

Harmony of Digital and Green Economy: Strategic Directions and Opportunities for Sustainable development in Uzbekistan

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Annotation. *This article analyzes the harmony of the digital and green economy in Uzbekistan. The digitization process and strategies for ensuring environmental sustainability are considered and deliberated on their cohesion. The digital economy and green technologies as well as the development of renewable energy sources have carried out some research, assessing the economic and environmental efficiency of these areas.*

Key words: *digital economy, green economy, smart cities, renewable energy, eco-technology, innovative technologies.*

Гармония цифровой и зеленой экономики: стратегические направления и возможности устойчивого развития в Узбекистане

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Аннотация. *В данной статье анализируется сочетание цифровой и зеленой экономики в Узбекистане. Будет рассмотрен процесс оцифровки и стратегии обеспечения экологической устойчивости, а также рассмотрена их совместимость. Цифровая экономика и зеленые технологии также будут проведены некоторые исследования по развитию возобновляемых источников энергии, чтобы оценить экономическую и экологическую эффективность этих направлений.*

Ключевые слова: *Цифровая экономика, зеленая экономика, умные города, возобновляемые источники энергии, Эко-технологии, инновационные технологии.*

Raqamli va yashil iqtisodiyot uyg'unligi: O'zbekistonda barqaror rivojlanishning strategik yo'nalishlari va imkoniyatlari

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Annotatsiya. Mazkur maqolada O'zbekistonda raqamli va yashil iqtisodiyotning uyg'unligi tahlil qilinadi. Raqamlashtirish jarayoni va ekologik barqarorlikni ta'minlash strategiyalari ko'rib chiqiladi va ularning o'zaro uyg'unligi haqida mulohaza yuritiladi. Raqamli iqtisodiyot hamda yashil texnologiyalar shuningdek qayta tiklanuvchi energiya manbaalarini rivojlantirish tog'risida ba'zi bir izlanishlar olib borilib, ushbu yo'nalishlarning iqtisodiy va ekologik samaradorligi baholanadi.

Kalit so'zlar: raqamli iqtisodiyot, yashil iqtisodiyot, aqlli shaharlar, qayta tiklanuvchi energiya, ekotexnologiyalar, innovatsion texnologiyalar.

Introduction. Today, the intertwining of the digital and green economy is becoming one of the most important factors in development. There have been types of digital technologies – Internet of Things (IoT), artificial intelligence (AI) and Block chain - to improve performance in different areas, and make it possible to use resources as sparingly as possible. An alternative to the green economy's list of sources and main goals is to take advantage of renewable energy sources, reduce emissions and carbon residues to bring ecology back to normal and maintain balance in this case. This article will focus on the strategic challenges and opportunities of the combination of digital and green economies in Uzbekistan. Through this ongoing research and research, the main factors and prospects for the country's long-term sustainable development will be highlighted.

Short information about digital and green economy in Uzbekistan.

Socio-economic of Uzbekistan until 2030 achieving sustainable development in ensuring a development strategy economic, social and environmental component, the tools of which are calculated mutual coordination is a complex task. Economic and social components bring justice to society for a generation achieve and provide targeted assistance to poor groups of the population is setting new tasks like, economic and environmental assessment of the value of the external impact of components on the environment new ideas and approaches related to the need leads to formation. Social and sustainable economic development and the environmental components are like ensuring equality between generations further increases the relevance of issues.

“Sustainable on the basis of the “green economy” in our country President of the Republic of Uzbekistan in ensuring development approved on 4 October 2019 by " in 2019-2030 Strategy for the transition of the Republic of Uzbekistan to a green economy it is important to follow the software” (Yormonqulova, 2024)

Important tasks of the transition to a green economy include the rational use of Natural Resources and, alternatively, the energy efficiency of the economy. Modernization of technologies in this way, through the development of financial mechanisms. The results of strategic projects are achieved, which are worked on the basis of the goal and a certain plan set out below. This strategy was put in place by 2030, and in the process of implementing the strategy during this period, a 10% reduction in the specific greenhouse gas emissions per unit of gross domestic product at the level of 2010, up to 100% of the population and economy sectors, the use of modern cheap and high-quality electricity is ensured.

Focusing on the development strategy of digital technologies, in September 2015, 193 member states of the United Nations officially titled " Changing the World: Sustainable Development Agenda until 2030 adopted a new program. 17 goals and 169 tasks on this agenda included. On this large-scale Agenda, sustainable development is interrelated three elements-economic growth, social integration and Environmental Protection it was mentioned that it is important to do.

