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E-Government as a Tool for Stability and Socio-Economic development in Post-Conflict Libya

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Abstract— Usually, great challenges lie ahead of any post-conflict government, especially in states that have historically been under dictatorship, like Libya. It has been six years since the violent regime change that took place in Libya in 2011, yet no signs of improvement is foreseen in public service delivery and constructive citizen participation in influencing national policy formation and evaluation. In fact, the situation of public services has been worsened due to the absence of political and executive power from a strong, united government. The resulting widespread of collective frustration and political uncertainty has become a catalyst for a more defective performance of multi-government machinery. Other historical factors have also contributed to this phenomenon, such as the distant, sparsely-populated regions in Libya, which are mostly deprived of basic telecommunicational infrastructure. Taking in consideration all the economic and socio-technical risks associated with an e-government, it can play a strategic role in bringing political stability and citizen satisfaction. This can be realised through ensuring government efficiency, accountability, transparency and better service to all citizens, including inhabitants of historically disadvantaged communities. This paper aims to highlight the role of an e-government as a tool for change in a post-conflict and geographically huge country such as Libya. This paper discusses part of the root causes of the conflict; this includes issues related to political and social instability, which is often fuelled by the ethnic and economic issues of less fortunate regions. This paper also highlights how these socio-economic problems can be tackled through the e-government approach.

Keywords— *E-technology, Information Systems, developing countries, cloud computing, Libya, E-government, post-conflict.*

I. INTRODUCTION

An e-government is a new managerial approach for reformation and modernization of a government. It aims to improve public service delivery to citizens through the use of Information and Communication Technology (ICT). This would contribute to improving government processes and managing government-citizen interaction in a very efficient way. It also facilitates increased transparency, accountability and constructive citizens participation in governance issues and politics. However, although the e-government approach has flourished in most developed countries, the potential for the implementation of an e-government in developing countries remains largely underutilized. This situation is influenced by many cultural, organizational, and technological factors. We

believe that the adoption of contextualized approaches would limit the risk of e-government failure in these countries.

In the case of huge developing countries, geographical challenges play a major role in the failure of national and local government departments to offer proper services, especially to remote communities. In post-conflict Libya, geographic constraints are one of the great challenges in bringing security and stability to the country. An e-government can aid in tackling this issue, because ICTs have the potential to overcome geographic hurdles in providing public service delivery across a traditional government's administrative boundaries.

The rest of the paper is organized as follows: first, an overview of the e-government approach is outlined. Second, the challenges of large post-conflict developing countries are highlighted. Third, the support an e-government will provide to huge countries with remote regions is discussed. This includes specific technologies that are expected to bypass geographical burdens. Forth, the current e-government situation in Libya is explained, showing current indicators related to the e-government readiness of Libya. Section 6 concludes the paper.

II. E-GOVERNMENT: AN OVERVIEW

An e-government is a new way of interaction between citizens and the government. It relies heavily on the use of ICT as a platform for public service delivery. By adopting this approach, governments upgrade themselves from a management-oriented mode to a service-oriented one [1], where citizen services bypass the boundaries of time and geography by providing public and commercial services to citizens anytime and anywhere. This seamless citizen-government interaction platform is facilitated through different electronic platforms of interaction between various government departments, between citizen and government departments, and also between private and public departments. As a result, direct contact with public or private service providers becomes very rare for citizens. Citizens can instead interact with the respective public or private departments through one of the following platforms:

- Internet,
- Mobile phones,
- e-Kiosks.

Although there are many e-government success stories in the world, studies related to e-government evaluations are very few [2]. But, introducing e-governance in developing countries is still a challenging project, as these countries still have a long way to go in terms of social and economic development before they achieve successful e-government initiatives [3]. This fact is reflected in Heeks' survey [4], which claimed that 85% of e-government projects in developing countries did not meet promised goals, of which 35% were total failures and 50% were partial failures.

