E-GOVERNMENT OBSTACLES IN DEVELOPING COUNTRIES: IMPLEMENTATION COMPLEXITIES IN THE IRAQI OIL SECTOR

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ABSTRACT

Although the execution of e-Government has reached superior levels in developed nations, it is still in its beginnings in many developing countries. Indeed, there is an increasing need to exploit the opportunities created by the new emerging Information Communication Technologies (ICTs) to implement e-Government systems in developing countries. Lately, In Iraq government has the tendency to adopt e-Government initiatives to entrench Good Governance and improve public sector efficiency. Despite the passage of more than fifteen years for the application of Iraqi e-Government strategy, Iraq is still at rank 143 out 192 countries in the united nation of e-Government survey of 2020. However, various obstructions are preventing successful implementation of this technology.

The current investigation aimed to highlight issues that hinder successful implementation of e-Government systems in Iraq generally, and in the ministry of oil especially with recommend feasible solutions to tackle them. A sample of ten managers was selected based on both convenience and representation. The interviews were the method used in the study to obtain various perspectives on the challenges that faced the Ministry of Oil to implement the e-Government system.

The method of analysis chosen for this study is a qualitative approach of thematic analysis. This supplied in-depth comprehending to the present status of e-Government in the Ministry of Oil in Iraq and highlighted key hindrances of its effective application. According to this investigation, the research proffered many recommendations that need to be considered in order to completely benefit from e-Government technologies.

Keyword: E-Government, E-Government Implementation Challenges, Qualitative Approach, Oil Sector

INTRODUCTION

Every government in the world strives to use ICT in offering the possibility of effective and efficient government (Gil-Garcia, Dawes & Pardo, 2018). Although many useful development insights have been provided to date on this topic (Abu-Shanab & Bataineh, 2016; Al-Emadi & Anouze, 2018), the failure of the e-Government initiative continues to escalate in various developing countries, which becomes a quite common situation (Gunawong & Gao, 2017; Hassan & Lee, 2019). According to Yang, Sun, Zhang, Wang & Cao (2017) the organizations need to incorporate IS resources, supply chain and employee efforts for the improvement of sustainability capabilities. Mosweu & Kenosi (2018) stated that in some institutions in developing countries, electronic management system is problematic due to the lack of well-established policies, and the lack of support from qualified, experienced staff. Mokone, Eyitayo & Masizana-Katongo (2018) argued that interconnected systems in e-government pose a unique challenge to implementation due to the requirements span across different departments or agencies. Therefore, the sharp decrease in the indicator of failure of the e-Government projects of most developing countries has mainly been attributed due to its failed

strategies to develop e-management systems of the institutions (El-Seoud & Taj-Eddin, 2018; Deng, Karunasena & Xu, 2018).

Although the successful implementation of information systems for the e-Government initiatives in some forerunners countries like the United States or the United Kingdom (Carter, Weerakkody, Phillips & Dwivedi, 2016), which have led other countries to develop e-Government initiatives. However, successful implementation of these initiatives has encountered many problems, especially in developing countries (El-Seoud & Taj-Eddin, 2018), therefore, it is necessary to identify these obstacles. Medaglia (2012) emphasized that utilized of ICT tools in implementation of e-Government processes within the frameworks of developed countries models remains deficient in terms of a comprehensive discussion in the implementation of e-Government processes in developing countries.

In the case of Iraq, although the e-Government project started early since 2004, the development stages are rather slow (Al-Yawar & Ahmed, 2018). In contrast, previous studies have shown that there are several obstacles that facing the improvement of Iraq e-Government, such us limited use of information systems, poor of transaction management, lack of privacy in the implementation of transactions, and institutions readiness (Mohammed et al., 2016; Al-Yawer et al., 2018; Salman, Ashoor & Baya, 2019; Thabit & Jasim, 2019). Thus, the development of information systems tools in Iraqi ministries, especially the Ministry of Oil, which is the main source for the Iraqi economy, needs to identify the obstacles to implementing and improving e-Government system in the Ministry of Oil. The key goal of this research is to evaluate the Iraqi e-Government challenges with analysing and explaining the current state of the e-Government services in oil establishments of Iraq and underline an importance of implementing sustainability development aims through the development of the innovation technology in its establishments.

