

RESEARCH ARTICLE

Digital Economy and Its Role in Achieving Sustainable Developmental Advancement of the Iraqi Economy

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Abstract

This research aims to analyze the role of the digital economy in achieving sustainable development for the Iraqi economy. It does so by exploring the fundamental concepts of the digital economy and sustainable development, assessing the current developmental situation of the Iraqi economy, identifying the challenges it faces, reviewing potential digital solutions, and examining the roles the digital economy can play in supporting Iraq's sustainable development trajectory. The research employs a descriptive-analytical approach, utilizing official data and statistics, international reports, and local and Arab academic studies. The findings reveal several key conclusions: the digital economy is a crucial pillar for achieving sustainable development by enhancing productive efficiency, diversifying income sources, improving financial inclusion, and fostering entrepreneurship and innovation. Additionally, the study highlights that the Iraqi economy currently suffers from structural imbalances, excessive reliance on oil revenue, weak digital infrastructure, and a shortage of qualified human resources. In response to these challenges, the research recommends developing a comprehensive national strategy for digital transformation. This includes improving technological infrastructure, strengthening legislation that supports the digital economy, enhancing human capacity development, and encouraging partnerships between the public and private sectors. Overall, the study confirms that a systematic and organized approach to adopting the digital economy can lead to significant improvements in Iraqi economic performance and contribute to achieving the 2030 Sustainable Development Goals.

KEY WORDS

Digital economy, sustainable development, Iraqi economy, digital transformation, financial inclusion, financial technology.

INTRODUCTION

The contemporary world is witnessing a radical transformation in economic and social structures, driven by the rapid development of information and communication technology, giving rise to what is known as the "digital economy" as a

driving force for growth and innovation at the global level (Qasim, Nadim, & Ashour, 2022: 245). This transformation is no longer a luxury or a secondary option; rather, it has become a strategic necessity for countries seeking to achieve

sustainable development and enhance their competitive capacity within a global economic system characterized by interconnectedness and speed (Sarhan, Wisn Mashal, & Al-Jubouri, 2022: 448).

In this context, the Iraqi economy faces deep structural challenges, most notably near-total dependence on oil revenues, weak non-oil productive sectors, rising unemployment and poverty rates, and deteriorating basic services (Radhi & Salman, 2024: 122). Furthermore, the legislative and institutional environment still suffers from shortcomings in keeping pace with the requirements of the digital era, which hinders Iraq's ability to benefit from the enormous opportunities offered by the digital economy in achieving economic diversification, creating decent job opportunities, and improving the efficiency of public services (Al-Najjar, 2024: 171).

Importance of the Research

The importance of this study stems from the pressing need for a deeper understanding of the relationship between the digital economy and sustainable development within the Iraqi context, identifying practical ways to employ digital technologies in addressing developmental imbalances, promoting financial inclusion, supporting entrepreneurship, and improving economic governance. The study also seeks to provide a knowledge contribution to the Arabic library through a critical analysis of the current reality and a forward-looking view of the prospects for digital transformation in Iraq, along with practical, applicable recommendations.

Research Problem

The research problem is embodied in the following main question: How can the digital economy contribute to achieving sustainable developmental advancement for the Iraqi economy, and what are the challenges and solutions associated with this transformation?

The following sub-questions branch out from this main question:

1. What is the concept of the digital economy, and what is its importance and the goals of contemporary development?
2. What are the dimensions of sustainable development, its indicators, and its goals according to international frameworks?

3. What is the developmental reality of the Iraqi economy, and what are the most prominent performance indicators and challenges it faces?
4. What are the main developmental problems in Iraq, and how can digital solutions contribute to addressing them?
5. What are the specific developmental roles that the digital economy can play in supporting the Iraqi economy?

