E-Governance Frameworks - Agenda Ahead

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Abstract. Electronic governance may be defined as the delivery of the government services and information to the public using electronic means. Use of IT in the government facilitates an efficient, speedy and transparent process for disseminating information to the public and other agencies, and for performing the government administration activities.

Perceived to be a technological solution for a better, more efficient and more effective government, e-government has been presented and implemented in nations around the world as one of the most compelling advances for government since the mid-1990s. Many governments have begun various e-government initiatives to develop and advance their online functions by providing public information and services to citizens and businesses, and by interacting with citizens to obtain policy inputs. E-government has also been hailed as a means of promoting more effective intra- and intergovernmental relations. For explaining the interrelationship among various constituencies of governance, authors and researchers have designed different frameworks. In this regard, this paper makes an attempt to

1. Introduce the concept of E-Governance.
2. Present the scope of E-Governance.
3. Provide a useful insight into various E-Governance frameworks.
4. Pinpoint certain gaps identified in the existing frameworks, and
5. Highlights certain strategic directions for bridging these gaps in terms of a comprehensive framework.

1. Introduction

E-Governance is the use of the information and communication technology (ICT) to conduct government business and provide public services. It marks the most dramatic shift in governance and offers a fundamental restructuring of the way, government operates and interacts with citizens. It enables government to guide the society, out of the industrial age into the information age. (Holmes, 2001) At the level of service, e-governance promises a full service available 24 hours a day and seven days a week, greater accessibility, the capability to obtain government services without visiting government offices, and reduced service cost. At the level of basic factors (government accountability and general acceptance of state institutions), e-governance contributes to the functioning of democracy by online provision of government information which would otherwise be difficult to obtain or unavailable, and through online debates and plebiscites. According to International Centre for E-Governance, UK – "*E-Governance implies Electronic Governance, which is the application of Information and Communication Technology (ICT), to the process of government functioning to bring about Simple, Moral, Accountable, Responsive, and Transparent government.*"

With its ingrained transparency and openness, given the principles of internet, Electronic governance or E-Governance brings governments more closer to their citizens. Therefore E-Governance has a larger social angle, as it ensures a more wide and representative democracy. (Holmes, 2003) Effective implementation of E-Governance leads to establishment of democracy in the society. (Bhatt, 2003) Other benefits of E-Governance are faster decision making, reduction of duplication of work, detection of corruption and illegal transactions, prevention of knowledge drain and crisis handling. E-Governance brings urban and rural together and breaks the barrier of distance to lead an efficient administration. E-Governance possesses the potential to bridge the gulf between the urban 'technology haves' and rural 'have nots', within and among the countries.

Mostly, e-Governance projects are designed with some of the following objectives:
1. Minimizing distance to access
2. Extending access to un-served groups
3. Introducing transparency
4. Simplifying transaction procedures
5. Minimizing cost to citizens and government
7. Increasing the government revenue
8. Improving the time to transact (citizen, government)
9. Offering new services
10. Modernization / adoption of Best Practices

