World3 computer modeling to integrate data and theories regarding the growth and emerging economy of sustainable digital development. With this model we can develop internally consistent scenarios for the development of the world. The conception of sustainable digital development is already operational in many areas. Artificial intelligence is already behind every internet search and every computer application, and in the future it will be everywhere: courtrooms, offices, homes for the elderly, marriage agencies. For the development of the concept of sustainable
Formation of sustainable digital economical concept: challenges, threats, priorities

digital development, which is innovative and creative, the state must be the main source of financing for the development of scientific, technical and innovative activity. It is impossible to govern a country unless the ruling elite understand digital as “well” as it does in economics, ideology or propaganda. Modern government and social activity are inextricably linked to knowledge of digital services.

Keywords: the conception of sustainable digital development, Managing Economic Development for Reducing Unemployment, Artificial intelligence, digital services.

Formulation of the problem in general form and its connection with important scientific and practical tasks

Analysis of the theoretical studies results of sustainable digital development [1] leads to the conclusion that the topic is extremely relevant, innovative, problematic, as modern society faces significant challenges and threats. The economy of aggressive expansion, which has gradually been transformed into an economy of absurd speculation, still prevailed. Today, as humanity reaches beyond growth, to embrace the swiftness and scope of a new revolution that embraces the digital age, a new concept of a sustainable digital economy should be formed, based on unprecedented opportunities for data processing, information accumulation and access to knowledge.

The concept of sustainable digital development economy is today the most powerful and important, as it can lead a country out of the crisis on the path of sustainable digital development and develop strategies and priorities for the future that cover large-scale digital industries. Today, digital industry (economics, management, informatics and programming) includes the intensive information and communication technologies (ICTs) development and expects them to make significant technological breakthroughs to achieve digital sustainability, as only the digital economy can create conditions for breakthroughs for advanced breakthrough technology and to promote well-being that requires at least disruptive improvements.

Analysis of recent research and publications on the subject

The works of Maxton Graham and Randers Jørgensen “In search of prosperity. Managing Economic Development for Reducing Unemployment and Climate Change” (Kiev: Pabulum, 2017, 320 pp.) And Meadows Donella, Meadows Dennis, Rangers Joergen. “The limits of growth. 30 Years Later” (Kyiv: Pabulum, 2018. 464 pp.) Addresses the challenges of digital economic growth and climate change, which is fundamental to the concept of a sustainable digital development economy. The authors of these works use the term "sustainable" development of society. Critical Approach and Scientific Discoveries by Donella Meadows, Dennis Meadows and Jørgensen Randers are based on World3 computer modeling to integrate data and theories regarding the growth and emerging economy of sustainable digital development. With this model we can
develop internally consistent scenarios for the development of the world [6].

To date, most solutions to these problems have been politically unacceptable to the world, focused on short-term benefits and a desire for continued economic growth. Subconsciously, we feel that classical management is outdated. We know that its traditions and established practices are a bit ridiculous at the beginning of the 21st century, ”noted Ford Martin in The Coming of the Robots. Technology and the threat of the future” (Kyiv, Nash format, 2016. p.400) [11]. The concept of a sustainable digital development economy is the creation of a new organizational concept in which old ways of organizing and educating, based on productivity and repeatability, are dying off.

To create concept of sustainable digital economic development, has been selected: 1) scientific standard and economic theories on the global system; 2) Number on world resources and environment; 3) computer model that helped to summarize information and project consequences.

**Highlighting the unresolved parts of the common problem that are addressed in the topic**

In order to overcome negative phenomena, it is necessary to form a new set of values, needs, motivations, moral attitudes, worldviews, which include a set of values of a new innovative paradigm concept of sustainable digital economy [4]. These authors posed the question: what can be done to create a sustainable digital development economy that will bring prosperity for all; what management and what should be relied upon to accomplish tasks that have global resonance and long-lasting impact. Everyone is looking for economic growth, but it, like everything else, has its limits. Work “Growth Limits. 30 Years Later ”is an excellent nutrient for thinking about the digital economy of sustainable development, expanding governance horizons, forming a new outlook - information and replacing public policy. We need to find new relationships, patterns, trends, model new digital development scenarios, develop life-saving scenarios on the planet and ensure the well-being of humanity.

