

# MPRA

Munich Personal RePEc Archive

## **Electronic governance: An overview of opportunities and challenges**

Dhaoui, Iyad

January 2019

Online at <https://mpra.ub.uni-muenchen.de/92545/>  
MPRA Paper No. 92545, posted 06 Mar 2019 11:12 UTC

# Electronic governance: An overview of opportunities and challenges

[iyad.dhaoui@gmail.com](mailto:iyad.dhaoui@gmail.com)

## Abstract

Technology is changing our world at an astonishing pace. One of the features of technological development is its great contribution to enhance e-governance. E-governance is introduced as a mean to reduce costs, improve services for citizens and increase effectiveness and efficiency of the public sector. The purpose of this paper is to examine the potential opportunities of e-governance as well as the challenges encountered it. This paper tries to give a general overview of these issues.

**Keywords:** e-governance; ICTs; public services.

## Introduction

Nowadays, Information and communication technologies (ICTs) are evolving rapidly and digital information is expanding. Indeed, public sectors are issued in digital format; hard copies and papers are outdated and even persona contacts occur with lower frequency. ICTs have become part of countries' development through a rapid and evolving market for the Internet and e-business. ICTs have tremendous potential to enhance the lives of people in general and, particularly, those in developing countries. ICTs have great impact on the direction of information. The information access and flow moved from a vertical, centralized and closed model to a horizontal, decentralized and open network. Fast-growing ICTs market forces to look at E-governance. The evolution of ICTs has dramatically changed how citizens interact with their governments, creating an important development in their expectations (Dodd, 2000). However, in some countries and regions central and local management work still relies primarily on traditional communications forms. In this context, e-governance comes with new opportunities, but at the same time it entails many challenges (Alsheri and Drew, 2010).

The aim of this paper is shed light on e-governance opportunities and challenge. The paper is organized as fellow. Next section presents the key concepts. Section 3 outlines the growing of the ICTs market. Section 4 analyses the key opportunities that result from e-governance. Section 5 deals with the challenges while section 6 concludes.

## **1. ICTs and the widespread of digitalization**

Communication technologies have evolved as societies continue to transform. We moved from telegraph to telephone, from letters to emails. The Internet has become parts of our daily life. We use Skype, forums, blogs, e-commerce, Google Earth.

Globalization and the increasing interdependence and connection among States raise the need for using more Internets to increase information sharing, boost management and policy. Indeed, rapid ICTs development took place without prior notice. Forms of communication such as smart phones, laptops, tablets, etc. are used actually by all sectors of societies. In some countries, information is everywhere in public organizations. Indeed, information resources are embedded in all public functions. This means that every public manager is an information manager.

## **2. Conceptualizing e-government and e-governance**

The concept of e-governance started to appear in the early 1990 among American scholars. The prevailing ideas were “e-government”, “electronic government”, and “people online instead of in line”. In that time, there were emergence of Internet and developments in processing capacity and data storage. This fact has significantly altered the environment for ICT use across society and in government.

[Gordon \(2002\)](#) defines e-government as the use of ICT to improve the process of government. In a narrow sense it is sometimes defined as citizen’s services, re-engineering with technology, or procurement over Internet ([Signore et al.,2005](#)).

According to [Sprenić et al. \(2009\)](#), e-government denotes the use of information technologies and the Internet for better delivery government services to citizens. It denotes also a more efficient management and improvement of interactions between government and citizens. [Marthandan and Tang \(2010\)](#) expanded the concept by concentrate on the features of interactions between economic, political and social actors. Indeed e-government allows businesses to transact with each other more efficiently (B2B) and brings customers closer to businesses (B2C). Also, e-government enable links between government and citizens (G2C), government and businesses enterprises (G2B) and interagency relationships (G2G). [UNESCO \(2005\)](#) defines e-governance as the performance of governance via the electronic medium in order to facilitate an efficient, speedy and transparent process of disseminating

