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# The Prospects of E-government Implementation in Chaotic Environment – Government and Citizens’ Perspectives - Case Study of Libya

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*Abstract – Using compulsory e-government services is increasingly difficult and challenging given the impact of corruption, political instability, armed conflict, and a chaotic environment. Post the 2011 uprising, Libya experienced serious and deep-rooted conflicts. The chaos destabilized and dismantled government institutions throughout the country. Utilizing the lens of institutional theory, this paper presents the pressures experienced by the formal institutions in the absence of law and safety, to implement the necessary e-government services and provide it to citizens all over the country. In addition, to explore the role of informal institutions in providing and using the compulsory services offered by the government and to what extent alternative services could be made available. Two qualitative pilot studies, conducted in 2015 and 2016, explored the feasibility of implementing e-government from both the government officials and the citizens’ perspectives, respectively. From the e-services provided during this time period, only the E-passport and National Identity number were found to be the only successful. Critical Success Factors - CSF of e-government implementation were defined from conducting an in-depth literature review; these were compared with our findings. Both the government officials and the citizens found corruption, infrastructure and geographical nature to be influencing factors. The social collaboration between citizens was found to be the driving factor in the success of the e-passport, despite the difficult geographical nature and the limited infrastructure all over the country.*

**Index Terms**—E-government, Critical Success Factor, E-passport, National Identity, Chaos, Institutions Theory.

## I. INTRODUCTION

While previous academic studies have been conducted to examine a variety of e-government issues within a

stable environment, this study specifically examined e-government implementation in a chaotic environment, looking at both the government and citizen perspective. The study commenced by collecting and assessing the critical success factors of e-government implementation in a stable environment, found through an in-depth literature review, and then applied these within a chaotic environment. Accordingly, a pilot study was conducted in Libya, a country which has undergone (and possibly still undergoing) a period of political and economic instability since 2011. The first study, conducted in 2015 [1], targeted six government officials; the interview data was subjected to an in-depth analysis. It was found that two e-services, E-passport and National Identity number (NID), had already been implemented within this environment. The second study, conducted in 2016, targeted 14 citizens who previously used the e-passport service to explore their opinions and experiences [2]. It focuses on usage rather than implementation. Both studies were analysed using thematic analysis [3], [4]. The analysis and coding processes were conducted both manually and with the qualitative data analysis software (NVivo) for data management and classification.

## II. Background

The period of 2010 and 2011 represented a significant milestone in the history of North Africa and the Middle East in. Following the popular uprising in Tunisia and Egypt, the so called "Arab Spring" swept across the region. It occurred differently in Libya compared to other participating countries in the region since Libya had been dominated by a dictatorship regime that adopted a strict

system of regulations and institutions which kept entire regime in power for more than 4 decades. Resulting from those four decades, according to the Transparency International reports for 2008 and 2011, Libya was ranked as 130 and 168, respectively [5] due to its corrupted system. Since 2011, the chaos that accompanied the revolution against that regime, and the subsequent armed struggle for power in the absence of state institutions, created an atmosphere conducive to increased corruption [6],[7]. Regarding the Arab Spring, it can be considered as a series of popular movements spread across the countries demanding wide-ranging change. In Libya, this was exacerbated by the aggressive actions of the previous regime that was trying to regain power. This led to higher demands and call for international intervention until the regime eventually collapsed [8].

This chaotic environment is worth considering for conducting research studies into how government institutions and agencies can adopt electronic government technology [1]. The findings of the two pilot studies, which were conducted in the case of Libya, have prompted investigation into the success behind implementing NID and e-passport in order to reaching a better understanding of the key factors contributing to their success [1]. Hence, leading to the increased prospect of success when implementing other e-Government projects.

### III. Why is E-Government Initiative Needed?

E-government is beneficial because it saves people from spending time, effort, and money travelling to a government agency, offering the easier alternative of a click on mouse whilst doing other activities at home [9]. Digital government is also considered as a tool for measuring the efficiency and quality of provided government services and cost reduction [10]. Based on the latest model issued by Janowsky [11], the digital government concept endures to grow as a result of twenty years of tremendous research and practices all over the world; all governments are under pressure economically, politically, and/or socially [11]. This shows the significance of understanding the current situation and predicting the possible future changes to support policymakers, government executives and researchers in order to prepare and evaluate the suitable related strategic plan for adopting and implementing digital government services [11].

Despite the consensus of many researchers, that the majority of e-government initiatives in developing countries have failed to achieve drawn goals and objectives, there are a considerable number of initiatives that have been successful in the last two decades [12]. The success story merits further in-depth study which could help in developing a framework which could be applied to the implementation of other e-government services.