One of the UN agencies, the International Telecommunication Union, organized the World Summit on the Information Society (WSIS, 2003/2005), in context of which the concept of a sustainable digital development called 30 years to meet information technology was developed, with a huge positive impact as a tool and mechanism for implementing sustainability development policy and economy [2]. The concept of a sustainable digital development economy must evolve with the incredible speed of mystery combining the growing computing power of microprocessors, telecommunication networks, and the addition of new nodes to networks, which will help improve electronic services with the upgrade of major digital infrastructures.

**Discussion of problems**

The concept of digital sustainable development, evolving in the context of digitization and exponential
development, places particular emphasis on breakthrough technologies, as presented by Martin Stachti [3], which is based on the benefit of big data for the energy transition to the circulating economy and especially for the recovery of valuable resources. However, as the analysis of literature indicates, potential of disruptive (breakthrough, digital) technologies in the interests of sustainable digital development has not yet been fully realized [5].

The concept of a sustainable digital development economy is a new, not developed, innovative theory that underpins the philosophical foundations of digital technologies (information and computer) that are evolving at the boundaries of the sciences - philosophy, computer science, software, high (breakthrough, digital, convergent, innovative, socio-human) technologies, which means their influence on the development of sustainable development in the context of the formation of new digital development - artificial intelligence (AI), robotics, control system of industrial equipment through the Internet (IP), unmanned aerial vehicles, 3D printing, nanotechnology, biotechnology, materials science, quantum computers, energy storage and storage. We need a comprehensive vision of how digital technology will change our lives and the lives of future generations and what changes are being made to the economic, social, spiritual, and cultural contexts [6].

The concept of sustainable digital development economy as a global trend for information, digitalization and technological development (breakthrough) is leading to such changes that will contribute to endless digital transformations in the interweaving of the physical, digital and biological worlds. Digital technology itself is changing management processes as innovative products and processes emerge – crypto-currencies, block-chain, fin-tech, mega-trends of the Digital Age, which are creating an environment for sustainable development with incredible speed. In contrast to the old management processes, automation, robotics, new business processes and human capabilities are emerging. Everyone must adapt to the speed of change and achieve sustainability - heads of enterprises, companies and organizations, statesmen, ordinary people. The speed of change leads to the fact that digital production does not depend on tangible assets, but digital technologies, which are intangible assets, which are based on the intellectual component, organizational and human capital [7].

Shaping the concept of sustainable digital development in the context of the challenges and threats of the modern world as a global trend in digital society will facilitate the emergence of dramatic, large-scale changes that will lead to quantum computing. Digital technologies are replacing established production methods and dramatically altering the market, or a breakthrough product, that creates a new industry aimed at creating the conditions for society's sustainability. Undermining has already taken place in many areas.
Yes, thanks to quantum computers, we can solve tasks that we can't even begin yet, and that includes a whole class of tasks that take hundreds of years to complete with the fastest computers. The computing power of regular computers has been steadily increasing every thirty years and doubling every six and a half years. This pattern is called "Moore's Law" [8]. Digital progress is being made through the miniaturization of the transistors that make up the computer process. The picture seems reassuring, but the individual tasks are so complex that even the best computers will find the right answer for a long time. What are the tasks? For example, weather forecasting, the most profitable stock investment, calculating the fastest route for a multi-delivery courier, a quantum computer can answer right away. This technology opens up new possibilities for humanity and proves that the world will change radically in the era of digitization and globalization [9].

The formation of the concept of sustainable digital development in the context of the challenges and threats of the modern world as a global trend of digital society is connected with the fact that we live in an era of big data. The last fragment of this "digital mosaic" is the emergence of new secure ways to conduct decentralized peer-to-peer transactions. Studies show that millennials do not think about their lives without mobile technology and are much more interested in distributed energy technologies like solar panels than previous generations, and therefore they are happy to encounter energy disruptions "[10].