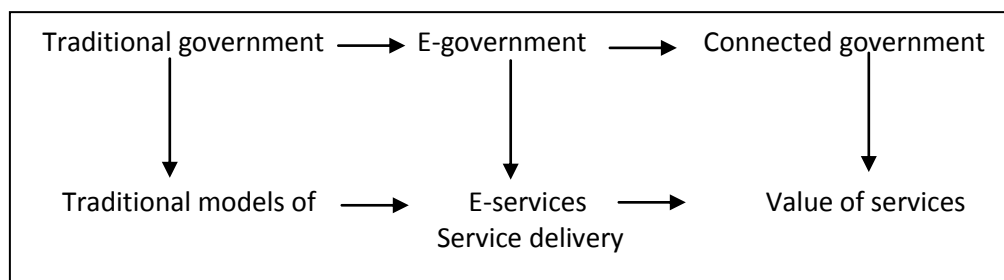
information to the public, and other agencies, and for performing government administration activities.

E-governance is a concept larger than the concept of e-government since it can bring about a change in the way how citizens relate to government and to each other (Signore *et al.*, 2005). Indeed, e-governance embodies new concepts of citizenship, both in terms of citizen needs and responsibilities. Its objective is to engage, enable and empower the citizen.

E-governance offers five interconnected objectives as follows:

- High quality & cost-effective government operations
- Enhance public services
- Citizen engagement
- Updated information policy framework
- Administrative and institutional reforms

**Figure 1: the evolution continuum of government service delivery:**



The requirement for implementing successful e-governance across the nation is:

- E-governance framework
- Connectivity framework
- Citizen database
- Interoperability standards
- A secure delivery framework

### **3. e-governance: the opportunities**

ICTs have many features such as improvement public services, access to information, policy development framework, and citizen's engagement. Communication between government and citizens (G2C) and among citizens themselves (C2C) has shifted. The influence of world and the increasing demand from society has pushed some countries to establish technology initiatives and to develop policy framework to tackle and to cope with access to information

and digital divides. Nowadays, it is well recognized that engagement in virtual electronic worlds is a must. The question is how and to what extent governments are able to use the ICTs to take advantage of e-governance. The new era entails multiples opportunities such as:

- Improvement of public services
- Access to information
- Citizen's engagement in governance
- Policy development

#### *Improvement of public services*

E-governance value for individuals is described usually through the saving citizen's time and avoiding complicated situations when dealing with public administration and acquiring different services for daily work life. Overall, e-governance reduce administrative burden and save time for citizens, which enhance the quality public service delivery. This process is directly linked to communication infrastructure, telecommunications systems, and broadcaster connections. ICTs have the potential to ensure that cities benefit from e-governance and the question emerged from this fact is what capabilities must governments have to fully embrace "big data" as a tool for governance.

#### *Access to information*

Nowadays, increase transparency and openness concepts have become key issues in e-governance. In this context, communication networks facilitate individuals, groups, organizations, etc. to interact among them.

Government agencies use ICTs to disclose information, provide public services and interact with citizens. In this context, agencies and institutions should disseminate information in a timely, equitable, efficient and appropriate manner. Overall, we can say that ICTs offer citizens and government a new way to create transparency, to promote accountability and to empower citizens.

#### *Citizen's engagement on governance*

E-governance brings the opportunity of creating a two-way interaction among multiple stakeholders. Indeed, ICTs and networks facilitate interactions among individual citizens, business groups, and governmental institutions. Individuals and organizations interacting

directly or indirectly with the government are known as the payers of e-government (Kolochalam, 2002). These interactions can be named as:

- B2B: transaction between businesses with each other
- B2C: communication between businesses and customers
- G2B: interaction between government and businesses
- G2G: interagency relationships
- G2C: communication between government and citizens
- C2C: communication among citizens themselves
- G2E: Government-to-Employee

E-government promises to make government more efficient, responsive, transparent and legitimate. Empirical studies have shown that certain gains are generated by the deployment of e-government systems (Kettani and Moulin, 2014).

It is clear that e-government influences the value chain of government organization by first, reducing the amount of input resources required such as more limited workforce and less physical effort. Second, it reduces service elapsed time. Third, it improves outcomes such as improve service delivery quality.

