

E-government Challenges in Developing Countries: Development of Iraqi E-government

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HIGHLIGHTS

- Iraq seeks private sector partnerships to support e-government initiatives aligned with national strategies.
- Iraq's e-government projects struggled due to outdated methods. Sustainable ICT needs ongoing improvement and optimal tech selection.
- Iraq's National Data Centre launched Ur e-government portal, improving digital governance, and providing new services.
- User adoption issues continue due to weak regulations, security worries, and political instability. Trust relies on innovation and citizen belief.

ABSTRACT

E-government involves utilizing technology to provide information and deliver governmental services to employees, citizens, and businesses. Developing countries implementing e-government should aim to keep pace with rapid technological advances to continuously improve their systems and enhance the services offered to citizens through government portals in an efficient manner requiring minimal time and effort. However, many developing nations, especially many Arabic countries, face numerous challenges in implementing and adopting e-government initiatives. This paper examines the concept, sectors, and definition of e-government, along with the potential benefits. It then discusses the current status of e-government in Iraq, focusing on the issues and obstacles impacting the further development of e-government systems in the country. The goal is to provide an overview of e-government and its applications while analysing the specific difficulties Iraq faces in advancing its e-government efforts to identify strategies to overcome these barriers

Keywords: Developing Countries, E-government, E-services, Iraq, Challenges

INTRODUCTION

The current information age has emerged after an extended industrial age, with information and communication technology (ICT) being one of the main advantages of the information era. In recent years, e-government has become one of the most significant ICT technologies. While some individuals readily embrace and utilize IT tools as part of their daily life, others still prefer traditional non-digital approaches. The application of ICT is now commonplace and ingrained in some people's routines, whereas others remain reluctant to transition away from non-technological methods. As the world moves beyond the



industrial age into an information-driven era, e-government has arisen as a crucial ICT innovation, despite adoption disparities existing between those comfortable with everyday IT usage and those favouring offline means (Greenland, 2019).

Recent advances in technology and communication systems, particularly the information revolution of the 21st century, have led to many changes in people's lives globally. These developments need to be regulated and managed through electronic government (e-government), which interacts daily with businesses, employees, and the public. Information and communication technology (ICT) supports e-government by serving both citizens and government, enabling more efficient services and easy access to information. E-government has greatly grown in global importance, making life more convenient and flexible. This technology helps minimize resource sharing as well as increase public contribution to an assessment of government performance.

The success of e-government initiatives relies heavily on citizens' willingness to transition from traditional methods to online channels when interacting with the government. (Li, 2021). Many citizens are reluctant to utilize e-government services due to insufficient government regulations, inadequate e-government platforms, a lack of protection laws, and political instability (Zeebaree & Aqel, 2021). The political climate limits public involvement in e-government efforts. However, it is important to note that trust in e-government should not be evaluated solely based on technological innovation, but also in terms of website factors. Overall, citizens' confidence in public institutions and officials is vital in shaping their perspectives on e-government adoption. Multiple issues create hesitation among users when it comes to embracing e-government services, including deficient legal frameworks, underdeveloped systems, missing security laws, and unstable political environments. While technology alone does not determine trust, website elements play a key role. Ultimately, citizens' faith in governmental bodies and leaders is integral for forming attitudes toward e-government initiation (Souza et al., 2022).

The implementation of effective e-government initiatives in Iraq has the potential to greatly transform governmental processes and operations (Abubakr & Kaya, 2021). Iraqi e-government can facilitate broader citizen and business engagement in Iraq's emerging knowledge-based economy. To fully realize the potential of e-government, reforming Iraq's governmental administrative structure and modernizing the management of government operations and information is necessary (Mutar et al., 2022). Iraqi e-government faces significant challenges in establishing robust foundations due to ongoing issues in the country such as insecurity and corruption (Rasol Hasson & Mahmoud, 2021). Additionally, changing mindsets and approaches in public administration and government-citizen/business communication is necessary. Despite these challenges, there is a lack of scientific research providing solutions for Iraqi e-government initiatives.

There are several e-government delivery models depending on the government sector involved: (i) Government to Citizen (G2C) refers to interaction between government and citizens to enable efficient, effective access to information and services; (ii) Government to Employee (G2E) indicates interaction between government and employees to increase productivity through all available effective means; (iii) Government to Government (G2G) involves interaction between local government agencies; (iv) Government to Business (G2B) refers to government-business interaction over the internet to assist business activities (Khatib et al., 2019).