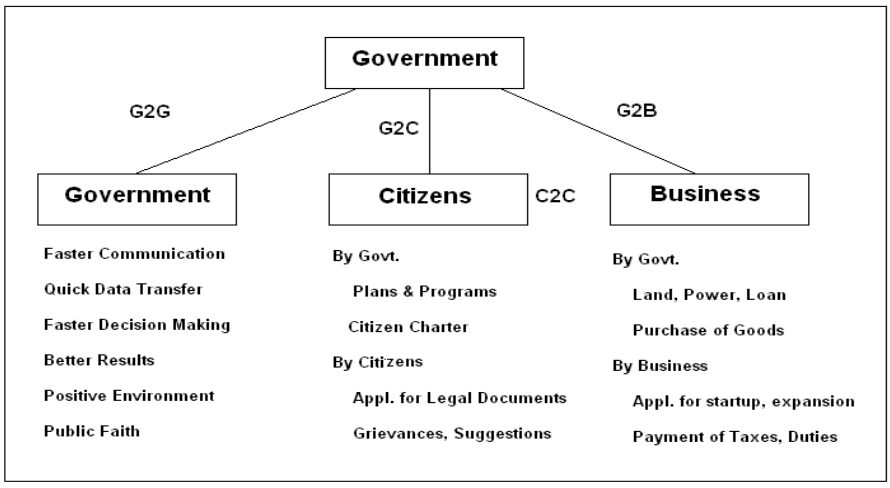
2. Scope of E-Governance

In carrying out various functions, government departments come in contact and engage in various transactions with general public (citizens), other government departments and with businesspersons. Thus communication and other transactions of government with these three entities gives rise to following combinations of possibilities, which highlights the scope of E-Governance.

- Government to Government (G2G)
- Government to Citizens (G2C)
- Citizens to Government (C2G)
- Government to Business (G2B)
- Citizens to Citizen (C2C)

All these possibilities are presented in figure 1, designed by author himself.

Figure 1. Scope of E-Governance



From last couple of years, scope of e-governance has been extended to a new dimension 'Employee to Employee (E2E), which links effective communication between employees of various departments and geographical regions.

In spite of the promises of e-governance, many of the e-governance initiatives in many countries have not been able to deliver them. Often this is because the implementation of e-governance applications suffers from the common drawback of treating it as a techno-centric project and losing track of the "governance" (or excellence) focus.

While the above mentioned functioning, advantages and scope of e-Governance are uniform, however different authors and agencies worldwide explained it using different perspective. Majority of them have applied existing methodologies, techniques and approaches used in information system, general management or philosophy. Various frameworks are given below:

3. E-Governance Frameworks

This section presents various frameworks propounded by different authors.

3.1 Mansell (2002) provided a knowledge management[1] based framework for the development of information and communication technology (ICT) in knowledge driven development, which covers gamut of e-governance issues like strategies for human resource development, technical infrastructure of E-government and improved governance. He argues that E-governance is one step towards enabling measures to address the "digital opportunities" and the "digital divide" to set out the issues that should guide such initiatives. An enabling environment and the championing of ICT development and usage are essential to reduce the "digital divide" and to take advantage of ICT opportunities.

3.2 Arora (2004) affirmed that Knowledge Management (KM) as a formal discipline of management in e-Governance can be very helpful for creation, transfer, documentation, storage and utilization of knowledge comprising administrative processes and decisions, in digital form. He also proposed few initial measures for performance evaluation of e-Governance projects. These include ICT infrastructure investments, ROI from E-Governance projects, duration of project, new users registered, average usage of services and their satisfaction, satisfaction of employees, training, e-Governance 'Vision', extent of integration of e-Governance with policy objectives, Public image of department, change in corruption level etc.

3.3 Model of Ashraf, Ali and Ashraf (2005) is built on KM cycle of Knowledge capturing, Knowledge sharing, Knowledge enhancing, and Knowledge preserving and therefore shares knowledge that supports the law of knowledge dynamics. E-Governance is a combined process of *integration and interaction*. E-Governance needs to maintain a powerful integrated hardware and software network. This is the *integration part of E-Governance.* He also called it as *infrastructure management system* of E-Governance. A good E-Governance model provides a platform where various communities and special interest groups (SIG) represent themselves. It provides an easy way for individuals to find the groups and communities of interest to them. It builds an environment with specialized expertise that can help answer questions, and guide them to find solutions. This is the *interaction part of E-Governance.*

Authors assert that E-Governance is a transition process from conventional to people-oriented proactive electronic system. To accept this transition process, the communities need to be

[1] Knowledge Management is an emerging set of processes, organizational structures, applications, and technologies that aim to leverage the ability of capable, responsible, autonomous individuals to act quickly and effectively. KM requires an integrated approach to identifying, managing and most importantly sharing the company's information assets, including database, documents, policies and procedures (explicit knowledge) as well as undocumented expertise resident in individual workers (tacit knowledge). (www.gartner.com)

trained and educated. They also termed it as *transition management system* of E-Governance and *community management system* of E-Governance. The minimum and basic features of E-Governance are to store and retrieve the information, records and documents of a government. Advanced features are to extract statistical reports to predict future, to help decision-making and to provide intelligent forecast for planning. This is called *knowledge management system* of E-Governance.