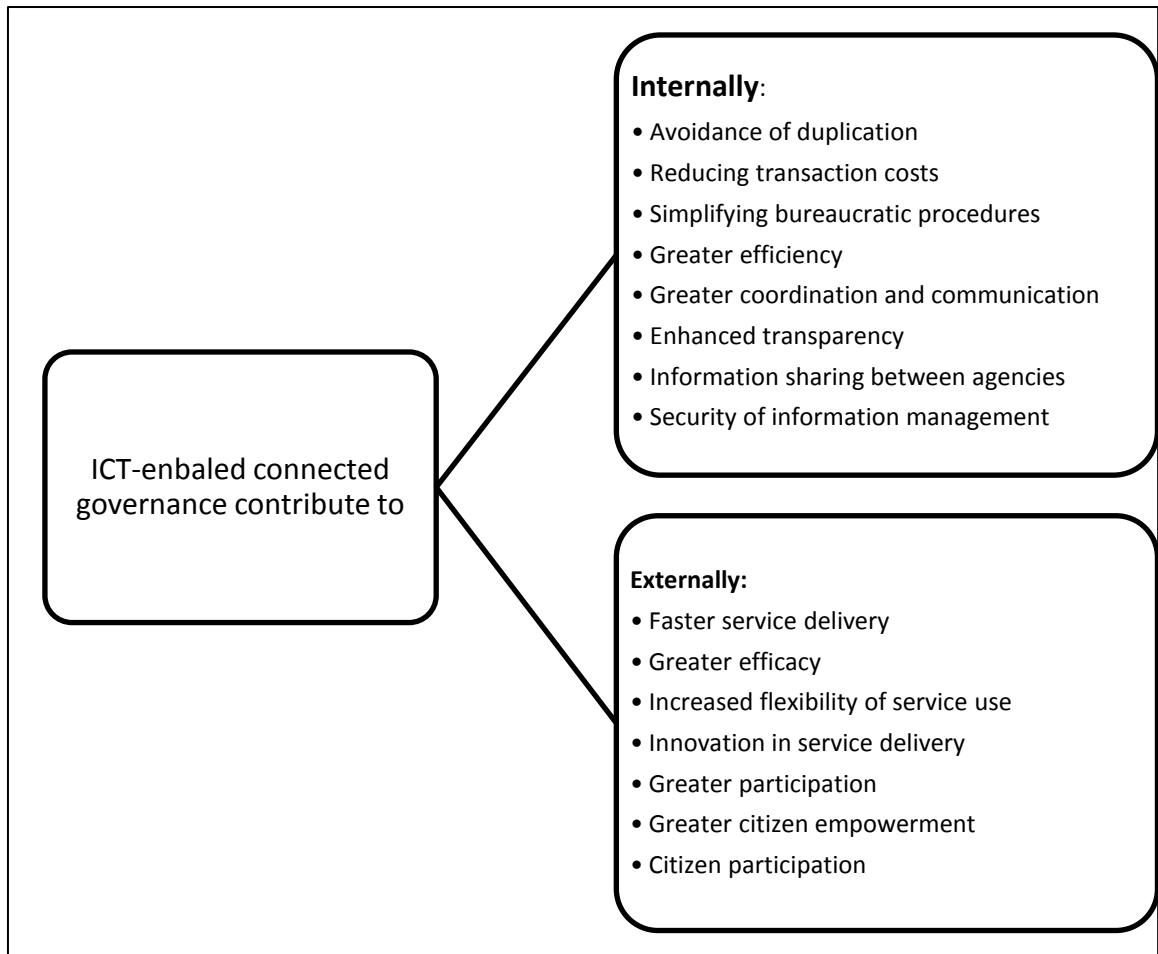
#### *Policy development*

Giving the new transformations, technology management and information access have to be enforced. Indeed, information policy framework should specify the rules and conditions under which information is gathered, used, protected, and shared by government, individuals and private sectors.

