Exploring the Role of Technology in a Joined up Government: A Proposed Framework for National-Level Service Governance

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Abstract—The current economic and social environment is pushing governments to transformational change in order to meet increasing public expectations of public-sector value and cost effective outcomes. Modern information and communication technology (ICT) has shown its potential to enable government service availability and delivery, but governments are relying on their agencies to create their own value systems without reference to national-level service and value oriented agendas. This article explores the role of technology in developing more effective and joined up government. It proposes a framework for governments and policy makers to guide them in the field of service provision and overall governance. The components of the proposed framework reflect fields of practice that in which governments should engage to ensure that their agencies comply with strategic national information technology (IT) objectives.

Keywords: joined up government, eGovernment, citizen centricity, service governance, service quality, TQM.

I. INTRODUCTION

The situation in the world today is dynamic and full of uncertainty. Governments are faced with multiple, complex and multi-disciplinary challenges. During the last decades of the twentieth century, the world witnessed the emergence of new political, social, technological and economic environments. Societies today are demanding new forms of governance, to allow greater scope for democracy, decentralization, participation and pluralism [1]. Globalization is shaping the world economy, and the current information revolution is resulting in a knowledge-based society (ibid.).

A recent survey conducted by Accenture revealed that efficiency targets, demands for improved services and cost pressures top the list of key challenges facing governments today [2]. See also Fig. 1.

Fig. 1. Accenture survey results on key government challenges

Governments around the world have invested heavily in ICT in the past two decades, especially in e-government programs aiming to increase internal efficiency and service levels to constituents. However, almost few e-government programs around the globe have realized their full potential. An interesting model presented by Gartner [3] shows how the evolution of new technologies has been associated with excessive enthusiasm and media attention, followed by corrective public disillusionment, leading on overtime, for some technologies at least, to the gradual restoration of public expectation, with consequent realization of mass market business benefits. See Fig. 2.

Fig. 2. Gartner Hype Cycle of New Technologies
Researchers argue that governments today need to make more effective use of new technologies to enable transformation and to “join up” services. Governments should aim to integrate processes and deliver seamless services across the boundaries of their agencies (e.g. [4]-[8]). Governments have been relying on their agencies to create their own value systems without national-level service and value oriented agendas. E-government initiatives have been focusing on somewhat narrow sets of objectives that focus on quick wins, automation of some internal processes and the introduction of poorly integrated online services.

The aim of this article is to explore the potential role of ICT in enabling and building a joined-up and more responsive government. It calls for national-level governance initiatives to ensure alignment of all government agencies. A simplified framework is proposed to guide governments and policy makers in fields of service provision and overall IT governance. The components of the proposed framework reflect fields of practice in which governments should engage to ensure that their agencies comply with strategic and national information technology (IT) objectives.

This paper is organized as follows: Section 2 discusses the evolution of citizen centered governments, and how public service delivery is being shaped; Section 3 provides an overview of a conceptual government maturity model and the concept of a 24-hour available government; Section 4 explores the role of ICT in supporting the development of enhanced government capacities; Section 5 highlights the need to develop knowledge of and engage with customers in order to sustain competitive advantage and fulfill government responsibilities; Section 6 discusses the link between service quality and the need for supporting technologies to create an acceptable degree of trust in the emerging communication channels for service delivery; Section 7 presents the proposed service governance framework and discusses its components; Section 8 concludes the article, summarizing the new perspectives generated.

II. SERVICE ORIENTED GOVERNMENT

Governments, globally, have been striving to transform themselves to fit with more service oriented, citizen centered models (e.g. [9]-[12]). This paradigm shift in the orientation of governments is bringing change in the ways citizens interact with their governments. Citizens are being transformed from human entities to ‘e’ entities, commonly referred to in the literature as the ‘e-citizens’. Rapid advancements and revolutionary changes in Information and Communication Technologies (ICT) have helped governments to take proactive steps in this transformation.