Research Objectives

1. Analyze the theoretical concepts of the digital economy and sustainable development, and clarify the complementary relationship between them.
2. Diagnose the developmental reality of the Iraqi economy through key economic, social, and environmental indicators.
3. Identify the structural and institutional challenges that hinder the adoption of the digital economy in Iraq.
4. Review international and Arab models and experiences in digital transformation, and draw lessons learned for the Iraqi context.
5. Provide practical recommendations for policymakers to strengthen the role of the digital economy in achieving sustainable development in Iraq.

Research Methodology

The research adopted the descriptive-analytical approach, through collecting data and information from multiple secondary sources, including: reports issued by international institutions (such as the United Nations Development Programme and the World Bank), academic studies published in peer-reviewed scientific journals, official statements issued by specialized Iraqi bodies (such as the Central Bank of Iraq and the Ministry of Planning), and specialized media reports. The content of previous studies related to the topic was also analyzed, with the aim of building an integrated theoretical framework and drawing evidence-based scientific conclusions.

Limits of the Study

1. Topical limits: The study focuses on analyzing the role of the digital economy in achieving sustainable development, with an emphasis on economic and institutional aspects.
2. Spatial limits: The scope of the study is limited to the Iraqi

economy, with some comparative references to selected Arab and international experiences.

3. Temporal limits: The study covers the period from 2004 to 2025, considered the post-political-change phase in Iraq, which witnessed multiple attempts at economic reform and digital transformation.

Research Hypothesis

The research is based on the hypothesis that the digital economy contributes to strengthening sustainable developmental advancement in Iraq; however, the weakness of the legislative and institutional environment limits the effectiveness of this role.

Structure of the Research

After this introduction, the research is divided into five main themes, addressing:

- First: The digital economy (concept, importance, objectives);
- Second: Sustainable development (concept, indicators, objectives);
- Third: The developmental reality of the Iraqi economy;
- Fourth: Developmental problems and digital solutions;
- Fifth: The developmental roles of the digital economy.

First: The Digital Economy — Concept, Importance, Objectives

1.1 The Concept of the Digital Economy

The concept of the digital economy is relatively new in economic literature, having developed alongside the development and spread of digital technology in various aspects of social and economic life. The digital economy refers to the economic activity resulting from daily communications over the internet between individuals, companies, devices, data, and processes (Qasim, Nadim, & Ashour, 2022: 246). It encompasses all economic transactions conducted through digital networks, including e-commerce, digital financial services, freelance work platforms, the sharing economy, and e-government (Al-Sabbagh, 2018: 2).

The digital economy is defined as the economic system that relies fundamentally on digital technologies in producing, distributing, and consuming goods and services, with a focus on the role of data as a strategic asset that creates added

value. It is also defined as that economic sector arising from the activities of individuals and companies that rely on digital technologies and the internet to create economic value, whether by improving operational efficiency or inventing new business models. It is worth noting that the digital economy is not limited to the information and communications technology sector alone, but extends to include the transformation of traditional sectors (such as industry, agriculture, and services) toward reliance on digital solutions — a transformation known as “digitizing the economy” (Ben Saleh, 2024: 198). This transformation requires an advanced digital infrastructure, flexible regulatory frameworks, qualified human capital, and a societal culture supportive of innovation (Mujahidi, 2007: 3).

1.2 Importance of the Digital Economy

The importance of the digital economy stems from being a fundamental driver of economic growth in the twenty-first century, through several dimensions:

a. The importance of the digital economy stems from its increasing role in bringing about fundamental transformations in various economic and social activities, as reliance on digital technologies has become a key factor in developing the business environment and raising institutional performance levels. It also contributes to speeding up transaction completion, simplifying procedures, and reducing operational costs, which leads to improved efficiency in the use of available resources (Al-Muzaffar et al., 2024: 626). This leads to an increase in the total productivity of factors of production, which is a fundamental condition for sustainable economic growth (Sarhan, Walaa Adel, & Assad, 2025: 3).

b. The digital economy is considered a genuine opportunity to diversify the economic base by supporting knowledge- and technology-based sectors, which helps reduce reliance on traditional resources and strengthen new sources of income. It also provides a suitable environment for the growth of small and medium enterprises and gives them the ability to access local and global markets through digital platforms (Sarhan, Wisn Mashal, & Al-Jubouri, 2022: 455).