We can summarize the key benefits of e-government as below:

- Cost reduction and efficiency gains
- Better quality services delivery to both businesses and customers
- Transparency, anticorruption and more accountability
- Increase the capacity of government to respond to various needs
- Network creation and community establishment
- Improve the quality of decision making
- More participation and engagement
- Promote use of ICT in other sectors in the society

**Figure 2: ICTs' advantages for governance**



#### **4. Some challenges**

E-governance is a big opportunity to bring services to citizens, but must also consider some challenging issues. These issues are related to the stages of e-government development. E-government does not operate alone. Indeed, the context in which e-government is taking place and the ability of governments to respond to these external pressures are crucial for the access of e-government. The main challenges concern three elements such as data, societal and political.

Indeed, engagement in ICTs and e-government framework is an obligation. Nevertheless, dealing with such initiative is a huge and complex task for national and local institutions and agencies. The question is how countries deal with challenges coming-up from e-governance.

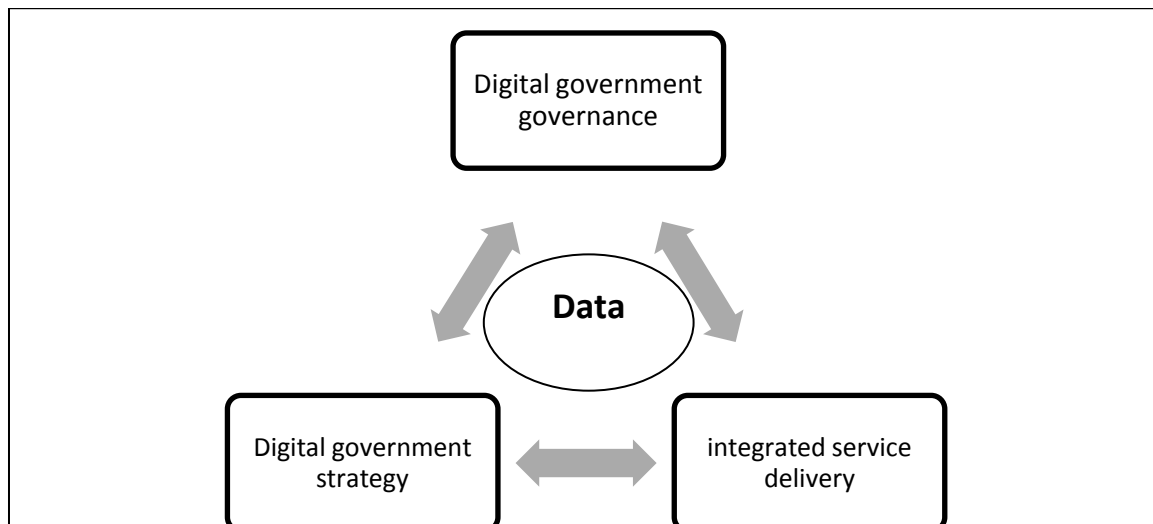
The new era brings some challenges such as:

- Complexity
- Vulnerability and security issues

### *Data challenges*

E-governance and e-business store and manage increased amount of open and big data. Indeed, new and collaborative digitized products appear on the market every day. In this context some concerns raise such as who keeps the data, for what purpose, how data is reinvented as technologies become obsolete, and where does agency responsibility end in ensuring data. Actually, the most used servers and domains are registered under American corporations. Thus, the harmonization of governments, private sectors and NGO policies is an obligation. Citizens are unlikely to use e-government service without a guarantee of privacy and security. Thus, government has a responsibility to provide leadership in developing a culture of privacy protection and security.

**Figure 3: Creating a virtuous cycle around data**



### *Social challenges*

One of the most social challenges is the protection of information. The protection refers to defend information resources and infrastructure from various threats such as fraud, errors, hackers, cyber attacks. This leads societies to brood about privacy and identity. Here privacy is comprehended as a component of trusted interactions in digital communication, commerce, financial issues, etc. Personal identity and the ability to protect it are matters relating to the design and delivery of personalized services and requirement for electronic commerce. Personal information involves surveillance and trust access to systems, services and information. Nowadays, many citizens across the globe are very concerned about providing private and identification information such as ID numbers.



