

## EVALUATION OF E-PORTAL SERVICES FROM AN EMPLOYEE SATISFACTION PERSPECTIVE: THE COMMUNICATIONS DIRECTORATE AS A CASE STUDY

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*Decision makers in countries belonging to the Organization for Economic Cooperation and Development (OECD) and even those from non-OECD countries are prioritizing the evaluation of e-portal services. At present, governments are implementing programs to demonstrate the advantages of utilizing information and communication technologies in government administration. Using technology could result in internal efficiency and effectiveness of government actions. Evaluating the performance of the information system can reveal weak and strong points, which could be used in improving the system. For many years, scholars have pushed for assessing user satisfaction as a construct for evaluating such systems. Measuring the performance of the e-Government, which is the core of strategies employed by most Arab countries, could lead to the realization and application of the expected benefits of the system. Nonetheless, despite the popular use of e-Government services and applications worldwide, the assessment of electronic services in Iraq has been neglected in practical and theoretical aspects. Moreover, the new portal in Iraq, which is called "citizen e-Government," has decreased the number of citizens conducting business via electronic transactions. The portal design is complex and not user friendly. To respond to this need, this study assesses "Citizen E-Government Portal," which is a new portal in the Communications Directorate in Thi-Qar, according to employee perspective. The study used five constructs, namely, attractiveness, controllability, helpfulness, efficiency, and learnability, in the evaluation. Our findings revealed several weak points in the proposed e-portal, such as slow speed and unavailability of information needed by users. Hence, introductory explanations are needed to improve the proposed portal to increase user rate.*

**Keyword:** E-portal, WAMMI components, Employee perspective, Thi-Qar

### 1. Introduction

The development of the Internet started to influence heavily the application of information and communications technology (ICT) worldwide [1]. Reality, nonetheless, showed that relying on IT developed contrary to the envisioned results. According to Al-Khoury [2], ICT has affected the interactions among people, governments, and businesses. Given that ICT is a foundation of contemporary

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society and digital economies, the fast services of the Internet, mobile carriers, and broadband networks illustrate the prevalence of ICT in daily living.

In Arab countries, e-Government allows for the development of a more responsive economic platform. The system has a significant part in overseeing processes that are needed in reformation, which could then increase the confidence of citizens toward the government. In practice, many Arab countries utilize digital means to gain investments that fuel the rapid growth of ICT infrastructures [3]. The digital revolution, specifically the application of the Internet and ICT in daily transactions, has dramatically grown in double-digit figures in the past years [4]. While Ibrahim et al. [5] indicated that most Arab countries have adopted e-Government services, other developing countries, such as Iraq, have yet to catch up with the implementation of such technology in their services.

Given the intention of improving e-Government services and in reference to the Arab Advisors Group report of 2013, 18 Arab countries have employed electronic government portals, including Algeria, Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Qatar, Saudi Arabia, Sudan, Syria, Tunisia, UAE, and Yemen. The advancement and complexity in applying these portals and corresponding services differ from one country to another [6]. However, studies on e-Government portals (e.g., [7], [8]) have focused on the adoption and implementation factors, and thus, further attention is needed to evaluate an e-Government portal.

## **2. Motivation of the Study**

Huang and Benyoucef [20] claimed that the steady growth of the usage of e-Government portals could still benefit from improving user engagement, and that, furthermore, usability is considered a factor that influences such engagement. Albayrak and Çagiltay [10] noted the limited number of studies assessing e-Government portals. An e-Government portal provides services to citizens and government offices through digital means, which allow various services to be availed of and completed regardless of time and location. With this advantage, assessing the capability of an e-Government portal to run online transactions smoothly is crucial [11].

Kuzma, Yen, and Oestreicher [12] revealed many government websites are not functioning and meeting the expectations of the public, which AAG [6] and Karkin and Janssen [13] support. In developing countries, such as Iraq, high failure rate of e-Government adoption has given rise to the gap between design and reality [14]. To respond to such a gap, Hasan, Morris, and Proberts [15] asserted the need for government agencies to have websites with good usability and accessibility.

The old e-portal in Iraq has recorded fewer users conducting transactions electronically, as the design is not engaging enough for citizens and stakeholders to browse. These issues may reflect on the current portal [16]. Youngblood and Mackiewicz [17] claimed that usability issues of e-portals could seriously affect trust in government and, subsequently, the pursuit of online government services by stakeholders, such as citizens or businesses. Ibayrak and Cagiltay [9] reported that, in fact, usability issues explain the low utilization of e-Government websites. Leist and Smith [18], Bishop, Haggerty, and Richardson [19], and Huang and Benyoucef [20] support this claim.

