Computing and information technologies now pervade almost every area of life. Information which in the past was difficult or expensive to obtain, is now generally abundant and inexpensive. People living in advanced countries are now more likely to suffer from information overload than information scarcity supporting and enabling the execution of e-government (see Figure 1).

An e-government infrastructure in general comprises network infrastructure, security infrastructure, application server environment, data and content management tools, application development tools, hardware and operating systems, and systems management platform. However, many developing countries do not have the infrastructure necessary to deploy e-government services, includes internet access and other basic infrastructure, and there is not only the internet access rates issue, but in many rural areas electricity is not available or is only available for a few hours a day [11]. Most of developing countries have more than one language spoken by the populace, and an effective web application in e-government web portals requires standardization a common language in which citizens are comfortable communicating, due to standardization process, the deployment of e-government system could be longer with added cost.
From another side, the studies show that, especially in Africa, the younger-educated classes and men use the internet more frequently, so that in the result could be a one-sided concentration leading to the further systematic exclusion from online services of women and of the lower social classes [12]. However, mobile phone penetration has increased by double-digit amounts in many countries of sub-Saharan Africa [10], a factor which should be considered when selecting access channels for E-Government services.

3.3. Social impact

In developing countries, the gap between the educated elite and uneducated poor is wide. And for the educated populations those have the necessary resources and have the means to use information and communication technologies are computer literate especially the population from generation X, however the situation would be clearly different for those living in rural areas. This 'digital divide' between those who already have access and those who would not gain access for a long time may result in long-lasting and widening economic gaps between the ICT haves and have-nots. As a result, the provision of e-government services would be biased, favoring educated, urban residents.

4. Research Question and Objective

In most emerging countries there are excite several government portals that allow citizens to get informed about a specific ministry's mission and/or administrative structure and points of contact. A few of these portals allow also downloading data and forms. But these portals were not considered as E-government system because their primary goal was to inform and not to deliver online services, and each department was operating on their own. The case studies that we have mentioned early have made it clear that when implementing E-government in developing countries, basic processes and services need to be thoroughly established for the long-term and that the optimization of existing projects is less important (morocco digital as case study).

In this research, we are interested in developing a new strategy to guide e-government implementation for developing countries. A few models have been developed to depict e-government stages in the literature [13], [14], [15], [16], [17]. However, there are two major issues with these models. First, these models are developed from difference perspectives. Second, some of the stages in these models either are overlapping or are inconsistent with each other. In order to better understand e-government from an evolving perspective, this paper proposes a comprehensive strategy for e-government implementation for emerging countries based on type of e-government, digitizing process and conceptual analysis.

5. Methodology

We conduct our research base on two facts. The first one is we look into the e-government implementation models and extract the model that is more matching to implement it in developing countries with current conditions. And the second fact we base on different categories of e-government interaction to gradually optimize our implementation strategy. Before we get into strategy details, we will discuss e-government implementation models and type of e-government interaction.

5.1. Models

A 2001 study of the development of e-Government by UN identified the level of e-government in 190 nations (UN/ASPA, 2001).The study outlined five stages of e-government, spanning from emergence to integration. At the time of the survey, none of the surveyed nations had achieved integration, and only 17 had achieved the transaction stage. Most developing nations were either at the emergence or at the broadcast stage, thus providing very few interactive services to their citizens. Table 1

shows the steps that the five models predict for the development or evolution of e-government.

Table 1. E-Government Implementation Models

Models	Number of stages	Stage
Hiller's and ASPA's (2001)	Five stages	1. Emerging web presence. 2. Enhanced web presence. 3. Interactive web presence. 4. transactional web presence 5. Fully integrated web presence (Hiller, 2001).
Deloitte's (2001)	Six stages	1. Information publishing/ dissemination. 2. "Official" two-way transaction. 3. Multi-purpose portals. 4. Portal personalization. 5. Clustering of common services. 6. Full integration and enterprise transaction.
Layne and Lee's (2001)	Four stages	1. Catalogue. 2. Transaction. 3. Vertical integration. 4. Horizontal integration.
Moon's (2002)	Five stage	1. Simple information dissemination (one-way communication). 2. Two-way communication (request and response). 3. Service and financial transaction. 4. Vertical and horizontal integration. 5. Political participation.
Gartner's (2000)	Four stages	1. Web presence. 2. Interaction. 3. Transaction. 4. Transformation.

We have chosen to discuss Layne and Lee's model last because it is somewhat of an outlier compared to the other models [15]. Layne and Lee argue that e-government begins with what they call cataloguing, or the basic provision of mostly static information online. They predict that e-government will then move to a transactional stage. Up to this point, their model is substantially similar to the other models reviewed here. From this point, however, Layne and Lee's model diverges from the other models. It predicts that the third stage of e-government will be vertical integration, which involves upper and lower levels of government sharing data and information online. The final step in Layne and Lee's model is horizontal integration, which means the sharing of data and information online across departments within governments.