METHODOLOGY

Nowadays, the implementation of e-government initiatives has become a primary objective in many countries. However, implementing e-government systems is not simple. E-government rollouts have confronted various obstacles, preventing full implementation in developing countries. Therefore, this paper examines e-government development challenges in developing countries in the Iraqi context and discusses the current e-government status in Iraq. This paper is based primarily on secondary sources, utilizing qualitative research methods through a literature review. Qualitative research generates descriptive, textual data and insights (Farida et al., 2020). The data utilized is derived from secondary sources relating to e-government development challenges in developing countries in the Iraqi context along with the current e-government situation in Iraq. The research data collection method is carried out by the documentation method which refers to collecting the documented materials (Nasution & Handayani, 2023). Secondary data was collected from sources including books, journal articles, government reports, and publications by international organizations. Search engines like Scopus, EBSCOhost, Google Scholar, and IEEE were utilized to find relevant publications using keywords such as "e-government," "e-government challenges," "e-government in Iraq," "e-government status in Iraq," and "e-government in developing countries." To ensure that the data gathered were up to date, all publications used for the research were published between 2019 and 2023, providing new and current insights for this continuously evolving field. The few journal articles published before 2019 were included because they provided a history of the technology. The collected research data was analysed via content analysis of the assembled secondary data.

E-GOVERNMENT DEFINITION

Like other modern concepts, e-government has multiple definitions among researchers without a single agreed-upon definition. Most definitions emphasize better government service delivery to citizens through technology. E-government can be defined as the use of information and communication technologies (ICT) by the government to provide services and enable interaction with citizens and businesses via various electronic channels such as smartphones, computers, fax, smart cards, self-service kiosks, email, internet, and electronic data interchange. The core focus is on governments utilizing technology to improve service provision and engagement with stakeholders (Wa & Zhang, 2023).

The multiple definitions of e-government are largely attributed to the differing visions, objectives, needs, cultures, and resources available to each country looking to implement e-government (MacLean & Titah, 2022). E-government refers to the utilization of information and communication technologies (ICT) to provide government services to citizens and businesses effectively and efficiently (Sabani et al., 2019; *United Nations E-Government Survey 2022*, 2022) E-government has been defined as utilizing ICTs to transform public services to be more accessible, accountable, and effective. Scholars have defined e-government from varying perspectives, ranging from broad to narrow. The most common viewpoints focus on the technological, managerial, or political aspects of e-government.

E-GOVERNMENT BENEFITS

E-government has been defined as utilizing ICTs to transform public services to be more accessible, accountable, and effective. Scholars have defined e-government from varying perspectives, ranging from broad to narrow. The most common viewpoints focus on the technological, managerial, or political aspects of e-government (Jacob et al., 2019; Zeebaree & Aqel, 2021).



One of the potential benefits of e-government is increased efficiency and decreased costs by reducing the manual labour required for paper-based activities. E-government allows processes to be handled by fewer people, lowering service expenses. The accessibility of public services leads to more interaction between citizens and public organizations, improving public participation. These build trust and satisfaction through enhanced reach and user experience (Rotta et al., 2019; Samuel et al., 2020). Additionally, e-government enables both the government and citizens to save time by utilizing government services provided online over the Internet (Al-Swidi et al., 2019). E-government services boost business transactions and outcomes, leading to improved customer experiences. Companies can save money, time, and effort by leveraging e-government services effectively.

Another e-government benefit is enabling enhanced communication between key components: businesses, citizens, and government. For instance, e-procurement facilitates G2G and B2B interaction, promoting competition for government projects. Developing business-government relationships spurs market growth and economic success (Abd et al., 2019). Additionally, e-government boosts efficiency and reduces bureaucracy as consumers can rapidly assess and provide feedback on government policies posted online. E-government ensures transparency and helps prevent corruption. Administrative requirements are decreased since digital data can be instantly shared between offices without traditional routes (Talab et al., 2019).