Following these arguments and the capability of the e-Government portal to influence government perceptions, the current empirical study seeks to evaluate the new e-portal in Iraq (*Citizen e-Government portal*). To address this gap, the current study will use WAMMI (Website Analysis and Measurement Inventory) components to capture the view of employees on the new e-portal. In most developing countries, e-Government portal implementation depends on the expertise of developed countries. However, each nation is distinct, and thus, proposals to solve such issue should study contextual factors of developing countries, such as culture, infrastructure, economic growth, and ICT capabilities.

### **3. Literature Review**

#### **A. E-Government Citizen Portal in Iraq**

The e-Government Citizen Program (<http://www.ca.iq/>) is a portal used in eliminating bribery and favoritism in government offices. In addition, through this portal, users will no longer have to go back and forth to the actual offices given that their transactions could be done online. Apart from saving time, availing online services (e-portal) unifies all required documents in new directories. After unifying the official documents that could come from all over a country, those files could be sent to specialist directories via online channels. Indeed, this action can only be accomplished with modern technology, such as the “E-Government Citizen.” However, traditional services in Iraq are ineffective compared with services provided in other Arab countries.

Addressing this need, the present Iraqi government seeks to utilize new communication technologies to help specialists ensure that the documents and information retrieved from people are real. Despite the limited number of services, such as issuing identity cards, driving licenses, and passports, citizens are able to

acquire official documents easier. This undertaking is a platform for a national work environment for ministries and provinces. The network simply gathers national data citizens require via Internet usage. Resulting from prior experiences, which started with ABJED in 2011, this endeavor included internal electronic archiving and responding to requests from citizens in 2012, after which the system was implemented in four stages (i.e., requesting, registering, following-up, and archiving). The aim of this program is to promote full automation of services between citizens and state institutions, as well as foster good relationships between the Citizen Affairs Departments in ministries and provinces throughout the country. Apart from this goal, the service cuts down consumption of paper. Despite the cost of this initiative, the few services available for citizens failed to harness the relationships among the business sector, citizen, national government, and corresponding government departments.

### B. Previous Studies on e-Government Portals

Modern technologies (e.g., Internet, Web 2.0) are prevalent in private and public sectors. For technology to continue being used, ensuring user acceptance is important. Broadly, positive or negative attitudes of users affect the reception of new technology. Senol et al. [24] stressed the importance of the evaluation of website content and design given that usability problems could affect acceptance rate among users. Table 1 highlights related studies in this area to obtain a better picture of the phenomenon.

Table 1

Related Works

Author (S)	Year	Purpose of the Study	Findings
Wei and Loho-Noya [21]	2009	Develop a model that can be used by system developers to improve the efficiency of e-Government websites by integrating creativity into the service	The developed conceptual model was based on literature review and categorized dimensions of creativity for e-Government websites. Out of four general categories (originality, form, function, and source), 12 creativity dimensions were formulated.

Byun and Finnie [23]	2011	Propose an Analytic Hierarchy Process (AHP) method to assess e-Government website usability and show the evaluation and ranking of portals run by Australian state governments	The AHP method is more analytical than traditional method of simple user testing and expert evaluation with checklists. The method efficiently reduces the required number of pairwise comparisons.
Huang and Benyoucef [20]	2014	Capture user viewpoints on usability and credibility for e-Government websites according to heuristic evaluation, and then determine the relationship between usability and credibility	High level of usability for e-Government websites could result in higher credibility. This study identified a number of usability issues on e-Government websites.
Youngblood and Mackiewicz [17]	2012	Compare the websites of municipal governments in Alabama based on usability benchmarks	Reported issues included lack of correlation between usability and number of population or per capita income, and substantial problems with municipal usability.
Hughes, Ahluwalia, and Midha [10]	2013	Develop an extension of a novel project that deals with website heuristic evaluation methodology; Include other important aspects beside website content in guidelines; Establish online software quality in reference to software evaluation concerns.	The developed tools could still be improved.
Lbayrak and Cagiltay [9]	2013	Investigate the usability of Turkish e-Government services	Usability problems were encountered while using government services; Listed specific recommendations for improvement of e-Government services in Turkey.
Brooks and Persaud [22]	2015	Evaluate eight local e-Government websites in Canada and the United Kingdom, where utilization of the web diagnostic tools took place.	Greater accessibility compliance should be implemented for e-Government websites in the United Kingdom.

The e-portal in Iraq is aimed at improving access and delivery of government services to benefit citizens. However, as mentioned earlier, issues in usability account for the underutilization of government websites. The only study on the e-Government website in Iraq focused on usability, and based the usability of this website on literature review and comparison with other e-Government websites.

