Journal of Posthumanism

2025
Volume: 5, No: 5, pp. 1241–1251
ISSN: 2634-3576 (Print) | ISSN 2634-3584 (Online)
posthumanism.co.uk

DOI: https://doi.org/10.63332/joph.v5i5.1435

Digital Transformation and Risk Management: Iraq as a Model

AbdalRahman Talib Sharmot Al-Halboosi[1], Yasen Saad Mohamad Al-Azzawi[2]

Abstract

Iraq faces several risks that may hinder the effective realization of digital transformation, among the most prominent of which are the weak infrastructure of information and communication technologies. This represents a major barrier to developing an integrated digital system. In addition, the limited technological awareness in some social and governmental sectors contributes to slowing down the process of adapting to digital transformations, reflecting a knowledge gap between the need for digital transformation and the capacity to achieve it. Furthermore, digital security breaches and data threats are critical risks on the horizon, as cyber-attacks pose a threat to the security of information and the protection of sensitive data in both the public and private sectors. Enhancing digital transformation in Iraq requires adopting a comprehensive and ambitious strategy that includes the development of technological infrastructure and the enhancement of human capacity in information technology. This strategy should be supported by an integrated legal system aimed at protecting data and promoting transparency and efficiency in the provision of public services. Additionally, serious attention must be given to managing cyber risks by adopting international best practices in digital security, ensuring the sustainability of digital transformation and safeguarding data and information.

Keywords: *Digital Transformation, Risk Management, Security, Cyber-attacks, Iraq.*

Introduction

Iraq is considered as a part of the global environment, which calls for the need to keep pace with technological and digital developments. Thanks to the close interdependence between the actors of the global environment, whether they are states, institutions, companies, or individuals, it has become necessary for digitally lagging countries to catch up with developed countries in this field. This transformation requires gradual stages of digitalization, as global transactions are mostly based on digital technologies and technology.

Iraq lived a long period of technological isolation from the digital developments witnessed by other countries, as the digital and technological system was prohibited in the country until 2003. With the change in the political system in that year, Iraq was able to enter a new phase of electronic and technological developments, as it gradually linked with global technological developments, which gave it the opportunity to participate in the global digital system that has become a prominent feature of the 21st century.

Significance of the Study

This research is of great importance in light of the rapid technological developments globally, which have become a key axis in building economic and administrative systems in many countries, as digital transformation is a key factor in achieving sustainable development and

[1] Al-Nahrain University / College of Political Sciences, Email: Abdulrahman.mpols24@nahrainuniv.edu.iq
[2] Al-Nahrain University / College of Political Sciences, Email: dr.yasen@nahrainuniv.edu.iq

allows countries to improve government performance, enhance transparency, and increase the effectiveness of public services. In this context, Iraq comes as a model for analyzing the risks it faces in its journey towards digital transformation, with a focus on digital risk management. The importance of the research is that it presents aspects of the digital transformation in Iraq and reveals the risks that may hinder this transformation, such as weak IT infrastructure, limited technological awareness, and the impact of digital security threats on the country's digital stability. The research also highlights the importance of digital risk management to minimize the damage resulting from cyber-attacks and ensure the security of sensitive data.

The Problem of the Study

The instability of the situation in Iraq, especially the security, political and economic situation since the change after 2003 and to this day, despite the relative improvement, has put it in the rank of countries that are digitally behind, and this delay in digital transformation has made it continue in complex and slow administrative procedures that do not provide a service to the Iraqi citizen, and sometimes this digital delay is the result of the challenges associated with digital transformations in other countries and what we witness from hacking and piracy operations ,and what we are witnessing are hacks and hacking operations motivated by organized crime, terrorism, targeting government institutions, or revenge.

Hypothesize of the Study

The research starts from the hypothesis that: Managing the risks of digital transformation in Iraq from the requirements of cyber security and e-governance leads to a sound digital transformation.

Methodology

The descriptive-analytical approach was adopted to describe the process of digital transformation in Iraq, and to analyze the risks related to the digital transition and the mechanisms of this transition in Iraq.

Structure of the Study

After defining the research question and hypothesis, the research was divided into two axes, as well as an introduction and conclusion. The first axis dealt with cyber security as a gateway to managing the risks of digital transformation, and the second axis dealt with the mechanisms of implementing digital transformation in Iraq.