“Currently digitization of Uzbekistan national it is the basis of the development of its economy. For this purpose by the government The program "digital Uzbekistan-2030" has been developed and

is being implemented, which the program is primarily based on the application of digital technologies to the population of living aimed at increasing the level, developing the country” (Muxiddinova, 2024)

The impact of digital technology is also global, it is also felt at the local level. Digital economy newly developed fast global economy as a combination of outputs growing part. The growth of the digital economy is due to the growth of a number of markets that are directly related to digital and mobile technologies. At the current stage of the development of technologies and in the conditions of the current state of markets, the digital economy should be considered not as a goal, but as a means of increasing the efficiency of economic activity.

What is the meaning of digital economy?

Digital economy - a new direction in the world economy. Economy while developed countries have made significant progress in this direction, others there is progress in this direction. The emergence of the digital economy modern information and communication technologies (ICT) and the Global Internet network cannot be used. The concepts of "digital economy", ICT and the Internet are inextricably linked related.

“The term "digital economy" is associated with the names of two scientists-Canadian economist Don Tapscott and American information technology (IT) Specialist Nicholas Negropo (Rahmonov T & Porsayev G’ & Usmanova D (2024))

Digital economy is an emerging economic model based on digital technologies and artificial intelligence that includes the following aspects;

- e-commerce and electronic payment systems
- artificial intelligence and Big Data
- Smart Cities and digital infrastructure
- Automated production and robotics

Growth of the digital economy with digital and mobile technologies directly related to the growth of a number of markets. Main sectors of the digital economy;

1. E-commerce: 1.1 online stores (e.g.; global: Ozon, Amazon, Ali baba, in Uzbekistan; Uzum), 1.2 electronic payment systems (e.g. global; Сбербанк, in Uzbekistan; Xazna, Anor , Zoomrad), 1.3 digital marketing and advertising.

2. Information technology and software: 2.1 artificial intelligence and machine learning, 2.2 cloud computing, 2.3 cyberspace and data security.

3. Digital finance and FinTech: 3.1 block chain and crypto currencies (e.g., Bit coin, not coins, Ethereum), 3.2 online banking and payment systems (e.g. revolute,) 3.3 Investigation platforms with intelligence.

4. Maintaining digital health. (electronic health): 4.1 telemedicine and online tips, 4.2 diagnostics based on artificial intelligence, 4.3 electronic medicine cards,

5. Digital education (Ed Tech): 5.1 online education platform (Coursera, Udemy, Khan academy, Duolingo), 5.2 education using virtual and augmented reality, 5.3 distance learning systems.

6. Digital and public services (e-government): 6.1 electronic documents and online public services, 6.2 numerical identification (e.g., e-signature, biometric data), 6.3 automation of taxes and documentation.

7. Digital industry and Manufacturing (industry 4.0): 7.1 robotics and automation, 7.2 smart factories and Io T devices, 7.3 big data and their analysis,

8. Transport and logistics: 8.1 intelligent transportation systems, 8.2 autonomous vehicles, 8.3 digital logistics and delivery services

9. Media and entertainment services: 9.1 digital content (you tube, Netflix, Spotify), 9.2 digitization of media, 9.3 virtual reality and augmented reality

10. Digitization in agriculture (agro-tech): 10.1 intelligent dexterity and sensor technologies, 10.2 drones and automated planting systems, 10.3 Agro technologies using artificial intelligence

A new wave of development in business and social sphere activities in recent years a new generation of digital technologies, namely artificial consciousness, robotics, wireless communication it is happening with the help of technologies. New technologies sustainable development it can make a significant contribution to the implementation of its goals, but the positive that we expect we may not get results. If we consider that digital technologies are completely social and if we want to achieve an economic potential, without the possibility of unforeseen consequences it is necessary to urgently develop cooperation between states. In our country, too, this special attention began to be paid to the development of the industry. Head of State Sh. Mirziyoev. In his address to the House of Commons of 28 December 2018, he stated that until 2030 “digital Uzbekistan – 2030” proposed to implement the program.

What is the meaning of green economy?