E-GOVERNMENT IN IRAQI

In Iraq, e-government is a new concept, and awareness among the public and government is limited. In 2004, the Iraqi Ministry of Science and Technology (MST) contracted an Italian company to formulate an Iraqi e-government project. The Iraqi government began adopting e-government technology, launching plans to implement e-government in three phases using ICT: building infrastructure, providing employee services, and providing citizen services (Abubakr & Kaya, 2021). So far, the Iraqi government has developed government websites and offered some citizen services, including the Iraq e-Gov portal, e-Passport Record, and e-Driving Test (Al-Swidi et al., 2019). The Iraqi government has placed substantial focus on its e-government system, though many barriers to e-government in Iraq remain. The government has introduced e-government as an efficient and effective means of providing services to citizens, businesses, government entities, and employees. In recent years, Iraq has adopted ICTs to improve government-citizen communication. Web pages are the primary interfaces enabling user access to online government services.

Iraq's first experience with e-government was the creation of a limited e-traffic platform. Then in 2010, the government pursued a broader e-government program linking key ministries with the Prime Minister's administrative centre to expand e-governance capabilities (Ebraheem Alobaidy, 2019). The Council of Ministers order no.46 established the e-government committee in 2009, appointing the Ministry of Science and Technology as committee leader. Since then, the committee has provided each Iraqi ministry with an e-government office. Attention to e-government increased in 2009 when Iraq hosted the international e-Iraq conference in Baghdad, supported by the Prime Minister and attended by 250 Iraqi and UNDP participants. Subsequently, 3000 e-government staff were UNDP-trained in Iraq. In 2011, Iraqi e-government executives and UNDP held a second forum to evaluate the project and plan the next steps. UNDP also trained 200 Iraqis as e-government instructors for all of Iraq's e-government centres to create 10,000 trainers. These instructors trained government employees and citizens nationwide. In 2012, the e-governance board held the second international e-Iraq conference, again supported by the Prime Minister, with over 300 Iraqi and UNDP attendees. In 2014, they decided to hold a new e-government conference called "Digital Local Provinces: The Bridge to the Future (Ebraheem Alobaidy, 2019).



The Internet Usage and E-Government Readiness Index for Iraq

Internet access in Iraq was extremely limited in the early years. It first became available to the general public in late 1999 through a small number of Internet centres and cafes. In 2000, there were only 12,500 internet users in Iraq, out of a total population of 26.6 million. This constituted less than 0.1% of the country's population. By 2002, internet usage had risen slightly to 25,000 users, still less than 0.1% of the total population of 28 million at that time. So, in the early years of the internet in Iraq, adoption rates were very low, with less than 0.1% of Iraqis online even a few years after public access became available. By 2008, internet usage in Iraq had risen to 275,000 users out of a population of 28.2 million, making up less than 1% of the total population. In 2009, there were 325,000 internet users in Iraq, exceeding 1% of the estimated 29.6 million population for the first time.

However, internet adoption was still low compared to the overall population. In 2010, there were 939,000 internet users in a population of 28.9 million, only around 3% of all Iraqis. So, while internet usage was steadily increasing during this period, it still constituted only a very small percentage of the total population. In 2012, internet usage jumped to 2.3 million users out of a population of 33.8 million, constituting around 7 % of Iraq's population. Citizens began adopting the internet more, with usage reaching 5.6 million in 2015 out of 33.3 million people, about 15% of the population. By 2019 there was a significant increase, were 19.68 million internet users in Iraq's population of 41.58 million, around 44%. In 2022, there were 31.4 million internet users in Iraq, approximately 69% of the 44.47 million population. Therefore, in 2023 internet users in Iraq were 33.72 million users, which is about 74.9% of the 45.7 million population. So, over this period from 2010 to 2023, as shown in Table 1, internet adoption saw significant growth in Iraq, going from single digit penetration to reaching close to 75% of the population (Kemp, 2023; World Bank, 2021).

Table 1 Individuals using the Internet in Iraq

Year	Population	Internet User	Percentage of population
2010	28,900,000	939000	3%
2011	32,400,000	1,600,000	5%
2012	33,800,000	2,300,000	7%
2013	35,500,000	3,200,000	9%
2014	36,750,000	4,700,000	13%
2015	37,750,000	5,600,000	15%
2016	38,700,000	7,700,000	20%
2017	39,620,000	16,000,000	26%
2018	40,500,000	19,000,000	34%
2019	41,580,000	19,700,000	44%
2020	42,550,000	29,800,000	46%
2021	43,530,000	30,500,000	49%
2022	44,400,000	31,400,000	69%
2023	45,700,000	33,700,000	74.9%