A KM based e-Governance can be promoted towards sharing of both explicit and implicit knowledge by developing collaborative work groups and several autonomous bodies that facilitate government to business relationships (G2B). (Wadhwa, Saxena, Kumar, 2004)

3.4 Gupta (2004) applied the concept of 'Nirvana'[2] (enlightment) to the domain of government as one stop on-line government and necessitated a need to identify the balanced path for government to achieve nirvana. He also suggested effective public private model in governance for reforms and reengineering and called for transformative leadership. He specified some of the requirements that have to be fulfilled in an integrated one-stop government platform. Some of them are as follows:

- Smoothly adapting traditional processes to modern technology
- Single window access to public services
- Access via different media channels & devices (Internet, PDA, Call centres etc)
- Guaranteeing the necessary level of security, authenticity and privacy in communications and transactions via the internet
- Adapting & smooth coordination of technology at both internal (G-2-G) and external (G-2-C) level to facilitate seamless government
- Providing help in filling in online forms etc and clarifying and updating underlying legal issues
- Keeping track of the process, handling 'freedom of information' requests and other 'due process' requirements

3.5 Kitiyadisai (2004) narrated the Buddhist perspective in e-governance for bridging digital divide.[3] He explained the four noble truths i.e. *Dukkha, Samudaya, Nirodha and Magga* and the *Noble Eightfold Path or the Middle Path* consists of right understanding, right intention, right speech, right action, right livelihood, right effort, right mindfulness, and right concentration. The other often cited Buddhist concept, *Brahma-Vihara or the Four Sublime States of Consciousness* was also discussed.

He cautioned the decision-makers to be mindful of considering the 'Four Requisites gap' before narrowing the digital divide. He also mentioned that in order to effectively exploit the myriad of sophisticated affordances offered by ICT, people need to have the requisite capabilities and skills which can be redressed by relevant education policy. So, the 'educational gap' needs to be considered in parallel to process of digital inclusion. Similarly, in devising public policy on digital projects, right understanding of the different levels of Dukkha can be enhanced by encouraging people's participation, public seminars or hearing.

3.6 Jutla, Bodorik and Dhaliwal (2002) presented a conceptual model for use by governments in creating and sustaining an appropriate climate that facilitates the national adoption of e-business. Here the need was emphasized for following infrastructure components and associated processes for government facilitation to build a knowledge-based economy.

1. knowledge and innovation process-based economy;

[2] Infrastructure management covers the domains like Security management, Software management, Network management and Resource Management. Term 'Nirvana' was first coined when prince Sidharth became Budha and attained Nirvana (a sense of total or super consciousness) in the end after spreading his teachings of the noble path to nirvana.

[3] Digital divide refers to the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regards to their opportunities to access information and communication technologies and their use of the Internet.

2. e-government leadership;
3. regulatory, trust, and financial infrastructure;
4. content infrastructure (including content management processes);
5. human infrastructure including skills distribution network; and
6. communications and information systems infrastructure and access.

3.7 Janssen and Joha (2004) discussed the conceptual framework of shared service centers (SSCs), a form of e-governance, which are gaining importance in public administration as a means to innovate, reduce costs and increase service levels. The SSC provides a range of services varying from applications service provisioning, help desk, web hosting, application development to maintenance.

This framework discusses the strategic intent (input) of various agencies for shared services as necessity, legitimacy, efficiency and reciprocity. Configuration and process phase of the model is composed of structure, interaction, behavioural and contract components. Ultimately it results into customization, increased customer satisfaction and reduction in transaction cost and uncertainty.

3.8 Peristeras and Tarabanis (2004) proposed governance enterprise architecture (GEA), consists of following high-level models.

GEA mega-process model covers aspects like formulation of public policy, identification of society needs, provision of services and support operations aiming at facilitating either the formulation of public policy or service provision.

