

Review on Challenges in Building Knowledge based Societies through E-Governance Framework: Technology and Management Issues from Global Perspective

Dhyaa Shaheed Al Azzawy*

Computer Science and Information Technology College, University of Waist, Waist, Iraq;
shaheeddhyaa@gmail.com

Abstract

Objectives: To review the e-government challenges and issues faced by Iraq government and citizen. **Methods/Review:** We are proposing a general adaption framework, which should be considered by Iraq government to maximise the E-government benefits. The framework is proposed based on the literature review and the problems faced by Iraq government and people. It describes how Iraq government can achieve and maximise its benefits from the e-government services and the parameters it should considered. Therefore, Iraq should develop a clear and strong strategic framework to understand its needs before implementing the E-government services in current circumstances. **Findings/Discussion:** The framework will clearly define government's vision, goals, milestone, approach and standards beside information privacy, security and maintenance infrastructure. Essential ingredients of a successful transition include a vision, relevant policies, mission, strategic objectives and frameworks. **Application:** The outcome of framework review suggestions can be implemented in government sector for the benefit of the citizens.

Keywords: E-Government, E-Governance, ICT, Issues and Challenges, Strategic Considerations

1. Introduction

The growth in IT and computing industries, introducing new information and communication technologies, and changing demographics and political requirements which redefining the role of government's organizations. Fast development and proliferation of Information and Communication Technologies (ICTs) have a revolutionary effect on human life. ICT is changing the way of communication and business between people and organisations. Governments are looking for efficient and effective ways to better serve the citizens and fulfil their expectation which create new challenges for them. E-government offers opportunities to meet citizen's expectations and deliver them accordingly. The main challenges faced by governments are how to develop awareness and overcome

technology and management related issues in rural and illiterate areas, especially in developing countries which do not have good literacy rate and good IT infrastructure. However, E-governments have enough potential to develop knowledge base societies globally by offering various government services to the user at their home door.¹⁻³

The demand of E-governance came from the need to adopt latest technology and offer operational efficiency to fulfil citizen's demand effectively. E-government concept is to bringing citizen closer to the governance system where they can achieve required outcome more effectively without wasting the time.

Concurrently, e-governance solutions must qualify to incorporate specific provisions, such as accessibility, affordability, reliability, user friendly, secure and have integrity.

*Author for correspondence

There are two major reasons of ICT growth, deployment and proliferation in society such as technology push and user demands. We are living in a technology era, and every day newer technologies are introduced such as android phone, VoIP, Multimedia and etc. The impacts of ICT on existing systems of interactions and working of organisations have both opportunities and threats associated. Many issues of this changing environment have not even understood properly and even if understood they are not resolved.

Iraq is considered to be a rich country in Middle East due to having a lot of natural oil resources and minerals such as phosphate and sulphur.

The main aim of the paper is to review the challenges and issues related to e-governance in Iraq due to war and other limitations. Two set of issues based on technology and management have been taken as the core concept for reviewing and proposing the E-Government framework in Iraq. The paper has been organized into different sections which briefly explain on: Global trend toward E-Government, E-government to E-governance, Issues and Challenges towards implementation of E-Government Services in Iraq, E-Government in Developing Countries, E-Governance Models, Proper Strategic Considerations, and Proposed Frame work for successful E-Governance Services and Conclusion.

1.1 Global Trend towards E-Government

In any region, governments are the larger entity which produce and handle huge amount of data or information. Governments deals and interact with citizen information or data in many ways such as developmental initiatives data, government policies, developing rules and regulations, economy, policy monitoring etc. Similarly, many kinds of this information are generated within government departments and their use for various purposes. Many developing countries still straggling to adapt and understand these technological related issues including data privacy and security.

For example, United Kingdom (UK) launched UK online services in September 2000, with an aspiration of becoming the world leading knowledge economies.⁴ The system was the combination of 6,000 UK online centres which allows citizen around the country to access and utilized e-government services. Countries like Australia, USA, Singapore and Canada are equally utilizing-government benefits. The concept of E-Government raises

the issue of reducing the operational cost and citizen are expecting faster, reliable and secure services as well.