These findings offer some support but also raise important questions about the principal normative models of e-government. The findings support the models in that most local governments have adopted e-government, at least at the basic level predicted by models, and have done so in a very short period of time. The findings raise questions about the models in that they are clearly at odds with the models' predictions that governments will move stepwise toward the adoption of more sophisticated e-government offerings, moving from information to transactions to integration and ultimately to transformation. This predicted movement is not happening, or if it is, the movement is glacial in its speed if e-government were "evolving" as the models predict, greater numbers of governments would have reported changes, and they would have reported more positive changes. But unfortunately the lack of adaptation general model and implemented base on local resource availability, consequently, more delay and struggling to move to next stage and more cost-added.

5.2. E-government categories

The ITU report on e-government for developing countries categorize different types of electronic government based on using ICT to facilitate relationships between government and other stakeholders, the types of relationships are with citizens, business, government, and employees, represented respectively as G2C (Government-to-Citizen),G2B Government-to-Business), G2G (Government-to-Government), and G2G (Government-to-Government).

In Table 2, we sum up the four e-government categories 'approaches with their main goals.

Table 2. E-Government Categories

Types	Approaches	Goals
G2G	Providing services to government through intergovernmental relations	✓ Speeding up the process ✓ Streamlining and combining the process ✓ Improving integration system ✓ Improving decision support
G2B	Interaction with private sectors	✓ Improving interaction with business sectors ✓ Enhance transaction process
G2E	Coordinate internal operation and improve the internal efficiency	✓ Increase employee morals ✓ Improving the efficiency of managing the human resources ✓
G2C	Citizen centric	✓ Improving public service ✓ Enhance services to citizens

6. Proposed Implementation Strategy

In our proposed methodology we considered the model that have been adapted by united nation in 2008 which is classified along five levels are Emerging, Enhanced, Interactive, transactional, and connected.

At the most basic level, Emerging and Enhanced, e-Government activities focus on publishing basic information on the web. At intermediate levels, Interactive and Transactional, governments use websites to support two-way communication, process transactions online and aggregate content and services through portals. At advanced levels, connected, governments use the web to integrate services across ministries, provide tools for public feedback and deliberation and customize the web visit for each user through personalization technologies and push technologies.

It may need decade to reach full social information and digitizing process has a long road to cross, added to that the policy up-down system regulation. All are the great challenge to cope for building and implementing e-government system. In our implementation strategy, is not necessary to wait for technology to settle in, to be embedded in administrative and bureaucratic process, the implementation of E-government pilot projects should therefore increasingly be building up and implemented base on two factors, digitizing process and policy regulation (see Figure 2).

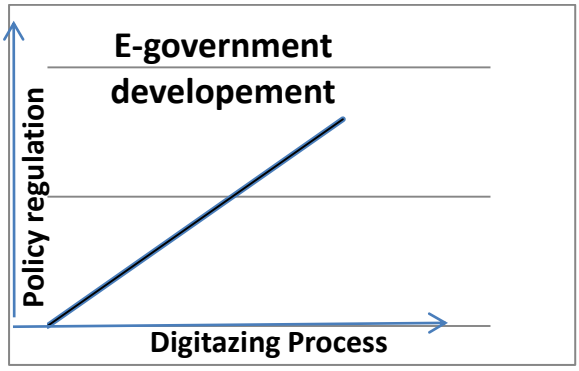

Figure 2. E-government development

Analogically with E-commerce, where the companies firstly builds their portal systems, supported by data base system, interconnection with different departments, application server environment, content management and application development tools, hardware and operating systems, and systems management platform before launching their services and products online. Development of e-government project can be done in seamless way and proportional with digitizing process as well as government interaction, in the following we describe in details how the implementation process should be done.

6.1. G2G types

Taking in consideration the resources availability within government organizations, such as intra-connection feasibility, skillful IT employees, and the more important the intergovernmental relations that connect all government stakeholders to coordinate from national, state/provincial, and local government, G2G is the key priority to lunch and develop e-government initiatives for public sector, as they develop their e-government initiatives and establish electronic interaction between government entities and organizations.

In the road of digitizing process we recommend the horizontal development that have been suggested by Layen and Lee at G2G level, where e-Government activities focus on providing and publishing basic information on the web.

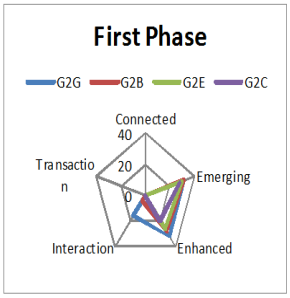

Figure 3. G2G Moved to Interaction stage

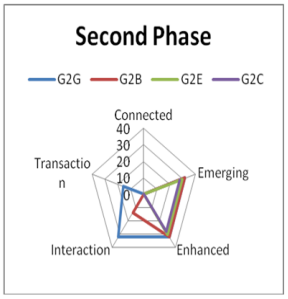

Figure 4. G2G fully interacted

The existing e-government in developed countries, government departments and organizations have maintained separate database that are not connected to other government departments at the same level or even different level such as the local or central government level. This creates barriers between organizations system and process. Emerging counties can avoid these barriers by implementing advanced stage for G2G while digitizing process ongoing. When the transaction stage is mature for G2G types, it enables the government work properly internal and external, and will be ready to boost other e-government types to move to next stage, G2B, and G2E to transaction stage, and G2C to interaction stage (see Figure 3 and Figure 4).