Green economics is a model of economics based on the principles of environmental sustainability. The main goal of the green economy is the correct use of natural resources, not to harm the environment. “The process of transition to a "green economy" is for each country of particular importance are natural capital, human capital and characteristics such as the level of economic development of the country occurs directly related. Therefore, for the transition process favorable (legal infrastructure, incentives, etc.) environment it is necessary to create. If applied at the national level incentives, including investments and the state Economic if their purchases are directed to the development of the “Green economy”. The process of “greening” the system becomes more active.” (Yormonqulova. 2024) Goals and strategic objectives of the transition to the "green economy" it assumes the foundation of certain principles. To the green economy the principles of the transition determine what the economy in question should be gives. Principles of "green economy", "Brown economy” comprehensive in relation to its principles, it was established in Stockholm in 1972 to the problems of socio-economic development and ecology at the international conference dedicated to environmental preservation and 26 principles were developed aimed at development. Sectors of the green economy include;

1. Renewable energy: solar energy, wind energy, energy production from biogas and biomass, geothermal energy. (The main goal of using renewable energy is to reduce the use of traditional fuels and return to environmentally friendly energy sources.)

2. Environmental transport: electric cars and hydrogen fuel transport, development of public transport (metro, tram, elective buses), improving cycling and walking infrastructure. (The main purpose of using environmental transport is to reduce air pollution and minimize carbon emissions.)

3. Sustainable agriculture and organic farming: use of organic methods instead of chemical fertilizers, water-saving irrigation technologies, agro-ecological approaches and green forestry. (The main goal of transition to organic farming is to prevent land degradation and ensure food security.)

4. Waste processing and environmental protection: recycling of plastic, paper, glass and materials, production of biodegradable products, disposal of industrial waste in environmentally safe ways. (The goal of waste processing is to protect the environment from pollution and ensure the reuse of waste.)

5. Green technologies and ecological innovations: energy-efficient building materials, smart grid systems and energy-saving technologies, innovations that reduce the carbon footprint. (The goal of using environmental innovations is to harmonize technological development with environmental requirements.)

6. Water resources management and clean drinking water supply: water filtration and purification systems, wastewater treatment, technologies for obtaining drinking water from sea water. (The overall goal of water resource management is to improve the supply of clean drinking water and prevent water shortages.)

7. Green tourism and ecological tourism: ecotourism and nature parks, environmentally friendly hotels, environmental protection of national cultural heritage. (The goal of the green tourism policy in our country is to promote and preserve tourism)

8. Green finance and investments: green bonds for environmental projects, international grants and loans for sustainable development, attraction of investments in ecological business projects. (The goal of development of green finance and investments in our country is financial support of green economy and development of ecological entrepreneurship.)

Green economy is based on the harmony of environmental sustainability and economic development. Development of green economy, efficient use of land and water resources, and establishment of a green transport system are also underway in Uzbekistan.

Sustainable development strategy in Uzbekistan. The concept of the transition to the "green economy" in our country within the framework of the Presidential Decree of the Republic of Uzbekistan "2019-2030 transition to a "green" economy of the Republic of Uzbekistan during the period on the approval of the strategy" was adopted. In the resolution one of the established priorities is the application of the "green economy", which develops financial and non-financial mechanisms of development output. One of the priority areas of this direction to integrate the principles of the "green" economy into education and science dedicated: - foundations of a "green" economy, renewable energy introduction of sources, development of "pure" transport, energy saving and higher and secondary special, taking into account other issues related areas of education curriculum improvement, also "green" to the corresponding programs of general secondary education introduction of topics on the basics of Economics; - for Higher, Secondary special, vocational, general secondary education preparation of relevant educational literature (by directions) or in the process of Re-Publication, they were told that on the basis of the "green" economy topics input; - retraining and qualification of pedagogical and scientific personnel increasing programs include the basics of a "green" economy "including" Green technologies", "environmental taking into account Green criteria rationale for rationalization" "renewable energy sources technologies", "energy conservation and energy efficiency introduction of the topics "problems"; - scientific research in the field of "green" technologies and support for innovative developments. With various researches in the field of "green economy" private companies engaged in "green financing" they tried to reveal the essence of their concept. Including, Bloomberg New Energy Finance experts "green Finance"s are used alongside "green investment", but in practice, "green financing" is broader than investment it is believed that it is used as a concept.

Conclusion

In conclusion, it should be noted that the green economy in Uzbekistan has its own role and goals, as well as the digital economy. The homogeneity of these two economies makes a significant contribution to the further development of our country. As a result of the application of the green economy in our country, the cleanness of our ecology, the possibility of using recyclable resources are achieved, as a result of the application of the digital economy, the large-scale application of new technologies in our country. With a harmonized green economy and digital economy, it is possible to significantly improve the economic life of Uzbekistan, achieve the strategic goals set by Uzbekistan by 2030.

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