Another social change is the citizen's access to information and transparency. Access to information indicates statement of government documents, performance of programmes and services, as well as the ability of citizens to provide input to policy makers. Access to information also requires transparency and accountability of actions from governmental from governmental institutions, business sectors, and even individual citizens. In this sense, equity is an imperative for a successful use of ICTs. Government agencies and institutions have to consider disparities of access. In addition, the needs of diverse populations in terms of public service delivery through ICTs must be met. In this context, some awareness campaigns must be done to explain to citizens how to obtain information and how to access certain public services.

Also, lack of citizen's engagement is key challenges facing e-governance. Most of the people are unaware of the benefits of e-governance services. Indeed, the lack of public awareness and engagement in public service framework leads to a low participation in decision-making process. Unawareness is one of the biggest hurdles in successful implementation of e-governance projects (Sharma *et al.*, 2016). Social media reveals the so-called 'show effect' challenge. This concern refers to users' maturity to choose and select the information analytically and to use it appropriately. Also, the *digital divide* is a key barrier for e-government in that people who do not have access to the Internet will be unable to benefit from online service (Lau, 2003)

### *Political challenges*

It is recognized that the success of e-government initiatives and processes are highly dependent on government's role in ensuring an adequate legal framework for their operation. Some political challenges may limit this process. The several political challenges can be legislative, institutional and administrative. Indeed, the lack of adequate and effective regulation is a major concern. Institutional barriers are reflected in highly bureaucratic systems.

Other challenges can include the cost of implementing and developing e-governance. Installation and maintenance costs of hardware and network are very high. These costs must be low enough so as to guarantee a good cost/benefit ratio.

In addition, the factors that can affect the willingness of businesses and citizens to use electronic services are:

- The technological tools available
- The level of access that citizens and business will have
- Their overall trust in electronic channels
- Their expectations on the of the type of services

Thus, any failure to respond to an ever issue and expectations can result in barriers to e-government implementation ([Lau, 2003](#)).

### *Challenges facing public digital transformation*

Nowadays, public digital transformation has a considerable potential for modernizing public administration, improving public service delivery and promoting good governance. It may contribute to the fulfillment of the 2030 Sustainable Development Goals (SDGs) set by the United Nations. In that regard, e-government initiatives remain an important driving force for realizing this transition. However, moving forward with digital public framework still faces many challenges despite the great achievements accomplished to date. The new challenges remain heavily depend on the development stage of each organization and each country.

The major challenge is the emerged constraints of the general context in which public digital framework operates such as changing economic and social dynamics, characteristics of public sector, funding and skills insufficiency, etc. In some countries, the basic telecommunication infrastructure is still not adequate to respond to such transformation. In most of cases, it might take a long time and huge funding to improve. Similarly, access to Information and Communication Technologies (ICT) is highly limited in remote areas, and relatively poor infrastructure such electricity makes this worse. Below a list of the emerging technologies:

- Big data & analytics
- Machine Learning & Artificial Intelligence
- Internet of Things
- Social & Media Technology
- Blockchain and Distributed Ledgers
- Smart Platforms or Everything-as-a-Service
- Open, Virtual and Cloud Based Architecture
- Robots and Automated Cars
- Cyber & Risk Security
- 5G
- Drones

- Location-Based Data
- Wearables
- Distributed manufacturing
- Virtual & Augmented Reality

The shadow economy is another main concern, given the fact that the increase of the informal sector size may raise the likelihood of adopting ineffective digital transformation policies. Also, legislative and legal constraints and administrative procedures will likely make it difficult to secure full values; with potentially generating serious adverse effects on the implementation and promotion of the digitalization.

The complexity of the public sector is another raising major challenge, as digitalization underpins almost every aspect of our daily lives result in a high commitment that access and use of digital technologies should be available for all and leaves no one left behind. Moreover, dealing with insufficient technical skills makes emerging digital transformation more challenging and require special measures to improve. Because it is highly complex, escorting with lots of priorities and has the challenging and context-specific characteristics, the question of digital transformation of public services is broader than the issue of implementation or execution. It is not an easy and quick process and it requires accurate management for a successful digital transition.