GEA interaction model identifies **t**hree basic governance actors i.e. society, administrative system, political System and their interactions. Following a systems' perspective, the model depicts the transformation of the governance system's inputs (society needs) to outputs (services) with detailed descriptions of the participating actors, stages and inherent controls.
GEA public policy formulation object model is composed of six main components, represented by several objects:

- Culture (e.g. Vision, Value, Power Structure)
- Environment (e.g. Political System, Society, Public Sector, Technology)
- Knowledge (e.g. Core Competence, Strategic Information)
- Organization (e.g. Organizational Agent)
- Resources (e.g. Technology, Financial, Human)
- Functions (e.g. Process, Activity, Task)

GEA service provision object model is layered into two sections i.e. operational (transactional) layer and knowledge (planning) layer.

GEA object model for the overall governance system covers the path that leads from the conceptualisation of administrative action to the realization and process execution in the real world, in correspondence with the "Formulate Public Policy" and the "Provide Service" mega-processes model.

3.9 Janssen and Cresswell (2005) presented Enterprise application integration (EAI) methodology for e-governance. It combines an EAI[4] perspective with process simulation tools to understand, represent and evaluate solutions to government integration problems. The analytical framework of **Sol (1990)** classifies design methodologies by ways of thinking, working, modeling, and controlling and is already used for describing design methodologies in various fields **(Sol, 1982; Meel and Sol, 1996; Janssen, 2001)**.

[4] Enterprise application integration (EAI) is an emerging approach to architecture design linking previously separated and isolated systems to give them greater leverage (**Themistocleous, 2004**).

Way of thinking starts with a structured analysis of the current situation. Authors focused on adoption of relatively small steps and stakeholders participation so that they can gain the necessary knowledge to formulate their own incremental improvements. *Way of working* concerns the steps that need to be taken and is based on the problem-solving process to handle the design of organizational change. The *way of modeling* is based on discrete-event simulation and animation. W*ay of controlling* should ensure that the right stakeholders are involved in the process of model building and in the evaluation of the impact. They discussed public sector structure, Division of labor, lack of IT know-how at senior management levels and involvement of multiple stakeholders as major barriers in reengineering the public sector.

3.10 Davison, Wagner and Ma (2004) discussed the strategic transformation to e-government. Accenture started its annual surveys of e-government development in 2000, characterizing e-government progression via a multi-stage "publish, interact, transact" model (e.g. **Accenture, 2000b, 2001**). Later, the model was extended to incorporate the notion of the transformation of government – redesigning processes so as to put the citizen at the centre (**Accenture, 2002**). This transformation involves structural and cultural change within government. In 2003, the model was further revised to five stages i.e. online presence, basic capability, service availability, mature delivery, and service transformation.

Another transformation model (**Hodgkinson, 2002**) suggests that e-government progresses through a learning curve for its back-end (e-business) activities, similar to the learning curve of data processing maturity of a six-stage growth model proposed by **Nolan (1979**). A more comprehensive six-stage model (i.e. adhocracy, starting the foundations, centralised dictatorship, democratic dialectic and cooperation, entrepreneurship opportunity, and integrated harmonious relationships) was given by **Galliers and Sutherland's (1991)**. Similarly, the strategic alignment maturity matrix proposed by **Luftman (2000)** consists of five conceptual levels (i.e. initial, committed process, established focused process, improved/managed process, and optimized process) and six IT business alignment maturity criteria (i.e. communication, competency/value measurement, governance, partnership, scope, and architecture and skills). According to **Hodgkinson (2002)**, interoperability, which is required for inter- and intra-departmental sharing and a common interface to citizens, will precede data management (and therefore knowledge management).

Authors emphasized the importance of transformed & mature e-government. Mature e-government is characterized by high levels of capability and performance on multiple dimensions. Performance dimensions include the government's ability to offer the vast maturity of suitable services with an e-delivery option, and a large number of citizens and organizations making use of them. Capabilities include the ability to share data and information across government units, reduce process times through workflow and ERP systems, and the ability to capture and share knowledge of government employees.

