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**Citation:** Khamallag MM, Kamala MA and Tassabehji R (2016) Digital Government Implementation in Chaotic Environment - Case Study of Libya. In: Proceedings of the British Academy of Management Annual Conference, 6-8 Sep 2016, Newcastle, UK.

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## **Digital Government Implementation in Chaotic Environment - Case Study of Libya**

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## **Digital Government Implementation in Chaotic Environment - Case Study of Libya**

### **Abstract:**

Not many studies are available to address whether it is possible to offer and implement e-Government services in places suffer from chaotic situation. This paper is intended to study the opportunity of implementing such services in a chaotic environment. An exploratory study was conducted in March/April 2015 using government officials of the state of Libya that survived a transition period upon the revolt of 2011. The study found that the Libyan government has recently and successfully implemented online services namely: National Identity Number - NID and e-Passport. The finding indicated that there are opportunities to establish e-services in countries regardless of their environmental status and clearly showed similar Critical Success Factors are need to be considered whether in chaotic or stable environment. However, their rank of importance will be differ. Lessons learned from the implementation of both services showed that Government determination has played crucial role in achieving this factual success.

**Word count: 2180**

# **Digital Government Implementation in Chaotic Environment - Case Study of Libya**

## **1 Introduction**

While previous academic studies conducted mainly to examine varieties of e-government issues within a stable environment whether those studies have been done in the developed or developing countries, this study examined them from different perspectives and focuses on studying the feasibility of implementing digital government in a chaotic environment. It considers and assesses those critical success factors of e-government implementation found in literature review but in chaotic environment. Therefore, a pilot study was conducted in Libya which went (and possibly still going) through unstable political condition since 2011. Six government officials were interviewed and subjected to an in-depth analysis. It has been found that there are couple of e-services already been implemented within this environment. The study started by collecting critical success factors of e-government implementation in countries enjoying stable conditions from literature review. A theoretical framework of those factors is prepared and then reanalysed using pattern matching process on the conducted pilot study. This analysis and coding process has been conducted manually and then by the qualitative data analysis software (NVivo) for the data management and classification.

## **2 Background**

The period of 2010 and 2011 represented a significant milestone in the history of North Africa and the Middle East. According to Transparency International reports for 2008 and 2010, Libya was ranked 130, 168 respectively (International-Transparency 2013) for 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 has created a positive atmosphere for increased corruption (International-Transparency 2013; Chivvis & Martini 2014).

This chaotic environment is worth considering for conducting research studies into how government institutions and agencies can adopt digital government technology. The findings of the pilot study which was conducted in the case of Libya has encouraged the researcher to investigate the success story behind implementing NID and e-passport at the hope of better understand those reasons behind its success leading to increased success of implementing other e-Government projects.

## **3 CSFs of e-Government implementation - Literatures Review**

Critical Success Factors (CSFs) were noted by Rockart in 1979, whereupon his observations, they become popular. He gave the first definition of CSFs to those main key areas which give promising outcomes and confirm a competitive performance to ensure success (Rockart 1979). He added that CSFs differ from one organisation to another and at the same time vary from one leader or manager to another (Rockart 1979).

Heeks (2005) believed the diffusion of digital government and the key factors that influence this diffusion vary from one country to another (Heeks 2005). A United Nations report shows this

variation in diffusion among the countries and regions and proved Heeks' claim to be correct (United-Nation 2014).

Based on Al-Mamari et al. (2013), 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 those remote areas (Al-Mamari et al. 2013a).

Summary of CSFs found in the literature within stable countries as agreed by many researchers in the area of Information Communications Technology (ICT) in particular e-Government implementation are listed in Table 3-1:

Table 3-1 Table Critical Success Factors of implementing e-Government (stable environment)

Critical Success Factor	Raised by Authors
Strategy	(Gil-García & Pardo 2005; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007; Franke et al. 2015)
Vision	(Gichoya 2005; Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Irani et al. 2007; Weerakkody et al. 2011)
Structure of organization	(Gil-García & Pardo 2005; Altameem et al. 2006; Rose & Grant 2010; Irani et al. 2007; Weerakkody et al. 2011)
Relative advances	(Gichoya 2005; Gil-García & Pardo 2005; Altameem et al. 2006; Irani et al. 2007)
Security	(Rose & Grant 2010; Altameem et al. 2006; Torres et al. 2005; Irani et al. 2007; Weerakkody et al. 2011)
Staff development and training	(Gichoya 2005; Altameem et al. 2006; Gil-García & Pardo 2005; Torres et al. 2005; Kodukula 2011; Irani et al. 2007; Weerakkody et al. 2011)
Organizational culture	(Gichoya 2005; Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Irani et al. 2007; Al-Mamari et al. 2013a; Weerakkody et al. 2011)
Change management	(Gichoya 2005; Altameem et al. 2006; Torres et al. 2005; Rose & Grant 2010; Irani et al. 2007)
Reward system	(Gichoya 2005; Gil-García & Pardo 2005; Altameem et al. 2006; Rose & Grant 2010; Irani et al. 2007)
Government and management support	(Gichoya 2005; Gil-García & Pardo 2005; Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007; Weerakkody et al. 2011)
Funding	(Gichoya 2005; Gil-García & Pardo 2005; Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007; Weerakkody et al. 2011; Becker Jörg et al. 2004)
Citizen centric	(Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007)