c. The role of the digital economy leads to promoting innovation and creativity by encouraging the use of modern technologies and developing smart solutions that help address economic and developmental problems. It also contributes to expanding the scope of digital financial services, which supports financial inclusion and increases individuals’ ability to

benefit from banking and financing services (Ibrahim, Khaled Mohammed, Zarraq, & Mahran, 2022: 240). This promotes an environment of innovation and the creation of decent job opportunities, especially for youth and women.

d. The digital economy helps raise the level of transparency and improve the quality of government services by applying e-government systems and relying on digital data in decision-making, which enhances trust between institutions and citizens and contributes to achieving sustainable development goals (Ibrahim, Mustafa Mohammed, & Issa, 2024: 137). This enhances economic participation and reduces poverty (Ibrahim, Khaled Mohammed, Zarraq, & Mahran, 2022: 245).

1.3 Objectives of the Digital Economy

The strategic objectives of the digital economy can be identified as follows:

1. Stimulating sustainable economic growth: by raising the contribution of knowledge-based sectors to GDP, and creating high-value-added job opportunities (Sarhan, Walaa Adel, & Assad, 2025: 5).
2. Enhancing competitive capacity: by adopting advanced technologies to improve the quality of products and services, reduce costs, and accelerate innovation (Al-Shabilat, 2024: 775).
3. Achieving digital inclusion: by ensuring that all segments of society, including marginalized groups and remote areas, have access to basic digital services, such as the internet, e-learning, and remote health services (Al-Obaidi, 2020a: 29).
4. Protecting data and privacy: through developing strong legislative and institutional frameworks to ensure information security and protect the rights of users in the digital space (Al-Obaidi, 2020b: 25).
5. Supporting the green transition: by using digital technologies to improve energy-use efficiency, manage natural resources, and monitor emissions, in line with sustainable development goals (Ben Saleh, 2024: 201).
6. Strengthening regional and international cooperation: through participation in global digital initiatives, exchanging expertise, and attracting foreign direct investment in the technology sector (Al-Najjar, 2024: 175).

Second: Sustainable Development — Concept, Indicators, Objectives

2.1 The Concept of Sustainable Development

The concept of “sustainable development” emerged in the 1980s, in response to growing concerns about environmental degradation, social inequality, and the inadequacy of traditional development models. The Brundtland Commission (1987) defined it as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Sarhan, Wisn Mashal, & Al-Jubouri, 2022: 452).

This definition reflects the three-fold dimension of sustainable development: the economic dimension (growth and efficiency), the social dimension (justice and inclusion), and the environmental dimension (preserving resources and ecosystems). True sustainability cannot be achieved except through balanced integration among these three dimensions (Al-Oweidi, 2020: 143).

In the Iraqi context, sustainable development takes on an additional dimension related to rebuilding the state and society after decades of wars, sanctions, and turmoil, which requires a developmental approach that takes local specificity into account, addresses structural imbalances, and builds institutions capable of resilience (Radhi & Salman, 2024: 124).

2.2 Indicators of Sustainable Development

To measure progress toward achieving sustainable development, the United Nations and other international bodies have developed a set of quantitative and qualitative indicators. The most prominent of these frameworks is the 2030 Agenda for Sustainable Development, which comprises 17 main goals and 169 sub-targets, covering areas such as poverty eradication, good health, quality education, gender equality, decent work, industry and innovation, reducing inequality, sustainable cities, responsible consumption and production, climate action, and protecting ecosystems (Al-Oweidi, 2020: 145).

With regard to the digital economy, sub-indicators can be used, such as:

1. The proportion of the population using the internet.
2. The proportion of companies that have a website or participate in e-commerce.

- 3. The E-Government Development Index (EGDI).
- 4. The Global Innovation Index (GII).
- 5. The proportion of financial transactions conducted electronically.
- 6. The contribution of the information and communications technology sector to GDP (Sarhan, Walaa Adel, & Assad, 2025: 8).