Additionally, the Iraqi Ministry of Communications noted that the 2003 war caused major damage to Iraq's communication system. However, rebuilding efforts have been accelerating reconstruction progress since then. Furthermore, in 2007 the Ministry announced plans to provide internet services to citizens through a national fibre-optic network (Abubakr & Kaya, 2021). Looking at Iraq's E-Government Development Index (EGDI) scores, there has been little improvement in recent years. As shown in Table 2 in 2012, Iraq's EGDI was 137 and its e-participation index was 101. In 2014, EGDI was 134 and e-participation was 152. In 2016, EGDI was 141 and e-participation was 104. In 2018, EGDI was 155 and e-participation was 140. In 2020, EGDI was 143 and e-participation was 158. Finally, in 2022, Iraq's EGDI was 146 and its e-participation index was 153. So, Iraq's e-government development and e-participation scores have remained low and stagnant, showing minimal progress over the last decade based on these UN indices (Department of Economic and Social Affairs United Nations, 2022). In summary, Iraq's EGDI score was highest in 2014, while its e-participation index was highest in 2012. The trend in technology adoption in Iraq has varied over the last decade. Therefore, it is crucial to take a comprehensive approach that can guide Iraq towards a successful e-government transformation.

Table 2 E-Government and E-Participation Index in Iraq

Year	EGDI	e-participation
2010	136	135
2012	137	101
2014	134	152
2016	141	104
2018	155	140
2020	143	158
2022	146	153

E-Government Projects in Iraq

Since 2010, the Iraqi government has taken steps to establish e-government and has allocated budgets for various projects, as shown in Table 3. The Iraqi e-government is represented by the e-Gate of Iraq and e-Citizen portal websites (egov.gov.iq & ca.iq). These sites can be evaluated for usability, accessibility, and web security to determine their current status. Assessing these factors would provide insights into the situation of Iraqi e-government portals and how to improve them while maintaining security. The e-Gate of Iraq main portal is currently down and inaccessible, but the e-Citizen portal is accessible, as shown in Figure 1. However, the e-Citizen site has non-functional features that produce errors when used (Al-Shaher, 2017).





Figure 1: e-Citizen portal

Many Iraqi government ministries want to develop their systems and applications. However, there are insufficient initiatives to solve the problems mentioned or even minimally improve current services. Many broken links exist on Iraqi e-government websites, leading users to error pages when clicked. These broken links indicate pages that no longer exist, likely due to the user arriving at a 404-error page showing the requested page cannot be found. Overall, there is a lack of effort to address issues like broken links to enhance the user experience and quality of e-government services (Albadri et al., 2020).

The Iraqi government has initiated several projects to promote digital transformation and increase citizen access to services. These efforts include launching an integrated public information platform, implementing a unified national ID card system, creating a single portal for all public services, and introducing e-payment systems, as shown in Table 3. This table outlines the e-government projects and status updates from the Iraqi government. The goals are to drive digital change and make services more available to Iraqi citizens through platforms for information, identification, services, and payments.

Table 3: E-services projects launched by the Iraqi government

Project Name	Established Year	Website	Status	Project Details
Ur portal government digital services	2021	https://ur.gov.iq	Active	A portal that contains (211) electronic governmental services.
Iraqi electronic passport	2023	https://epp.iq	Active	Booking an Appointment to apply for the Iraqi electronic passport
Unified National Platform	2020	https://www.unp.app/	suspended	A platform that provides transaction automation services for institutions by defining the progress of transactions and their procedures and electronic reservation.



Iraqi electronic passport	2020	https://eservice.iraqnationality.gov.iq/pssservice_ara/start.swe	suspended	A service to obtain an Iraqi passport of all categories and submit a request to issue a new passport by filling out the passport application form
Electronic citizen government	2016	https://ca.iq	Active	It receives citizens' requests and complaints via the website and refers them to the relevant authorities.
E-Government Portal of Iraq	2012	http://www.es.gov.gov.iq	suspended	The portal has many services, which are divided into four sections and each section has different services.

However, implementing ICT technology for e-government requires regular updates and utilizing the most effective methods for projects to function successfully in a systematic way. In Iraq, many e-government projects have failed or underperformed due to insufficient upgrades and outdated technological approaches. Sustainably adopting ICT involves continuous improvements and selecting optimal technologies to enable e-government systems to operate consistently and effectively. Iraq needs to focus on upgrading ICT regularly and choosing the best techniques to avoid the pitfalls of unstable and obsolete e-government projects seen in the past (Alsahou et al., 2021).

