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Recommend Stages Model to Implement e-Government Application Strategies

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Abstract: This study aims to build e-Government strategy in terms of concepts, benefits, activities, the characteristics of e-Government and how to implement this strategy in developing countries (The Republic of Sudan as study case). In the context of the use of conventional computing in all the Sudanese government organizations, we find that these organizations are using computer systems according to the requirements of its digital and data available on their systems but it is difficult for different groups of users and workers in these organizations access to electronic documents the way you achieve the maximum benefit of these systems. At present, all government organizations facing an increase in operating costs with the increase in the rate of inflation in the economy, increased government spending which compels us to find ways and means which lead to reduced spending and to maximize the interest through the application of e-Government strategies.

Key words: e-Governance, e-Government application, e-Government strategy, G2G, G2B, G2C, G2E

INTRODUCTION

Sudan is a country which has a population of 37.96 million (Anonymous, 2017) which consists of 18 provinces, 133 regencies. With diversity and levels of human resources and infrastructure resources that have in each area. The idea of e-Government in Sudan started in 1992. Through, the electronic network, visualization that was introduced through an initial study presented at the National Information Network Conference in July 1992 was published in the Journal of Strategic Studies. But in the process of implementation is not a little problem faced by the government, both at central and regional levels, it caused a lack of competent human resources to implement e-Government activities until the obstacles in the field of infrastructure which resulted in the failure of most of the implementation of e-Government in Sudan. We have started the majority of the countries of the world in the development of its policies, commensurate with the requirements of the age to perform its functions with the highest efficiency, especially in the government sector which has always been characterized by bureaucracy.

With the age of information, revolution has become imperative for states to the restructuring of public enterprises, commensurate with the requirements of the digital revolution to integrate in the world economy and to move toward e-Government in order to change traditional methods to methods of using modern techniques to provide government service as soon as possible and lowest cost.

Information and Communication Technology (ICT) is the current era feature and playing a vital role for the advancement of our global society for getting timely information and making communication faster. e-Governance has been established as a revolution not only in developed countries but also in developing nations.

e-Government: e-Governance is no longer an option but it is a reality and a necessary of governance. e-Government can transform citizen service, provide access to information to empower citizens, enable their participation in government and enhance citizen economic and social opportunities, so that, they can make better lives for themselves and for the next generation. According to the World Bank Website, e-Governance provides an automation of all government functionalities and enhances organizational efficiency and citizen participation (Marawar *et al*., 2010). The use of ICT in order to improve efficiency and effectiveness, transparency and comparability of financial and information exchanges within the government, between the government and its subordinate organizations, between government and citizens and between government and the private sector is called "e-Government" (Safari *et al*., 2003). e-Government is the use of Information and Communication Technologies (ICTs) to improve the activities of public sector organizations. e-Government (short for electronic government, also known as e-Government, internet government, digital government, online government or

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Table 1: The world and regional e-Government leaders

World e-Government leaders	----------Regional e-Government leaders----------	
Republic of Korea	Africa	Tunisia Mauritius
Australia	Americas	USA Canada
Singapore	Asia	Republic of Korea Singapore
France	Europe	France Netherlands
Netherlands	Oceania	Australia New Zealand

connected government) consists of the digital interactions between a Citizen and their Government (C2G), between Governments and Government agencies (G2G), between Government and Citizens (G2C), between Government and Employees (G2E) and between Government and Businesses/commerce (G2B) (Hai and Ibrahim, 2007). Observed in the United Nations e-Government Survey 2014 high-income countries enjoy top rankings in the evolution of e-Government index as shown in Table 1 Sudan ranked 154 in the e-Government development index. There are seven main indicators used to rank the e-Government development of countries in the world. These indicators are network preparedness, required interface functioning applications, management optimization, national portal, CIO in Government, e-Government Promotion and e-Participation (Digital Inclusion) (Vats *et al*., 2013).

MATERIALS AND METHODS

Delivery models and activities of e-Government: e-Government provides a means for improving the work of the government, makes the exchange of information with citizens conducted in a manner easily. e-Government is divided into four types which is shown in Fig. 1.

Government-to-Government (G2G): Is the electronic exchange of data/information systems between government agencies, departments or institutions, the goals of G2G is to support e-gove initiatives through better communication, data access and data exchange. Enable governments and associated organizations operate more easily and serve the citizens better.

Government to Citizens (G2C): It is focused on the interactions between government and citizens to support transactions such as payment processing, access to driving licenses. The goals of G2C is to provide online access to information and services to citizens quickly and easily.