### IV. E-government Role in Reducing Corruption

As it has been claimed by Kifle [13] and Kim [14] that electronic government is rapidly being used to enhance the principals of transparency and accountability among government sectors in order to fight corruption in Seoul, Korea, which led to establishing an anti-corruption system [13], [14]. Shim and Eom [15] believed that digital government is a successful means to fight corruption through building strong governance instruments and strengthening the change process [15]. They also added that electronic government has the ability to control the corrupt behaviour through enhancing the monitoring process and building a strong relationship with citizens[15]. Creating a strong relationship between administration, policies, governments and businesses is vital and it should be an accountable relation [16]. It has been proved by Srivastava et al [17], that the rule of law is considered crucial to curb the deteriorated corruption. According to the above mentioned practical evidences, it can be said that the role of law and top management commitment and support, together with a strong leadership, are crucial factors applicable for any type of work, especially when dealing with fighting widespread phenomenon like corruption in a stable conditions, let alone in cases of instability.

### V. Informal and Formal Institutions Based on Institutional Theory in brief.

It is believed that the adoption of institutional theory would benefit the current research study simply because of its flexibility and ability in exploring the challenges facing e-government implementation in a chaotic environment. Several studies discuss institutional theory, which is purely Socio-political and management related [18]. However, some of these studies introduce institutional theory in the context of e-Government research [19]. Based on those two studies [18], [19] the institutional theory can be briefly introduced as follows: Institutions are a collective sets of rules and practices that form the perceived appropriateness of social behaviour. It is a social reality where human construction is created through interaction. The institutions are split into two main categories: formal institutions and informal institutions, where each of them impact on shaping the state' institutions in general [18], [19].

According to Helmke and Levitsky [18], formal institutions are oriented towards public scrutiny and provide a framework of recognisable forms of the society as a whole. Whereas, the informal institutions are rules which form the social interactions more difficult to identify simply, because their rewards are less articulated [18]. Ideally, as Johanse Jutten [20] suggested, informal and formal institutions should complement each other[20]. According to Alonso [21] suggested that informal institutions which are based upon kinship, proximity, and relationships in developing and least developed countries, are highly efficient [21].

To summarise, institutional theory can offer an important lens to explore the impact of informal institutions on the implementation of e-government services in a chaotic environment, taking advantage of the

lessons learned from the success of e-passport and NID implementation and how Libyan citizens have succeeded in using these e-services.

## VI. Critical Success Factors

Critical Success Factors (CSFs) were first defined by Rockart in 1979 as the key areas which give promising outcomes and confirm a competitive performance to ensure success [22]. He added that CSFs vary from one organization to another and at the same time, vary from one leader or manager to another [22].

Heeks believed that e-government diffusion and the factors that influence it, vary from one country to another [23]. A United Nations report shows this variation in diffusion among the countries and regions thereby supporting Heeks' claim [24]. Based on Al-Mamari, who named the CSFs by their motivating factors, the geographical nature of a country could be considered as a motivating factor for the government to establish e-government services and to ensure the delivery of services to citizens living in remote areas [25].

Several scholars have studied those critical success factors and identified a list of factors which influence e-government implementation all over the world; these are discussed in the Discussion section.

## VII. Research Aims and Objectives

This research aims to explore the feasibility and possibility of implementing e-government in the case of chaos and revolts. It concatenated two previous research studies. Firstly, the pilot study conducted in 2015 and published in 2016 [1] which explored the government perspective regarding the research topic through interviewing government officials. Secondly, the recent research study is an extension to the one mentioned above, conducted in 2016 and published in 2017 [2]. The study focused on citizens' opinions regarding the implementation of NID and e-passport services, and the impact of the current chaotic situation on the implementation and usage processes [2].

Data was gathered in two phases, the first phase targeted government officials mainly to explore their perspectives towards e-government implementation, which was conducted in February and March 2015 [1]. The reanalysis of this study led to the emergence of the theme which is related to the successful implementation of both NID and e-passport systems, during the current chaotic situation. The second phase was conducted in July and August 2016, to collect the citizens' opinions in order to formulate the citizens' perspectives about the e-government implementation in the current situation. This phase involved 14 participants all of which were Libyan citizens from different disciplines and areas. Viber and face-to-face interviews were all audio-recorded and transcribed immediately in order to ensure accuracy; they were re-listened to twice and compared with the transcript to find any errors. The reply from the email interviews came within three days from sending the questions and the consent form. Three of the emails were

written in English; the rest were translated from Arabic to English.

## VIII. Methodology Used

Both studies adopted the qualitative approach and have been conducted using interview techniques utilizing available media such as Emails, Viber, Facebook, and telephone, together with the face-to-face interviews. The analysis was conducted using a thematic analysis approach [4], [26] where the emerging theme from the first study was taken forward as an investigation point for the second phase. The data was managed using the data management software called NVivo (10);[3], [4].