LITERATURE REVIEW

E-Government is a general term for the use of ICT tools to provide government services and promote access for the benefit of employees, citizens and business partners (Mohammed, Ibrahim, Shawkat & Hasson, 2013). In general, the benefits of e-government have a significant impact on society by saving money and time that promote efficiency (Chen, Hu, Tseng, Juang & Chang, 2019), promotes citizen participation (Ju, Liu & Feng, 2019), and increases transparency (Nam, 2018). However, the promises made by e-government initiatives cannot always be fulfilled. According to Gunawong & Gao (2017), the majority of e-government initiatives have fallen behind due to the wide gap between realistic implementation and design. Although past studies have debated the cases of development and implementation of e-Government, however, implementation strategies differ from country to country (Bakunzibake, Klein & Islam, 2019; Claver-Cortes et al., 2017). Therefore, the challenges and obstacles that prevent the development of e-Government change from one case to another.

Iraqi E-Government and its Obstacles

Since the beginning of the millennium, the Iraqi government has embarked on setting plans to adopt ICT in the government institutions to start implementing the e-Government project in three phases. These stages consisted of establishing an ICT infrastructure, providing services to employees, and the last stage is starting to provide services to citizens (Abdul–Alrahman, 2011; Mohammed et al., 2012). The Iraqi government has succeeded in developing government websites and providing a number of services to citizens such as e-Iraq portal, E-passport record, and E-form of driving test (Mohammed et al., 2016). It is obvious that the Iraqi government pays good attention to e-government systems. However, there are many barriers the Iraqi e-government need to be resolved. United Nation e-Government survey (2020) showed that Iraq has ranked 143 out 192 countries; with EGDI of 0.4360 and the EGDI world average is 0.5988. This indicator shows a decline in the level of development of e-Government in Iraq,

which reflects negatively on improving government performance and its role in providing services to citizens.

Several studies have addressed the challenges and obstacles that impact on the improvement of e-Government initiatives in Iraq. Al-Yawer, et al., (2018) conducted a systematic review study to determine the technical obstacles that obstruct the improvement of Iraqi e-Government. The result showed six major challenges including old telecommunication infrastructure, low IT skills, no user participation, lack of security measures, poor website performance and design, and no e-Government database. Another study conducted by Mohammed, et al., (2016) addressed the importance of e-Government and clarified the main challenges facing e-Government in Iraq. The findings showed that there is a weakness of sharing the information among government agencies, and a low level of security in information systems. Further, the e-Government efficiency needs to increase by using new technologies for instance cloud computing and IOT.

Furthermore, Thabit, et al., (2019) used SWOT analysis to determine the obstacles facing the adoption of Iraqi e-Governance initiatives. The findings of the technological aspect in this study indicated that the cost, IT skills, data compatibility, and IT standard are the major obstacles that limit the adoption of Iraqi e-Government initiatives. Hassan (2016) wrote in his study on the obstacles for implementing of Iraqi e-Government initiatives. This study gives general obstacles; some of them can be associated to the implementation of Iraqi e-Government initiatives. While Salman, et al., (2019) posed four aspects of obstacles to apply e-management in Iraqi government institutions. These obstacles summarized as financial obstacles, human obstacles, technical obstacles, and organizational obstacles.

As a result, the outcome of the past researches can be summarized into several main obstacles, which is mismanagement and information sharing between government departments (Mohammed et al., 2016, Salman et al., 2019). This reflects negatively on the security of information and the fear of it being stolen (Al-Yawer et al., 2018, Mohammed et al., 2016). On the other hand, Al-Yawer, et al., (2018); Hassan (2016) argued that there is a noticeable decline in the performance of the information systems used. Therefore, the readiness of institutions and their available technology environment is insufficient (Hassan, 2016; Thabit et al., 2019). These results have led to the identification of four key indicators of obstacles that prevent the adoption and improvement of Iraqi e-Government, which are transaction management, transaction security, information systems used, and institutional readiness. Although these studies gave perceptions of the obstacles preventing the improvement of Iraqi e-Government in, they gave a general image of the obstacles and did not address a specific institution issue. Table 1 summarized the past studies that addressed the challenges of Iraqi e-Government.