First Axis: Cyber Security Is a Gateway to Managing the Risks of Digital Transformation

Working in a secure digital transformation environment requires a preventive approach and strategy against many threats and risks, because cyberspace is based on sharing information through social media, there is the possibility of careless dissemination of information, which leads to security risks; because this space is full of vulnerabilities that contain scripts for downloading and running media files and applications, most of which can be considered malicious programs that can lead to cyber-attacks that can be part of information warfare.(1)

The sources of risk to digital transformation networks can be characterized as follows (2):

1. Insider threat: Attackers from within the work of the information network are individuals working for the same targeted government department, and this type is the most dangerous and deadly than the danger of external enemies and is the greatest threat to government institutions,

as the violation of privacy from within the government institution is easy to occur and difficult to detect in many cases

Especially people, who have the ability to access the information network system, blur the signs of access and its effects, and this comes from cases such as dissatisfaction of employees in the government organization, self-assertion, and financial benefit.

2. External threat: People (hackers) who attack the information network from outside government organizations, whether they are connected to the organization or not.

3. Risk of jamming: It refers to the factors that affect the transmission and reception of data and information through information networks, as they are exposed to some kind of interference in transmission or reception through equipment and programs, and the interference may be intentional from certain parties or unintentional natural conditions.

4. Risk of poor design: There are some technical errors in the design of networks and the electronic systems on which the networks operate as a result of lack of information and lack of integration of the vision of the software designers in governmental organizations.

5. Risk of misuse: Resulting from the intentional or unintentional negligence of government employees working in state institutions that require them to have the competence and practical and scientific expertise to lead these networks, applications, and electronic systems.

In order to achieve digital transformation risk management, the following requirements must be met. (3)

1. Physical elements: The technical and electronic devices and parts that represent the basic infrastructure needed to operate information systems.

2. Software elements: The non-physical components that comprise the basic software systems required to operate information systems.

3. Manpower: The competent and highly skilled IT and cyber security individuals who are responsible for operating and sustaining systems in organizations.

4. Supporting senior management to implement information systems.

5. Redesigning the organizational structure to meet the requirements of IT and digital transformation.

6. Networks and communications are the means by which information is transmitted and passed from one place to another and must be purely national and not located in other countries or leased satellites.

The second axis: Mechanisms for implementing digital transformation in Iraq

The main goal of developing institutions and governing rules is to achieve a development-oriented digital transformation that improves the life of the individual. Digital transformation requires a comprehensive human development leadership based on a free democratic choice away from the circle of influence.

Thus, governance is the good management of all institutions in the state through policies, mechanisms and practices based on transparency, participation, accountability, the rule of law, combating corruption, seeking to achieve justice and non-discrimination between citizens and responding to their needs and seeking efficiency to reach the highest level of effectiveness in a

satisfactory manner for all. Are Iraqi institutions aware of the importance of working with digital governance systems in them?

Have the senior management of the public and private sectors been convinced of its benefits and returns? Have the agencies responsible for organizing the country's digital infrastructure provided its requirements? Are the necessities of understanding it limited to IT specialists in these organizations, but not the rest of the senior, executive and oversight departments?

Have the oversight bodies employed their mechanisms and tools as required by the need to implement governance rules as mechanisms to regulate and oversee business processes in institutions and to improve service and production levels?

Therefore, after presenting the most prominent risks that Iraq may face in its digital transformation, the question arises; what solutions can be taken to address these challenges and move forward to implement digital transformation? As this advantage (digitization) also offers a set of opportunities and solutions to improve government operations, provide services, drive economic development and achieve digital governance in Iraq, which are summarized in the following paragraphs:

First: Cultural-Technological Mechanisms

1. Optimizing Internet service: The most important foundations for the progress of e-government and digital governance are the availability of high-speed internet service, a high percentage of people using the internet, and the development of telecommunications fees, but strangely enough, Iraq launched the e-citizen government without providing all these foundations (4).However, Iraq's digital landscape has grown steadily over the past few years, with more people using various platforms, including e-commerce, banking, ride-hailing, food delivery, and other digital solutions.