The conception of sustainable digital development is already operational in many areas. Artificial intelligence is already behind every internet search and every computer application, and in the future it will be everywhere: courtrooms, offices, homes for the elderly, marriage agencies. The Internet of Things connects all computers (they will monitor a person's location, physical activity level, blood pressure) with devices at home, in the office, on the streets and in restaurants. Recently, however, the computing power of computers and the amount of storage have grown so much that modern machines are capable of billions of operations. Each level contains thousands of units that communicate with each other until they "stabilize" in a state that will represent the clear parameter found. Sometimes quite unexpected patterns come out, while human operators may not even guess about them [11].

For the development of the concept of sustainable digital development, which is innovative and creative, the state must be the main source of financing for the development of scientific, technical and innovative activity. An important factor for enhancing the innovation level of the digital economy of Ukraine is the development and application of advanced technologies and high-tech products. The study found that, compared to European countries in Ukraine, the share of enterprises that use digital information from government research institutes
and universities in their activities is extremely small [12].

To tell the truth without the help of the state, the economy of sustainable digital development cannot happen and become innovative and developed. The digital economy of sustainable development today is penetrating all spheres of society: from demography, the biosphere and climate change to the future of medicine, genomics and genetic engineering, synthetic biology and trans humanism; from cloud technology and the Internet of Things to artificial intelligence, quantum computers and the colonization of the solar system, which generally contributes to the development of the network economy as a component of the digital economy. However, to achieve high standards of the Internet economy, technology transfer must be developed.

Some authors warn us that if we do not take action now, the forces of nature or human activity can dramatically change our planet. Global issues, in addition to scientific and engineering dimensions, also have financial, geopolitical and cultural dimensions, but it is clear that in the decades to come we will need new digital technologies and knowledge about nature, society and man. Therefore, there is no doubt that we should pay attention to the development of digital technologies and knowledge about nature, society and man. To achieve high standards of the Internet economy, technology transfer must be developed.

To shape the concept of a sustainable digital economy in the context of challenges and threats, priorities should be set in the form of innovative strategy for sustainable development, as transition to sustainability requires profound shifts in expansion of cultural and spiritual values, and requires transformational action, institutions and social structures developed in the OECD Innovation Strategy (updated in 2015) and in the major transition network initiated by Paul Raskin and in the United Nations Environment Program (UNEP) [13].

This is Enlightenment 2.0 ideology that will further refine the implementation of the Sustainable Digital Economy concept, which offers strategic options for overcoming clutter and digital asymmetry and adapting to a powerful technological transformation. Enlightenment 2.0 ideology should be developed as a theoretical foundation for sustainable digital development economics, and we need to be aware of the potential risks and opportunities of profound transformational change, profound change of understanding, interpretative framework and cultural
values of the new innovative digital platform economy strategy to create will inspire the public and public sectors to collaborate and partner searching for answers to the technological revolution, notes ClousSchwabs [14, p.10].

Digital technologies are powerful factors that shape our values, because they help us to build an economy, a society, and shape worldviews that affect future. Awareness of how technology is driving widespread social transformation and how values are embedded in digital technologies helps to recognize signals of future breakthroughs and take into account many facets of technological change.

Digital technologies will inevitably play a leading role in many challenges we face today, but digital is also a source of new challenges. It is the economy of sustainable digital development that can act for the benefit of the common good, promotion human well-being development and promotes computer well-being. The basis of the digital worldview and digital ideology is creativity, innovation and technology that contribute to the development of humanity [14].

Analyzing the results of theoretical studies of the digital economy [1], we can conclude that global trends make it easy to maneuver in the future and consciously control your intentions and goals to radically change your business, career and success. The main secret of predicting global trends in the digital economy and digital management is the ability to learn to better understand what is happening today [2]. We believe that content creation will be a new trend in the digital economy, which describes the importance of brand credibility that engenders consumer confidence, but it is necessary to shape the art of identifying trends. The most influential trends can provide forecasts in the short term, based on current research. To do this, it is necessary to understand the results of experiments, work on the description through the creation of theories, and conduct effective scientific research that requires large-scale observation.