TABLE 1 REVIEW OF OBSTACLES OF IRAQI E-GOVERNMENT			
Authors	**Objectives**	**Analysis Technique**	**Challenges and Obstacles**
Al-Yawer & Ahmad (2018)	This study aims to identify the main themes of the technical challenges hindering the development of e-government in Iraq.	Systematic review	The results of the study showed that there are six themes of challenges.
			· old telecommunication infrastructure,
			· low IT skills,
			· there is not any database for e-Government,
			· weak security measures,
			· lacking user participations, and
			· Poor web performance and design.
Mohammed, et al., (2016)	This study aims to explain the challenges e-Government in Iraq.	Literature analysis	The result of the study showed several challenges faced the implementation of e-Government in Iraq such us:
			· the lack of security,
			· the weakness of sharing the information, and

			· need to apply new technologies
Hassan (2016)	This study aims to determine the obstacles to the implementation of the e-Government in Iraq.	Literature analysis	The result of the challenges that have faced or may face the implementation of e-Government in Iraq can be summarized as follows:
			· lack of ICT Infrastructure
			· policy and laws barriers
			· the digital divide
			· computer Illiteracy
			· lack of trust in e-Government
			· physical disability to access the internet
			· losing privacy when using e-Government
			· security
			· corruption and lack of transparency
			· interoperability of systems
Thabit and Jasim (2019)	The objective of this study is to analyse the main challenges faced by adopting e-Governance in Iraq as a developing country	SWOT analysis	The analysis focused on four aspects (including politics, society, economy, and technology), however, only the results of the technological aspect will be illustrated in this study. These obstacles boil down to:
			· Shortage of IT skilled people,
			· The high cost of Internet,
			· Heterogeneous data,
			· Lack of IT standard,
			· cost of software licenses,
Salman, Ashoor, and Bayat (2019)	This study aims to identify obstacles to apply e-management in Iraqi government institutions	Survey technique	The result of the study concludes that the obstacles of e-administration as following:
			· The organizational obstacles including the lack of necessary legislation and lack of good planning to implement IS in the institutions. Further, there is no support for IS projects.
			· The technical obstacles including lack of ICT infrastructure, and the integration system between departments are not compatible. Further, the lack of accurate and integrated databases.
			· The human obstacles including the lack of specialized staff, and the fear of losing sensitive information. Further, decision-makers to convince of the usefulness of information system projects.
			· The financial obstacles including the lack of financial support.

Implementation of e-Government in the Ministry of Oil

Oil is one of the main sources on which Iraq's economy depends. According to Dag, Aktug & Alı (2019), the Iraqi government's oil revenues may reach 95% of the state budget. However, the interest in the development aspects of the administrative and adoption of information technology is still slow in the Ministry of Oil. The Ministry of Oil is considered one of the most important ministries in Iraq, as it owns 15 institutions that practice different activities in the oil sector and employs more than 120 thousand employees (MoO, 2021). The Ministry of Oil has adopted a strategy of using ICT tools in managing the Ministry's business and communicating with citizens since more than fifteen years (MoO, 2021). Where it developed websites to display the activities of the Ministry and disclose information for the purposes of transparency and advertisements related to tenders. Moreover, all the ministry's establishments have used the same strategies by developing website applications. Unfortunately, the services provided through the ministry's website are still limited, in addition, there are

problems related to the site's maintenance, Figure 1 showed the home page of the ministry's website application.

FIGURE 1
THE MAIN PAGE OF WEBSITE APPLICATION FOR MINISTRY OF OIL

METHOD

Research Design

This research aims to identify the obstacles and challenges that prevent the adopting and development of Information systems in the establishments of oil sector in Iraq. The selection of research method is depend on the aim of the research, where quantitative approach is better suited to fit mature researches area, while the qualitative approach is more appropriate to exploratory researches (Creswell & Creswell, 2017). Moreover, Kumar, Sachan, Mukherjee & Kumar (2018) stated that the e-Government studies is in its early phases where plenty of knowledge may be discovered, and a qualitative method is more suited to fill these type of researches. While this article is of an exploratory nature focusing on exploring the obstacles to e-Government implementation, therefore, the qualitative method very suitable with the aim of the present research.