The neighbour countries of Iraq such as Jordon are trying to implement successful e-government model to boost their revenue and facilities for the citizen. Therefore, government has taken positive initiative to improve and introduce e-government services to its citizen by building good relationship with civil society and offering convenient access to government services. This has effectively increased the citizen' interaction to utilize the e-government services and generates good revenue for the governments by introducing E-Government programs.^{5,6}

Jordon government has introduced the good strategy to develop and implement the e-government services in Jordan which can be a good e-government model for the Iraq government. The approach clearly focuses on the citizen and government needs and how to achieve these concepts by deploying a reliable infrastructure.

In 2004, the Iraqi government took first initiative to start the e-government infrastructure with the help of Italian company.⁷ This project was divided into three stages. In the first stage, it created the IT infrastructure for government staffs and Ministry of Science and Technology. However, due to poor security and unstable political situations, the project was delayed till 2010. Then Iraqi government took initiative to collaborate with United Nations Development Program (UNDP) and develop a detailed understanding and strategy work on successfully implementation of this project. As a result, in 2014 Iraqi e-government portal was successful launched having certain services such as health, E-Learning, municipal services and electronic personal data. In 2010, it has created the e-traffic system for the government as well.

However, the Iraq government seriously started to think about e-government services implementation in 2009 after the International conference held in Baghdad. Furthermore, in 2011 government took second steps to enter in e-government by collaborating with UNDP in order to analyse the project needs and implication aspects.

Iraqi Development Plan stated that E-Government and E-Governance should accommodate eight elements such as the rule of law, participation, transparency, responsiveness, effectiveness, efficiency and accountability. Currently, Iraqi government is paying more attention to setup a reliable e-government infrastructure for their staff and citizen.

However, with a good collaboration start with Italian company, till today only few services are available on E-government platform. Therefore, there is big demand and need for the Iraqi government to take positive imitative towards successful implementation of E-government service and port to help their citizen.

1.2 E-Government to E-Governance

From the technological point of view, E-Government is an effective and innovative use of ICTs which offer a technological platform to grow and combine E-Governance opportunities to citizen and private companies on low cost basis. E-Governance cannot be achieved by only improving or deploying the infrastructure such as hardware, software and network. It is more towards handling and managing organization, structural and operational changes within government's bodies and between citizens

The term E-government can be expressed as use of ICT to improve the process of government services. Furthermore, it can be defined as citizen services, re-engineering with technology over the Internet. The main task of government is to offer governance services not for sales or marketing purposes. E-governance expressed as the transformation of (governance) processes and has wider concept as compared to e-government. The idea of adopting ICTs is to move beyond the passive information-giving to active citizen involvement in the decision-making process. E-Governance can bring forth new concepts of citizenship, both in terms of citizen' needs and responsibilities. Individuals and organizations interacting directly or indirectly with the government are known as the players of e-government. These interactions can be named as Government-to-Government (G2G), Government-to-Business (G2B), Government-to-Employee (G2E), and Government-to-citizen (G2C).¹⁻³

E-government promises to make government more efficient, responsive, and transparent and legitimate, is a technical, economic and social challenge, where wrong or short-sighted decisions can waste resources. Figure 1 explains the good governance concept and required parameters which are need to achieve the successful implementation of e-governance model in Iraq to boost its economy, literacy rate and citizen awareness.

Some studies describe that e-government provides faster, easier and convenient services to citizen and it reduce services time to be completed. Furthermore,

E-Governance implementation stimulates business activities and increase internal efficiency.



Figure 1. Good Governance Parameters.