### **C. Website Analysis and Measurement Inventory (WAMMI) Components**

The five factors of WAMMI, namely, attractiveness, controllability, helpfulness, efficiency, and learnability [25], were used in the current study to measure the performance of the e-Government portal in Iraq. Other tests used in evaluating the content and service of various websites included QUIS (Questionnaire for User Interface Satisfaction), SUMI (Software Usability Measurement Inventory), and NIST Web Metrics (The National Institute of Standards and Technology Web Metrics). Questionnaires were developed to measure user satisfaction, such as MUMMS (Measuring the Usability of Multi-Media) for evaluating multimedia software and WAMMI for assessing websites [26]. Following Mentis and Turan, WAMMI is the best tool for evaluating websites. Developed in 1999 by the Human Factors Research Group (HFRG), the tool comes in questionnaire form addressed to website users, and provides measures of usefulness and ease in evaluating websites and utilization of users [27].

## **4. Research Methodology**

The evaluation of the website is a fundamental principle to ensure effectiveness, efficiency, and comfort of users who engage online. The WAMMI questionnaire was used in this empirical study. The questionnaire aimed to measure staff satisfaction based on the usability level of the e-Government interface portal as perceived by the users. The five-point Likert scale ranged from “strongly agree=1” to “strongly disagree=5.” Data were analyzed with Statistical Package Program for Social Science (SPSS 21 for Windows) and MS Excel. The survey was divided into two parts. The first part focused on general information concerning the employees, and the second part analyzed the WAMMI components to evaluate new portal elements. This latest questionnaire was adopted from different scholars.

Table 2

Distributed Survey Questions		
1. Dimension Controllability		
No	Questions	Sources
1.1	I feel in control when I am using this website.	Senol, Gecili, and Onay Durdu (2014) [24]
1.2	It is difficult to move around this website.	
1.3	Remembering where I am on this website is difficult.	
1.4	I can easily contact the people I want to on this website.	
2. Dimension Efficiency		
2.1	The website is too slow.	Yuen et al., (2015) [28]
2.2	I can quickly find what I want on this website.	
2.3	Using this website is a waste of time.	
2.4	I feel efficient when I am using this website.	
3. Dimension Learnability		
3.1	Using this website for the first time is easy.	Yuen et al., (2015) [28]
3.2	Everything on this website is easy to understand.	
3.3	This website needs more introductory explanations.	
3.4	Learning to find my way around this website is a problem.	
4. Dimension Attractiveness		
4.1	This website has some annoying features.	Senol, Gecili, and Onay Durdu (2014) [24]
4.2	The pages on this website are very attractive.	
4.3	This website has much that is of interest to me	
4.4	I do not like using this website.	
5. Dimension Helpfulness		
5.1	This website helps me find what I am looking for.	Senol, Gecili, and Onay Durdu (2014) [24]
5.2	This website seems logical to me.	
5.3	It is difficult to tell if this website has what I want.	
5.4	I get what I expect when I click on things on this website.	

WAMMI analyzes the questionnaire responses of website users and provides a measure of the usefulness and ease of use offered by the website to its users. The target population of the present study is the staff of the Communications Directorate. These employees should have experienced browsing and searching for information on government websites. With purposive sampling method, 90 questionnaires were distributed, of which 65 questionnaires were returned. Of these, 25 questionnaires were deemed incomplete and consequently discarded. IBM SPSS statistics 21 and Excel 2007 were used for analyzing and visualizing results.

## 5. Results

Evaluation is important in measuring acceptance and satisfaction of the end-user. Therefore, the selected portal (citizen e-Government in Iraq) was evaluated based on attractiveness, controllability, helpfulness, efficiency, and learnability. Each of these factors was measured by using at least three different questions to ensure significant results. However, the services and context of the new portal were deemed unsatisfactory by most of the respondents from the Communications Directorate.

**Attractiveness:** Most experts found annoying features, which affected adoption and continued usage of the online portal. Moreover, 80% of experts did not find the website attractive and only 20% agreed that the citizen e-Government portal in Iraq was attractive.

**Controllability:** Questions for controllability assess the level of comfort the users experience when using the services of the website. Roughly 60% of the respondents indicated that they felt in control when using this portal. In the same context, 24% strongly agreed to the following prompt, “I feel in control when I am using this website.”

**Efficiency:** Here, respondents were asked how quickly they could respond to what actually raised their interest in the electronic portal and whether the website actually responded to their requests based on their speed requirements. About 70% of the respondents noted that the portal was inefficient, when asked if using this government portal was a waste of time. More than 40% found the current government portal too slow. Given that this part focused on the speed users experienced when searching information, only about 25% of the respondents stated that they could find everything they wanted in the government portal; ironically, about 65% of the respondents confirmed the opposite.