Sample Profile and Data Collection

The primary method chosen for this study is interviewing to obtain multiple perspectives, corroborated by documentary sources of evidence. The participants in this study

are CEOs and administrative officials in the Iraqi Ministry of Oil. The interview was conducted personally from October to November 2020. A total of ten employees contributed in the research. The profile of participates showed that there were 9 males and 1 female aged between 35 and 63 years who had highly educated (9 are graduate, and 1 is postgraduate), and they have experience more than ten years in the oil sector.

Information system plays a major role in developing the work of organizations. According to Laudon & Laudon (2018), the empathetic of information systems, includes a technical approach and behavioural to understanding the broader institute, management, and information technology dimension of systems and their power to provide solutions. Therefore, the perspectives on information systems boil down to three aspects, which are technology, organization, and management. Symons (1991) argued that the work in the area of ISs requires an interactionist perspective because the interactionist approach has important implications for the management and appraisal of IT. Based on the results of previous studies, four topics were developed for discussion during the interviews. These topics are summarized in information system used, transaction management, privacy in transactions, and readiness as illustrated in Figure 2. The structured interview is the technique used in the study and interview questions were adapted from previous studies from Twati (2006).
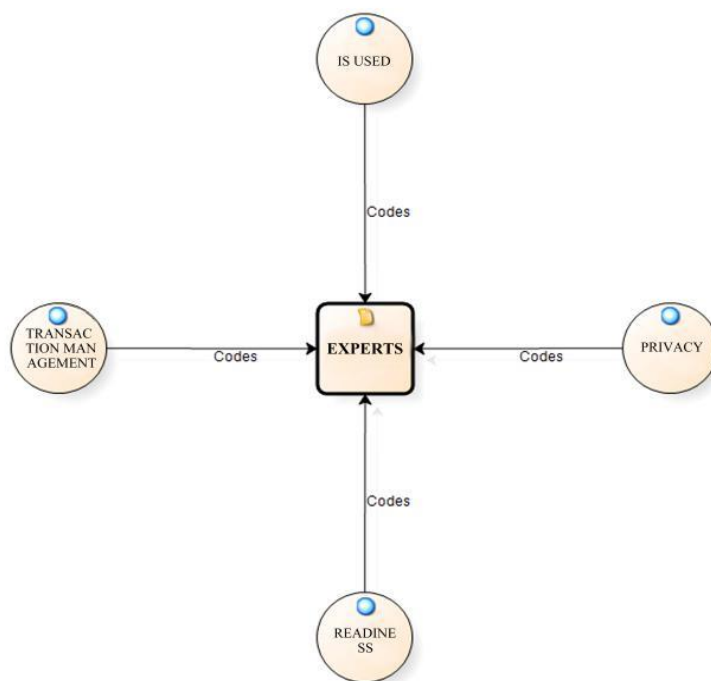

FIGURE 2
INTERVIEW SESSION ACCORDING TO THE FOUR TOPICS

Data Analysis Process

The data collected through interviews with officials in the ministry of oil were analysed in a similar way based on a three-stage procedure (Creswell & Creswell, 2017), which are a preparing the data for analysis by transcribing, reducing the data into themes through a process of coding, and representing the data. The interviews were analysed by using the *Nvivo* tool for time-saving and efficient. The analysis processes used in this study followed the approach developed by Braun & Clarke (2006). The steps of analysis are described below.

- First step, familiarization with data was internalized through translation and transcription of the interviews. The interviews of 10 respondents were reviewed to a number of times for their accurate transcription and translation. All interviews were directly translated from Arabic into English.