Human resource development has also received some focus. Testing and training centres were set up in cooperation with ICDL in Baghdad, Basra and Karbala as part of rebuilding and workforce development efforts. Recently emerging private sector companies have partnered with the government to train public employees and workers. For example, the Ministry of Technology and Communications initiated training programmers in open-source technologies for e-government systems. Overall, there are ongoing human resource initiatives between the public and private sectors focusing on IT training and skills development to support e-government programs. The centres established represent initial steps to build e-government expertise (Albadri et al., 2020).

On July 27, 2022, the United Nations Development Program (UNDP) signed a Memorandum of Understanding with Iraq's Council of Ministers Secretariat (COMSEC) to assist the government in strengthening digital services and governance capacities. The agreement focuses on leveraging information and communication technologies to modernize government processes and systems, enhance citizen services, and promote the digital economy. Through this partnership, UNDP will support Iraq's efforts to increase the use of ICT across government operations, improve service delivery, and build Iraq's digital capabilities. Under this agreement, UNDP will conduct an assessment of Iraq's digital landscape and develop a roadmap outlining the main priorities for digital transformation. It will also forge new private sector partnerships to support future e-governance initiatives aligned with Iraq's strategies. This partnership aims to increase efficiency and engagement with the public and private sectors, improving government transparency and accountability. Advancing digital transformation will provide reliable, streamlined access to public services, reducing the need for in-person visits. Overall, the MoU focuses on analysing Iraq's needs, defining a digital roadmap, building private sector collaboration, and using ICTs to enhance governance, service delivery, and e-government capabilities. (UNITED NATIONS DEVELOPMENT PROGRAMME-PRESS RELEASE, 2022).



Moreover, in September 2022, Iraq's National Data Centre Department officially launched the Ur e-government portal, a year after its trial version. The updated portal at <https://ur.gov.iq> contains new features. Over 808,000 citizens have registered, and 39 government agencies now provide services through a single portal. 211 e-services from ministries and non-ministerial entities are available. The portal was developed within Iraq's new National Data Centre under the General Secretariat of the Council of Ministers, representing Iraq's first such e-government experience towards comprehensive digital governance. After a trial period, the enhanced Ur portal has been officially introduced with more features, services, and agency adoption, advancing Iraq's e-government capabilities. Figure 2 shows the main page of the Ur e-government portal (GSCOM, 2022).