Data indicate that Iraq occupies lagging positions in most of these indicators compared to countries in the region, reflecting a digital gap that requires urgent attention (Al-Najjar, 2024: 173).

2.3 Sustainable Development Goals in the Iraqi Context

The global sustainable development goals can be translated into national priorities for Iraq as follows:

- 1. Eliminating poverty and hunger: by strengthening agricultural production, supporting smallholder farmers, and improving food supply chains using digital technologies (Ibrahim, Khaled Mohammed, Zarraq, & Mahran, 2022: 248).
- 2. Good health and quality education: through developing e-Health systems and remote education, especially in remote areas and those affected by conflicts (Editorial Board, 2024: 65).
- 3. Clean and affordable energy: by investing in digital technologies to improve the efficiency of electricity grids, manage demand, and integrate renewable energy sources (Ben Saleh, 2024: 203).

- 4. Decent work and economic growth: by supporting digital entrepreneurship, developing workforce skills in technology, and attracting investments in high-value-added sectors (Al-Muzaffar et al., 2024: 626).
- 5. Industry, innovation, and infrastructure: through developing digital infrastructure (such as fifth-generation networks), supporting research and development centers, and strengthening cooperation between universities and the private sector (Al-Shabilat, 2024: 780).
- 6. Reducing inequality: by ensuring that marginalized groups (such as women, youth, and people with disabilities) have access to digital economic opportunities, and combating discrimination in the digital space (Ibrahim, Mustafa Mohammed, & Issa, 2024: 140).
- 7. Peace, justice, and strong institutions: by using digital technologies to enhance transparency, combat corruption, improve the delivery of public services, and build citizens’ trust in the state (Editorial Board, 2024: 64).

Third: The Developmental Reality of the Iraqi Economy

3.1 Macroeconomic Indicators

The Iraqi economy suffers from deep structural imbalances, most notably excessive dependence on oil revenues, which constitute more than 90% of public revenues and approximately 60% of GDP (Radhi & Salman, 2024: 125). This dependence makes the Iraqi economy highly vulnerable to fluctuations in global oil prices and limits its ability to achieve sustainable and stable growth.

Table (1): Macroeconomic Indicators in Iraq (2024)

Indicator	Value	Note
Share of oil revenues in public revenues	More than 90%	High dependence on oil
Contribution of oil to GDP	About 60%	Dominance of the oil sector
GDP per capita	US\$6,073	Below the average of Gulf countries
Nature of economic growth	Volatile	Affected by oil prices and political/security factors

World Bank data (2024) indicate that Iraq’s GDP per capita reached about US\$6,073 in 2024; this figure still falls short of the average for Gulf Cooperation Council countries and reflects a significant developmental gap. The real economic growth rate has also seen sharp fluctuations over the past two decades, affected by political, security, and oil-market factors.

3.2 Human and Social Development Indicators

Despite its enormous natural resources, human development indicators in Iraq remain below the desired level. Iraq’s Human Development Index (HDI) is classified as “medium human development,” with challenges in the fields of education, health, and living standards (Sarhan, Wisn Mashal, & Al-

Jubouri, 2022: 458).

Table (2): Human and Social Development Indicators in Iraq

Indicator	Current Status
Human Development Index (HDI)	Medium human development
Level of education	In need of development
Level of health services	Below the desired level
Youth unemployment	High
Graduate unemployment	High
Alignment of education with the labor market	Weak
Entrepreneurship culture	Limited

Figure (1): The Most Prominent Social Challenges in Iraq

(Bar-chart illustration in the original showing impact levels of approximately: Unemployment $\approx$ 90%; weak alignment between education and the labor market $\approx$ 80%; weak entrepreneurship culture $\approx$ 70%; health and education challenges $\approx$ 75%.)