1.3 Issues and Challenges towards Implementation of E-Government Services in Iraq

E-government has become a hot topic of this era due to enhancement of ICT and its involvement in every industry. However, the investment in new technology for e-government does not automatically generate organizational changes. It is organizational and institutional arrangements that mediate the process of change.^{7,8}

Technological advancement has resulted in a bewildering array of technical solutions in search of fixing arise problems. In developing countries governments face many challenges to fostering the development of e-government while tackling with uncertain changes which make difficult to anticipate future policy impact in details.^{7,8} However, that system built on emerging and unknown technologies are very susceptible to failure. In some instances, the potential benefits might warrant taking such huge risks; most often this is not the case. The success of e-government service greatly depends on technological infrastructure and financial, human and physical resources. Many researches that has been done addressing these issues concerns in developing countries, where e-government developments are vulnerable severely due to lack of infrastructure and resources.

Another factor which directly impact on the success of E-government is social and economic aspects. In the following study the author's expresses that the digital divide is more pronounced among government web site visitors

than among internet users in general.⁸⁻¹⁰ According to one of United Nations E-Government survey, there is a significant gap in E-Government services between developing and developed countries due to economic and financial issues.^{11,12}

Cost and Poverty is one of the challenges in developing and 3rd world countries like Pakistan, Bangladesh, India and some of Middle East countries. Elected officers and politician does not seem to be interested in implementing of e-governance service due to long time return on investment. In 2004, the United Kingdom and Singapore respectively spent 1 percent and 0.8 percent of their Gross Domestic Product (GDP) on E-Government and India spent 3% of their GDP.^{13,14} Poverty reduces human involvement towards latest technologies and advance options which minimize their attention on using and understand the E-Government facilities. Lack of economic and physical standards and strategies in a particular country, community cause of poverty. Poverty lead people toward lack of knowledge and information which cause of wasting E-Government services in some cases. Therefore, in order to offer successful and appropriate e-government facilities to end user, government should think and focus on improving their economy and reduce poverty. ICT can use to improve the economy by freely educating the people living in rural areas by teaching them new method of improve income. Governments should introduce new concepts like Tele-Education, Tele-Working (Tele-commuting), Call-Centres in rural area to develop their people mentality and increase their income.¹⁴

The previous studies describe that cultural variations have great impact on e-government success. These barriers deter e-government implementation in various ways on the supply side and citizen side.¹⁵

Due to expansion of ICT industry, the speed, connectivity and flexibility plays important role in the success of e-government services. ICT includes the full range from traditional widely used devices such as radios, telephones or televisions to more sophisticated tools like computers or the Internet. Technologically, e-governance requires computerization of functional areas, appropriate hardware platform, networks, software applications, electronic databases, communication channels, etc. for automating government agencies, enabling transformation, connecting people and effective service delivery to public. Activities, issues and challenges, in this respect, can be categorized under two distinctive scopes or natures such

as, issues that are under technological scope or technical in nature and issues under governance scope or nature.¹⁵

Normally, E-government projects are huge and require heavy amount of money with a low return of investment. Therefore, governments and higher management people should clearly have defined strategy and vision to support and implement these programs. According to more than 25% participants report government poor strategic policies and implementation.¹⁶

Cyber Security and privacy are another big parameter which play important role in the success of e-governance services. Risk of service failure and loss of information always hesitate people to utilise the e-government services and government to monitor and implement strong security policies. Technology neutrality in legislation and regulation to avoid closing of promising options, and flexibility within broad regulatory frameworks and adaptation of current laws to a digital world. Citizen demands reliable and continues availability of e-government services. Governments should have responsibilities to offer leadership in developing cultural understanding among their people and push them to utilize the e-government services. Applications of ICTs in many areas of activities including the public administration give rise to a variety of legal problems. With the move of Electronic Data Interchange, E-Commerce, E-Governance a wide range of coverage to substantive legal topics, procedural provisions have also required to be modified. Legal issues, generated by the use of ICTs in public administration should be considered and dealt properly.

In developing countries strong promotion and social media is used to create good impact on the success and awareness of e-government services. In the reported article revealed that lack of promotional programs and awareness really slow down the e-government activities in any country.¹⁵ Governments should support and promote every new technology and create awareness among their citizens to offer convenience and flexibility toward usability.

Figure 2 shows the survey results of challenges and issues faced by the Iraq government and citizen towards successful implementation of E-government services.

