

# An Integrated Framework for Benchmarking e-Government Projects

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**Abstract:** Governments worldwide are using e-Governance to improve efficiency and effectiveness of public administration systems and service delivery. The digitally dynamic nature of the world today represents an opportunity for developing countries to fully embrace e-Governance and thereby contributing to meeting the needs of the citizenry. Successful implementation of e-governance projects ought to be guided by sound mechanisms to minimize failure and ensure a positive impact. Frameworks such as e-Readiness, strategy-based and maturity as well as stage-based e-governance frameworks seldom focus on monitoring and evaluation of projects and lack emphasis on the project life-cycle. We hereby rely on the foregoing shortcomings to propose an integrated framework for benchmarking the implementation of e-governance projects. Our suggested framework represents an important tool to be relied upon by stakeholders to increase accountability on e-governance projects and maximize their chance for success.

**Keywords:** e-Government, integrated framework, benchmarking, framework, e-Government framework, ICT4D, Socio-Economic Development, Monitoring and Evaluation, Project Lifecycle.

## 1. Introduction and Background

Governments worldwide are using e-Governance to improve efficiency, and effectiveness of public administration systems and service delivery. The digitally dynamic nature of the world today grants developing countries an opportunity to fully embrace e –Governance (e-Gov), which will eventually contribute to meeting the needs of citizens.

E-Governance projects involve different components that tend to be interrelated. Ignoring the interrelatedness of these components can lead to the failure of other components, hence the need for integration. Examples of components that need to be included are project life cycle, impact assessment, monitoring, and evaluation. It is important to note that there can be no effective evaluation of an e-Gov project when there is no monitoring and evaluation. Therefore, the establishment of a proper monitoring mechanism is of highest importance because data collected during the monitoring phase will be used for evaluation purposes. That being so, there is a need for a comprehensive framework – which encapsulates a system of concepts and objectives that produce an artifact, which can eventually be used as a basis for benchmarking e-Gov projects — considering the high failure rates of Information System (IS) projects in developing countries [21].

Any proposed benchmarking framework, must be flexible, customizable, and extensible; because e-Gov is constantly evolving [20] by virtue of various socio-economic challenges spurred on by, the high demands and expectations of citizens, and the rapid speed of technological breakthroughs. It must not be ‘cast in stone’, but rather it should be responsive to the unique peculiarities of the local culture in which the e-Gov project is to be

implemented. E-Gov by design has a way of bringing about changes in any setting. This may become an issue when e-Gov is deployed into local cultures, where resistance to change or new things is very high. This constitutes a unique peculiarity that is addressed by the change management component of the proposed framework. After all, for any valid framework to stay valid for a long time, it has to be able to respond to changes in the environment [21].

A number of frameworks to benchmark e-Gov have been suggested [1; 3; 4; 6; 8; & 19]; with very little or no emphasis being laid on the different phases of the project life cycle. Although these varying e-Gov frameworks factor in the importance of the pre-initiation phase, the post-deployment phase however seems to be ignored.

It is therefore important to note that the preponderance of e-Gov frameworks in the system has made it difficult for national governments to decide on the particular framework that would best suit their unique context, whilst at the same time yielding optimal benefits [16]. In summary, the existing frameworks have their merits and demerits, as well as differences thus posing serious challenges to effective e-Gov benchmarking.

To develop our framework, an extensive literature review was carried out on e-Gov and on e-Gov related projects. We critically reviewed the reasons for the success (and therefore failure) of e-Gov projects. We relied on findings from the literature search to cluster a range of factors, which were critical to benchmarking e-Gov projects. This led to the development of core components that can be used within our framework. Iteration of combined findings from previously published papers on e-Gov centric project lifecycle, M&E framework with associated critical success factors (CSFs) for managing e-Gov project, and impact assessment framework to manage post deployment stage of e-Gov projects, was conducted to produce the integrated solution. The fact that our findings emanated from credible literature search, suggests that the validation phase of the framework (which is left as a matter of future work), would reveal some conclusions that are not far from current results.

The design science approach was employed during the development of the framework. The proposed model went through a number of iterations to yield the final result output as shown in Figure 2. The main aim of this paper is to develop an integrated theoretical framework for benchmarking e-Government projects in developing countries, particularly taking into account the various phases of the entire e-Gov project life cycle. It is important to note that the real-life evaluation of the proposed integrated framework will be conducted in a follow-up publication to the current proposed framework.