The COVID-19 pandemic has highlighted the importance of digital transformation in Iraq, with businesses and organizations needing to adapt to remote working and online communication. The government has recognized this need and is working towards improving digital infrastructure and expanding internet access nationwide, and digital transformation has become critical for businesses and organizations to stay competitive. Despite infrastructure and digital literacy challenges, Iraq offers significant opportunities for digital growth and innovation. However, strategic investments in technology and education are essential for sustainable progress and digital inclusion, and as Iraq's largest internet service provider.

EarthLink Telecom has played an important role in fostering the digital revolution by improving connectivity and Internet access for millions of people in the country, helping businesses thrive, enabling students to access better education, and facilitating communication between friends and family, promoting economic growth and improving social relations in Iraq.(5)

2. Signing digital memorandums of understanding: In July 2022, Iraq signed a memorandum of understanding with the United Nations Development Program (UNDP) to promote digital services and capacity building in e-governance. It focused on harnessing and increasing the use of ICTs to modernize government processes and systems, improve services for citizens, and promote the digital economy. According to the General Secretariat of the Council of Ministers, through its executive project, the Iraqi government was able to upload more than 75,000 electronic documents and make them accessible to users.(6)

3. Launching digital projects: In May 2021, the Iraqi government launched an online portal called "Ur Portal for Government Services," overseen by the National Data Center at the General Secretariat of the Council of Ministers. It is a website that allows citizens to access electronic services provided by state ministries and non-ministerial departments through a single window. It is one of the main elements of the digital transformation project. In 2014, a project called "e-citizen government" was launched in cooperation with the United States Agency for International Development (USAID), in the first announcement of Iraq's intention to move towards digital government, but the project stumbled several times and was not completed.(7)

4.Strengthening the e-government and e-governance system: The e-government program is an effective element in developing the work of the public sector in Iraq, and Iraq has sought to implement advanced policies regarding e-government, which is an important tool that can promote transparency, accountability, equality and social justice to reach a diversified economy based on knowledge (good governance), especially after the increasing importance of electronic and digital services in our era, as they provide many advantages to organizations and entities in improving the quality of services and reducing errors. Due to the importance of the topic of governance, common mechanisms have emerged that contribute to its realization, including e-governance, which means the use of information technology in completing transactions and providing utility services, as well as the use of communication means to improve and strengthen the pillars of good governance.(8). It is different from e-government, which means the use of technology, information and communications to provide government services to citizens, businesses and civil society organizations.

This concept refers to the use of the results of the information and communication revolution, such as the telephone, fax, computer, Internet and others, to provide quality, efficient and effective government services, facilitate access to information and activate the role of citizens to participate in the oversight and accountability processes, Thus, e-government assumes a relationship between (governmental institutions - governmental institutions, governmental institutions - citizen, governmental institutions - private sector, governmental institutions - employee).(9)

This is illustrated in Figure (1 and Figure 2).

In order to strengthen the e-governance system and facilitate its implementation, attention should be paid to several closely related topics, such as electronic communication infrastructure, credit cards, information security, combating hacking, and regulating e-commerce. Despite the difficulty of implementing e-governance, this system has imposed itself on various countries around the world that want to keep pace and coexist with others, because accomplishing work or performing services electronically achieves quality performance and saves effort. Thus, e-government has become an imperative that must be pursued in every modern state that wants to keep pace with the developments of the digital revolution and not lag behind the global information renaissance(10).