Regardless of the form, be it a Monarchy, a Democracy, or a Communist state, a modern government incorporates three pillars of society: (1) the Executive: representing the rulers, (2) the Judiciary: administering the legal system, and (3) the Legislature of law makers. See also Fig. 3. These three pillars are established to ensure the safety and security of their residents and citizens. A good government thus has the citizen as the center of its focus.

Fig. 3. Government Structure

Conventionally, governments have been represented in the context of the citizens and businesses forming a triad. A key entity that is often missed out is the service provider. See also Figure 4. The service providers are the locus of interaction between the government, businesses and citizens. Service providers include telecommunication providers, electricity and water providers, transport providers, etc. Their services range from provision of basic infrastructure to offering luxurious living conditions. The service providers are positioned in Fig. 4 so as to transform the triadic structure into an interactive pyramid.

Fig. 4. Service providers’ role in government structures

It is extremely important to understand the role of the government in the citizen context. Governments go about their tasks differently in the way they service individuals separately and the nation and collectively. It is important to understand this difference. This has a direct bearing on how individuals should view the government’ responsibilities and those of the providers enabling service delivery (e.g. [13]-[14]).

III. GOVERNMENT MATURITY

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1 The term “joined-up government” was coined several years ago in the United Kingdom, when Prime Minister Tony Blair presented the first U.K. e-government strategy. This strategy’s goal was to “join up” electronic services by 2005. Since then, the term has been widely used worldwide to describe the integration of services, processes, systems, data and applications necessary to achieve a seamless, citizen-centered government.
As governments strive to discharge their responsibilities and fulfill their tasks, they evolve structurally, building on their own infrastructure to levels of operational maturity. There are four stages of this maturational model as represented in Fig. 5: (1) Basic, (2) Integrated, (3) Interactive and (4) Proactive. At the basic level, the government fulfills its duties and goes about its tasks, each department of government independently providing services. At the integrated stage the different government departments begin to integrate through data sharing processes. As systems evolve further, business processes and their applications integrate to provide interactive services with increased citizen participation in government. The most evolved government would be one offering its services with 24-hour availability and the citizen, as its central focus, given a say in all the administrative processes that affect daily life. This model such an evolution brings me to the present focus on-Government.

![Fig. 5. Government maturity phases](image)

In the e-Government context, integration and citizen participation are functions of the availability of the government for citizens. Greater availability would imply more citizen participation. More participation would mean a more pro-active government, sharing the responsibilities and duties with its citizens and ensuring delivery of quality services to citizens to improve quality of life [13,15]. Let us explore the role of ICT in its government context in the following section.

**IV. ICT ROLE IN GOVERNMENT**

The role of ICT in government transformation and evolution cannot be overstated. Let us look at an example of government practice in this domain. Fig. 6 depicts a diagram developed by the European Commission that illustrates the role of ICT in enabling various e-government models for the European Union (EU) in 2020 [16]. It illustrates the projected adoption of technology in six distinct stages. The first stage concentrates on the development of a clear taxonomy of value-based government roles and the identification of key areas of transformation where ICT can make a substantial impact. The second stage involves identifying ‘promising’ technologies that may contribute to the enhancement of (future) governmental tasks and activities. The third stage represents the identification of what have been labeled the ‘hot spots’ of government transformation. This stage should result in the identification and clustering of combinations of roles and technologies in various ‘hot spots’.

![Fig. 6. ICT and the Government. Source: [16]](image)

The fourth stage depends upon the way future trends manifest themselves. They might present as scenarios in which the consequences of promising ICT-developments are actualized as new e-government services and new e-government models. These ICT innovation based service models might show themselves in the broader context of related social, economic, institutional and organizational trends. The fifth stage represents the future-oriented framework in which the benefits and impacts of e-government are measured. The sixth stage represents research work towards, and framing of, apt policy changes that enable successful e-transformation.

The components presented in the above diagram form the crux of this model for ICT in a government context. The model provides an archetype for government transformation and can inform long-term strategic planning. It can be applied to identify emerging trends and opportunities arising in the process of evolution of new information and communication technologies, in order to enhance government performance and capacity for governance in 2020 [16].