The remaining part of the paper is structured as follows. In section 2, the researchers will provide an overview of the different types of e-Gov benchmarking frameworks. This will be followed by section 3, where the researchers will provide an in-depth analysis of e-readiness and strategy based e-Gov frameworks. Thereafter, the discussion on maturity or stage-based e-Gov framework will follow in section 4; followed by the proposed project lifecycle-centric integrated framework in section 5. Lastly, the researchers will conclude by presenting the conclusion and future directions on the research.

## **2. Types of e-Gov Benchmarking Frameworks**

The main challenge faced in the development of a framework for benchmarking e-Gov project is in how to make it all-inclusive such that pertinent aspects of e-Gov are taken into consideration.

The nature of a framework is influenced by the researcher's perspective on what s/he considers as more important to benchmarking e.g. e-readiness, strategy or maturity stage of framework. A typical example can be found in the maturity or stage-based type of e-Gov framework, where perspectives do play a major role ([18; [12])); thus resulting in the generation of several variants of the same stage-based framework, although the key

underlying architecture remains the same [23]. This type of framework is treated in more detail in subsequent sections.

Another important factor that may influence the nature or architecture of e-Gov framework would be the purposes and the objectives underlying the e-gov framework [23]. In other words, why are we developing this framework and what do we hope to achieve by using it. For instance, an investigator more concerned about the readiness of national governments to deploy e-Gov would doubtless be more concerned about e-readiness and strategy than anything else leading to e-readiness and strategy-based type of e-Gov framework.

But then, what type of framework do we fall upon when we are consistently saddled with e-Gov project implementation failures? This is what this paper seeks to address.

Based on the foregoing, e-Gov frameworks can be grouped broadly into two major types (i) e-readiness and strategy based e-Gov framework; and (ii) Maturity or Stage based e-Gov framework [11 & 5].

The difference between the two lies in the fact that e-readiness and strategy based frameworks has pre-initiation of e-Gov projects as its focal point, whereas e-Gov maturity based frameworks emphasize the level of development of the e-Gov project using stage model as basis [2].

### 3. E-Readiness and Strategy Based e-Gov Framework

This type of framework is based on e-readiness and strategy which has been found to be important for the successful take-off of any e-Gov project. Consequently, it is only natural then that e-readiness and strategy would form the basis for certain e-Gov frameworks [22].

Whilst e-Gov strategy is a blueprint for the initiation of e-Gov projects that seek to make the most of management's ability to realize the goals and objectives of the organization [8], e-readiness is a reference to the extent of preparedness of governments to deploy e-Gov projects. It therefore stands to reason that e-Gov frameworks based on e-readiness and strategy care very little or nothing about project life cycle, actual implementation (although may be interested in implementation plans) and e-Gov maturity stage.



*Figure 1: Pattern of e-Government strategy development (Rabaiah & Vandijck, 2009)*

But then [22, p. 241] notes that because e-Gov is still evolving, “what was valid a few years ago in terms of services delivery, efficiency, etc. may not be satisfactory today”. Conducting an in-depth study of e-Gov strategies employed by various governments from both developed and developing nations, [22] put together a framework based on strategy comprising the following common components: vision, objectives, principles, focus areas, building blocks, prioritized initiatives, and implementation plan (Figure 1). This framework essentially lays down how to convert an e-Gov vision into an implementation plan; as to whether this implementation plan is executed is outside the scope of this framework.

#### 4. Maturity or Stage-Based e-Gov Framework

Supporters of this type of framework view e-Gov as a multi-step or multi-stage process; but then there is no agreement on the number of stages amongst the key supporters. The supporters are the United Nations, the Gartner Group, the World Bank, e-ASEAN Task force and individual researchers [9]; [13]; [17]) who have carried out studies on this type of framework. A review of this type of framework per each supporter is treated, drawing heavily upon [10].

##### 4.1 World Bank 3-Stage Framework

The **World Bank-3 stage Framework** views e-readiness and strategy-based e-Gov framework as a 3-stage model: (i) Publish; (ii) Interact; and (iii) Transact. Under the *publish* stage, governments of developing nations put out information to the citizenry via their website. Documents and forms may also be made available on the website for downloading and collecting information respectively. Many developing nations are arguably at this stage of e-Gov development. This stage is similar to the emerging presence in the UN’s Five-Stage Framework.

At the second stage (*interact*), e-Gov is characterized by citizen engagement with policy makers. Here, citizens are able to interact with policy makers via asking questions, posting comments through participation on a forum on the site and so on. This stage helps foster public trust in the government.

Under the *transact* stage, e-Gov platforms are configured to be transaction-enabled such that G2C and G2B transactions can be conducted. This allows for enhanced productivity, cost reduction in service delivery, accountability and transparency via data logs.