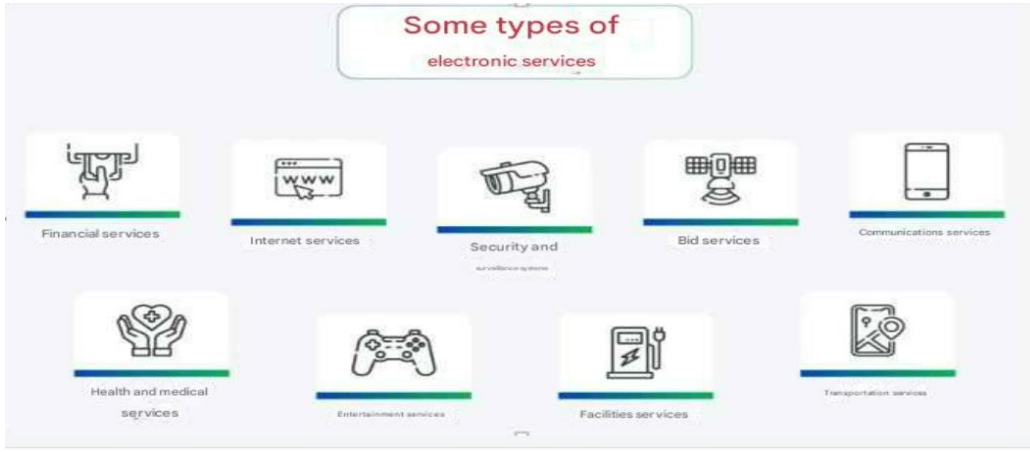

Figure 1 Shows Some Types of E-Services

Figure 2 Shows Some Types of Digital Services

5. Combating e-literacy: There are a number of citizens who do not have access to computers or the Internet for educational or economic reasons, which is called the digital divide, and to overcome this obstacle, the subject of computers should be included in the education curriculum, low-cost computers should be made accessible to the general public, internet illiteracy should be combated, and young graduates should be trained to use computers.(11)

6. Preparing qualified cadres: Preparing sufficiently qualified cadres of employees and technicians to deal with the e-government system, whether by appointment or retraining and qualification, as the human element is the effective or creative engine of the e-technology devices.

7.Use of electronic payment tools: Iraq has recently witnessed a development in the use of electronic payment tools, as Iraq is moving towards using these tools to reform the economy, withdraw cash from homes to the banking sector, and combat financial and administrative corruption within government institutions.(12)

The president of the Iraqi Digital Path Council (Dr. Safad Al-Shammari) explains in an interview with Al-Mada that "the topic of automation is a project that has been discussed globally since the middle of the 20th century, as automation is to enter the business sectors in general, but what does the crisis have to do with digitization? However, when digital tools, especially after the 1980s, became the substitute for hardware, the crisis today became about digitization, which is the introduction of digital devices to different business sectors, all state agencies, and all private sector agencies," he added.

“The issue in Iraq is that these automations are not necessarily done in a correct or systematic way, and you are supposed to work on digital collaboration, which requires you to work according to certain principles,” he said. (13)

8. Digital Networking: When we talk about e-government, it is not a digital system that can be completed in a day or two, or a year or two, and then the digital government works on it without digital networking between ministries. So when we talk about e-government without networking, it means that we will not have e-government for about 50 years, so we have to move on networking and then move on to e-government.(14)

There is another concept that is being talked about, which is digital governance, and today governance is a control system on executive performance, and it is assumed that he has a certain performance or you monitor it through governance, and when it is announced that digital governance has been achieved, we must have an e-government in order for governance to be realized, and we must have an e-government.

So what are you going to monitor if we don't have an e-government? What is happening today is a process of automation, not governance.

What is going on today is a process of automation, not governance, and the issues of subscriptions that the state body and state ministries are exposed to are due to the lack of a supreme council or a supreme body for cyber security in Iraq, as the government must have a cyber-deterrent for these ministries. This is due to the lack of a supreme council or a supreme body for cyber security in Iraq, as the government must have a cyber-deterrent for these ministries.(15)

The Iraqi government must implement governance, digital transformation and automation systems to achieve several goals, including financial inclusion and financial transformation towards e-government. This is part of the global shift to a knowledge economy, as well as smart information and cyber security to include digital transformation and all areas, not only in monetary areas, but also at the level of service delivery according to e-government. There are also paper-based transactions that have been transformed into electronic transactions, and this of course will create an electronic revolution in Iraq, comprehensive economic reform by applying financial inclusion, as well as applying modern electronic programs that contribute to combating waste and corruption in public funds.

II: Political-legal Mechanisms

1. Issuing the necessary legislation: Legislation that existed before the digital revolution is no longer valid to keep pace with the electronic development and achieve the desired goals, and there is a need to develop these legislations to comply with the e-government system, including regulating the process of contracting through the information network and organizing the electronic documentation process.(16)

2. Combating administrative and financial corruption: One of the most important requirements for implementing digital governance in Iraq is that corruption must be combated or minimized. In order to eliminate the phenomenon of corruption, governance strategies must be adopted within an institutionalized framework that seeks to combat corruption in all its forms and manifestations and accelerate development. (17).

3. Study the experiences of others: The e-government system is new, so it needs a lot of studies and questions, and it is useful for the success of e-government applications to learn as much as possible about the experiences of others in this field, the achievements made as a result of the implementation of e-government, and the obstacles facing its implementation.