Supportive policies and legalisations	(Gichoya 2005; Gil-García & Pardo 2005; Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007; Al-Mamari et al. 2013a; Weerakkody et al. 2011; Rahman et al. 2014)
Geographical nature	(Al-Mamari et al. 2013a)
ICT standards	(Weerakkody et al. 2011)
User and stakeholder involvement	(Reddick & Anthopoulos 2014)
Good planning	(Baguma & Lubega 2013)
Good system usability	(Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007)
Strong leadership	(Gichoya 2005; Gil-García & Pardo 2005; Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007; Weerakkody et al. 2011)
Good coordination between all project participants	(Gichoya 2005; Gil-García & Pardo 2005; Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007; Weerakkody et al. 2011; Al-Mamari et al. 2013b)
Best practice consideration	(Gichoya 2005; Gil-García & Pardo 2005; Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007; Weerakkody et al. 2011; Al-Mamari et al. 2013b)
Make better business process	(Gichoya 2005; Gil-García & Pardo 2005; Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007; Weerakkody et al. 2011; Al-Mamari et al. 2013b)
Political support and stability	(Gichoya 2005; Gil-García & Pardo 2005; Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007; Weerakkody et al. 2011; Al-Mamari et al. 2013b)
Good outsourcing strategy	(Gichoya 2005; Gil-García & Pardo 2005; Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007; Weerakkody et al. 2011; Al-Mamari et al. 2013b)
Supportive ICT infrastructure	(Gichoya 2005; Gil-García & Pardo 2005; Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007; Weerakkody et al. 2011; Al-Mamari et al. 2013b)
User/citizen computer/internet literacy	(Gichoya 2005; Gil-García & Pardo 2005; Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007; Weerakkody et al. 2011; Al-Mamari et al. 2013b)
International support	(Gichoya 2005; Gil-García & Pardo 2005; Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007; Weerakkody et al. 2011; Al-Mamari et al. 2013b)

Quality	(Gichoya 2005; Gil-García & Pardo 2005; Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007; Weerakkody et al. 2011; Al-Mamari et al. 2013b)
National infrastructure information	(Gichoya 2005; Gil-García & Pardo 2005; Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007; Weerakkody et al. 2011; Al-Mamari et al. 2013b)
Good partnership with other institution	(Gichoya 2005; Gil-García & Pardo 2005; Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007; Weerakkody et al. 2011; Al-Mamari et al. 2013b)
Collaboration	(Gichoya 2005; Gil-García & Pardo 2005; Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007; Weerakkody et al. 2011; Al-Mamari et al. 2013b)
Implementation	(Gichoya 2005; Gil-García & Pardo 2005; Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007; Weerakkody et al. 2011; Al-Mamari et al. 2013b)
Deal with bureaucratic	(Gichoya 2005; Gil-García & Pardo 2005; Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007; Weerakkody et al. 2011; Al-Mamari et al. 2013b)
Citizen relationship management	(Gichoya 2005; Gil-García & Pardo 2005; Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007; Weerakkody et al. 2011; Al-Mamari et al. 2013b)
Support interoperability	(Ray et al. 2011; Irani et al. 2007)
Technical staff	(Torres et al. 2005; Altameem et al. 2006; Rose & Grant 2010; Kodukula 2011; Irani et al. 2007)
Good information quality	(Khayun & Ractham 2011; Hussein et al. 2007)
Good system quality	(Khayun & Ractham 2011; Hussein et al. 2007)
Good service quality	(Khayun & Ractham 2011; Hussein et al. 2007)
Trust	(Khayun & Ractham 2011; Hussein et al. 2007)
Age structure	(Franke et al. 2015)
Education	(Franke et al. 2015; Rahman et al. 2014)
Distribution pattern of population	(Franke et al. 2015)
Family ties	(Franke et al. 2015)
Religion	(Franke et al. 2015)
Attitudes towards technology	(Franke et al. 2015)
Tribal heritage	(Franke et al. 2015)
Awareness	(Papazafeiropoulou et al. 2002; Altameem et al. 2006; Franke et al. 2015)

## 4 The Exploratory Pilot Study

It is noticed that limited resources are available in this area of research where the only one came across is (Khan et al. 2012). Therefore, to explore the feasibility of digital government acceptance within the government officials and agencies, the researcher started by collecting information as part of the literature review stage then initiated a contact with several Libyan government officials to build up a factual idea in light of the current chaotic environment.