##### 4.2 UN’s Five-Stage Framework

The United Nations and American Society for Public Administration [20], contrary to the World Bank, was of the view that Stage Based e-Gov Framework has five stages and they are: (i) Emerging presence; (ii) Enhanced presence; (iii) Interactive presence; (iv) Transactional presence; and (v) Seamless or fully integrated presence.

Under the *emerging presence* stage, the government begins to initiate an online presence by way of some few static web pages containing some degree of information. Under *enhanced presence* stage of the framework, the government websites are consistently updated with new information. Moreover, the information being made available on the site are not generic in nature, but specific and dynamic. In the third stage of the framework, *interactive presence* stage, e-Gov graduates into a portal where users are able to link up with service providers.

The fourth stage of this framework as proposed by the UN is the *transactional presence*. Under this stage, e-Gov affords the citizenry the opportunity, via a single government portal, to carry out online transactions with government agencies, departments and ministries. Transactions such as visa renewals and passport acquisitions become possible. Success in this stage of the framework depends on the level of confidence the citizens may have built up in e-Gov during the first three stages of the framework.

Under the *seamless or full integrated presence* stage, e-Gov is transformed into a single, universal, one-stop portal, through which citizens can gain instant access to all available e-services provided by government; thus preventing multiplicity of government websites.

#### 4.3 E-ASEAN Task Force Framework

Under this framework, the Association of Southeast Asian Nations proposed a four-stage maturity framework. The framework was broken into stages on the basis of teledensity (or telephone density) and personal computer (PC) penetration. The stages are:

- *Emerging* stage: This stage is characterized by < 5 % teledensity and < 1% PC penetration.
- *Evolving* stage: This stage is marked by 5-10 % teledensity and 2-5 % PC penetration
- *Embedding* stage: E-Gov with 20-40 % teledensity and 5-10% PC penetration are considered to be in the embedding stage.
- *Extending* stage: Here teledensity is more than 40 % and more than 20% PC penetration.

#### 4.4 Deloitte Six Stage Framework

This framework under the maturity based e-Gov framework contains six stages (Deloitte and Touche, 2001) namely, (i) Information publishing/dissemination (ii) Official two-way transaction (iii) Multi-purpose portals (iv) Portal personalization (v) Clustering of common service (vi) Full integration and enterprise transaction.

At the *information publishing/dissemination* stage, there is enhanced access to information via e-Gov. In the second stage of the framework (*official two-way transaction*), e-Gov is transaction enabled such that government agencies and citizen-users can interact with each other via ICT tools such as e-mails, digital signatures and security keys. In the *multi-purpose portals* stage of the e-Gov framework, the citizenry are able to access a wide array of services delivered across many government agencies through the portal.

The next stage is the *portal personalization* where users are provided with the requisite tools to tailor portals to suit them. This capability is not possible in the earlier stages. Under the fifth stage, *clustering of common service*, unification and seamlessness of e-Gov services is the focus. This is achieved through teamwork between and among government departments so that users can have direct access to e-services without going through a go-between.

The last stage is about *full integration and enterprise transaction*. Here, e-Gov is more sophisticated. Under this stage, users can modify the website to suit their unique wants and inclinations. Despite the fact there are other frameworks or models under this type of framework for example, the [13]) four-stage model; [9] five-stage and [17] five-stage model), the basic architecture underlying them remains the same.

## 5. Towards a Project lifecycle-centric Integrated Framework

None of two types of framework discussed above addressed or fully addressed e-Gov project life cycle and implementation issues. This therefore leaves an important gap in e-Gov literature as far as benchmarking is concerned.