One should also learn to identify components of digital economy, to study their meaning, to explore and determine their purpose and development trends, to see the digital economy's development from different sides and spheres of theoretical and practical knowledge, i.e. from the point of view of interdisciplinary approach, as well as from the point of view of quantitative methods and qualitative, complexity theory. Therefore, trends are quite clear predictions, which eventually evolve into trends, "which must be objective, because when we lose objectivity, it leads to what we take for granted" [3, p. 27].

Trends in the digital economy are more than repeating the well-known facts; the term "digital era" was firstly used about 15 years ago to define a generation that did not know the world without the Internet. When we do not recognize and adapt to potential effects of advancing digital age, we may face the prospect of an "ideal storm" - a catastrophic situation in which the effects of the sharp rise in social inequality and
unemployment caused by technology advances will grow almost in parallel. In this way they will strengthen and strengthen each other” [4, p. 20-21].

Today's computers have a double numbering system, meaning they use only two possible values, either unity or zero, to execute instructions. This is also the minimum piece of information - bits. Quantum computers, on the other hand, use cubits - units of quantum information, since subatomic particles can be in three states - to be one, zero, or a mixture of the two. Simply put, this allows quantum computers to showcase a wealth of capabilities - while also having serious security implications.

In particular, quantum computers create the potential for the total destruction of all, without exception, the computer security systems in use today. This is precisely what challenges and threats to the sustainable digital development of society in the future. Economic theory should be updated today to adapt it to sustainable digital development. The cumulative conclusions that can be drawn from these trends are forcing us to radically change direction and make every effort to create a new Enlightenment 2.0. "Sustainability, efficiency, sufficiency, justice, beauty and community are the highest values of society," - said Donella Meadows, Dennis Meadows and Joergen Randers [13, p. 412].

Sustainable digital world is not eager to build until the vision of such a world is developed by many people, scientists and politicians. It is a condition of a holistic and perverse vision of digital sustainable development concept of modern society. We are looking for opportunities to make rapid technological leaps that will reduce the cost of production and benefit the entire community. In a network economy, the task of decision-making centers will be to analyze the nature of interactions between networks, hierarchies, organizations, and markets, model them in different states, propose changes, track their consequences, and adjust them accordingly. "However, despite all our attempts to streamline this process, it will not be controlled." - noted Paul Mason [7, p. 341].

When rapid technological changes come down to silicon chips, food, clothing, transportation, and healthcare, the cost of reproducing labor will sharply decline. At that moment, economic system that defined the history of mankind will lose its value or disappear altogether. We may be more concerned with the problem of the economicenvironmental sustainability and the interplay of competitive models of human life beyond.

The concept of a sustainable digital development economy aims at increasing the well-being of the population and improving environmental situation. The indicator of "human well-being" describes, respectively, the average inhabitant quality of life of the planet, including both material and intangible components. In general, human (digital) well-being increases as people become more satisfied with their lives and improve their
environmental status. An unresolved problem is management theory, which assumes that global environment constraints (related to resource use and emissions) in the twentieth century have no significant impact on world development. To overcome these constraints, humanity will be able to invest much of capital, manpower and call for deep, proactive social innovations in context of technological cultural and institutional changes in order to avoid an increase in the "ecological footprint" of humanity that goes beyond the ecological capabilities of planet Earth [6].

This should minimize the damage done to the planet and society; to develop tools that help global society move towards sustainable digital development. Economists believe that "the problem of inequality and unemployment should be combated by increasing infrastructure spending, thus creating jobs, amending intellectual property laws, making new ideas and technologies more accessible to people, and changing the education system, encouraging more entrepreneurs." [3].