Despite the benefits of emerging technologies (Blockchain, Robotics, Internet of Things, Artificial Intelligence, Big Data, etc.), there have been a number of risks impeding the realization of the full advantages of such technologies. First, these technologies may lead to privacy violations and introduce a host of online threats. Indeed, the exploitation of such technologies can be used to malicious ends and may raise, inter alia, cyber vulnerabilities and ethnic and political polarization. Second, they hold the potential to generate loss of employment and more inequality and disparity within and between countries. Thus, a pronounced challenge is how realizing benefits of the investment in these technologies to cope with public digital transformation while minimizing the associated risks, and how establishing new ethical dilemmas.

The public digital transformation also faces the challenge to allow the provision of measures and mechanisms to ensure productivity, efficiency and effectiveness. The increasing expectations and higher demands from citizens about the range and quality of public service

delivery are among other factors pushing government to increase transparency and accountability of institutions and reduce the costs of their internal operations to achieve local commitment to the transformation projects. Public digital transformation faces complex challenges from economic issues, social and political matters, to technology innovation and its diffusion patterns. Overcoming these challenges will require special awareness, commitment and particular focus on ambitious and action-oriented strategies that contribute to enhancing sustainable development and more inclusive societies.

## **Conclusion**

Digitalization has underpinned every aspect of our daily life. In this context, ICTs have enabled countries to develop e-governance initiatives. While there are opportunities available in implementing e-governance and in public service transformation, there are also many concerns. The new era entails multiple opportunities and also brings some challenges. Thus, ICTs should encompass certain principles and foundations regarding big data, information storage and management, dissemination/disclosure, etc.

The use of Internet will continue to improve free access to information in the long term. Countries must take responsibility concerning e-governance. Countries should scan open society trends and see how data is being combined and used. An agenda that squeezes innovation with social protection is required. All the stakeholders (state, society, private sector) should cooperate together to synchronize principles, practices and policies.

E-government should be value-driven and not technology-driven. Benefits from e-government do not take place simply by digitizing and placing it online. Instead, the aim is to provide better services to citizens.

## **References**

1. Alsheri M. Drew S. (2010). E-government fundamentals. Proceedings of the IADIS International Conference ICT, Society and Human Beings 2010.
2. Dodd, J. (2000). Delivering on the E-government Promise. A Government Technology Industry Profile: NIC. from <http://bilisimsurasi.org.tr/cg/egitim/kutuphane/NIC.qxd.pdf>. Accessed on 13/ 8/ 2009
3. Gordon F.T. (2002). E-government-introduction. ERCIM News n.48.

4. Kettani D., Moulin B. (2014). E-government for good governance in developing countries: Empirical evidence from the eFcz Project. International Development Research Centre.
5. Kolachalam S. (2002). An overview of E-government. International symposium on e-governance management and technology development in the information and Internet age. The convergent paths of public and private organizations. University of Bologna, November 2002.
6. Lau .E. (2003). Challenges for e-government development. 5<sup>th</sup> Global Forum on Reinventing Government. Mexico City, 2003.
7. Marthandan, G. and Tang, C. M. (2010). —Information technology evaluation: Issues and challenges. *Journal of Systems and Information Technology*, 12(1), pp. 37-55.
8. Noguera M.A.P. (2014). Opportunities and challenges of e-governance: A reality or science fiction for the Chinese Government. Working paper.
9. Sharma K.S., Rathore V.S. Jawarial K.L. (2016). E-overnnace in India: trends, prospects, changes and solutions. *International Journal of Engineering, Management & Sciences (IJEMS) ISSN-2348 –3733*, Volume 3, Issue 4,
10. Signore O., Chesi F. Palloti M. (2005). E-government: challenges and opportunities. CMG itay-XIX Annual Conference.
11. Spremić, M., Šimurina, J., Jaković, B., and Ivanov, M. (2009) —E-Government in Transition Economies. *World Academy of Science, Engineering and Technology*, Vol. 53. University of Zagreb, Croatia.
12. UNESCO. (2005). E-government toolkit for developing countries. Report