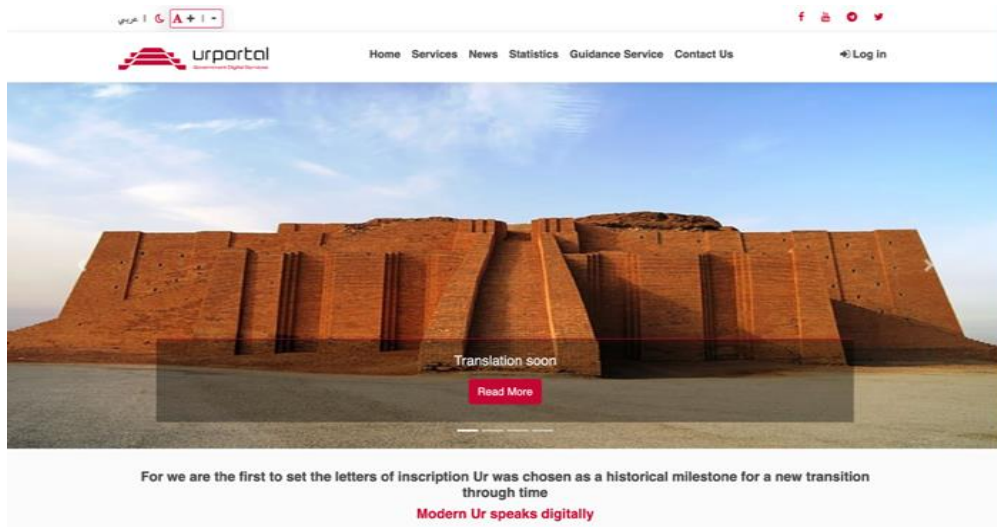


Figure 2: Main page of Ur e-government portal

On March 6, 2023, Iraq's Directorate of Civil Status, Passports and Residence within the Ministry of Interior and under the supervision of Prime Minister Mohammed Shia Al-Sudani launched the third generation of the new Iraqi e-passport. This e-passport meets high technical specifications approved by the International Civil Aviation Organization (ICAO). The new electronic passport aims to reduce paperwork and administrative procedures by about 85% and be issued within one day. Citizens can apply through the website (<https://epp.iq/>) or mobile app as shown in Figure 3. This launch represents Iraq's progress to the latest technical e-passport standards for faster digital processing and issuance. It moves towards the goal of enhanced efficiency and convenience through e-government services. (Media Office of the Prime Minister, 2023).



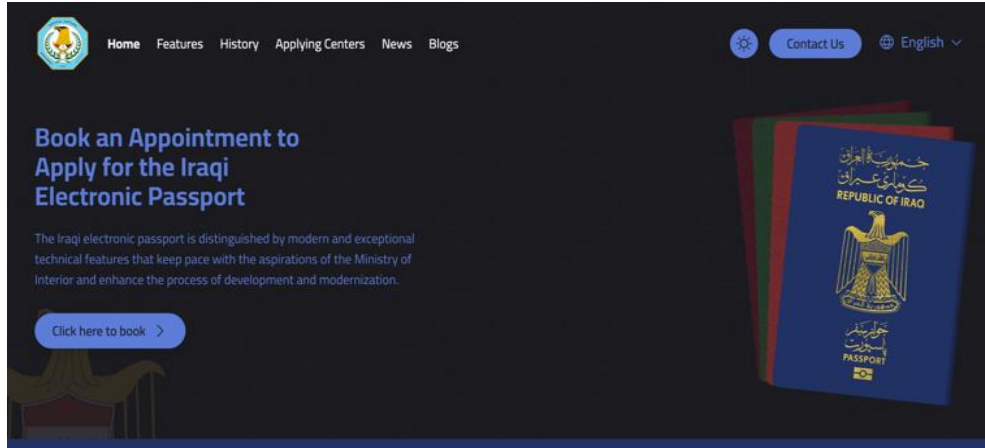


Figure 3: Iraqi e-passport portal

Iraq's General Directorate of Traffic has implemented the first phase of an e-international driving license project in cooperation with the National Data Centre. This innovative system aligns with Iraq's digital transformation efforts. It was designed to enable quick and secure online international license access. Through the system, citizens can maintain and view a QR code for their license to display as needed when driving abroad under the 1968 Vienna Convention. This initial e-international license phase facilitates digital license management and availability through Iraq's e-government platforms. It exemplifies Iraq's progress in adopting e-services to improve access and convenience for citizens. The project's second phase will enable electronic license applications, where citizens can submit information and upload photos through the system. After verification, the license will be issued for pickup and fee payment at the traffic departments. The third and final phase will add electronic payment capabilities, enabling license fee payment and receipt digitally without visiting traffic offices or departments. This phased approach will eventually allow fully online e-international license applications, approvals, payments, and issuance through Iraq's e-government systems. It exemplifies the steady progress towards adopting digital services to increase accessibility and convenience for citizens interacting with the government (GSCOM, 2023).

CHALLENGES OF E-GOVERNMENT

It is common to encounter challenges when implementing e-government, since most governments initially face numerous problems when attempting to utilize various technologies to manage their work. However, they typically aim to address these obstacles as they arise during the implementation process. While e-government faces various barriers globally, Iraq has its unique challenges influencing the entire system. A major issue is the ICT infrastructure, as Iraq lacks the robust infrastructure needed to implement e-government, partly due to instability and conflict. Internet access is limited and slow. Telecommunications infrastructure is also inadequate, alongside unreliable electricity supply. Iraq's ICT infrastructure shortcomings, exacerbated by instability, pose a significant obstacle to establishing effective e-government. Limited, poor internet access and telecom infrastructure combined with power deficiencies create technological hurdles for viable e-government implementation (Zeebaree & Aqel, 2021). Additionally, internet connectivity in Iraq is still expensive, highly unreliable, and slow. This stems from inadequate telecommunications infrastructure and insufficient domestic power supply, requiring dependence on neighbouring countries. The high costs, instability, and slow speeds of internet access in Iraq present further barriers to e-government systems which rely extensively on affordable, reliable, high-speed connectivity.