The new theory of digital governance, as a factor creating digital economy for sustainable development, is shaping a sustainable digital society that must be interested in quality development, not physical expansion. A stable state will not lead to a society of decline or stagnation, unemployment or bankruptcy, which is being experienced by current economic systems. “We hope that at this stage it is already clear that necessary transition will not happen by itself. It will require greater government involvement in the markets and society. The free market cannot solve the modern problems of humanity, just like big business, the church or thousands of initiatives below. "Public administration has a much bigger role to play if humanity wants to avoid decline," noted Graham Maxton and Joergen Randers in their quest for prosperity. Managing Economic Development for Reducing Unemployment and Climate Change” [13, p.278]. It is well known that Japan and South Korea have been able to significantly increase the well-being of their populations during the second half of the twentieth century through active public planning. "If there are no radical changes in the direction of economic development, then, according to Pickett," the past will absorb the future, "and those few decades during the second half of the twentieth century, when the middle class enjoyed relative comfort, will be demolished as history only, but also temporary social phenomenon ”[13, p.31].

In our opinion, to strengthening the role of government, countries in the world should agree on a global governance system that more effectively addresses the most pressing problems, such as climate change, migration and conflict management, such as the Club of Rome. In addition to strengthening the role of government, there must be a change in the dominant social philosophy that underpins the paradigm of how people view the world and the formation of the creative class and creative component.
[4]. So whatever political or economic system we create, it must rest on a foundation that makes life possible: clean air, clean water, clean land and food, photosynthesis and biodiversity. The protection of these components must be the highest priority for all humans and systems, because they are crucial to our survival well-being and are conditioned by laws of nature that we cannot change.

The new concept of digital economy for sustainable development as a factor of creating an environmentally balanced and socially-oriented economy must challenge the existing economic system, move to an environmentally secure world and focus on promoting a digital economy whose world of opportunity is extremely wide and diverse. Of course, it is impossible to develop a digital economy without knowing what is happening in the global world. It is critically important to have information on competition, innovations of the world of innovations 4.0, client advantages, trends.

We are building a civilization that is both deeply interconnected and technologically dangerous. Today, we feel increasingly connected, increasingly dependent and vulnerable. The coming years will bring technological changes so turbulent and profound that there will be a real breakthrough in the structure of human history. Breakthroughs are a rethinking of how things are arranged. The Internet is already taking network companies to the next level. Elder systems cannot be digitized with the latest services. Innovators are moving away from the old. Today, crime can receive high benefits from the exponential nature of technology development; it has entered the era of "Moore's Law", which has exponential consequences for everyone. Public authorities need to work more efficiently, and to do so, apply the principles of the machinery industry, opening up new opportunities for change in society, bringing government technology to the level of digital technology of the twentieth century.

Conclusio

Digital system should not reproduce established processes, but radically change them, and in order to do so, change the principles of work of public services.

The state needs to make digital transformations and manage the digital government "state in a smartphone", and for this purpose it will focus on the development of digital services that would work with the most vulnerable sections of the population.

The Digital Authorities Service has to introduce new technologies, which should completely rethink the digital development strategy in government. Hundreds of inappropriate sites should be replaced with one - simple, user-friendly and human-centered, for which to start with the needs of users, not the state, programs should be developed around problems, not "official processes"; to use data, to simplify as much as possible, to create new services, not sites, to ensure open development.

It is impossible to govern a country unless the ruling elite
understand digital as “well” as it does in economics, ideology or propaganda. Modern government and social activity are inextricably linked to knowledge of digital services.

New digital services should be user-centric. Therefore, we must focus our efforts and opportunities on digital governance, which will contribute to the implementation of the sustainable digital development concept.

The future is in our hands and it should be declared today.

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ФОРМУВАННЯ КОНЦЕПЦІЇ ЕКОНОМІКИ СТАЛОГО ЦИФРОВОГО РОЗВИТКУ: ВИКЛИКИ, ЗАГРОЗИ, ПРИОРИТЕТИ

Анотація. Аналіз результатів теоретичних досліджень сталого цифрового розвитку дозволяє дійти висновку, що тема є надзвичайно актуальною, інноваційною, проблемною, так як сучасне суспільство стикається із значними викликами та загрозами. Концепція економіки сталого цифрового розвитку сьогодні є напотужнішою, але її можливо охарактеризувати як межу від історичної економіки. Концепція сталого цифрового розвитку базується на ідеї, що економічне розвиток необхідно зосередити на збереженні природної сприйнятності та досягненні соціальної та екологічної безпеки.