### 4.1 Methodology Used

Based on studies conducted by Kauzel (1999) and Marshall et al (2013), the primary data collection for exploratory pilot study can be limited to the minimum of six participants (Creswell 2007; Morse 2015; Anton J Kuzel 1999; Guest et al. 2006; Marshall et al. 2013). To explore new finding and themes to build up a theory, the data can be collected using qualitative method (Adolph et al. 2011; Khan 2014).

Key individuals were decision makers and in the highest positions of IT area and government personnel. Libya was chosen as a case study because of its chaotic situation while the researcher has the advantage of addressing decision makers at the national level hence facilitating real data collection. This opportunity has inspired the researcher to study this case and investigate the possibility of implementing e-Government in such environment. Table 4-1 provides extra details for those targeted interviewees.

Table 4-1: Participant List

S/ N	Designation of respondent	Interview tool	Duration
I1	Participant1, from Islamic Banking	Skype	One Hour
I2	Participant2, Manager from the Free Zone	Viber	45 minutes
I3	Participant3, E-government Committee member within the former Prime Minister Office.	Skype	One Hour
I4	Participant4, A Former Deputy Minister	Viber	45 minutes
I5	Participant5, a Former Minister	Viber	One Hour
I6	Participant6, HR Manager	Viber	45 minutes

There were 17 semi-structured questions asked to all participants during the interviews. They were all recorded using both Skype Recorder and Voice Recorder 1.0 freeware internet packages. It is also pertinent to mention that interviews were transcribed immediately after they were conducted, which in fact increased the richness of the data. Voice records were then deleted.

### 4.2 Extracted Information

After an in-depth analysis of interviews in both ways, manually and using the NVivo 10 software, which helped in data management and controlling word repetitions, it is clearly noticed that there are successful e-services implemented during this period of conflict. These services are “E-

passports and NID”. They are the only successful government services provided online up to the date of publishing this work. Further discussion is taking place in the next section.

### 4.3 E-passports and NID are the successful government services provided in Libya

After the investigations with participants, it has been noticed that both services are one project which initiated by the independent government agency called “*The National Number Project and associated projects*” (NID 2015). All interviewees have appraised the NID and E-Passport services that are offered by this government agency. Two of the interviewees stated that “*despite the consequences of the conflict, this project has been successful and helped in fighting corruption*”. As an example, authorities discovered many cases of workers who have more than one job and earning more than one salary. They also stated that “*NID helped in saving considerable amount of money from the yearly salaries budget which is returned to the central bank*”.

The investigation on those two services available online was conducted by the researcher in accordance to their related website (NID 2015) and finding out how it works. In addition, it has been stated by different websites that the NID and e-passport services were launched and in operation in Libya (IRB 2013).

In response to interview question number 11 “*Would an investment by government in online services make a difference in your life? If so how?*”, all of the six interviewees insisted that online services and e-Government will bridge the gap and build the mutual trust between the government and the citizen. 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 organising healthcare, paying bills, and civil services delivery.

## 5 Pattern Matching of CSFs on the Pilot Study

The transcribed interviews, which were conducted during the pilot study, have been revisited and reanalysed based on those 48 CSFs listed in Table 3-1. The idea is to analyse the interview in the light of existing CSFs trying to link and pattern matching them together.

Table 5-1 shows the results of the analysis, the references column indicates to the number of quotes that found in the participants transcript during the interviews for each factor.