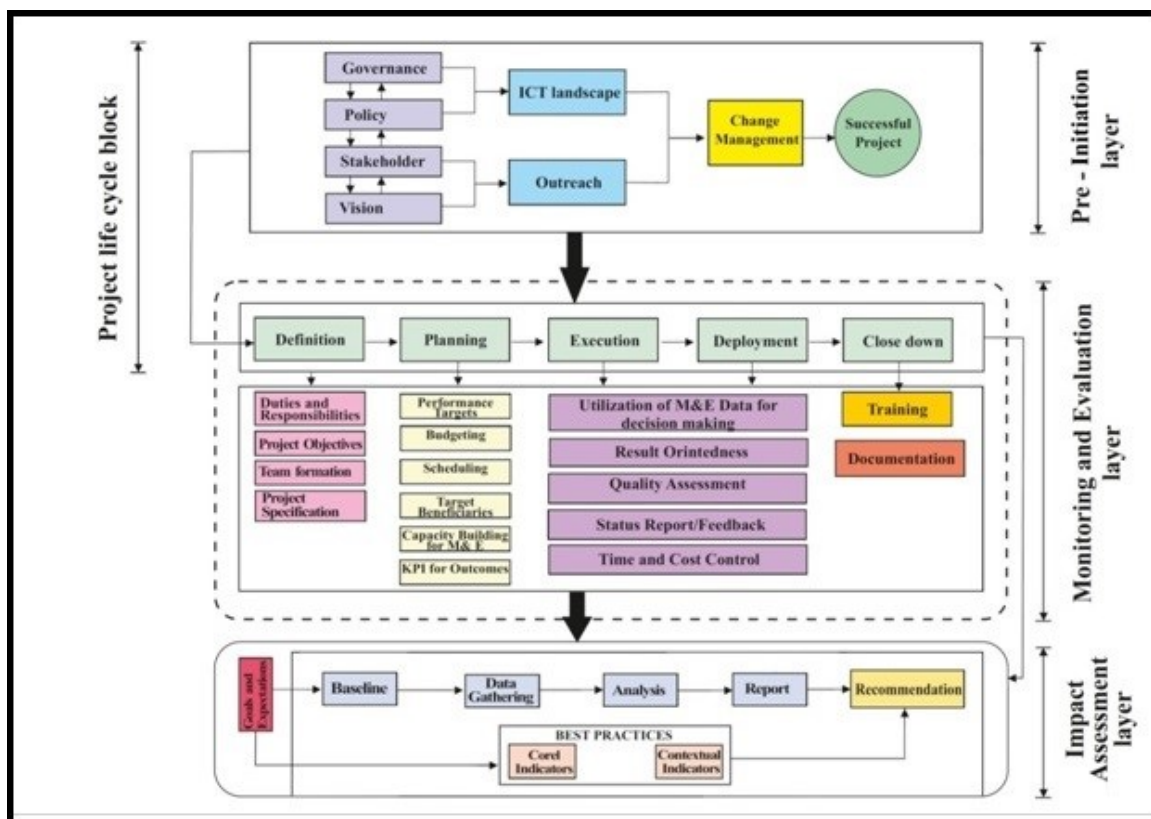
It has been noted that there is a lack of methodology or framework that facilitates flexible and comparative measurement of e-Gov in a way that is comprehensive and fundamental [15].

In view of the above, in this section, we seek to propose an integrated framework for benchmarking e-Gov. This newly proposed integrated framework would be based primarily on project life cycle as well as implementation coupled with monitoring and evaluation.

The proposed integrated framework would also take into account critical success factors as well as factors central to pre-initiation.

### 5.1 Integrated Framework for Benchmarking e-Gov

This integrated solution is the result of many iterations of combined findings from previously published papers on e-Gov centric project lifecycle, M&E framework with associated critical success factors (CSFs) for managing e-Gov project and impact assessment framework to manage post deployment stage of e-Gov project. The findings from these separately published papers formed the basis for the proposed integrated framework for benchmarking e-Gov.



**Figure 2: Suggested Integrated Framework for Benchmarking e-Governance- Projects**

The proposed integrated framework for e-Gov benchmarking is made up of three layers: (i) Pre-initiation layer; (ii) Monitoring and Evaluation layer; and, (iii) Impact Assessment Layer. For detailed treatment of each layer, kindly refer to previous chapters.

The integrated framework in question was developed to be customizable, generic in nature and not constrained in some country-specific characteristics. Consequently, any developing country can utilize the proposed framework to guide the implementation of its e-Gov project to significantly increase success rate.

#### a. Pre-initiation Layer

The Pre-initiation layer is made up of these four key components: (i) Governance; (ii) Policy; (iii) Stakeholder; and, (iv) Vision.

An e-Gov vision is influenced by the implementing country's peculiar social, cultural, political and economic factors [24]. Contrary to other frameworks, the proposed integrated framework suggests that governance is the starting point of every e-Gov pre-initiation phase. This notion is contrary to the tenets of the strategy-based e-Gov framework developed by [22] earlier discussed above.

For e-Gov initiation to be successful there is the need for the presence of an accountable and transparent government within a country; otherwise it is most likely policies made would not be in the favour of e-Gov. This is because e-Gov among other things seeks to promote accountability and transparency within the governance process as well as a willingness to give citizens right to information and to engage them in the governance process. In fact, without governance attributes such as accountability and transparency, the very best efforts to drive e-Gov projects would be defeated.

A good e-Gov policy is an offshoot of good governance and for such a policy to be widely accepted, key stakeholders such as citizens, businesses, civil societies, government agencies cannot be ignored.