III: Economic Mechanisms

The rapid development of digital technologies has led to the emergence of the "digital economy." The latter is an economy based on digital, information and communication technologies. Digital transformations affect all areas of production as well as economic and social activity, logistics, marketing and public administration services, The digital economy provides interaction between business organizations in many areas such as the creation and use of new technologies and products, communication services, e-business, e-commerce, e-markets, and remote services, so the digital economy is one of the main reasons for the transition to the Fourth Industrial Revolution, but at the local level, Iraq suffers from poor use of financial technology, So what are the economic opportunities:

1. There is an urgent need to support financial literacy policies and the dissemination of financial knowledge through the Ministry of Finance, the Central Bank of Iraq, civil society organizations and related institutions, which will contribute to the dissemination of financial services to all segments of society, which will contribute to confronting unemployment, supporting economic growth and development and raising the standard of living for all members of society. (18)

In the era of the digital revolution and the fourth industrial revolution, the development of the Iraqi fintech industry is a priority, and this industry is of great importance as it contributes to the growth of well-being and socio-economic progress, so there is a need for comprehensive support for the development of new digital financial technologies. The tools for such support are supporting the creation and implementation of digital financial innovations, incentivizing digital startups, supporting companies in implementing digital financial technologies, and creating a digital marketplace, and from the private sector's perspective, the use and development of digital technologies reduces costs, increases profitability, and better adapts to market demands, and it is expected that by accelerating the application of artificial intelligence (AI), In addition to other digital technologies, which will be used along with big data to predict consumer preferences, enhance cyber security and improve the efficiency of both traditional and digital financial institutions.

2. Potential for increased efficiency, productivity, and job creation: One of the main benefits of digital transformation is the ability to streamline and automate processes. Hence, Iraq's adoption of and investment in digital technologies has the potential to achieve a range of benefits, including improving efficiency and productivity in government operations by leveraging digital technologies such as data analytics and automation, and enhancing public service delivery.

By following the example of the Ministry of Interior in issuing the unified card and the Ministry of Commerce for the ration (food) card, the Iraqi government can reduce the time and resources needed to complete tasks, this leads to cost savings and a more efficient use of resources. However, the ethical dimension must be taken into account while utilizing AI technologies. (19)

3. The economy must be liberalized and appropriate controls must be put in place, and we must have popular experiences to support the reality of electronic systems, and the movement must start from the people and not from the government.

From the above, we can say that digital transformation has several paths, the most important of which are the path of economic reforms: modernization of the public sector, public-private partnership, adoption of the e-government approach, and the path of access to justice, that is, the constitution, human rights, and a good judiciary; the path of institutional reform through tariffs, decentralization, and administrative reorganization; and finally the path of spreading a culture of human rights, applying integrity and transparency in the public service, and strengthening oversight and accountability in the performance of public services.

Conclusion

Iraq has undergone a slow and complex digital transformation over the last two decades. Despite limited progress in the use of technology in state institutions, Iraq still suffers from significant risks in the field of digital transformation compared to other countries in the regional and global environment. This delay in digital transformation can be explained by a number of complex factors, including the weak infrastructure, the traditional mentality of some government officials, as well as the unstable security and political conditions experienced by the country. This delay has adversely affected the quality of services provided to Iraqi citizens and has led to the continuation of the complex bureaucracy, which is detrimental to the effectiveness of government operations.

However, Iraq's digital transformation remains a major opportunity to improve government performance and enhance transparency and integrity in official institutions. Therefore, the trend towards improving the quality of electronic networks, developing human resources and ensuring the protection of citizens' personal data through the establishment of a robust technological infrastructure is critical to accelerating this transformation and strengthening State security.

Findings

1. The delay in Iraq's digital transformation results from a range of internal and external factors, including weak infrastructure and security and political challenges.

2. Digital transformation can help reduce administrative and financial corruption in government institutions and increase transparency and integrity.

3. Digital transformation requires significant investments in technology such as satellites, and the expansion of Internet networks to strengthen digital processes.

4. Lack of integrated strategic digital transformation policies that ensure the protection of personal data and provide a secure environment for government institutions.