III. CHALLENGES IN POST-CONFLICT COUNTRIES

Post-conflict regions are territories where there has recently been a severe, violent conflict which has fundamentally destabilized a society [5]. Historically, civil wars and violence have significantly damaged human, social and physical capital in war-torn countries [6]. In the case of Libya, post-conflict stabilization is still as much of a challenge [7]. And, after any violent conflict, there is usually a matrix of social, ideological, and technical factors that influence the status quo. Any approach selected to resolve the situation has to take into consideration these multidimensional factors. We think single threaded proposals such as forced military intervention [7] is simply short-termed as it doesn't tackle the root causes of the uprising that initiated the conflict. An e-government is a multidimensional approach to tackle the problems of either stable or post-conflict countries, and we strongly believe that the greater history of economic and social marginalization of citizens still influences post-conflict Libyan affairs. Post-conflict factions are mostly struggling to secure greater political and economic power, so that they avoid the historical marginalization they experienced in the era of the former regime. For this reason, it is not surprising that the control of oil-rich regions is at the core of Libyan conflict. These regions are historically less developed and lack even basic infrastructure despite the huge wealth generated out of it. This problem is witnessed by the current drastic disruption of oil production and its logistics along the areas involved in the conflict. In other words, we regard the lack of socio-economic development as the root cause of the continuing violent, political conflict.

IV. E-GOVERNMENT SUPPORT TO HUGE POST-CONFLICT COUNTRIES

Huge developing countries tend to face great challenges in public resources management, particularly in providing proper public service to all citizens. The lack of adequate national communication and transportation infrastructures contribute to the isolation of large groups of the population, especially in regions far from the capital city. This situation also limits the ability of the central government to regulate and monitor the performance of local authorities. Poor communication also makes the governments' ability to provide adequate public service delivery to all citizens extremely difficult. This limitation in public service delivery, especially in remote areas, forces rural citizens into communicating directly with central government departments, which are usually located in the capital city. This creates hardship for rural citizens, as the cost of securing personal communication with the central

government departments is tremendous, especially in less developed countries where public transportation is very limited. This situation sometimes forces citizens to migrate from rural areas to urban cities, which may also ignite social and political problems in less advantageous regions. In fact, in some countries with multiple ethnic groups, such situations have become a catalyst for separatist movements and ethnic conflicts.

Advances in ICT offer greater opportunities to improve public service delivery in remote rural areas; which can be in the form of developing new programs that seek to foster fresh forms of active citizenship and community engagement at local levels [8]. This engagement is expected to provide greater economic opportunities for rural citizens. E-government technologies such as municipal e-Portals and information clouds provide very economical IT infrastructures for public and business information management in localities. These technologies would enable local authorities to provide their citizens the e-services that are often hardly available in rural areas.

A. Enabler for public management restructuring and reforms

People igniting the uprising in 2011 were protesting against poverty, corruption and poor services, and now they are facing worse conditions than those they have protested against [9]. Six years since the collapse of the former regime, there has been an escalation and rapid spread of bribery, corruption and mismanagement. The root causes of these problems are numerous but the poor public resources management is a key deficiency. According to Almnfi and Yang, Libya is increasingly characterized by weak public sector institutions [10], which is why this issue is also targeted by the United Nations Support Mission in Libya (UNSMIL) established on September 2012, who was given the task of coordinating international support for Libya's public administration reform and E-Government. ICT, which is the backbone of an e-government, is expected to play a vital role in the public administration reform, and the reduction of widespread corrupt practices.

Though an e-government is regarded by many as merely a technical solution, but there is no doubt that it's a driving force that also includes managerial and societal variables for the change. Nonetheless, the ICT factor plays a pivotal role in realizing e-government goals. This role has been hailed by major international economic support agencies including the United Nations (UN), the World Bank, and the International Monetary Fund (IMF). They regard ICT as a tool for increasing efficiency, accountability, and transparency in countries receiving international support from these agencies. The rationale is that, these good governance indicators promote national economic development that brings peace and stability, especially to post-conflict countries.