Table 5-1 : Emerging factors after pattern matching process

Critical Success Factor	No. of ref.	Critical Success Factor	No. of ref.
Awareness	25	Deal with Bureaucratic	4
Attitudes towards Technology	18	Religion	4
National Information Infrastructure	18	Organizational Culture	4
Geographical Nature	13	Organizational Structure	4
Good Services Quality	12	Family Ties	3
ICT Infrastructure	11	Age Structure	3
Citizen Relationship Management-CiRM	10	Education	3
Trust	10	Good System Usability	3
Implementation	10	Vision	3

Good Partnership with other government institutions	10	Training	2
Good Planning	10	ICT Standards	2
Change Management	10	Distribution Pattern of Population	2
Top Management Support	9	Business Process Reengineering-BPR	2
Collaboration	9	Good outsourcing Strategy	1
Political Support and Stability	7	Security	1
User-Citizen and Stakeholders Involvement	6	Reward System	1
Policies and Legal Issues	6	Quality	1
Good Coordination between project participants	6	Support Interoperability	1
User(citizen) Computer(Internet) Literacy	6	Funding	1
Citizen-Centric	6	Tribal Heritage	0
Strategy	5	Technical Staff	0
Strong Leadership	5	Good Information Quality	0
Best Practices Consideration	5	Relative Advances	0
Good System Quality	4	International Support	0

Figure 5.1 shows the graph of the mentioned CSFs in Table 5-1 along with the number of coded references corresponding to each factor.

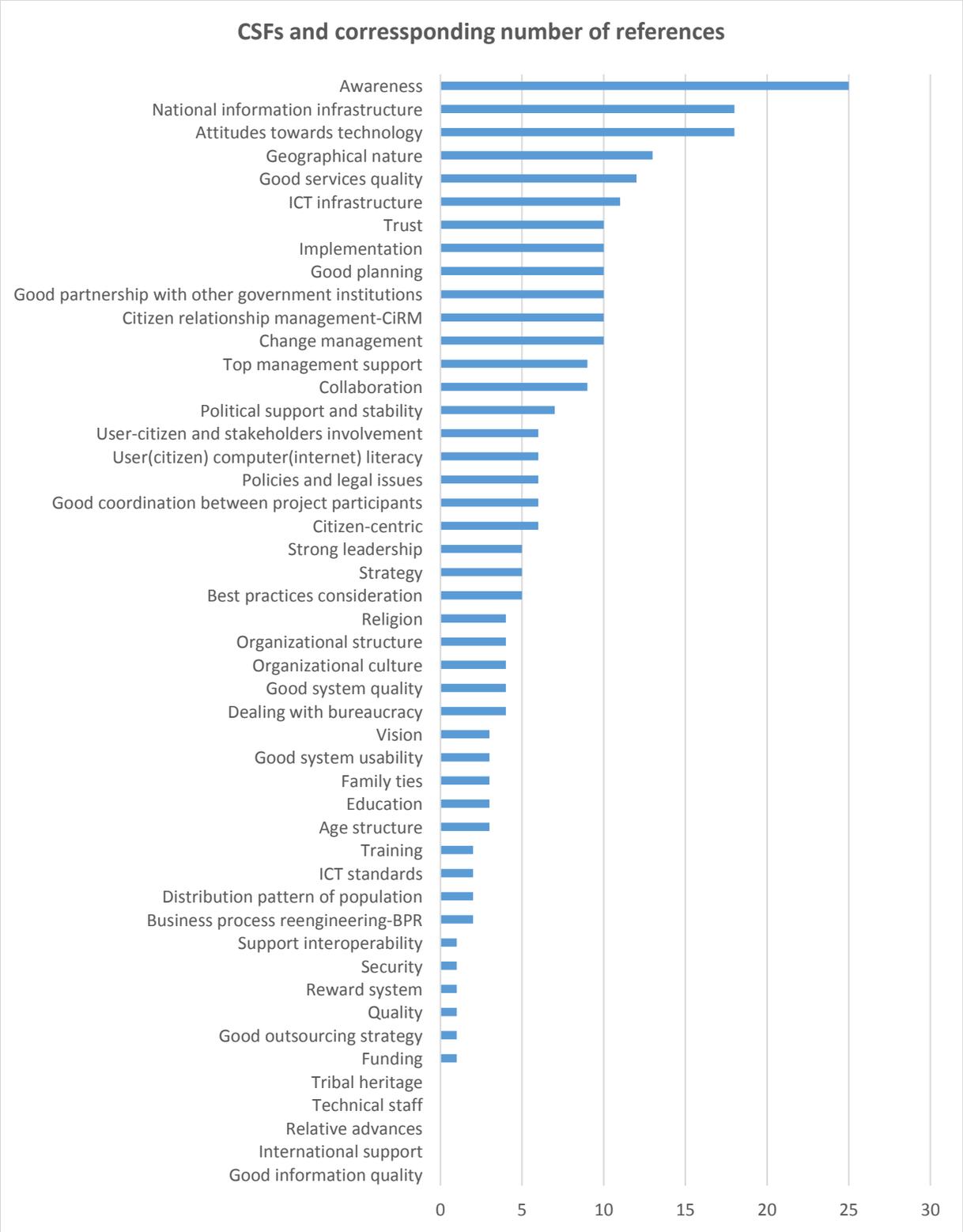


Figure 5.1: Nvivo (10) output for the emerged CSFs

It is quite interesting to note that important factors such as Outsourcing Strategy, Information Quality, Security and ICT Standards are not raised as important. Other matters were raised such as Geographical Nature and awareness.