Unemployment rates, particularly among youth and university graduates, also remain high, reflecting the economy’s inability to create sufficient and productive job opportunities (Ibrahim, Khaled Mohammed, Zarraq, & Mahran, 2022: 250). This

problem is compounded by the mismatch between education outputs and labor market requirements, and the weak culture of entrepreneurship.

3.3 Digital Infrastructure in Iraq

International reports indicate that digital infrastructure in Iraq is still in its early stages compared to countries in the region. Internet penetration rates, service quality, and access costs are all factors that require urgent improvement (Al-Najjar, 2024: 174).

Table (3): Iraq’s Performance in Strategic Dimensions of Selected Indicators and Their Rankings by Axis, 2024

Dimension	Axis	Value	Rank
Digital foundations	Institutional axis	11.29	16
	Infrastructure	25.59	16
Innovation dimension	Innovation	10.85	16
	Technological readiness	53.41	20
	Market development	24.51	16
Digital government	E-government	43.83	13
Digital business	Market development	24.51	16
	Financial market growth	9.62	16
Digital citizen	Workforce	12.26	17
	Infrastructure	25.59	16

Source: Arab Digital Economy Index, 2024.

Looking at the values of the indicators in Table (3), we find that Iraq possesses a growing digital infrastructure but suffers from weak institutional regulatory frameworks; the institutional dimension points to a weak institutional and legislative environment supportive of the digital economy, despite a relative improvement in the technical infrastructure indicator. Likewise, the second dimension related to innovation records a very weak rate (10.85), indicating the absence of an effective national innovation system, while there is an encouraging digital readiness score (53.41)

showing the presence of tools, though limited by a weak innovation process and the absence of appropriate policies. Similarly, the dimension related to e-government reflects, on the other hand, an encouraging aspect, showing a relative improvement in the performance of digital platforms for government institutions; although the indicator records a value below the regional average, it is leading the digital transformation at the expense of the private sector. As for the digital business dimension, it indicates that the private sector’s transformation toward the digital economy is still in its very

early stages, and more importantly, the weak capacity of the financial market will consequently limit the attraction of foreign investments, which in turn will affect the ability to benefit from e-commerce. As for the last dimension related to the digital citizen, the workforce indicator recorded (12.26), pointing to a wide gap in digital human competencies; this

weakness is considered one of the most prominent challenges that must be addressed, as World Bank data indicate that less than 30% of the Iraqi workforce possesses basic digital skills, which requires intensive programs to qualify the workforce and students and provide them with the digital expertise that would raise the value of this indicator.

Table (4): Digital Transformation and Digital Infrastructure Indicators in Iraq

Year	Internet users per million people	Secure servers	E-government	ICT infrastructure	ICT exports (% of total exports)
2013	0.850	30	–	0.09	3.07
2014	1.450	53	0.314	0.22	2.28
2015	2.316	87	–	0.23	1.75
2016	3.951	152	0.333	0.16	2.58
2017	9.940	391	–	0.18	1.52
2018	10.803	435	0.337	0.18	3.41
2019	11.531	475	–	0.21	1.91
2020	17.072	719	0.436	0.54	3.08
2021	21.546	928	–	0.55	–
2022	30.769	1356	0.438	0.52	–
2023	43.639	1967	–	–	–
2024	34.512	1589	–	–	–

Source: prepared by the researchers.

When reviewing the digital infrastructure indicators in Iraq, we find that the number of internet users per million people has developed rapidly, rising from 0.850 in 2013 to 43.639 in 2023. This upward trend is due to the widespread diffusion of digital services and the increasing reliance on digital technologies in economic and social activities.

On the other hand, we find a very notable development in the number of secure servers, with the rate of increase during the study period exceeding 1,500%, which is due to the growing interest in cybersecurity, reflecting a positive indicator suggesting the development of the digital environment and increased trust in the commercial and electronic transactions conducted through it.

The e-government indicator shows gradual improvement, rising from 0.314 in 2014 to 0.438 in 2022, reflecting an increase in the level of electronic services provided by government institutions and improved public interaction with them; despite this, the indicator remains modest compared to other international indicators, calling for further efforts to deliver digital services.