- Second step, the transcripts were imported into the *Nvivo*. Through the *Nvivo*, the researcher created the data analysis in two stages to begin generating the codes. The aim was to see at transcripts from two ways as described before. In the first way, the coding procedure was guided by the aspects identified in Figure 2. When satisfied that the codes generated from five of the scripts were consistent with the goals of these interviews, which is identifying the challenges and problems to implementation IS in the ministry of oil, and therefore fit for the purpose, the data-driven coding followed with a focus on identifying patterns of meaning. Working through the data, more nodes and sub-nodes were developed that explained the patterns of the challenges. For example, there was a node labelled "Initial system" under which there was a sub-label "limited information provision", and under this sub-label, there was a sub-sub-label "inaccessible easily".

- The third step is a theme development. Through this step, the coded nodes on *Nvivo* were read and read more to determine the potential themes. The preliminary analysis presented 11 major categories such as traditional data exchange, limited services provision, cost, employees' skills, complexities of transferring transactions, transactions security, initial system, administrative abuses, corruption, employees experience, and institution readiness. However, these 11 categories were aggregated into 8 and were further reduced into the 6 most referred to categories: initial system, complexities of transferring transactions, administrative abuses, institution readiness, employees experience, and transactions security. Thomas (2003) points out that "most inductive studies report a model that has between 3 and 8 main categories in the findings", which is achieved in this analysis.

Of the six categories of the emerged themes, Figure 3 present the model that demonstrates the theme of challenges development of information system in the ministry of oil. These categories are discussed in the next section.
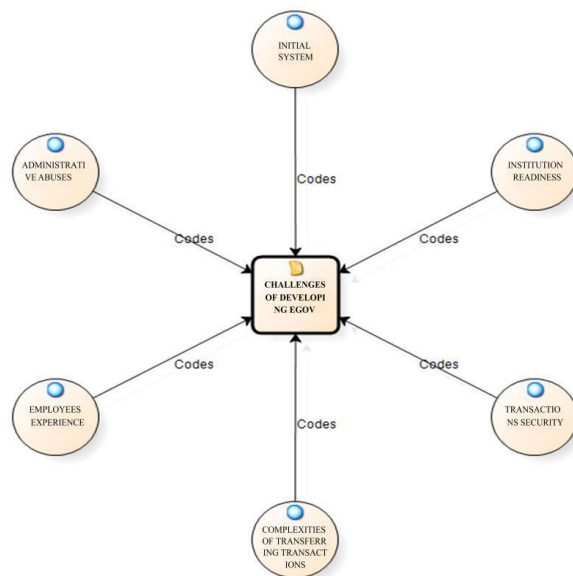

FIGURE 3
THE INTERVIEW BASED ON THE THEMES

FINDINGS AND DISCUSSION

The improvement of e-Government in the Ministry of Oil is facing a several obstacles. Therefore, these obstacles needs to address for cross the e-Government systems in the Ministry to the next stage. In the present research, the obstacles to improve the e-Government in the

Ministry of Oil in Iraq were identified using an interview method with ten experts in the ministry of oil. The challenges were divided into six main themes as shown in Figure 3. These themes reflect the main points that obstruct to improve the current e-Government systems in Iraq generally, and in the ministry of oil especially. These themes are complexities of transferring transactions, transactions security, institution readiness, employees experience, administrative abuses, and initial system.

Initial System

The initial system refers to the essential stage for the implementation of e-Government (Layne & Lee, 2001). At this stage, the developed system manages the information and discloses it to the citizen *via* the Internet. Although more than 15 years have passed since the implementation of Iraqi e-Government, the systems developed in the Ministry of Oil are still in the initial phase of implementation, and many institutions still rely on the traditional system in managing transactions.

Respondent #2 (male, 38 years old) stated: "The website applications in the Ministry of Oil and its institutions provide information about the ministry and the activities carried out by the ministry, but there are no direct services provided to citizens because the back-office needs rehabilitation."

Similarly, Respondent #6 (male, 36 years old) explained: "There isn't a management information system in the ministry, and transactions are still conducted using papers (the traditional system)"

In this regard, Al Azzawy (2017); Mohammed, et al., (2016) clarified that the websites of Iraqi e-Government faced several problems such as absence of activate functions and important services. Further, Faaeq, Alqasa & Al-Matari (2015) indicated that the websites applications have a poor design and non-optimised performance.