There are many challenges and barriers faced by Iraq government to build a successful e-government services system.

The IT infrastructure in Iraq is very poor because of two wars. According to the UNESCO survey, ICT infrastructure in Iraq is very bad and literacy rate is also very low, only 12% of population has personal computer and

7% of population has Internet access. Therefore, Internet access is also limited and has poor speed. Furthermore, the telecommunication infrastructure is also inadequate along with the power supply shortage.¹⁷

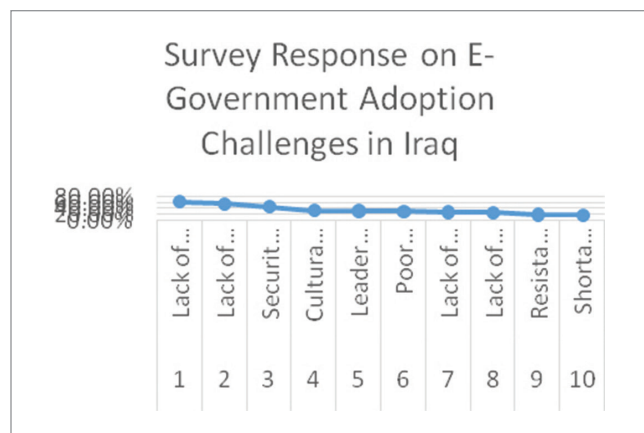


Figure 2. Challenges of E-Government services adoption.

Another problem is lack of skilled manpower especially in IT field. Due to unstable political reason, qualified people have migrated to other countries. The government sector has shortage of IT people; therefore, people are still using traditional methods. Government is still not aware of ICT importance and role.⁸⁻¹⁰

Iraqi lacks stakeholder and investors due to unstable political condition. Therefore, companies are not investing to build the ICT infrastructure and government does not have enough manpower, resources and money.

Security is another issue which prevents Iraq to become a developed country.

According to Readiness Index, the Iraqi is still in its early stage of E-Government development as compare to Afghanistan, Burundi, Mali, and Senegal.

Iraq and Somalia are only two countries among Arab countries which do not have a reliable and complete e-government system and infrastructure. This is because of unstable political situation happened due to war in Iraq.

1.4 E-Government in Developing Countries

Governments can achieve temporal and spatial independence and flexibility through ICT technologies because information, applications and process are ubiquitously available which means that these processes can be improved and redesigned according to the problem and region.¹⁵⁻¹⁷

Therefore, the main purpose of E-government is to create or develop a reliable and trustable relationship between governments and citizens. Similarly, the separation between front and back offices has become the most favoured E-Government service structure, where the front office handles specific office processes or service components, with a focus on certain target groups.¹⁷⁻²⁰ The back office is spatially separated from the front office and performs decisions making role, as well as where IT functions such as databases, applications, signature infrastructure are located. Especially important is the fact that this makes it possible to reduce or eliminate the institutional fragmentation of public administration because citizens can have access to public services from one location. As a result, through the separation between front and back office, it is possible to simultaneously realize efficiency and client orientation, which wasn't possible without new ICT concept and flexibility.

1.5 E-Governance Models

The main beneficial groups of E-government services are governments, citizens and businesses. The e-government concept was developed from the E-Commerce Model, therefore it has similarity with E-commerce.^{19,21} However, E-commerce mainly focuses on B2B (Business to Business) and B2C (Business to Customers) models to generator good profit or income. But in case of E-government, government cannot generator good income from these services as they are required to offer reliable and secure services on very low margin. Because E-government services are to fulfil citizen needs and make their life easy and not to make profit. G2C (Government to Citizen) model concept is based on E-Commerce patterns, where government offer the services directly to their citizens. G2G (Government to Government) model concept, government develop connection between different government departments and offer the required services to each other. In this model, government department share and exchange the required services and required a very good security infrastructure. In G2E (Government to Employees) model, employees or network administrator develop and manage the information and databases for the government processes. In G2B (Government to Business) model, government can generator good revenue by offering / promoting 3rd party services to citizen.