## 6 Discussion

The chaotic and conflicting environment experienced by the state of Libya since 2011 have cast a shadow over daily life including all elements of the economy, politics and daily citizens' activities. The analysis was done for an unstable country that has been in chaos since the uprising in 2011 (Amnesty International Secretariat Office 2015), largely to test the critical factors on e-government implementation within a country in a chaotic situation. The transcribed interviews, which were conducted during the pilot study, have been pattern matched by those CSFs found from the literature review then reanalysed using both manual method and the NVivo (10) software. The study was conducted during the peak of conflict and chaos. Therefore, some participants were directly suffering from it hence their feeds were providing unique opportunity being directly influenced by this situation. For example, when asking about the importance of an established CSF, the response can be on the lines of "Let me leave my place safely and without being targeted by a sniper before I can pay attention to the importance of whether ICT infrastructure is important". Consequently, the factors with the low response values were those factors related to technical issues.

It is reasonable to assume that the first 8 factors with the higher values reflect the effect of chaotic environment on implementing e-Government. For example, the "ICT infrastructure" has been damaged during the arm conflict in Libya since the beginning of 2011 uprising. Therefore, the "ICT infrastructure" and "National Information Infrastructure" are found to be important even in the chaotic environment. Communication is the spirit of this matter. While there is no ICT infrastructure, citizens have managed to utilise the intermittent and limited access to the internet mobile communication. It has played a big role in connecting citizens to the government services, where the local government information becomes accessible. The little need to run local services by utilising the available mobile networks is suffice 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.

Similarly the "Awareness" and "Attitudes towards technology" are highlighted in both circumstances. In addition, it has been agreed with the findings of Al-Mamari et al (2013) that the geographical nature of the country plays an influential role that can push the government forward to strongly adopt digital government initiatives during which can overcome the geographical difficulties. Therefore, the more the country with difficult geographical nature, the more the possibility of adopting digital services.

It is of great interest to study the matter further in relation to those factors with highest impact on implementing e-Services in chaotic situation. The initial finding of having low impact of Technical Staff, Security, International Support, Tribal Heritage, Good Information Quality and others listed is quite interesting and worth addressing in further details. It suggests conducting different framework of implementing e-Government compared to those countries enjoy stability.

It is also noted that utilising poor communication and IT infrastructure can suffice in providing e-Services. It is however, believed that Data Quality, Data Security, IT Infrastructure at Government level (location and across offices) are still of high importance to achieve successful e-Government implementation.

Other CSFs which turned up with low values are not less important rather are in the same level of importance or even more, but the circumstances has cast a shadow over the participants hence on the interviews context as a whole. The zero impact factors could be considered as the limitation of this study, meanwhile, it opens up the horizon for the possibility of further studies in this context.

## **7 Conclusion and Further Studies**

It can be concluded that the results are clearly show good agreement with most of factors addressed earlier by scholars even when they are considered on a chaotic environment case study. There are few factors like Technical Staff, Relative Advances and Good Information Quality, which were not confirmed due to reasons needed to be investigated further.

There is a good possibility of implementing e-Government services where limited access to internet is available such as using mobile connections. Factors can attract successful implementation of e-Government in chaotic environment may include: Government determination (Top Management), where National Information Infrastructure is needed, where harsh Geographical Nature of the place is present, Governmental ICT infrastructure and Trust. All these factors can play important role in constructing successful framework for similar cases and situation.

To certain extent, the e-government implementation are feasible in chaotic situation. It is believed this would minimise the impact of conflict and chaos on citizens and provide necessary services needed. It is also believed that priority and support by governments in power should be granted during such situations. Healthcare and emergency services are mandatory to be prioritised in order to provide the services on time. In addition the deliverables in relation to civil services, humanitarian aids and food provision services are vital also. Based on this understanding, it is believed that implementing such services can confidently relieve citizens from life threatening burdens and issues related to humanitarian aids.

Despite the current situation of Libya does not help to conduct the study onsite, it will be possible to use existing (limited) communication technology and social media to consider a larger sample of a population.

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