**Learnability:** This criterion assesses if, based on the viewpoint of experts, the new government portal can be easily understood and used by the users, especially first-timers. About 60% of our respondents indicated that the current electronic portal needed more introductory explanations to help them familiarize with the portal.

**Helpfulness:** Advantages gained from the electronic portal were assumed and grouped into several levels: understandability, logic, and clarity of structure and instruction. Roughly, most of the respondents did not agree with the features related to this criterion. Table 3 presents the final results from the selected participants.

Table 3

## Summary of the Survey with Experts

Variables	Question	Strong Agree	Agree	Hesitate	Disagree	Strong Disagree
Controllability	I feel in control when I'm using this Website.	55.9	23.5	5.9	14.7	0
	It is difficult to move around this Website.	35.3	41.2	17.6	5.9	0
	Remembering where I am on this Website is difficult.	35.3	50	8.8	5.9	0
	I can easily contact the people I want to on this Website.	35.3	35.3	0	23.5	5.9
Efficiency	The Website is too slow.	44.1	20.6	0	17.6	17.6
	I can quickly find what I want on this Website.	5.9	23.5	5.9	2.9	61.8
	Using this Website is a waste of time.	47.1	23.5	23.5	2.9	2.9
	I feel efficient when I'm using this Website.	29.4	8.8	29.4	14.7	17.6
Learnability	Using this Website for the first time is easy.	23.5	23.5	11.8	17.6	23.5
	Everything on this Website is easy to understand.	14.7	29.4	11.8	29.4	14.7
	This Website needs more introductory explanations.	5.9	11.8	20.6	29.4	32.4
	Learning to find my way around on this Website is a problem.	0	0	20.6	35.3	44.1
Attractiveness	This Website has some annoying features.	8.8	0	5.9	41.2	44.1
	The pages on this Website are very attractive.	26.5	2.9	0	29.4	41.2
	This Website has much that is of interest to me	23.5	11.8	5.9	14.7	44.1
	I don't like using this Website.	17.6	14.7	17.6	17.6	32.4
Helpfulness	This Website helps me find what I am looking for.	17.6	0	11.8	32.4	38.2
	This Website seems logical to me.	5.9	0	11.8	44.1	38.2
	It is difficult to tell if this Website has what I want.	5.9	0	20.6	32.4	41.2
	I get what I expect when I click on things on this Website.	20.6	5.9	23.5	20.6	29.4

## 6. Conclusions

Online services are indispensable for communication and information sharing among government agencies and the public that they serve. Across the world, governments of developing or developed countries employ state of the art technology to provide valuable services for their citizens. In this light, effective e-Government systems have allowed governments to achieve this goal.

The e-Government portal is the most popular medium for offering government services online. According to the literature review, portals are points through which citizens could avail of e-Government features. E-Government portals are the gates through which Internet users can navigate through the vast ocean of information moving around the Internet; hence, a government portal is valuable for citizens and government. However, the new citizen e-Government portal in Iraq, designed for over two years, is not maximized by citizens. To the best of our knowledge, no study has evaluated this new portal using the perceptions of citizens or government employees.

Therefore, the current study evaluated the new Iraqi portal and measured its usability based on employee perspective. Specifically, this study applied a

quantitative approach using WAMMI components (attractiveness, controllability, helpfulness, efficiency, and learnability) to evaluate the new Iraqi portal. Findings revealed usability issues of the current e-Government portal have not been addressed at a detailed level. The failure to address usability in sufficient detail and come up with a better e-Government portal design could lead to poor user acceptance of online services. Therefore, the current e-Government portal in Iraq has to implement changes in terms of making the website more user-friendly.

Needs analysis should be done first by the current government in Iraq to determine the needs of citizens and government agencies before designing the final online services system. Before putting up the final online system, a prototype system should also be uploaded first for experts and chosen citizens to pretest usability and functionality. Modifications can then be made based on the pretest before making the service available to the general public. In addition, we suggest that decision-makers in Iraq must concentrate on the e-portal government applications for governments in the same our region because they face similar challenges and have the same infrastructure. The problems identified in this study could be used by designers in focusing on the specific factors of the website, which could improve usability and credibility. Furthermore, decision makers could design better portals with enhanced performance. Extensive studies on e-Government services are also needed, particularly for developing nations in the Arab region.

### **Acknowledgments**

My foremost gratitude goes to my supervisor, Prof. Dr. Ing. Mircea Petrescu, for his professional guidance, expertise, and precious time. His guidance has led me to reach this level. Thank you for all that you have done for me. My sincerest thanks also go to the University Politehnica of Bucharest and the Communications Directorate, as well as the staff in the departments who helped me during the data collection stage.

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