Respondent #7 (feale, 35 years old) stated: "It is not possible to rely on current websites applications to develop efficient information systems because they have many problems."

Respondent #4 (male, 47 years old) stated: "The design of the current websites applications is simple and does not provide adequate facilities to provide services to citizens."

Further, the e-Government success is measured by the degree to which government institution can develop information systems and meet users' needs.

Respondent #1 (male, 63 years old) stated: "There is a need to develop an integrated information system in the ministry, especially with the beginning of foreign companies competing in investment with the Ministry"

Based on the above, the ministry of oil has a need to develop information systems (Front-office and Back-office) that promote administrative work efficiency and the completion of transactions quickly. Therefore, it can be take advantage of the benefit of ICTs through governments to provide services *via* the internet and influence e-Government adoption by the public.

Administrative Abuses

Administrative abuses are actions that are illegal, violate normal procedures, or involve the inappropriate exercise of discretion such as taking a bribe, the preferential processing of paperwork, and cronyism (Parliament, 2005). Aladwani (2016) indicated that corruption is a key issue leads to the failure of the projects of e-Government.

Respondent #8 (male, 40 years old) stated: "Bureaucracy and corruption are the obstacles to developing information systems because some employees still prefer paperwork (the traditional system) for their personal purposes."

Respondent #5 (male, 60 years old) stated: "Administrative errors always occur, and since transactions in the ministry still depend on paperwork, administrative abuses and corruption cannot be reduced."

Arayankalam, Khan & Krishnan (2020) saw that the e-Government initiatives can curb the corruption in the government institutions to some extent. Venkatesh, Thong, Chan, and Hu, (2016) said that e-Government is give citizen the authority to get information that related to the service by using seeking strategies in the websites or communicate with the relevant government agency *via* the website.

Respondent #3 (male, 41 years old) stated: "Developing information systems in all Ministry institutions will save effort and reduce administrative errors."

Nevertheless, the information systems help employees in decreasing their doubt about the workflow and service task.

Respondent #4 (male, 47 years old) stated: "The Ministry of Oil is considered one of the most important ministries and an important contributor to the state's income. Therefore, developing and using modern information systems makes work more streamlined and provides continuous monitoring of the performance of employees within the ministry and its institutions."

Based on the above, the employees' preference for paperwork and corruption are the main challenges faced the development of information systems in the ministry of oil. Since the e-Government program success is measured by the degree of the collaboration of employees and the degree to which government institution meets citizens' needs, thus, providing an efficient services by government.

Transactions Security

Security and privacy are important elements of e-government institutions (Wu & Wu, 2019). However, these elements can be a challenge to Iraqi e-Government implementation. An interviewee in the ministry of oil stated:

Respondent #9 (male, 37 years old) stated: "There is a fear of information being stolen easily from institutions when implementing the information systems"

Respondent #7 (female, 35 years old) stated: "The major obstacle that face the e-Government project is information security. All the time, the managers of institutions have serious questions about the capability of e-Government tools to secure and protect the documents of the institution"

Moreover, Al Azzawy (2017) conducted that refers to protecting and modifying data and do not allow unauthorized person to access. Citizens in developing countries have less trust in the use of e-Government due to they believe that their information in website applications is not secure (Choi, Park & Rho, 2017).

Respondent #10 (male, 39 years old) stated: "The citizen is very skeptical and tries to collect all his transaction papers for fear of losing them or showing them to non-employees"

Additionally, the measures security can make the using of e-Government services in hiht level and vice versa. Arpaci (2019) confirmed that the developed countries lack a good strategy to promise their citizens and employees that their data is protected from an unauthorised third party. An interviewee in the ministry establishments stated:

Respondent #6 (male, 36 years old) stated: "Breakthroughs that occur in Web applications sites make employees avoid use for fear of being accused of negligence".

Respondent #8 (male, 40 years old) stated: "You cannot force employees and citizens to use the information systems if there are no appropriate security strategies to encourage them".

Respondent #1 (male, 63 years old) stated: "The top management has to think a lot about the safety factor when planning the implementation of an e-Government project. Unfortunately, I feel they are not taking any consideration regarding the data even though it did prepare the project".