Iraq really needs a good and practical e-governance model to be implemented. This is really help the country to grow faster and have good social impact on their citizen.

1.6 Recommendation on Proper Strategic Considerations

Iraq Government should develop a clear and strong strategic framework to understand their needs before implementing the E-government services. The framework should clearly define government's vision, goals, milestone, approach and standard beside information privacy, security and maintenance infrastructure. A detailed strategic consideration plays important role in the success of E-governments activities and acts a benchmarking to achieve required targets on time. The transition from government to e-government is not only technological; it also involves legal, organizational, socio-economic and democratic aspects. Essential ingredients of a successful transition include a vision, relevant policies, mission, strategic objectives and frameworks. Careful planning, strong and committed leadership and guaranteed funding are also critical factors for success.¹⁸⁻²¹

2. Proposed Frame Work for Successful E-Governance Services

In this section we are proposing a general and globally adaption framework, which should be considered by Iraqi government to successfully implement and maximise the e-government benefits. Figure 3 shows the proposed framework which is developed based on our knowledge, literature review and survey results. The following framework gives a detailed overview of literature review and parameter required to achieve successful e-government services. In order to maximise the E-government benefits in Iraq; firstly, the government should consider issues and challenges they are facing. Every country has different issues depending on their economy and IT infrastructure and citizen literacy rate. Developed countries have more advantages and baseline due to their economy and developed ICT infrastructure; however, developing countries like Iraq mainly suffer from the economic and IT infrastructural issues. On top of this, management and technological barriers also slow down progress in developing countries like Iraq. Therefore, the Iraq government should clearly define proper and detailed strategies to

overcome and tackle the incoming problems and issues. By developing and considering appropriate policies and strategies, Iraqi government could achieve their targeted goal and make the citizen more satisfied on using e-government services. Governments also can generate more revenue by offering 3rd party service or services to 3rd party businesses. Governments can enhance and create knowledge base societies by creating awareness among citizen and developing ICT infrastructure in rural areas. Development of ICT infrastructure will definitely enhance country economy and per house income by understanding and utilizing Internet benefits.

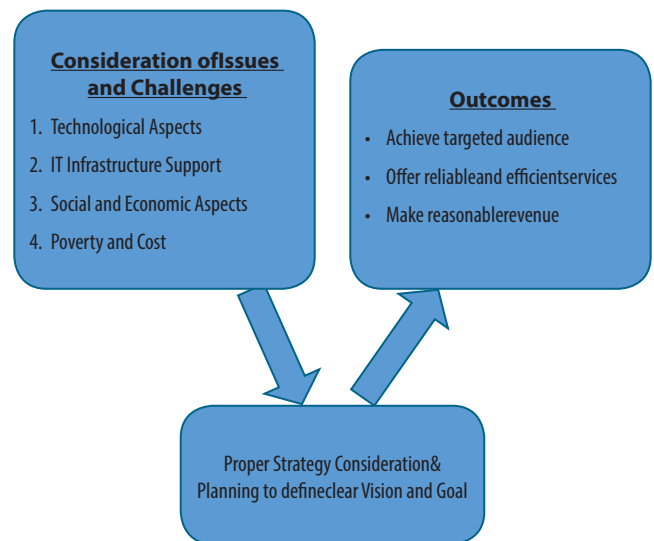


Figure 3. Proposed framework for E-Governance Services.

3. Conclusion

In order to implement a successful E-Government model and develop knowledge base societies, Iraqi government must understand its issues and challenges and more to focus on enhancing the ICT infrastructure. It should influence international companies as stakeholder to come and invest in order to overcome the economy issues. Every government is faced with certain challenges and issues which could be internal or external; it depends on the breadth view of the e-government leaders. This is more than an intellectual exercise which determines how e-government will fit with rest of the government policies and activities and with its citizens, business and civil societies. The use of new technologies makes societies educated and provides them awareness about worldwide tradition. In addition to learning and educating the societies from the E-Government facilities, government can

achieve citizen collaboration to boost the economy. Due to increasing number of Internet users, adequate facility for citizen and government which can create good economic platform for the Iraqi government and their citizen. Overall, Iraqi government should equally focus on the promotional of ICT awareness among their citizens along with implementing the ICT infrastructure.