B. Improving local governance and the consolidation of democracy

According to Fuchs [11], an e-government should not be limited to the delivery of e-services to the public. It should also be a catalyst to enhance good governance and to improve the outputs of the democratic process, especially in developing countries [12]. Unfortunately, in most developing countries, the e-government is reduced to the extent in which public service processes are conducted online [13]. But e-government facilities should also be used for promoting democracy in post-conflict societies although; establishing democracy in the aftermath of a civil war has proved to be a challenging proposition [14]. E-government support to democracy could be in the form of online campaigning, lobbying, activism, political news, or citizen discussion [15]. In addition, online voting (e-voting) has become a trend, though it is not yet widely used. It is considered as a new democracy enhancement tool that makes voting more convenient. It is expected to increase citizen participation in elections, especially in less developed countries. In regards to developing countries, cultural barriers and ethnic conflicts usually prevent the implementation of a successful democracy. Therefore, seamless citizen participation through electronic voting opens up opportunities for less advantaged people from ethnic and socially marginalized groups like women and the elderly to participate in democracy. Though it is less practiced internationally, there is a very remarkable third-world case represented by the local government elections of the Jembrana regency in the Bali province of Indonesia, which developed an e-voting system for its villages' chief elections [16]. It was reported that this e-voting system saved 60% of the elections budget compared to the paper-based system. And it was also reported that no protests or conflicts occurred during this case of e-voting elections. This kind of citizen engagement would contribute towards transforming citizens from passive observers to active nationals strongly participating in the governing process, whereby fraud and corruption could be reduced dramatically.

C. Better local services delivery through municipal e-portals

Though the Internet is regarded as the backbone of an e-government, online citizens represent the baseline of citizen-centered e-services. But unfortunately, those who are most in need of public services are often those who least likely use the Internet [17]. This is the usual case in most developing countries, where the Internet penetration rate is far below international standards. For this reason, in addition to being inefficient and ineffective, public administration in developing countries tends to be highly centered in urban areas and less available in most remote areas. Furthermore, in developing countries, particularly in Africa, public administration is perceived as inefficient and ineffective, to the extent that implementation of political will is next to impossible [13]. For this reason, we believe that the implementation of municipal e-portals as e-services delivery platforms should pave the way for local government bodies to set up municipal information management systems. Municipal services provided by e-portals usually range from water supplies, sewage collection and disposal, refuse removal, electricity supplies, municipal health services, municipal roads, storm water drainage maintenance, street lighting, public education, municipal park maintenance, recreational areas, and disaster recovery management [18]. In

countries where cultural and economic activities vary from one region to another, municipal e-portals can play a vital role in promoting distinctive economic activities in the respective municipalities. Municipal portals could also help the citizens' participation in addressing policies and services on a regional level in contrast to nation-wide e-portals that usually emphasize the citizens' debate on national issues.

D. Efficient secured IT management through municipal e-clouds

One very difficult challenge faced by remote and less urbanized regions is the lack of adequate ICT infrastructure and qualified technicians. This can be attributed to the lack of adequate funding and the scarcity of qualified IT professionals in the respective municipalities. The scarcity of ICT professionals is sometimes related to the migration of local professionals to urban areas. This regional brain drain of ICT professionals is a problem faced by both underdeveloped and developed countries [19]. However, the case is more severe in developing countries where less job opportunities and lower payments contribute to the emergence of this phenomenon. The introduction of cloud computing offers a viable solution to this problem. Cloud computing can help bridge this internal digital-divide by outsourcing systems and ICT. It also frees commercial and government departments from spending extra funds on the procurement of IT resources, including the usual running costs of personnel and maintenance fees. Meanwhile, cloud service agencies provide computation, software, data access, and storage services that do not require end-user knowledge of the physical location and configuration of the system that delivers the services [19]. This new computing paradigm gives new opportunities to less developed countries in general and to remote, less developed regions in particular. It also helps central agencies to regulate IT procurement and configuration in municipal government departments. This of course limits the chances of fraud and corruption in IT procurement, because in developing countries, municipal IT procurement and configuration is usually a practice left under the influence of managers and technicians [20].

Finally, in addition to its economic value, setting up municipal clouds provides a greater degree of safety and security to municipal systems and their ICT capabilities. According to Atkinson [21], municipal ineffectiveness is one major cause of mass protests. These protests are largely associated with violence and looting of government departments, including governmental computing resources. This was experienced in the Arab spring movement that witnessed massive looting and vandalism [22]. These acts could be avoided by adopting the option of cloud computing, where computing resources are set up safely either nationally or internationally.