Based on the above, the government must adopted policies that enhance privacy and security in transaction procedures online. These policies can help to make citizen confidence to use online transactions. Further, keeping government information secure. Therefore, privacy and security are one of the main challenges to develop information systems in the Iraqi government institutions in general and in the ministry of oil especially.

Institutional Readiness

The challenge associated with novel technology and its adoption is one that has figured for many years in the institutions' development. This challenge divided into Technology readiness, management support, and cost. Technology readiness is defined as ''the technological characteristics available in the organization for the adoption of technology including both structural aspects and the specialized human resources'' (Oliveira, Thomas & Espadanal, 2014, p 501). Respondent #5 (male, 60 years old) stated: "The environment is prepared in the ministry to implement information systems, but there is a need to develop employees' ICT skills and prepare them to use modern information systems."

The establishment of e-government requires a large financial investment by the government. It involves purchasing the necessary software and ICT equipment to properly deliver services to businesses and citizens (Alkhwaldi, Kamala & Qahwaji, 2017). Additionally, the government institutions needs to employ IT experts who can be handle and maintain an e-Government system (Alghatam, 2020). Respondent #3 (male, 41 years old) stated: "Applying the applications is harder than certainly planning because main question is that does the ministry sufficiently able to organize the work technically and financially. However, most of the ministry establishments can implementation the project; we only need to allocate top management"

Top management of the government establishments has participated to the difficulty of applying e-government initiatives. In developing countries, the e-government project is inefficient due to senior managers who do not support the establishment and implementation of the e-government system (Wu, Ding, Xu, Mo & Jin, 2016). In Iraq, there is a misconstruction between the top managers on the priority and importance of developing information systems in the ministry of oil. Respondent #4 (male, 47 years old) stated: "this project faced so several difficulties and obstacles because some of the top managers think that this project is a way matter of wasting public money while others think it is the means of development".

Based on the above, despite there is a willing and financial capability of the Ministry of Oil to implement the ICT system, there is a need to develop the ICT skills of their employees and support of senior management towards the implementation of such projects.

Complexities of Transferring Transactions

Transferring the transactions refer to the cooperation of two or more governments or governmental agencies exchanging information and collaborating with one another through using ICT tools, which can lead to effective service and the realization of mutual monitoring (Fan et al., 2014). The ministry of oil in Iraq has 15 establishments, and most of these establishments have branches in all provinces. Therefore, managing and executing a transaction within an institution may face many difficulties. An interviewee in the ministry establishments stated:

Respondent #7 (male, 35 years old) stated: "Unfortunately, we still use paper correspondence, and we currently use email and fax to manage files within the institution".

Furthermore, the management of transactions and information among the Ministry's establishments collides with many obstacles.

Respondent #8 (male, 40 years old) stated: "...information exchange processes is limited among the ministry establishments by using email. As a regard of the information sharing, the percentage is very limited because most ministry establishments still prefer using traditional means".

Respondent #2 (male, 38 years old) stated: "Actually, ministry establishments such as Oil Products Distribution Company, Oil Projects Company, and Gas Filling and Services Company have their own systems. Therefore, when all these establishments are connected together and then to the Ministry of Oil, the portal will become a real and services will be provided in all levels as well to the citizens".

Based on the above, one of the key challenges to develop an information system is difficulty in managing and completing a transaction within the Ministry's establishments. The development of an information system for a single institution does not help because every institution has branches that need to exchange information among themselves to manage transactions. Further, the ministry has several establishments and needs to exchange information between them to increase the productivity and performance of ministry operations.

Employee Experience

Employee experience in this study is focused on the capability of the employee to use ICT tools. For users of ICT tools in the ministry of oil, the lack of ICT skills needed to manage transactions and sharing transactions between employees is what makes it an essential challenge.

Respondent #9 (male, 37 years old) stated: "the most employees of the institutions find it difficult when they wright Email, but it is very easy to do by specialists... actually, the most employees believe that these programs are very complex to use which will be hard to get work done."

Respondent #1 (male, 63 years old) stated "…In fact, many employees find using a computer extremely difficult, thus, they prefer to use documents. This kind of employees includes a number of managers, which makes them obstacle to develop the ICT projects."