**V. THE TRANSITION TO THE CUSTOMER AGE**

In today’s climate of political and socioeconomic change, communication is playing a decisive role in promoting development [1]. We are living in the age of information and its digital world of instant communication. The information revolution has dramatically increased the potential for sharing information across the globe [17]. This information age is now evolving.

The emergence of a series of new communications concepts and applications in this age of information revolution has created more opportunities and possibilities for both users and services providers. Forrester’s research has identified this new age as the age of the customer [18]. See also Fig. 7. Forrester points out that the Age of Customer is not about ‘customer-centricity’ thinking or ‘the customer is always right.’ Rather, it is about the empowerment of customers so that
focus on the customer now matters more than any other strategic imperative (ibid.).

Empowered customers are disrupting every industry. In this age of the customer, the only sustainable competitive advantage is knowledge of customers and engagement with them. Citizens are becoming more digitally aware. They are mobile in the digital world, and they have more power than ever before. The balance of power has shifted. With online reviews, social media, and smart phones, citizens know more about services, living standards, and how other governments operate. They share their opinions with their friends and the online community.

The world has been witnessing a paradigm shift in government, as governments are being prompted to adopt radical reform initiatives to in their redesign in order to address public needs and services from contemporary consumer perspectives. It is also pushing governments to give the nod to more innovative public management methods and tools in the public sector, thus creating a significant and sustainable impact through economic growth, better public services, higher government productivity and increased efficiency.

As new communication technologies are being developed and made more widely available, governments have withdrawn from certain functions that are now being taken over by private enterprise [1]. We have experienced in the recent past how interactions on social networks have transformed the societal outlook on government.

Government organizations in many parts of the world underwent dramatic transformation over the last two decades, becoming more citizen friendly and more importantly, available on demand. Many governments have adopted different channels of communication and setup their information networks to be directly accessible, at a click or a call, for their citizens. This has brought about a vast change in service availability and the quality of service.

In this age of the customer, governments are expected to reach out to their citizens and provide services on a personalized level [19]. Some argue that government priorities should be directed towards citizens and that governments should focus on the development of compelling business cases to support and create roadmaps for such transformation, showing measurable returns on the enhancement of service quality and capacity for delivery.

The next section of this paper discusses the link between public perceptions of service quality and the promotion of trust in technologies supporting service delivery.

VI. GOVERNMENT AND QUALITY OF SERVICE (QoS)

As governments transformed themselves and evolve into inclusive e-governments, quality models have evolved to measure the effectiveness and delivery of services (e.g. [20]-[23]). Service orientation has become critical in all aspects of today's organizations. Government quality programs in many countries around the world are actively promoting quality and excellence in operations, project outcomes and service delivery [24]. Excellence programs are perceived by governments as a tool to achieve sustainable growth and enhanced performance, create breakthroughs in public sector productivity, and boost engagement (e.g. [25]-[26]). The European Framework for Quality Management (EFQM) is one of the most common frameworks used in public and private sector organisations (e.g. [27]-[29]). Fig. 8 depicts the overall EFQM excellence model.

The foundation on which the European Foundation for Quality Management stands comes from the concept of Total Quality Management (TQM), management that seeks to deliver tangible improvements in quality of life for society as a whole and for individual citizens as beneficiaries and consumers of government products and services. TQM, and other concepts such as Customer Relationship Management (CRM) and Business Process Reengineering (BPR) are all seen as reform initiatives that have been used to achieve higher levels of quality in alignment with the New Public Management (NPM) approach (e.g. [30]-[33]). ICTs are central to these methodologies because of their utility in data collection and work flow structuring, and their ability to embed structure within newly designed work processes [32]. Technology plays a critically enabling role.

A result of the adoption of such technology is the vast improvement in the availability of various channels of
interaction and service delivery for the citizens. See Fig. 9. This is facilitated by the implementation of different networks that enable communication and data exchange. See also Fig. 8. Enhancement of security systems has enabled the different networks to interact with each other to provide a rich, seamless environment for service delivery.