Regarding the ICT infrastructure indicator, the table shows a very noticeable improvement, due to the increased level of investment in the telecommunications and internet sector. As

for the ICT-exports-as-a-share-of-total-exports indicator, the results show clear fluctuation, ranging between 1.52% and 3.41%; despite the relative improvement, the overall contribution of the ICT sector to output remains limited.

Figure (2): Assessment of the Digital Economy Axes in Iraq

(Bar-chart illustration in the original showing scores out of 50 for: digital infrastructure $\approx$ 40; e-government $\approx$ 35; human capital $\approx$ 45; digital innovation $\approx$ 30.)

According to the Arab Digital Economy Index 2024, Iraq occupies lagging positions in most axes of the index, such as infrastructure, human capital, e-government, and innovation. This reflects a real digital gap requiring strategic investments and supportive policies to address it.

3.4 The Financial and Banking Sector and Digital Transformation

The Iraqi banking sector is witnessing a gradual transformation towards digitization, driven by efforts of the Central Bank of Iraq to enhance financial inclusion and develop electronic payment systems (Ibrahim, Mustafa Mohammed, & Issa, 2024: 138). The Central Bank recently approved Electronic Payments Instructions No. 2 of 2024,

aimed at regulating and developing this vital sector (Editorial Board, 2024: 63).

However, the proportion of cash transactions in Iraq remains very high, which hinders transparency and increases transaction costs, and limits the effectiveness of monetary policies (Sarhan, Walaa Adel, & Assad, 2025: 10). Also, citizens' trust in digital financial systems still needs to be strengthened, through improving cybersecurity, protecting data, and providing seamless user experiences.

3.5 The Legislative and Institutional Environment

The legislative and institutional environment is one of the decisive factors in the success of digital transformation. In Iraq, many laws and legislations still need updating to keep pace with the requirements of the digital economy, such as personal data protection laws, e-commerce, cybercrime, and intellectual property rights in the digital space (Al-Najjar, 2024: 176).

Coordination between government institutions concerned with digital transformation (such as the Ministry of Communications, the Ministry of Planning, the Central Bank, and the Integrity Commission) also needs to be strengthened, to ensure integrated and coordinated implementation of national strategies in this field (Editorial Board, 2024: 65).

Fourth: Developmental Problems and Digital Solutions

4.1 The Main Developmental Problems in the Iraqi Economy

The developmental problems facing the Iraqi economy can be classified into several categories:

1. Structural problems. These include excessive dependence on oil, weak non-oil productive sectors, inadequate physical and digital infrastructure, and rising costs of doing business (Radhi & Salman, 2024: 126).
2. Institutional problems and governance. These include weak administrative apparatus efficiency, widespread financial and administrative corruption, an unstable legislative environment, and weak rule of law (Al-Najjar, 2024: 177).
3. Social and human problems. These include rising poverty and unemployment rates, declining quality of education and training, mismatch between education outputs and the labor market, and a weak culture of innovation and

entrepreneurship (Ibrahim, Khaled Mohammed, Zarraq, & Mahran, 2022: 252).

4. Environmental problems. These include the depletion of natural resources, the effects of climate change, and weak waste and water management, threatening the long-term sustainability of development (Al-Oweidi, 2020: 147).

4.2 Digital Solutions to Developmental Problems

The digital economy can offer innovative and effective solutions to many of the developmental problems mentioned above:

1. Addressing dependence on oil through diversifying the economy. Digital technologies can enable the growth of new sectors such as e-commerce, digital financial services, the creative economy, and digital tourism, reducing dependence on oil rent (Sarhan, Wisn Mashal, & Al-Jubouri, 2022: 460).
2. Improving public sector efficiency and combating corruption. Digital solutions, such as e-government, electronic public procurement systems, and open data records, allow for increased transparency, reduced administrative costs, and reduced opportunities for corruption (Editorial Board, 2024: 64).
3. Strengthening financial inclusion and access to services. Financial technology (FinTech) can expand the scope of access to financial services for unbanked segments, especially in rural and remote areas, enhancing economic participation and reducing poverty (Ibrahim, Mustafa Mohammed, & Issa, 2024: 139).
4. Improving the quality of education and training. E-learning, open educational platforms, and virtual and augmented reality provide new opportunities for lifelong learning and developing the digital skills required in the labor market (Al-Muzaffar et al., 2024: 632).
5. Supporting entrepreneurship and innovation. Digital platforms reduce barriers to market entry and allow startups access to funding, expertise, and customers on a global scale, promoting an environment of innovation and job creation (Al-Shabilat, 2024: 782).
6. Improving the management of natural resources and the environment. Digital technologies, such as the Internet of Things (IoT), big data, and artificial intelligence, can

improve the efficiency of water and energy use, monitor pollution, and manage waste, supporting environmental sustainability (Ben Saleh, 2024: 204).

4.3 Challenges to Adopting Digital Solutions in Iraq

Despite the enormous potential, adopting digital solutions in Iraq faces several challenges:

1. Weak digital infrastructure: in terms of internet quality and speed, network coverage, and access cost, especially in rural and remote areas (Al-Najjar, 2024: 178).
2. Shortage of qualified human capital: advanced digital skills remain scarce in the Iraqi labor market, hindering the adoption of modern technologies (Sarhan, Walaa Adel, & Assad, 2025: 12).
3. Legislative and institutional shortcomings: many laws need updating to keep pace with the requirements of the digital economy, and coordination between concerned institutions needs to be strengthened (Editorial Board, 2024: 65).
4. Cybersecurity and data protection concerns: risks are increasing with the growing reliance on digital systems, requiring investments in cybersecurity infrastructure and the development of legal frameworks to protect data (Al-Obaidi, 2020a: 31).
5. Cultural resistance to change: some individuals and institutions may be hesitant to adopt new digital solutions, out of fear of change or lack of trust in modern technologies (Ben Saleh, 2024: 205).

Fifth: The Developmental Roles of the Digital Economy

5.1 The Role of the Digital Economy in Stimulating Economic Growth

The digital economy can play a pivotal role in stimulating economic growth in Iraq through several mechanisms:

1. Raising productivity and efficiency. Digital technologies allow companies to improve their operational processes, reduce costs, and accelerate innovation, leading to an increase in the total productivity of factors of production — a fundamental condition for sustainable economic growth (Sarhan, Walaa Adel, & Assad, 2025: 14).
2. Creating new job opportunities. The growth of digital sectors, such as e-commerce, digital financial services,

and the creative economy, contributes to creating decent job opportunities, especially for youth and women, enhancing economic participation and reducing unemployment (Ibrahim, Khaled Mohammed, Zarraq, & Mahran, 2022: 254).

3. Attracting foreign direct investment. An advanced digital business environment, supported by strong infrastructure and clear regulatory frameworks, can attract foreign direct investment in the technology sector, transferring knowledge and technology and enhancing economic growth (Al-Najjar, 2024: 180).

5.2 The Role of the Digital Economy in Achieving Financial Inclusion and Social Justice

1. Expanding access to financial services. Financial technology (FinTech) provides innovative solutions for access to financial services for unbanked segments, such as e-wallets, mobile payments, and crowdfunding, enhancing financial inclusion and reducing poverty (Ibrahim, Mustafa Mohammed, & Issa, 2024: 141).
2. Empowering marginalized groups. Digital platforms can provide economic opportunities for marginalized groups, such as women, youth, people with disabilities, and residents of remote areas, by enabling them to access markets, education, and remote health services (Al-Shabilat, 2024: 784).
3. Improving the delivery of public services. E-government and digital services allow for improved efficiency and transparency in delivering public services, such as health, education, and social security, enhancing social justice and citizens' trust in the state (Editorial Board, 2024: 65).