3.11 Davison, Wagner and Ma (2004) also suggested E-government alignment model which combines the insights of both the maturity and the strategic alignment models. In order to illustrate the complexities of e-government evolution, authors developed a multi-stage model. This model has been developed out of the work of **Henderson and Venkatraman (1993), Hodgkinson (2002), Nolan (1979)** and **Chen (2002)**. In the spirit of **Nolan's (1979)** model, it is designed to be descriptive and indicative: it can be used to describe or illustrate the current position of an e-government with respect to other e-governments

3.12 Zwahr, Finger and Mueller (2004) stated the transformative potential of E-Governance. along the three major functions of state, namely policy making (political process), regulation and service delivery. According to the authors, information and communication technology (ICT) can act as a *creative destroyer* of traditional institutions of governance and therefore is one of the drivers of the transformation of state functions.

They provided two perspective of E-Governance. Macro Perspective consists of variables institution of governance, functions of state and impact of ICT. Institution was classified into hierarchy, hybrid and market. All the functions were broadly classified into policy making, regulation and service delivery. Impact of ICT was identified as incremental, transformative and disruptive. Under the micro perspective, three traditional functions of state were identified as shaping of the political process, the regulation of the behavior of the various actors (government policies), and the provision of specific public services.

Out of the three functions, authors felt that "e"-initiative positively shall have positive impact on provision of services to the stakeholders of the state which leads to a new 'hybrid' form of governance. They further evaluated the impact of e-governance along two dimensions: the *modes of transaction* and the *transformative dimension*.

3.13 Ebrahim and Irani (2005) presented E-government architecture framework which focus that despite significant differences in the composition of organisations, there are a number of technologies and systems infrastructure that many organisations need to adopt in common to provide facilities for the integration of their systems in a way that enables them to build a platform for sharing their knowledge resources. For example, an e-government portal requires a common and integrated architecture[5] framework that allows different organisations, provinces, and municipalities to share and exchange data, independent of formats, devices and underlying architecture (**Sharma and Gupta, 2002**).

Architecture framework of e-government is divided into following four layers:
Access layer: Involves the channels that users can access for availing various government services.

E-government layer **:** This layer is about integrating digital data of various organisations into a web-portal of government services, in the form of a one-stop e-government portal.

E-business layer: This layer is focused on using ICT applications and tools to harness a networks of trust, knowledge sharing and information processing that takes place both within and between organisations (**Moodley, 2003**). Practically, it integrates front-end e-government layer applications, in the government portal with back-end activities such as existing databases and data warehouses.

Infrastructure layer: This layer focuses on technologies that should be in place before e-government services can be offered reliably and effectively to the public.

Authors also classified various barriers into dimensions like IT infrastructure, security and privacy, IT skills, organisational issues; and cost and demanded their quick resolution. **Li and Steveson (2002)**, also confirmed these barriers and asserted that to maximise the potential offered by an e-government initiative, government organisational culture, management strategy and individual attitudes within the organisation need to be changed.

3.14 Murthy, Kumar (2003) applied the architectural design model[6] in architecting, designing and implementing e-Governance systems. It has four conceptual layers, which are given below:
1. Business Process Architecture Layer

[5] In order to explain the interaction between business strategy, information strategy, and corresponding business and IT structures, **Henderson and Venkatraman (1993)** proposed a model of strategic alignment. This model presents four domains of strategic alignment, as applied to corporate strategy.
[6] The e-government architecture defines the standards, infrastructure components, applications, technologies, business model and guidelines for electronic commerce among and between organisations that facilitates the interaction of the government and promotes group productivity.

2. Data Architecture Layer
3. Application Architecture Layer and
4. Technology Infrastructure Layer

The *business architecture* identities the functions, process, organization, and information flow for accomplishing the mission of an organization. Governance *data architecture* defines various types of data needed for the functioning of the system. *Application architecture* defines applications & supporting capabilities to effectively manage the data & information needed to support business & performance objectives. (security, user authentification, access control, access devices-kiosk, mobile, pda etc). *Technology infrastructure* layer defines the technologies and infrastructure required for implementing e-Governance applications.