Based on the above, the employees who lack the necessary computer background and competence are likely to be hesitant to support the integration of ICT into their institution's work. Thus, the lack of ICT skills for employees was an obstacle to the development of information systems in the ministry.

CONCLUSION

Given the significance of the oil sector on Iraqi's economy, this study emphasizes the oil sector policymakers' views toward adoption of information systems and focuses on the obstacles that limit the development and use of e-Government system. The current study aimed to shed light on major obstacles that hinder effective application of e-Government in Iraq as general and ministry of oil especially to achieve the purpose of implementing e-government. A case was chosen Iraq because e-Government has been lately implemented in some ministries. Results exhibited that utilize of e-Government in Iraq is still at a very earlier stage.

The e-Government success is achieved by reach the stakeholders demands *via* provision of services to them. It will be easier to draw up the necessary plans for the implementation of the required of e-Government projects by the experts to translate the requirements into realistic designs. The current research highlight on the present obstacles of e-Government in the Ministry of Oil in Iraq to realise the full potential of e-Government benefits. The interview method with ten CEOs and administrative officials is the technique used to determine the themes of challenges.

The findings of this study showed that the ministry of oil has a need to enhance their e-Government system by developing Front-office and Back-office who able to manage all the transactions. On the other hand, there is a reluctance of employees to use information systems and a preference for using the traditional system, which gives more scope for the spread of corruption. Moreover, the results showed that there is a fear of losing information when using information systems coupled with a clear weakness in the employees' computer skills. The results also showed that the multiplicity of the institutions of the Ministry of Oil and its spread throughout Iraq made it difficult to manage and complete a transactions within the institutions of the ministry. As a result, the findings drew six major themes which are complexities of transferring transactions, transactions security, institution readiness, employees experience, administrative abuses, and initial system.

Most of the past studies in the e-Government literature focused on the adoption of the e-Government initiative. Therefore, these studies failed to address difficult issues such as organizational and environmental aspects in the development of information systems. The strength of this research is the development of an e-Government in ministry of oil by addressing the limitations that face this ministry and proposing a more comprehensive recommendation that can help organizations, decision-makers, and stakeholders to improve the performance of the oil sector. The findings of this study are expected to contribute to the oil information system literature within the environment of e-Government by providing empirical evidence regarding the impact of adopting oil information system on the performance of the oil sector. The results of the current study are expected to support policymakers in designing and implementing relevant measures to improve oil sector processes.

Limitation and Direction for Future Work

Although this study has significant contribution, it is not free of limitations. For depth in understanding, this study was used qualitative method with ten mangers from the Ministry of Oil. The result of study can validate and support by using quantitative method in forthcoming studies. Furthermore, it may be obviously pointed out that a successful adoption of e-Government is not something that may be accomplished by, for instance, implementation an e-Government and supplying access for all citizens'. Nevertheless, a set of preliminary steps must precede e-Government application. This research offers some recommendations for further future researches that may be followed to be able to fulfil the goals of e-Government implementation in oil establishments in ministry of oil in Iraq and endeavour of investigation its establishments' sustainability. These recommendations were influenced from the managers and employees comments.

- A systematic technique should be implemented to adopt and implement e-government in all oil establishments in ministry of oil in Iraq. Because it is a fresh experience for Iraqi ministries, extremely recommend collaboration with many developed countries, which have achieved superior steps in information system application in their organizations.
- Should be increase the budget for developing an integrated IS/ICT infrastructure as well as information system and it is applications must be prioritized, and other essential requirements. Adopting e- government may reduce cost and enhancement information sharing in all Ministry of Oil and its establishments.
- Looking for professional technological employees is an essential step so as to maintain e- government system. If employees face any difficulties, quick assistance should be supplied to avoid staff disruption. The establishment will undoubtedly have more powerful and certainty throughout the process of usage ICT tools, when IS staff in the establishment has sufficient skills and knowledge for adopting new technology. Therefore, IS personnel plays a significant role to develop ICT applications in this establishment

Strenuous training programs are required. To familiarize employees with e- government functionalities and enhance their self-confidence within using it.

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