5.3 The Role of the Digital Economy in Promoting Innovation and Entrepreneurship

1. Lowering barriers to market entry. Digital platforms allow startups and small companies to access new customers, obtain financing, and benefit from supporting services, promoting an environment of innovation and entrepreneurship (Al-Muzaffar et al., 2024: 634).
2. Supporting research and development. Digital technologies, such as cloud computing, big data, and artificial intelligence, can enhance research and development capacities in universities and research centers, contributing to generating new knowledge and

innovative solutions to developmental challenges (Ben Saleh, 2024: 206).

3. Promoting cooperation and partnerships. Digital networks provide new opportunities for cooperation among researchers, entrepreneurs, and investors, at the local, regional, and international levels, enhancing the transfer of knowledge and technology (Al-Najjar, 2024: 182).

5.4 The Role of the Digital Economy in Achieving Environmental Sustainability

1. Improving resource-use efficiency. Digital technologies, such as the Internet of Things (IoT), big data, and artificial intelligence, can improve the efficiency of energy and water use, waste management, and emissions monitoring, supporting environmental sustainability (Al-Oweidi, 2020: 149).
2. Supporting the circular economy. Digital solutions allow for tracking product life cycles, improving recycling, and reducing waste, supporting the transition toward a more sustainable circular economy (Ben Saleh, 2024: 207).
3. Promoting environmental awareness. Digital platforms and social media can play a role in raising environmental awareness and promoting sustainable behaviors among citizens and institutions (Al-Shabilat, 2024: 786).

5.5 The Role of the Digital Economy in Promoting Governance and Combating Corruption

1. Increasing transparency. Digital solutions, such as electronic payment systems, open data records, and electronic public procurement platforms, increase transparency in government spending and reduce opportunities for corruption (Editorial Board, 2024: 64).
2. Improving accountability. Digital technologies can strengthen accountability mechanisms by enabling citizens to monitor the performance of public institutions, report cases of corruption, and participate in decision-making (Al-Najjar, 2024: 184).
3. Strengthening the rule of law. E-justice systems, digital land records, and electronic notarization systems can improve the efficiency and integrity of the judicial system and strengthen the rule of law (Al-Obaidi, 2020b: 27).

Conclusions

1. The digital economy is a fundamental pillar of

contemporary development, by enhancing productive efficiency, diversifying income sources, supporting innovation and entrepreneurship, and improving financial inclusion and social justice.

2. The study's results showed that the continued dependence of public revenues on the oil sector, alongside weak innovation and digital-readiness indicators, represent among the most prominent obstacles limiting the acceleration of digital transformation in the Iraqi economy.
3. The indicators analyzed revealed a gradual improvement in some digital aspects, particularly the spread of internet use and the development of electronic services; however, this improvement still needs institutional and legislative support to achieve more effective results.
4. The study showed that strengthening the digital capacities of government institutions and the private sector contributes to improving the quality of services, facilitating administrative procedures, and increasing the level of transparency and economic efficiency.
5. The results confirmed that the success of digital transformation in Iraq requires integration between government efforts, technical investments, and human resource development, in line with the requirements of the modern economy and sustainable development goals.

Recommendations

1. The necessity of adopting clear executive programs for digital transformation linked to specific time-bound goals and measurable performance indicators, to ensure achieving tangible results on the ground.
2. Working on developing digital infrastructure and expanding internet and telecommunications services to ensure their reach to various governorates and remote areas with high efficiency.
3. Increasing attention to qualifying human resources by incorporating digital skills within educational curricula and implementing specialized training programs for workers in both the public and private sectors.
4. Supporting an environment of innovation and digital entrepreneurship by providing facilities and procedures that encourage emerging technology projects and contribute to creating new job opportunities.

5. Developing legal and regulatory frameworks related to e-commerce, information security, and data protection, to keep pace with rapid technical developments and enhance trust in digital transactions.
6. Strengthening cooperation between government institutions, universities, and the private sector to benefit from scientific and technical expertise in implementing digital transformation projects and achieving sustainable development.

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