## Appendix: Four major principle of good governance

<b>Government Capacity</b>	<b>Accountable Government</b>
<p><b>Enables</b></p> <ul style="list-style-type: none"> <li>○ Data protection/privacy</li> <li>○ Process</li> <li>○ Regulation</li> <li>○ Infrastructure</li> <li>○ Finance</li> </ul> <p><b>Composite Measurement</b></p> <ul style="list-style-type: none"> <li>○ Data</li> <li>○ E Enables (eDelivery/eSignature)</li> <li>○ ICT Governance</li> <li>○ ICT Security</li> <li>○ ICT equality</li> <li>○ ICT integration</li> </ul> <p><b>Interoperability</b></p> <p><b>Has the government identify specific Enablers</b></p> <ul style="list-style-type: none"> <li>○ High quality data</li> <li>○ Interoperability</li> <li>○ Strong digital identity</li> <li>○ Access</li> <li>○ Supportive Regulation</li> </ul> <p><b>Inclusion</b></p> <ul style="list-style-type: none"> <li>○ Multi-channel</li> <li>○ Look at diversities</li> <li>○ Vulnerable groups</li> <li>○ E-participation</li> <li>○ Accessibility</li> <li>○ Affordability of implementation</li> </ul>	<ul style="list-style-type: none"> <li>○ Open budget</li> <li>○ Ethics and open financial reporting of public efficiency</li> <li>○ Solicit feedback on government services</li> <li>○ Follow citizen's satisfaction</li> <li>○ Share e-progress report</li> <li>○ Government responds to complaints</li> <li>○ Published evidence for decisions</li> <li>○ Enables citizens to track &amp; trace processes &amp; decisions</li> <li>○ Public access to info</li> <li>○ How does the government map the progress of meeting the SDGs?</li> <li>○ Access to information</li> <li>○ Transparent service delivery</li> <li>○ Online procurement</li> <li>○ Transparent process</li> <li>○ E-procurement</li> <li>○ Open government</li> <li>○ E-participation</li> <li>○ E-service</li> <li>○ Public of information</li> <li>○ Fight against corruption</li> <li>○ Policy /law for opening of public sector information (open data)</li> <li>○ Availability of basic datasets (budget, etc.)</li> <li>○ Inclusive readability</li> <li>○ Delivering benefits to citizens for justice</li> <li>○ Less corruption</li> <li>○ More participation</li> <li>○ Open justice process</li> <li>○ Online access to laws</li> </ul>
<b>Inclusive Government</b>	<b>Effective Governance</b>
<ul style="list-style-type: none"> <li>○ E-decision making</li> <li>○ Inclusive governance open data</li> <li>○ E-rural e-agriculture</li> <li>○ E-learning</li> <li>○ E-legislation</li> <li>○ All social groups covered (poor, women, disabled, illiterate)</li> <li>○ Digital divide</li> <li>○ Online participation</li> <li>-Petitions</li> <li>-Consultation</li> <li>-Voting</li> <li>-Legislation development online</li> <li>○ Top benchmark</li> <li>○ Indicator</li> <li>○ Engagement</li> <li>○ Methods (service, digital channels) + focus</li> </ul>	<p><b>Efficiency</b></p> <ul style="list-style-type: none"> <li>○ Does the government have focal points for each SDG goals?</li> <li>○ Whole of government approach</li> <li>○ ICT enterprise architecture</li> <li>○ GIS use and IOT</li> <li>○ Vertical and horizontal integration online</li> <li>○ Reuse + integration</li> <li>○ Once only principle</li> <li>○ Digital by default, by design &amp; back office, integration</li> <li>○ Citizen center</li> <li>○ Internet ready</li> <li>○ Policy making</li> <li>○ E-trade, e-finance, e-commerce,(overall inter-institutional cooperation)</li> </ul>

Source: UN. 2017. E-government for sustainable development. Report for sustainable development.