Ключові слова: сталий розвиток, економіка, приоритети, виклики, загрози.
комп’ютерна модель, що допомогла узагальнити інформацію та спроектувати наслідки. Концепція цифрового сталого розвитку, що розвивається в умовах діджиталізації та експоненціонального розвитку, робить акцент особливо на проривних технологіях, яка була представлена Мартіном Статчі, в основі якої користь великих даних для енергетичного переходу до циркуляційної економіки і особливо для відновлення цінних ресурсів. Формування концепції сталого цифрового розвитку вжі функціонує у багатьох сферах. Для розвитку концепції економіки сталого цифрового розвитку, яка є інноваційно-креативною, держава повинна бути основним джерелом фінансування розвитку науково-технічної та інноваційної діяльності. Сучасна влада і суспільна діяльність нерозривно пов'язані зі знаннями про цифровий сервіс.

Ключові слова: концепція сталого цифрового розвитку, керування економічним розвитком, штучний інтелект, цифровий сервіс

**ФОРМИРОВАНИЕ КОНЦЕПЦИИ ЭКОНОМИКИ УСТОЙЧИВОГО ЦИФРОВОГО РАЗВИТИЯ: ВЫЗОВЫ, УГРОЗЫ, ПРИОРИТЕТЫ**

**Аннотация.** Анализ результатов теоретических исследований устойчивого цифрового развития позволяет придти к выводам, что тема есть чрезвычайно актуальной, инновационной, проблемной, так как современное общество соприкасается со значительными вызовами и угрозами. Концепция экономики устойчивого цифрового развития есть сегодня самой мощной и веской, так как может вывести страну из кризиса на путь устойчивого цифрового развития и разработать стратегии и приоритеты будущего цифрового развития, которые охватывают масштабные цифровые отрасли. В работах Макстон Грема и Рандерс Йоргена «В поисках благосостояния. Управление экономическим развитием для уменьшения безработицы и изменений климата» (Киев: Пабulum, 2017. 320 с.) и Медоуз Донеллы, Медоуз Денинса, Ранджерс Йоргена. «Границы увеличения. 30 лет после» (Киев: Пабulum, 2018. 464 с.) рассматриваются проблемы цифрового экономического увеличения и изменения климата, что есть основным для концепции экономики устойчивого цифрового развития. Авторы данных работ считают термин «устойчивый» актуальным для развития общества. Критический подход и научные находки авторов Донеллы Медоуз, Денинса Медоуз, Йоргена Рандерса базируются на компьютерном моделировании «World3», направленные на то, чтобы объединить данные и теории, которые касаются увеличения и новой экономики устойчивого цифрового развития. Благодаря этой модели можем разработать внутренние последовательные сценарии развития мира. Для создания концепции экономики цифрового развития были избраны: 1) стандартные научные и экономические теории о глобальной системе; 2) данные о мировых ресурсах и окружающей среде; 3) компьютерная модель, которая помогла обобщить информацию.
и спроектировать последствия. Концепция цифрового устойчивого развития, которая развивается в условиях диджитализации и экспоненционального развития, делает акцент особенно на прорывных технологиях, которая была представлена Мартином Статчи, в основе которой польза больших данных для энергетического перехода к циркуляционной экономике и особенно для возобновления ценных ресурсов. Формирование концепции устойчивого цифрового развития уже функционирует во многих сферах. Для развития концепции экономики устойчивого цифрового развития, которая есть инновационно-креативной, государство должно быть основным источником финансирования развития научно-технической и инновационной деятельности. Современная власть и общественная деятельность неразрывно связаны со знаниями о цифровом сервисе.

Ключевые слова: концепция устойчивого цифрового развития, управление экономическим развитием, искусственный интеллект, цифровой сервис

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