The digital identity of the service beneficiary and the service provider is central to these processes. Trusted transactions are enabled by verified and authenticated digital identities. Digital identification technologies are envisaged to enable secure delivery of services to the correct beneficiaries with a clear audit trail [34]. The literature reports strong evidence of the use of digital identification technologies as effective tools in practice to lowering barriers in citizen access and for promoting equitable public service delivery (e.g. [34]-[38]).

Digital identification is seen as key foundation for governments to offer an increased portfolio of public services to citizens in an efficient and cost effective manner. Various forms of identification technologies have enabled citizens to access more joined-up and comprehensive services in one-stop-shops with a single website and telephone number, providing information and a single point of contact (e.g. [12],[34],[39]-[40]).

The matrix in Fig. 10 provides an overview of the interwoven technologies and the role of ICT in enabling the services and service delivery channels. With the integrated applications and networks, the citizen is provided with smart systems for interaction with the government across multiple channels.

We would like to emphasize the challenge posed by disruptive technologies. Evolving government’s management of technology protects its investments, especially in the public service domain e.g., governments have invested vast multi protocol label switching (MPLS) networks for providing seamless communications experiences on phones and internet, combining the voice and data communications. Technologies such as voice over internet protocol (VoIP) have proven disruptive to conventional telecommunications. Tablets have disrupted the personal computing and communications domains.

Proper regulation of technology adoption must be addressed to protect investments, citizens with freedom to choose their service channels, and improve customer satisfaction (e.g. [41]-[42]). Regulation of the adoption of technology supports the investment in it and enables citizens to obtain better services.

Contemporary audit trail systems and digital identification technologies are emerging as effective mechanisms to ensure that transactions can be carried out from anywhere, independent of geographic and time limitations. See for example: (e.g. [43]-[47]). Integrated processes for technical and business processes ensure that complicated transactions can be carried out quickly. This also enables us to track and maintain the service agreements with a very high level of

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2Digital Identity: refers to an identity in the domain of cyberspace. It encompasses a set of data and attributes that associates a person’s to his/her digital identity and uniquely describes a person in electronic environments.

3We refer here to Identity and Access Management (IAM) systems that are related to managing the critical function of authentication and authorization to access an organizations data and resources. Many governments have initiated identity management systems that involve smart cards, biometrics, and encryption technologies to authenticate their citizens’ identities and improve public service delivery. See for example [24],[37].

4MPLS is an abbreviation for Multiprotocol Label Switching. It is a mechanism in high-performance telecommunications networks that directs data from one network node to the next based on short path labels rather than long network addresses, avoiding complex lookups in a routing table. The labels identify virtual links (paths) between distant nodes rather than endpoints. MPLS can encapsulate packets of various network protocols.

5Voice over IP (VoIP, abbreviation of voice over Internet Protocol) commonly refers to the communication protocols, technologies, methodologies, and transmission techniques involved in the delivery of voice communications and multimedia sessions over Internet Protocol (IP) networks. One of the biggest advantages of VoIP is that the telephone calls over the Internet do not incur a surcharge beyond what the user is paying for Internet access, much in the same way that the user doesn’t pay for sending individual e-mails over the Internet.

6An audit trail (or audit log) is a security-relevant chronological record(s) that provides documentary evidence of the sequence of activities that have affected a specific operation, procedure, or event at any given time.
assurance. Such technologies would enable higher levels of transparency in transactions and thereby assurance of the reliability of remote transactions is achieved.

VII. THE PROPOSED SERVICE GOVERNANCE FRAMEWORK

When the public expects availability of quality services, assurance of service levels becomes a priority. A proper framework for service governance is required. Several models exist for service and IT governance frameworks. CoBIT 5 (control objectives for information and related technologies)\(^7\) and ITIL (information technology infrastructure library)\(^8\) provide excellent guides. These standards are technical in nature. CoBIT is developed as a generally applicable and accepted standard for good Information Technology (IT) security and control practices that provides a reference framework for management, users, and for information services (IS) audit, control and security practitioners. ITIL is one of the global standards on which CoBIT is based. ITIL describes the service management processes and recommends security and control practices but does not have a standard for them, which is where CoBIT comes in, because it provides a serviceable framework from which to perform audits on ITIL processes.