4. References

1. Al-Dabbagh M. Electronic Government in Iraq: Challenges of development and implementation. Swedish Business School, Orebro University; 2011. p. 1–16.
2. Jansen AJ. E-Government-Just a Matter of Technology? In Proceedings IEEE 2011 44th Hawaii International Conference on System Sciences (HICSS); 2011. p. 1–9.
3. Diwan SA, Perumal S, Siber DS. Smart E-Service Implementation as mobile Agent in a Smart E-Government Platform. *International Journal of Applied Engineering Research*. 2016; 11(7):5250–5.
4. Iqbal A, Bagga RK. E-Governance: Issues in Implementation. Proceedings of the International Conference on E-Governance; Bangalore; 2010. p. 1–7. PMID:20055268
5. Elsheikh Y, Cullen A, Hobbs D. E-Government in Jordan: Challenges and opportunities. *Transforming Government: People Process and Policy*. 2007; 2(2):83–103. Crossref.
6. Al-Shboul M, Rababah O, Ghnemat R, Al-Saqqa S. Challenges and Factors Affecting the Implementation of E-Government in Jordan. *Journal of Software Engineering and Applications*. 2014; 7:1111–27. Crossref.
7. Ibrahim T. A road map to a successful application of E-Government in Iraq; 2014. p. 1–91.
8. Zhao F, Scavarda AJ, Waxin MF. Key issues and challenges in e-government development: An integrative case study of the number one eCity in the Arab world. *Information Technology and People*. 2012; 25(4):395–422. Crossref.
9. Jabbar W, Othman M, Ramasamy A. Citizen identification system of Iraq: Challenges and barriers in enabling e-government services. In 4th International Conference on Computing and Informatics; 2013. p. 399–404.
10. Al-Taie MZ, Kadry S. E-Government: Latest Trend and Future Perspective The Iraq Case. Editors-in-Chief; 2013. p. 307.
11. Heeks R. Implementing and managing E-Government: An International text. 1st Edition. Sage Publications Ltd; 2006. PMID:16112893
12. Kumar V, Mukerji B, Butt I, Persaud A. Factors for successful E-Government adoption: A conceptual framework. *The electronic journal of E-Government*. 2007; 5(1):63–76.
13. Ifinedo PE. E-Government-Precursors, Problems, Practices and Prospects: A Case of Nigeria. Proceedings of the International Business Information Management (IBIM) Conference; 2004. p. 1–10.
14. Unit EI. E-readiness rankings 2009: The usage imperative. *The Economist*. A report from the Economist Intelligence Unit written in cooperation with the IBM Institute for Business Value; 2009. p. 1–29.
15. Geetika P. Strategic Marketing of E-Government for Technology Adoption Facilitation; 2007. p. 1–10.
16. Alshehri MA, Drew S. Challenges of e-government services adoption in Saudi Arabia from an E-Ready citizen perspective. *Education*; 2010. p. 1–8.
17. Diwan SA, Hadi E, Fattah AJ. Multi-Agent Based Security Framework for E-Government in Recently Technology Developed Countries. *Journal of Computer Engineering and Intelligent Systems*. 2013; 4(11):1–10.
18. Hassan AA. Status of E-Government in Iraq and What the Challenges of Development and Implementation. *International Journal of Science and Research (IJSR)*. 2016 May; 5(5):15111–6.
19. Kumar R. Capacity building for E-Governance and challenges. *Indian Journal of Education and Information Management*. 2012; 1(6):254–66.
20. Sheokand K, Gupta N. Digital India programme and impact of digitalisation on Indian economy. *Indian Journal of Economics and Development*. 2017; 5(5):1–13.
21. Rashid A, Bansal K. E-Panchayat as a tool for empowering Panchayati Raj: An exploratory study of Pattan block of Baramulla District. *Indian Journal of Economics and Development*. 2017; 5(3):1–1