Overcoming these telecommunications and power challenges is crucial for Iraq to develop the internet capabilities needed to effectively implement e-government programs (Thabit & Jasim, 2019).

The term "digital divide" refers to disparities between people, households, geographic areas, and businesses across socioeconomic dimensions in their access to information and communication technologies, as well as their use of the Internet for a wide range of activities. In essence, it describes gaps between those who have opportunities and means to access and use the internet versus those who do not. There are distinct divides between individuals able to get online and leverage the internet and those without the ability to access or utilize these technologies. Bridging these digital divides by providing universal affordable internet access is crucial for countries like Iraq seeking to implement e-government programs (Jasim et al., 2021). If people lack internet access, they also miss out on developing digital skills and benefiting from e-government services. To prevent deepening digital divides, extensive dialogue, and new forms of cooperation among civil society, the private sector, and the government are needed. Providing universal internet access enables citizens to gain computer abilities and leverage e-government programs. However, achieving this requires collaboration across different sectors to ensure equity. Iraq must focus on inclusive internet access through partnerships between various stakeholders, avoiding exacerbation of digital divides, for successful e-government implementation (Abubakr & Kaya, 2021).

Laws and regulations are absent governing the adoption of ICTs, which can create legal or policy barriers. Legislation needs to establish laws that enable and support e-government systems. The lack of an ICT regulatory framework poses obstacles to Iraq's e-government implementation. Introducing ICT laws and policies to facilitate e-government development and remove hindrances is essential. ICT adoption for e-government needs to be underpinned by a legislative framework that provides clarity on relevant laws and regulations to prevent issues stemming from legal or strategic ambiguity (Glyptis et al., 2020). Moreover, an e-government policy framework must address key legal issues such as information and data security, e-commerce, censorship, and freedom of speech, as well as international issues including copyright, intellectual property rights, and cross-border regulations. An effective e-government policy needs to cover critical areas like protecting security and rights, regulating online transactions, upholding liberties, and handling transnational technology matters involving property and jurisdiction. A comprehensive e-government strategy must incorporate laws and policies spanning security, business, rights, and global considerations for successful implementation (Zeebaree & Aqel, 2021).

Corruption and lack of transparency are major issues facing developing countries like Iraq. Government regulations and transactions often lack fairness, with nepotism and cronyism prevalent in agencies, especially regarding employment. The public frequently does not understand how the government makes decisions due to opacity. Corruption and inadequate transparency in Iraq diminish faith in government and pose challenges as barriers to effective e-government implementation and adoption. Tackling nepotism and unclear decision-making processes through institutional reforms will be crucial for establishing trust and engagement in e-government initiatives (Thabit & Jasim, 2019). To combat corruption, the Iraqi government needs to undertake democratic reforms and enable transparent communication between the public and the government. High illiteracy, unemployment, poverty, and low IT literacy compared to developed nations present further barriers. Overcoming corruption requires democratic governmental reforms alongside simple public-government communication channels. Iraq also must address broader issues of illiteracy, joblessness, poverty, and inadequate technology skills hindering e-government adoption compared to advanced countries. Tackling these literacy, economic and technology gaps through national initiatives will be key for successful e-government implementation (Jasim et al., 2021). Iraq's overall literacy rate is low compared to developed nations, with only 79.7% of the population over 15 years old able to read and write.



Additionally, surmounting cultural inertia poses a major obstacle to executing e-government systems in developing nations. This cultural resistance helps explain the high failure rate of e-government initiatives in many of these countries. Cultural factors like societal norms, languages, educational background, religion, experiences, and varied hopes for e-government tools contribute to this challenge. Developing countries often face a disconnect between the intended design and real-world implementation of information systems. Shifting from paper-based to digital services, or any societal change, faces some degree of opposition. Culture significantly influences this resistance. Carefully examining cultural matters and strategically developing interventions to boost acceptance and trust is crucial for the successful adoption of e-government platforms in these settings. Overcoming deeply ingrained cultural preferences and patterns represents a key hurdle that must be addressed for e-government execution to thrive in developing countries, where culture frequently hinders adoption and causes project failures (Samsor, 2021).