Government to Business (G2B): It is focused on the interactions between the government and various organizations, including corporate and non-profit organizations to support transactions such as contract

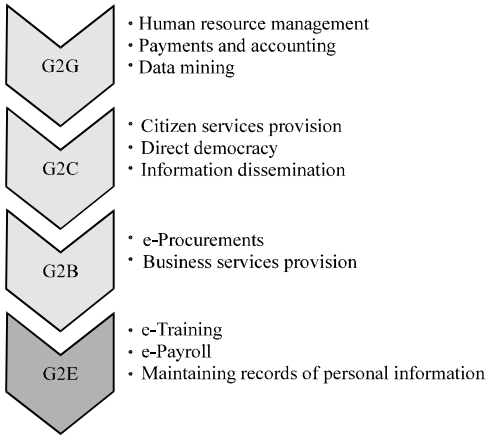

Fig. 1: delivery models and activities of e-Government

bids and grants. G2B provides benefits in reducing costs and increasing efficiency in the procurement process and sell surplus stuff.

The goals of G2B is to reduce the burdens on business, providing access to information and enable digital communications using e-Commerce language.

Government-to-employees: It is focused on the interactions between the government and government officials to support transactions such as salaries, training and access to information. The goals G2E's is to be able to improve the effectiveness and efficiency and improving employee satisfaction and retention. In addition, achieve internal efficiency and effectiveness and the adoption of best practices in government operations in different areas.

RESULTS AND DISCUSSION

Planning the e-Government strategies to organizations: e-Government strategies that allows government organizations integration of public services which enable them to benefit from the following factors:

- Ensure participation in the international information network, so as to save the state of marginalization from the process of globalization
- Transparency and participation; Make better use of e-Government tools as a means to increase citizen's awareness and create transparency in dealings with the support of citizens and public official's activities
- Seamless integration of data: Meet the needs of business cases through the use of information technology, interdependence and integration of information to create a benefit to the citizens and the government

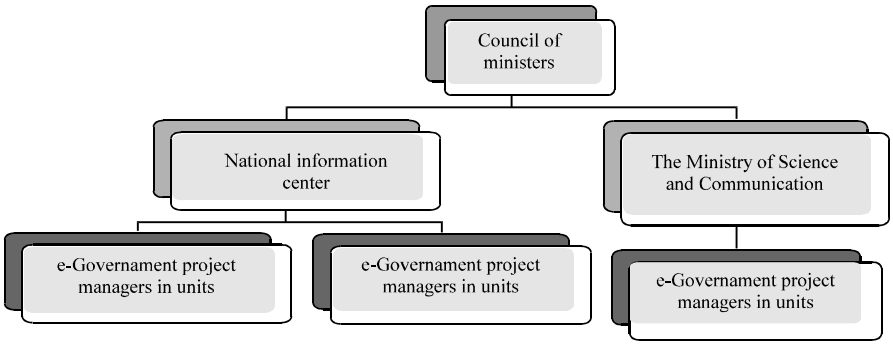

Fig. 2: The organizational structure planning to manage the phases of e-Government

- Enabling citizen choice and improving public services: Facilitate the choice of citizen service, offers a new incentive to improve public services mechanism
- Clear and simple rules for public servants
- Inclusive access to information
- Authoritative sources
- Interoperability and data portability

Thinking, planning and working to implement e-Government requires government organizations to overcome the environmental challenges involved, privacy issues and legislation, the face of the risks, not the target performance, interoperability, network capacity, architectural, human resources available. The architecture also includes overcoming the constraints, especially those related to political issues, regulatory and new services. The architectural application and the strategies vary depending on the target activities of the organizations.

Stages model to implement e-Government application strategies: In this part of the study, we will show strategies for building e-Government organizers as it contributes to the application of these strategies and make use of applications and technologies and other experiences to building a strong e-Government of the Republic of Sudan.

Regulatory requirements: Governmental institutions need a clear regulation about the shift to the concept of e-Government, the existence of a clear regulatory structure is the most important success factors. Figure 2 illustrates the proposed organizational structure to manage the transition to electronic government.

The first phase to oversee the entire process and vision, the second phase to decision-making and problem-solving and the third phase to project management and implementation of projects.

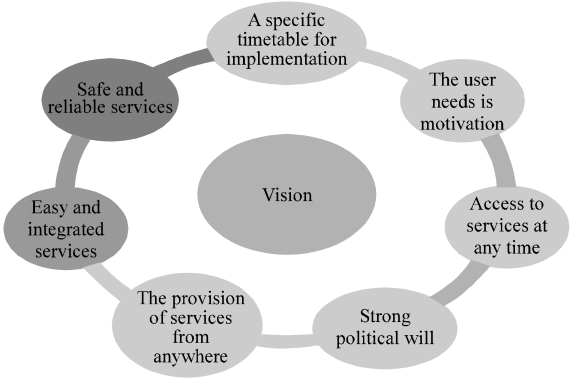

Fig. 3: Vision of the e-Government implementation

Vision: Figure 3 explains the vision of the e-Government implementation project. The model must include the following services and applications.

Collaborative applications: Collaborative applications such as e-Mail, chat, e-Conferences and participation in the data files. These applications and aims to achieve a low-cost exchange of information operations

Web services: Owning a web server is one of the most important priorities because it leads to improving the speed of access to information as well as facilitate the process of sharing data and to ensure continuity of service.