6.2. G2B type

In G2B environment, governments and business entities with companies are digitally matured, and because of the large number of purchases that governments make from the private sector, there is a need to develop faster and more cost-effective routines to handle the typical procedures for procurement. The typical tasks include: material planning, sourcing, purchasing and contract management (UNESCAP 2006).Therefore, the G2B transaction stage should primary adapted as soon as G2G become fully integrated (Phase 3).

6.3. G2E type

We name our implement strategy GBC and we did include the alphabet 'E', because we believe that as soon as G2G and G2B reach advanced stage, there will be a consolidated list of employees for both private and public sectors. This list will gradually be adapted to ICT applications and will be capable of handling procedures of interaction and transaction electronically (See Figure 5 and Figure 6).

6.4. G2C type

At the beginning where less advantage segments of the population are less able to access government on the web, the multichannel to government services is the best practice to gradually get citizen to interaction and transaction stage. Other play is if we combine the number of employees for both private and public sectors, we may find it takes more than 60% of national citizen, so G2B and G2E can dramatically change the number of citizens that be able to interact and make transaction smoothly, as result the G2C relationship will easily adapted.

Last play is in private sector, customer go according to their own free will, whether someone chooses to go to a company's web site or not is his or her choice, visiting the web or make a purchase is also a matter of choice, but thinking about driving license, born certificate, ID renewal, and other public services, there is only one interaction and only government web portal to require these services. In order to save time and cost, the government can use last play to enhance citizen to move to transaction stage.

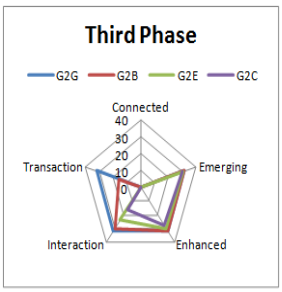

Figure 5. G2B fully interacted

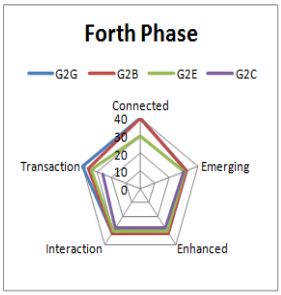

Figure 6. G2G fully connected

Developing G2G system and applications as a way to deliver G2B, G2E, and G2C services seems to occur when many government entities or organizations are required to complete a particular transaction for Business and citizens. In order to provide online application for business or citizens, two or more government entities needed to connect their business processes to allow multiple databases to interact and in some cases accept or disburse fees appropriately. Once the government entities can interact with each other they can offer citizens or businesses access to the application, submit information, make transaction, and receive the service.

Finally, e-governments would reach connected stage where departments collaborate in significant ways to avoid duplication of efforts, and a one-stop contact point is created, which is capable of handling procedures of all involved departments. In this phase when all information systems are integrated and the public can get G2B, G2E, and G2C services at one (virtual) counter. One single point of contact for all services would be the ultimate goal (see Figure 7).

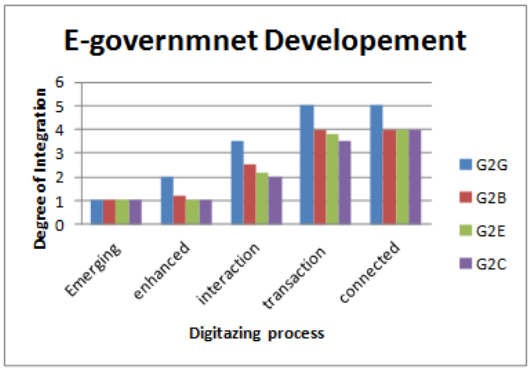

Figure 7. E-government system at mature stage

At this stage, the cost savings, efficiency and customer satisfaction are reaching highest possible levels.

7. Conclusion

In the view of the present difficulties facing many developing countries, E-government offers numerous opportunities to overcome those difficulties and improve public services in many areas such as statistical and information processes, finances management, tax systems, public participation and formalization. One of the key issues for developing countries governments is how to manage the process of learning about new technologies and finding appropriate ways of implementing the technology to support its e-Government systems. The feasibility of having a successful e-government is directly depended on the governments' overall ability and readiness to spend on the necessary information technology and related costs. To provide a better understanding of the affordability, the government in developing countries needs to lunch e-government initiatives gradually, starting by the shareholders who has adapted ICT early. Preparing interaction and transaction stages before getting in interaction with

business G2B and citizen G2Cwill serve the initiatives in better way.

Developing Countries can consider GBC implementation strategy as road map to lunch their e-government projects initiatives, and adapted in the way could match the current condition for each countries. As result we will have e-government system that could adapted to local conditions, and will be able to learn from it own ongoing process to achieve better e-government system.

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