3.15 Ramarao, Rao, Bhatnagar and Satyanarayana (2004) of 'Center for E-Governance' of Indian Institute of Management, Ahmedabad developed an E-Governance assessment framework to accomplish the following objectives:

- To assess whether and to what extent a given e-Governance project has the characteristics of a good e-governance project delivering "Value" to stakeholders.
- To guide in funding of e-governance projects at various stages of their life-cycle (newly starting, roll-out, scaling up, replication)
- To provide guidelines for mid-term assessment of ongoing initiatives, so that mid-course corrections, if any, can be applied
- To provide guidelines for shaping future e-governance projects
- To provide material for e-governance training programs
- To enhance the trust and confidence of stakeholders by enabling creation of a knowledgebase of all e-Governance projects rated as per a trusted framework.

It was felt that too much of resources shall be required in comprehensive assessment by any agency; therefore two tiers of instruments were developed. First tier of instruments was designed for a summary assessment (SA) of the project while the second set was designed for a detailed assessment (DA). Essentially both frameworks provide authentic and unambiguous answers to questions like the following:
a) How far has the Project succeeded in achieving its purpose and objectives?
b) Has the Project been designed and developed with all the technological features that are elegant and conform to widely accepted architectures and standards?
c) Is the Project sustainable over long periods of time, with or without the motive force that initiated the Project?
d) Is the Project cost-effective in terms of return on investment or in terms of cost per transaction?
e) Is the Project replicable in other geographies?

Above mentioned instruments are comprised of various attributes like Service Orientation, Technology, Sustainability, Cost Effectiveness attributes and Replicability, which are further composed of many sub-attributes.

3.16 Moon, Welch and Wong (2005) presented different model designed by various agencies for benchmarking various e-governance projects operating at different countries worldwide. These models are given below:

Web Presence Index, Benchmarking of E-Government (BMEG)
A global e-government project jointly conducted by the American Society for Public Administration (ASPA) and the United Nations Division for Public Economics and Public Administration (UNDPEPA) (2001) developed a web presence measure that represents five different developmental stages of e-government such as 1) emerging stage, 2) enhanced stage, 3) interactive stage, 4) transactional stage, and 5) seamless stage. The ASPA and UNDPEPA

report found that there are 32 countries, 65 countries, 55 countries, and 17 countries categorized at the emerging, enhanced, interactive, and transactional stages respectively. No country was categorized into the seamless stage.

E-Government Index, Benchmarking of E-Government (BMEG)
Using three different indices including the *web presence measure* described above, *ICT infrastructure measures* and *human capital measures*, ASPA and UNDPEPA developed a global e-government index. National ICT infrastructure capacity is measured using six proxy indicators (PCs/100, Internet hosts/10000, percentage of pop online, telephone lines/100, mobile phones/100, TVs/1000). In order to "capture a country's and its citizens' facility, opportunity and willingness to use online government" three variables – United Nation Human Development Index, Information Access Index, and Urban as Percentage of Population – are used as human capital measures.

E-Government Index, World Market (WM)
West conducted a global e-government survey and ranked 196 countries based on 28 features in the areas of information availability, service delivery and public accessibility. Some of the leading features include online publication; online database; external links to nongovernmental sites; audio clips; video clips; nonnative languages or foreign language translation; user payments or fees; subject index; privacy policy; security features; presence of online services; links to a government services portal; digital signatures; credit card payments; search capability; comment form or chatroom; automatic email updates; and having an English version of the websites.

Authors cited two major forces that drive the evolution of e-government among nations: 1) pulling factors and 2) pushing factors. The pulling factors refer to the e-government driving forces that emerge within governments or politics through administrative reform initiatives, strong political or administrative leadership of e-government champion, or political reform initiatives. The pushing factors refer to non-governmental or non-political forces that facilitate or promote government from the outside of the public sphere (politics or administration). Unlike pulling factors, pushing factors are societal forces (nonpolitical and nongovernmental) that promote and facilitate the advances in e- government. They might include economy-pushing and technology-pushing forces.