Government perspectives interviews were conducted with officials who are based in Libya using Viber and Skype as illustrated in Table (1).

TABLE 1: NUMBER OF GOVERNMENT OFFICIALS

S/N	Tools	Number of participants
1	Skype	2
2	Viber	4

Citizens' perspective interviews were conducted using different media, as illustrated in Table 2.

TABLE 2: NUMBER OF CITIZENS

S/N	Tools	Number of participants
1	Face-to-face	3
2	Viber	2
3	Emails	8
4	Facebook Chatting	1

The researcher adopted institutional theory during analysis of the transcribed interviews to explore the various pressures influencing the implementation of those e-services in a chaotic environment.

## IX. Discussion and Analysis

Firstly, The thematic analysis of six government officials transcribed interviews, conducted during study[1], found the following emerging themes (1)- From the analysis of the transcribed interviews it can be concluded that the rooted corruption status is quite obvious within the Libyan government institutions. The current situation reflects the deepness of the rooted corruption and the willingness of the citizens to the change. Participants raised the frustrations of the deteriorated and inherited corruption which must be eliminated; this can be achieved by adopting the e-government initiatives as the processes would be unbiased and automated. The second theme is the NID and e-passport services [1] as they both have direct impact on the first emerged theme.

The CSF of e-government implementation in stable conditions were collected from the literature review. [25], [27]–[36]. Table 3 illustrates the priorities of CSFs that emerged as a result of in-depth analysis and the pattern matching process to those CSFs with the interview transcript from the government officials. The 48 CSFs which appeared in the literature review have been pattern

matched with the government officials’ interviews transcript.

**TABLE 3: CSF'S AFTER PATTERN MATCHING**

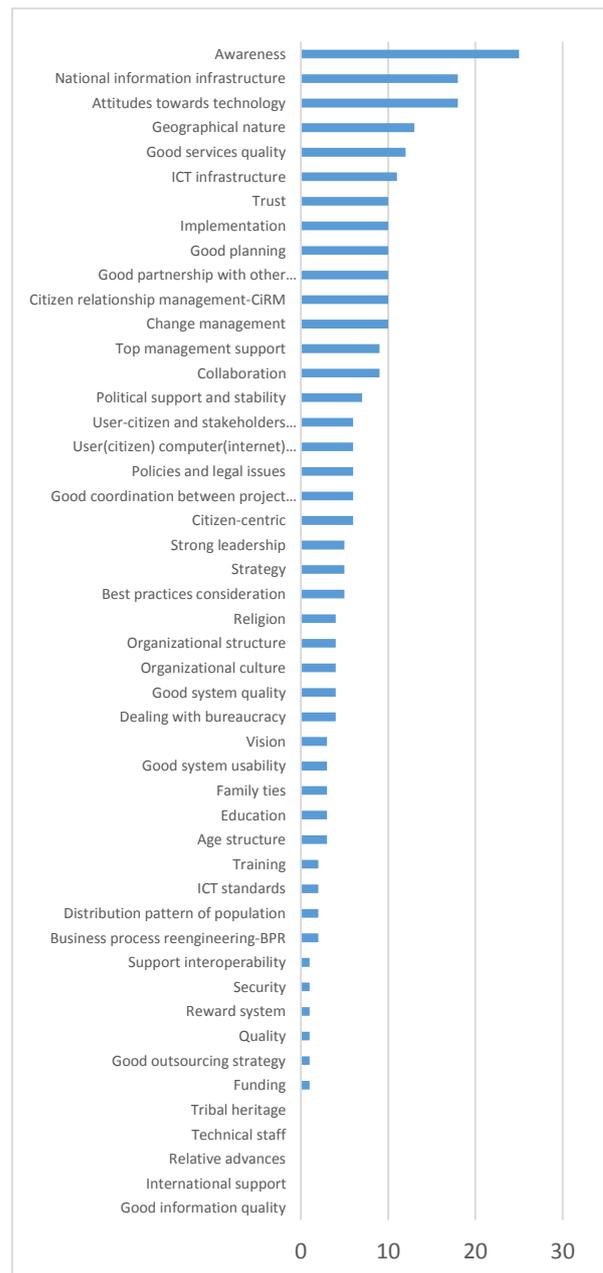
S/N	Critical Success Factor
1.	Awareness
2.	Attitudes towards Technology
3.	National Information Infrastructure
4.	Geographical Nature
5.	Good Services Quality
6.	ICT Infrastructure
7.	Citizen Relationship Management-CiRM
8.	Trust
9.	Implementation
10.	Good Partnership with other government institutions
11.	Good Planning
12.	Change Management
13.	Top Management Support
14.	Collaboration
15.	Political Support and Stability
16.	User-Citizen and Stakeholders Involvement
17.	Policies and Legal Issues
18.	Good Coordination between project participants
19.	User(citizen) Computer(Internet) Literacy
20.	Citizen-Centric
21.	Strategy
22.	Strong Leadership
23.	Best Practices Consideration
24.	Good System Quality
25.	Deal with Bureaucratic
26.	Religion
27.	Organizational Culture
28.	Organizational Structure
29.	Family Ties
30.	Age Structure
31.	Education
32.	Good System Usability
33.	Vision
34.	Training
35.	ICT Standards
36.	Distribution Pattern of Population
37.	Business Process Reengineering-BPR
38.	Good outsourcing Strategy
39.	Security
40.	Reward System
41.	Quality
42.	Support Interoperability
43.	Funding
44.	Tribal Heritage
45.	Technical Staff
46.	Good Information Quality
47.	Relative Advances
48.	International Support