Recommendations

1. The need to improve the level of training for workers in government institutions on digital transformation processes to ensure effective use of modern technologies.

2. Improve the quality of the Internet at the level of government institutions to facilitate digital transformation processes.

3. It is essential that Iraq possess its own satellite to ensure that citizens' data are protected and not diverted to other States or entities.

4. Develop proactive strategies to raise the level of security in digital transformation by constantly updating the security portals and reviewing the systems used.

5. Laws and legislation should be developed to ensure the protection of national cyberspace and the preservation of the digital State's sovereignty.

6. Streamlining the procedures accompanying digital administrative processes and avoiding complications resulting in delays or continuation of traditional routine processes.

Through these recommendations, Iraq can enhance its digital transformation capabilities and face the risks it faces more effectively.

References

Hussein Quadra, conflict interactions in cyber templates: the new image of international conflict, in Abdelkader Denden Editor, international relations in the age of digital technology: profound transformations and new paths, Center for Academic Writers, Algeria, 2021, pp. 53-54

Khadija Ham, Information Systems in the Face of Piracy and Sabotage: Imminent Hazards and Effective Solutions, in the Group of Authors, Information Security: Threats and Protections, Faculty of Arts and Languages Conference, Mevlut Mammari University, Algeria, pp. 37-41.

Khaled Khalifa al-Janfawi, Digital Transformation of National Institutions and Cybersecurity Challenges from the Point of View of Kuwait's Academic Police Officers, Arab Journal of Literature and Humanities, No. 19, Arab Foundation for Education, Science and Literature, Cairo, 2021, pp. 86-87.

(4)Ahmad Mahmoud Al-Qaysi, Digital Governance in Iraq: Challenges and Opportunities, International Information Network: https://kerbalacss.uokerbala.edu.iq/wp/blog/2023/10/11

Al-Muhalab Al-Zaidi, growing digital solutions, international information network: https://www.kapita.iq/content/issue/tzayd-alhlol-alrkmy-aaad-tshkyl-aaadat-almsthlk-alaaraky-oaaad-thdyd-almstkbl.

Website raise your voice, electronic governance.. "Slow" and "corrupt" forces go backwards, International Information Network: https://www.irfaasawtak.com/iraq/2023/04/26

Ibid .A site that raises your voice.

Alia Hussein Khalaf and Sana Hussein Khalaf, The Role of Good Governance in Development, a source mentioned above.

Saugata,B., and Masud, R,R., Implementing E-Governance Using OECD Model (Modified) and Gartner Model (Modified) Upon Agriculture of Bangladesh. IEEE, 2007, P.1551.

Fouad Jamal Abdelkader, Outlook on the E-Commerce Bill 2009, International Information Network: https://www.egypt.gov.eg.

Mahmoud Al-Kidwa, E-Government and Contemporary Administration, T1, Osama Publishing and

Distribution House, Amman, 2010, p. 195.
Salam Zidane, to confront corruption and control of money.. Iraq obliges its institutions to apply electronic payment, search available at the link: https://www.aljazeera.net/ebusiness/2023/1/26
Atheer Ali Abdul Kadhim and Sri Nufel Bahgat, Governance and E-Government, Electronic Lecturer, College of the University City of Alam, Baghdad, January 2022.
Za 'atar Maalouf, Najla Rabashi and others, Digital Governance: Challenges and Opportunities for Inclusive Citizenship, scientific symposium organized by the Lebanese House of Assembly, in cooperation with the Francophone Parliamentary Assembly, Beirut, 2022.
Thualfqar Mohammadawi, Iraq is moving towards digital transformation.. International Information Network: https://almadapaper.net/view.php?cat=303367.23-12-2023 .
Bartlett Rossel and (Others), Conceptualizing, Governance, Management,2007, P.399-407.
Marwan Salem Al-Ali, Anti-Corruption Strategies: Cancer Kills Iraq, International Information Network: https://annabaa.org/arabic/goodgovernance/18191
(Essam Hakem, E-Government and Application Challenges in Iraq, Amjad Publishing and Distribution House, Oman, 2024, p.135.
(Talal Nathum al-Zahiri, e-governance initiatives in Iraq and their success factors, Governance Journal: Social Responsibility and Sustainable Development, vol. 5, No. 1, Faculty of Commercial Economics, Algeria, 2023, pp. 25-28.