3.17 Zwahr, Rossel and Finger (2004) propounded a model which uses three distinct and static variables, namely actors, levels, and functions, to capture a snapshot of such a governance system. Actors can stem from different backgrounds, such as State, non-State, public or private actors. The level variable identifies the various organizational or political levels on which collective problem solving processes take place. Levels can be local, regional, national or above national. Function represents three core functions, namely policy-making, regulation, and service delivery. The variable describes the process, which the actors are involved in.

However, governance systems are in a continuous development and change process. Therefore, the e-governance model contains a fourth variable, the *technology variable*. There are four different values, this variable can have. *Mirroring* outlines that in the current status of the governance system, ICTs are used to mirror (and eventually monitor) the existing reality of the system (actors, levels, functions).
– *Governance Analysis* means that the physical reality of the governance system has already been mapped into a logical system and that ICTs are now used to explain the mechanisms, the structures, and the dependencies in this system.
– *Implementation* means that ICTs are currently used to implement revised governance mechanisms or newly created measures of governance back into the physical reality of the governance system.

– *Regulation* means that ICTs are currently being used as a means to steer and control the functioning of the governance system.

3.18 Consultancy firm, Accenture provided essential components for a robust eGovernance model. According to it, adopted model should not only be appropriate for today but also focus on how to build adaptability into that model so that it can evolve along the changing times and meet future challenges. The change in governance model should track its life-cycle maturity curve which is composed of three primary phases of the curve–launch (emerging), growth (scaling) and maturity (structured) phase. The correct eGovernance model responds to the needs of the enterprise as it proceeds along the maturity curve.

This model seeks following three primary components in a robust eGovernance model:

Leadership: The roles, responsibilities and decision processes of senior executives that shape the organization's strategic vision, culture, goals, metrics and plans for action.

Organization Structure: The organizational relationships that support decision making, foster appropriate culture and build essential skills so that the company can marshal resources effectively.

Process Alignment: The alignment of operational processes on which the eBusiness depends with various stakeholders.

3.19 Saxena (2005) gave E-governance engineering model and names it as 'excellent e-governance (e^2-governance)' model. Excellence in organisations has been perceived to have attributes like purpose-driven (i.e. goal-centric); customer (i.e. citizen)-centric; process-oriented; and structure-supported. **(Emersen and Harvey, 1996)**. Thus, excellence in e-governance is characterised by exploitation of governance processes, structure and technology to provide an administration, which is efficient, effective (outcome-driven), politically manageable, and open and democratic (governance-centricity). This is essentially "governance-centric" e-governance, which achieves the desired integration through the following stages, and the activities involved in each of these stages:

Planning:
- establish commitment and governance procedures;
- identify stakeholders – users (citizens), politicians, bureaucrats;
- define and review current mission and values;
- identify governance issues – efficiency, effectiveness and governance-centricity – through engagement with stakeholders; and
- determine e-governance process scope and structure needs.

Definition:
- define and map e-governance process architecture;
- define performance indicators for efficiency, effectiveness and governance-centricity;
- collect information about performance in respect of the indicators identified;
- measure and analyse indicators, and set indicators improvement targets;
- analyse process performance gaps and prioritise processes for improvement/ redesign; and
- define e-governance business and technology architectures.

Implementation:
- develop process improvement/redesign projects plan; and
- for each project, model and analyse process, design process for improvement/ redesign, develop resources for the improved/redesigned process, manage the transition to the changed process.