*ICT landscape, Outreach and Change management* are sub-components of the pre-initiation layer of the proposed integrated framework. Whilst *governance* and *policy* shape the ICT landscape, *stakeholder* and *vision* are the key components that feed into the *outreach*. To ensure a successful pre-initiation phase, a *change management* sub-component was incorporated to cater for any necessary adjustments that need to be made to adapt to changes in the ICT landscape as well as challenges that may arise during outreach.

[7] argues that a successful initiation of an e-Gov project is highly dependent on good governance, a focused national policy and vision and stakeholder participation. They further explained that these four components create the environment for robust ICT landscape and a good outreach resulting in successful e-Gov project initiation. It would therefore be a good idea if governments of developing countries would set up a committee to assess the e-readiness of their countries with respect to the aforementioned CSFs and to explore ways the proposed critical success factors can be “re-engineered” for their respective countries’ maximum e-Gov initiation success. For starters, the government can encourage public-private partnership to create sustainable e-Gov programs.

#### ***b. Monitoring and Evaluation Layer***

This layer is a combination of stages in the project life cycle and critical success factors specific to each stage in that project life cycle. Each project goes through cycles and each cycle is unique in some way, characterized by peculiar critical success factors. This means that what may be a CSF at a particular life cycle stage may be a “stumbling block” at another stage of the same cycle.

The project life cycle component of this layer are composed of five stages namely, *definition, planning, execution, deployment* and *close down*. Each of these stages is unique as earlier stated, suggesting that factors critical for success would differ from stage to stage and this fact is reflected in the proposed integrated framework; thus greatly enhancing the practicality and value of the framework. For example, the *definition* stage has as its critical success factors (CSFs) *duties and responsibilities, project objectives, team formation* and *project specification*, whilst CSFs for *close down* stage are *training* and documentation.

The definition stage is the first stage in the project life cycle and the CSFs undergirding it are *duties and responsibilities, project objectives, team formation* and *project specification*. Observance of these CSFs sets the pace for carrying out the e-Gov implementation plan crafted in the pre-initiation phase.

Planning is the second stage of the project life cycle. This is where the nitty gritty details of the e-Gov project are worked out. The CSFs underlying this stage are performance targets, budgeting, scheduling, target beneficiaries, capacity building for M&E and KPI outcomes. This stage helps prevent scope creep, delays and budget overruns.

Execution and Deployment represent the third and fourth stage of the project life cycle. This is where the e-Gov project is translated from the dream stage into actuality. Because of the close linkage between these two stages, they share common CSFs. These CSFs are utilization of M&E data for decision-making, result-orientedness, quality assessment, status

report/ feedback, and time and cost control. Together with the CSFs, these two stages ensure that there is zero room for error during e-Gov implementation. Close down stage is the final stage in the project life cycle. Critical success factors cardinal to this stage are training and documentation. *Training* of key stakeholders as a CSF ensures usability of output of e-Gov project. Furthermore, documentation helps to put down in writing lessons learned so that other similar e-Gov projects can draw insights from it.

### c. *Impact Assessment Layer*

This layer is characterized by (i) goals and expectations; (ii) baseline; (iii) data gathering; (iv) analysis; (v) report; (vi) recommendation; and, (vii) best practices. This has been dealt with in much detail in a previous chapter.

Simply launching an e-Gov project is not enough. Impact is and should be of the essence. That is why the proposed e-Gov benchmarking framework contains the impact assessment layer. Unfortunately, virtually all of the reviewed e-Gov frameworks fall short of this all important layer.

## 6. Conclusion and Future work

In summary, the proposed integrated framework provides a “big picture” view of the “bolts and nuts” of successful e-Gov implementation. This is so because the integrated framework is not only concerned with the e-Gov’s project life cycle but also its pre-initiation, impact assessment and, monitoring and evaluation phases. It even goes further to account for the success factors critical to each stage of the monitoring and evaluation stage.

Furthermore, the proposed integrated framework relays the understanding that any particular component of successful e-Gov implementation are not in isolation from the others, as these individual components are pieces of the same puzzle. The puzzle here, being e-Gov implementation. This in no small way contributes to the robust nature of the framework, thus making it adaptable to the e-Gov project implementation context.

As a benchmark, the proposed integrated framework when followed to the letter should lead to high rates of e-Gov implementation success. This therefore makes it much easier to “troubleshoot” any challenge that may arise during e-Gov implementation, considering the fact that it is being used as a benchmark. Concerning future work, the proposed integrated framework should extensively be subject to further validation tests in varying contexts

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