Technical support: Develop a plan to protect resources in the face of natural disasters and information technology incidents.

Business applications: Is any program or set of programs that are used by business users to do various work tasks. These applications are used to increase productivity to measure the productivity and performance of business functions accurately.

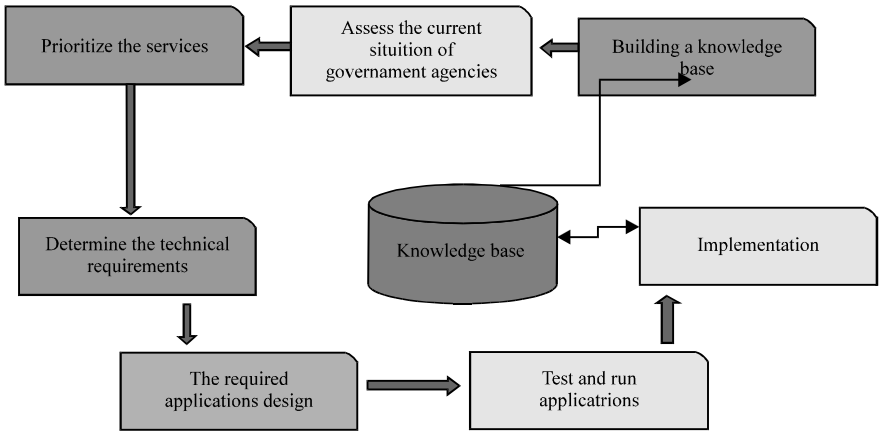

Fig. 4: Stages of building e-Government model

Personal productivity applications: It is dedicated to the production of information software such as documents, presentations, worksheets, databases, charts and graphs, digital paintings, digital video.

Preliminary model for the implementation of e-Government: The shift to electronic government needs a specific strategy and that these strategies be part of the organization's information technology. Organizations must provide the necessary infrastructure for the implementation of the plan without any service-oriented architecture. The transitions of business management to e-Government does not make sense from a financial point of view because it leads to high costs without achieving the goals set. To ensure the success of the transition to e-Government, the strategy must be consistent with the goals.

Through the theoretical framework, the research associated with the shift towards e-Government, institutions and experience in the use of information technology, we can propose the following introductory form as shown in Fig. 4. There are seven phases we can be explained as follows.

The development of the knowledge base on e-Government: The first step in this phase involve the development of knowledge base about the e-Government such as studies, conferences, seminars, research issue from universities, research centers, the experiences of other countries as well as discussions, news in this area. The success of this phase depends on the allocation of adequate resources to research, understand how to use e-Government in achieving the goals of the state to recognize the benefits, risks, limitations and policies.

Table 2: service prioritization factors

Readiness	Influences	Environmental factors
The desire to shift to e-Government	Number of users	Telecommunications and Internet sector
IT infrastructure information	Repeated use	Experiences of other countries
Legal restrictions	Economic value	
Technical complexities		
Readiness for change		

Assess the current situation of government agencies: This stage includes the understanding of the information technology infrastructure in government institution, the use of service-oriented architecture as a basis for understanding the data, services, processes and applications.

Service prioritization is according to a set of criteria are: Readiness-influences-environmental factors, that's shown in Table 2.

Determine the technical requirements: The process of identifying the technical requirements is the step depends mainly on determining the priorities of the service when you figure out services can determine the technical requirements for the implementation of the service which is the responsibility of the technical team.

The required applications design: Implement this stage in three steps are documenting current processes analysis design (Table 3).

Test and run applications required: The first step of this stage to identify the goals of development, application test environment, storing data out, the next step includes daily internal processing operations, at the same time confirm the security policies and protection while maintaining low costs of test operations.

Table 3: The required applications design

Documenting current processes	Analysis	Design
The study of the current system by	**Analysis of the performance criteria**	
Questionnaires, interviews, performance monitoring	Time, number of employees, number of usage times	
Documenting procedures	Measurement and performance evaluation	
Legal environment	Determine how to improve performance	

Table 4: Implementation process

Change management plan	The application of new services operations
The positive model	
Tools for promoting change	
Provide possibilities	Reports

Implementation: By using new services application and change management planning that's show in Table 4.

CONCLUSION

The preliminary proposed model offers many benefits to government organizations. This research provides an initial attempt to clarify that e-Government can be used in the least developed countries such as The Republic of Sudan which is bring many benefits including access to services quickly, reduce operating costs, provide databases contribute to the building of strategies planning and reliable information.

The main objective of the model recommend is how to manage organizations information technology resources requirements effectively and efficiently. Particularly how to use of modern information technology is better than the traditional information currently used technology in government institutions.

The eventually we have designed a strategy to building e-Government project management using the organizational structure planning to manage the transition phases of e-Government then the entire process and vision to decision-making and problem-solving including the project management and implementation of projects solutions.

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