Evaluation and management:

- monitor process performance and report;
- audit process and performance reports;
- communicate reports and obtain feedback; and
- establish and embed systems for creating ongoing performance monitoring and improvement

4. Gaps in the Existing Framework

It is clear from studying various architecture that each framework, seeks similar benefits of transparency, accountability, efficiency and accountability. However, various authors have adopted different routes for reaching the final objectives. Study of these frameworks indicates following gaps which need academicians, practitioners and researchers attention:

a. **Lack of Empirical Ground:** Some frameworks are framed just on conceptual ground and therefore lack detailed empirical evidence. A few of them are designed on the basis of limited study in a certain geographical area, thus offers limited applicability in other areas.
b. **Limited Scope:** Further, all frameworks do not encompass complete scope of e-governance (G2G, G2C, G2B, G2E etc).
c. **Narrow Applicability:** Very limited attempts have been made to explain and analyse various e-Governance projects at global level.
d. **Obsolescence:** E-Governance, like many other disciplines is a dynamic discipline. Many frameworks are based on old and established models related to information system. Due to changes in the overall environment, some of these models have become obsolete. Therefore e-governance frameworks also suffer from the same syndrome.
e. **Isolation of non-state actors:** Globally, non-state actors are providing vital support to governments in carrying out basic functions of governance. But majority of e-governance frameworks have not incorporated this public-private partnership in the modeling of e-governance framework.
f. **Focus on harder aspects:** Successful implementation of E-Governance largely depends on attitude of government machinery but existing frameworks concentrate on technology, rules and other harder side and ignore the softer side.

5. Roadmap for Comprehensive E-Governance Framework

This section presents various strategic inputs for bridging the gaps identified above. Author has provided some directions for bridging each gap separately.

a. Before designing framework for e-governance, adequate research must be conducted. This research may be conducted through both primary and secondary research. Research design should cover both successful as well as failed projects for deeper understanding of system. Similarly, study must be conducted in different geographical regions for wider applicability.

b. A wide range of frameworks explains only one or two facets of e-governance. While government to citizen (G2C) aspect has been at the core of almost all the frameworks, remaining facets i.e. government to government (G2G), government to employees (G2E), government to business (G2B) and citizen to citizen (G2C) models are not adequately covered. All the facets needs comprehensive frameworks both at an individual level as well at integrated level.

c. E-Government has become a buzzword today. Every country has initiated some e-governance projects at various levels. Nonetheless, all the countries are at different ladder of achievement in terms of achieving the objective of SMART governance due to wide

difference in scope, applications, facilities, resource commitments, success rates of various projects. Due to the nascent status of e-governance throughout world, very few attempts have been made to design a comprehensive framework, which can act as a benchmark for evaluating each country on a weighted scale. Like human development index (HDI) and consumer price index, e-governance index (EGI) should be created for evaluating e-readiness and e-governance status of various countries. This may include variables like presence of e-governance vision, number of citizen information kiosks, range of online services, percentage of automated and non-automated processes, abandonment rate & accuracy rate, average response time, awareness & attitude of political & bureaucratic machinery, awareness of citizens about e-availability and confidence, e-mail response system availability; degree of inter-agency integration, infrastructure status, training to employees, PC-penetration both at government department and household level etc.

d. E-Governance aims at bringing significant transformation in the governance. This requires robust design before implementation. But large set of frameworks are based on old frameworks which have lost their relevance in modern context. Thus, old framework must be integrated with contemporary developments in society, technology and overall environment.

e. Successful implementation of e-governance depends not only on accountability and efficient services at individual department level. It also requires active collaboration and support of other government departments. World over governments are increasingly relying on non-state actors (NGOs and private sector players) for implementation related issues. Therefore E-Governance framework needs appropriate inclusion for larger acceptance and accurate portrayal of modern governance.

f. Essence of e-governance lies in the positive mindset of employees towards electronic mode of delivery. Thus, many experts demand effective change management for achieving the desires results of e-governance.

Conclusion

E-Governance is still in nascent stage and therefore, needs many more such frameworks and perspective before reaching to a mature e-Governance framework acceptable to masses. Strategic action on the part of government within their own departments and in co-operation with other organizations is likely to help to facilitate the overall process of constructing a citizen centric system. In all these instances, considerable effort is needed to focus on the purposes and goals of SMART governance for citizens, rather than on the short-term interests of individual stakeholder organization. Academia and research community also have to play a significant role by appropriate conceptualization in form of comprehensive framework of modern e-governance system.

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