V. THE CASE OF LIBYA

The violent regime changes that took place in Libya in 2011 cannot be isolated from the deterioration in the performance of the government institutions of the former regime. This situation had a negative impact on the lives of its

citizens, especially those living in far-distanced regions of the country. The deterioration of the national IT sector contributed to the lack of basic e-services with the exception of seasonal e-services, such as the publishing of national high school certification results and National ID number e-enquiries, in addition to the limited SMS-based e-services provided by a few commercial banks. Instead, most government services are received by the public via personal visits to the respective government departments. In the case of rural communities, citizens often fail to receive government service from local departments. Instead, they have to personally communicate with the very far central government departments positioned in the capital of the country. Bear in mind that the distance between the capital city and some other towns is beyond 1000 kilometers. As a result of the continuing poor government services and the lack of economic opportunities in remote regions, voices calling for re-adoption of the federal system of the government became louder, even though the federal system had been abolished in 1963. Apart from any political sensitivities of the federal cause, it is most likely driven by the absolute control of the central government, while remote citizens are left to interact with ineffective and less-authoritative government departments. We believe that this is not a good enough reason to re-adopt the federal system because ICT can eradicate many of the problems related to poor public service delivery, because in the global economy, geography is no longer an issue in terms of public service delivery. In fact, most services provided by the companies and enterprises of the developed world are received through call centers located in overseas countries such as India and the Philippines. In other words, citizens should only care about receiving the services anytime and anywhere, regardless of from where it is generated. It can be originated in a system of any central or municipal government department hosted locally or over an international cloud. However, despite such considerable opportunities offered by the e-government systems in general, the issue of e-government readiness in Libya is still a critical factor.

Historically, Libya was one of the first countries in the region that paid great attention to the national informatics issue. The first national information management plan was formed in the mid-seventies. It was formulated as the national information system (NATIS) which was drafted with the support of UNESCO [23]. However, the national information management plan did not achieve its desired goals, despite the plans, policies and huge budgets spent throughout the decades. This paper is not intended to investigate the causes of the deterioration of the Libyan informatics sector; it suffices to mention that many researchers have pointed out the fundamental reasons behind it, such as crippling policies, which were influenced by the security concerns of the former regime. Alqweidy [24] also referred to a major problem that had profound impact on the deterioration of the Libyan informatics sector, namely the frequent changes and restructuring of national information management agencies that took place through the 1980s and 1990s until the beginning of the second millennium. This frequent restructuring affected the efficiency and effectiveness of public policies in various fields, particularly the national information management sector.

In terms of the current Libya's e-government capabilities, the 2014-2015 Global Competitiveness Report [25] forms a suitable ground for assessment. Among many other competitiveness indicators, the report illustrates each country's ICT readiness, which is a key element in the transformation into an e-government platform. The ICT readiness index records the proportion of the contribution of ICT in the performance of various commercial and government businesses. The calculation of ICT readiness includes several statistics such as the percentage of Internet users in general, the percentage of broadband Internet subscriptions, and the percentage of mobile broadband users. According to the 2014-2015 Global Competitiveness Report, out of 144 countries included in the classification, Libya occupies the 140th position in terms of availability of latest technologies. It is also ranked 108th and 106th in terms of the percentage of citizens using the Internet and fixed broadband Internet subscriptions respectively. In terms of connectivity, Internet access in Libya began in late 1998 [26], but until 2005, Libya had no official web presence and it only became online in 2008 [27]. In terms of specific indicators, while the percentage of the Internet penetration ratio did not exceed 16.5%, the percentage of mobile phone users rose from 8.8% in 2004 to 150% in 2012 [28], making the readiness of mobile services in much better shape than the readiness of e-services provided via the Internet. For this reason, mobile services constitute as a strategic choice for the Libyan government. A number of high impact mobile services can be incorporated into Libyan e-government start-ups. Mobile e-services, such as e-payment of bills, fines, and taxes can be quick wins. These services would also help to improve business environments and would additionally help to restore the still-shaken citizens' confidence in public service delivery.

VI. SUMMARY AND CONCLUSION

In the midst of the regime changes occurring in Libya in 2011 and the post-conflict turmoil proceeding, an e-government represents a strategic enabler for much needed political and economic reforms. However, given the huge geographical area of Libya and the wide spread of its population in less developed regions, it is likely that proper implementation of e-governance would greatly aid in achieving record levels in the growth and stability of the post-conflict country. This paper explores the role of an e-government in tackling the problems faced by post-conflict states, especially in countries where digital divide between rural and urban regions is very high. It also highlights how an e-government can be employed as a catalyst for improving the democratization process in these countries, where cultural aspects often render the democratization process totally counterproductive. This vision, however, can only be realized through the work of relevant authorities to restructure governance in the information sector, in conjunction with radically improving infrastructures for communications and information technologies.

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