Hence, the challenges and difficulties faced in the progress of e-government differ case by case. Iraq has been the focus of various studies examining the obstructions and hurdles affecting the enhancement of e-government. For instance, Alyawer and Ahmad (2018) performed a systematic review to pinpoint the technical hurdles impeding e-government progress in Iraq. They identified six main barriers: deficient IT abilities, an antiquated telecommunications framework, lack of an e-government database, missing security precautions, insufficient user engagement, and poorly designed, low-performing websites. Thabit and Jasim (2019) conducted a SWOT analysis, evaluating the strengths, weaknesses, opportunities, and threats related to e-government. They determined that technology-related e-government efforts were constrained by cost, insufficient IT expertise, data incompatibility, and lack of IT standards. In contrast, Salman et al. (2019) categorized four main types of barriers inhibiting e-management adoption in Iraqi governmental organizations: organizational, technical, human resource, and financial obstacles. However, while these studies provide useful perspectives on e-government challenges in Iraq, they offer a broad overview of the issues without delving into a particular institutional problem.

CONCLUSION AND RECOMMENDATIONS

E-government has gained significant traction globally in recent years, becoming a key aspect of public administration reform. The Iraqi government has notably prioritized e-government to deliver e-services across sectors and expand ICT use, which has rapidly increased. However, further improvement in management and advancement of e-government systems is needed. While Iraq has recognized the importance of e-government and made some progress, there are still challenges to consolidate and maximize the benefits of e-services. Strengthening institutional coordination and strategy aligned with global best practices will help Iraq build on the momentum of e-government adoption.

However, more effort is required by Iraq to enhance e-government services like e-payments for taxes and rent and e-billing for utilities and telecoms. The government must also address problems in sharing information across agencies digitally. Greater focus should be given to enabling e-payments, which would ease fee collection for the government and citizens. While progress has been made, strategic priorities for Iraq's e-government should include improving critical services like digital billing and payments, along with fixing electronic information exchange issues between governmental bodies. Advancing e-payment capabilities should be a priority initiative to enable easier revenue collection and remittance.

Therefore, the Iraqi government also needs to provide enhanced security for online payments, as this represents a new challenge in the e-government landscape. Addressing online payment security issues will be critical for Iraq to continue advancing its e-government initiatives. Therefore, enabling secure online transactions is an emerging priority that Iraq must tackle to facilitate further progress on e-government



adoption and digital services. Prioritizing cybersecurity strategies and standards for e-payments will help position the government to evolve its e-governance capabilities.

This study highlighted core issues and challenges authorities encountered during e-government implementation in Iraq. These challenges include ICT infrastructure deficiencies, low literacy, digital divides, lack of supporting laws, corruption, and transparency concerns. Each challenge has specific importance, and they are interrelated such that progress in one area affects the wider system. To help decision-makers overcome these obstacles, priority focus areas should include promoting digital literacy, formulating e-government laws, providing cybersecurity, and building citizen and institutional confidence to engage with the digital transformation of e-government. A concerted strategy targeting these crucial areas - digital skills, legal frameworks, security, and stakeholder buy-in - will equip Iraq to systematically address the identified challenges hampering nationwide e-government adoption.

However, for e-government to be successfully implemented and utilized, governments must address key challenges and provide the infrastructure deemed necessary for e-government adoption. This paper examines the concept of e-government in Iraq, including Iraq's e-government rankings and the current status of e-government projects in the country. Specifically, it looks at the issues Iraq faces in establishing e-government systems and the infrastructure and initiatives required to enable effective e-government. The goal is to analyse where Iraq stands today in terms of e-government development and what steps it still needs to take to leverage e-government to improve public services and meet citizens' needs. By evaluating Iraq's e-government landscape, obstacles can be identified, and recommendations can be made for strategies to advance Iraq's e-government efforts.

Hence, Additional research should examine e-participation, its influence, and how it can be expanded to support policymaking and decision-making processes. Effective e-government systems have the potential to reduce corruption within government organizations. In conclusion, further studies in the field of e-government are needed, as there is currently limited research on e-government and its services. More work is required to fully understand how to successfully implement e-government, increase citizen e-participation, and realize the potential benefits of reduced corruption and improved public services. This paper argues that the impact of e-participation and strategies for enhancing it to support policy development deserves more attention. While progress has been made, the e-government landscape is still relatively new and many questions remain unanswered. Further research would allow for a greater understanding of how to optimize e-government and e-participation to improve governmental processes, administration, and services.

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CONFLICT OF INTEREST DISCLOSURE

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