We found correlation between the e-government CSF’s in both stable and unstable conditions. However, the priorities of the critical success factors differed. For example, funding and technical issues were not as highly prioritised in unstable conditions as awareness and infrastructure as illustrated in Figure (1). This was because the chaotic environment and instability casted a shadow on the process as a whole. Strategy, vision and technical staff are all necessary but can only be successful when there are institutions in place to implement the long-term and short-term strategy with a clear vision [32].

It was raised by the government officials that e-Government services would bridge the gap and build mutual trust between the government and citizens. It will

also enable the delivered services to be more effective and efficient. In addition, the government should focus on services that are needed by citizens on a daily basis, for example healthcare, paying bills, and other civil services needed in the non-normal situations.

Communication and its infrastructure are the spirit of this matter. While there is no ICT infrastructure due to the war and conflict, citizens have successfully managed to utilize the intermittent and limited access to the internet mobile communication using their relatives, friends, and colleagues. It has played a big role in connecting citizens to the government services, where the local government information becomes accessible. Running local services by utilizing the available mobile networks was sufficient to make NID and e-Passport a success story. It is important however to get the government system in place and fully functional in all cases.



**Figure 1: Nvivo (10) CSFs and number of references**

With regards to the deteriorated infrastructure, the government officials commented that this factor was considered to be the backbone of any services that can be offered. But, as a consequence of the war and conflict, all ongoing projects were stopped and this included the infrastructure projects.

Secondly, the citizens' perspectives highlighted the emergence of the citizens' social collaboration theme which was recorded in the exceptional chaotic situation. The implementation process through traumatized citizens is worth in-depth research in light of informal and formal institutions, where citizens have used the compulsory e-services by using all available means. The citizens' social collaboration theme emerged from the in-depth analysis of the transcribed interviews and emails collected from the 14 targeted citizens. 90% of the interviewed participants applied for their e-passports by using their kinship and relationships, in one way or another, not only in their cities of residence but also in all other cities. Citizens' social collaboration can be considered as an informal institution, which emerges during times of crisis because it consists of social activities and social norms, as it has been stated by Aldrich who said that the behaviour of people within any organization are often influenced by informal institutions [37]. Hence, Citizens' social norms and values, which represent the spirit of collaboration, play a significant role during the chaotic environment. Particularly, where the limited compulsory e-services offered by a fragile governments formal institutions has been used by traumatized citizens, despite the conflict and instability.

Putnam, in 1993, argued that the performance of the institutions is "shaped by the social context within which they operate" [38, p. 8]. This argument raised the importance of the role of the civil society towards the effectiveness of governance mechanisms by enhancing citizens' social collaboration whilst aggregating the civil society groups [38]. Hence, to effectively raise awareness about the importance of informal institutions represented by citizens' social collaboration, demands of specific actions must be made from the governments formal institutions.

This finding supports the claim by Claudia Williamson [39], which states informal institutions can be considered powerful tools in promoting and enhancing economic development compared with formal ones [39][30]. In addition to that, Alonso [21] also said that the success of informal institutions are normally certain specific behaviours which are determined by a specific social group [21].

## X. Conclusion, Implications, and Further Studies

E-government implementation is an innovative and challengeable phenomena in normal stable conditions, let alone in a chaotic environment. Through in-depth analysis of both the government and citizens' perspectives, interesting themes were found which are worthwhile for further research. The NID and E-passport e-services emerged as the only successfully implemented

compulsory e-government online services. Therefore, these were investigated in order to find the key factors responsible for the success. Citizens' perspectives raised the informal institution represented by the social norms and values that enabled citizens to receive the e-services through Social Collaboration.

Due to the situation of conflict and lack of safety, as well as multiple governments and parallel ministries in the country, we were limited in the scope of the research from including several government officials and conducting face-to-face interviews.

There is an opportunity to conduct further studies on the impact of informal institutions to adopt and use further voluntary e-services. Following the success story of e-passport and NID, the formal and informal institutions can cooperate and help in building the country's long term formal institutions.

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