Based on these standards and the author’s experience, a simplified service governance framework was constructed for potential be deployment on a national level as depicted in Fig. 11. The framework is developed on the understanding that availability of services and quality of services need to be managed in order to address rapidly changing citizen preferences. The framework is designed to stress the need for a structured approach to program management with a focus on two principles:

1. Strategic Alignment: Focuses on ensuring the linkage of overall government strategic objectives with the IT plans of its agencies;
2. Value Delivery: Focuses on executing the value proposition throughout the delivery cycle, and ensuring that IT delivers the benefits promised from the strategy, concentrating on optimizing costs and proving the intrinsic value of IT.

The framework objects are broken down into several sub-components. These are discussed next.

\(^7\) CoBIT is an abbreviation for Control Objectives for Information and Related Technologies. It is a framework created by an international organization called the Information Systems Audit and Control Association (ISACA). The framework is developed to support IT management and governance. In short, it is a supporting toolset that allows managers to bridge the gap between control requirements, technical issues and business risks. CoBIT was first released in 1996, the current version, COBIT 5 was published in 2012.

\(^8\) ITIL is an abbreviation for the Information Technology Infrastructure Library. It is a set of practices for IT service management (ITSM) that focuses on aligning IT services with the needs of business. In its current form (known as ITILv3 and ITIL 2011 edition), ITIL is published in a series of five core publications, each of which covers an ITSM lifecycle stage. ITIL describes procedures, tasks and checklists that are not organization-specific, used by an organization for establishing a minimum level of competency. It allows the organization to establish a baseline from which it can plan, implement, and measure. It is used to demonstrate compliance and to measure improvement.

Guided by these national level policies, the Service Governance Committee would have three major domains of function: (1) Governance of Services, (2) Governance of Usage of Services, and (3) Governance of the IT Systems (supporting services and service delivery). We will briefly discuss each. See also Fig. 13.

- **Governance of Services:**

![Fig. 11. Service and IT Governance Framework](image-url)

![Fig. 12. The top layer of the service governance framework](image-url)

![Fig. 13. The three main functions of governance committee](image-url)
This would oversee the overall service definition, management of the service catalog and definition of the different types of services and different service channels. This would provide the basis for defining standards for quality of services.

- **Governance of Usage of Services:**
  This would deal with the beneficiaries’ management and the actual delivery of the services. It would oversee the availability of the services and qualify the service beneficiaries and regulators of the service delivery channels. ‘How’, ‘When’, ‘Where’, ‘Why’ and ‘Who’ are the components of the usage of services, while governance of services would deal with the ‘what’.

- **Governance of IT Systems:**
  That IT plays a major role in service delivery and the service processes is undeniable. IT Governance would deal with technical processes, standardization of technical infrastructure and processes required to facilitate service delivery.

![Fig. 14: Service governance framework components](image)

The next level is about service governance framework components. See Fig. 14. These components could be grouped as implementation objects of the framework. This is guided by a clear service practice statement (SPS) and a well-defined service strategy. The SPS would be an unambiguous statement providing the vision and a set of practices that would lay the foundation for the service delivery and a state a commitment regarding the quality of service and service delivery.

As the Federal IT Authority would act as the central authority for guiding and managing government services, it would need to deal with the development of national infrastructure, enabling services and service delivery. This would not merely include the logical infrastructure but also the physical infrastructure. Thus, development of IT infrastructure/computing systems, service centers, and service channels would be handled here.

At the other end of the development spectrum lies human capital development. Service development and delivery is not just a function of faceless machines but necessitates human interfaces. While humans are the beneficiaries of the services, would delivery of these services be driven by machines? Not so! It would essentially be driven by people. Human capital development would contribute greatly to the development of the service organization.

The four other components that form the implementation objects of the services framework are the service catalog with all the services, service owners, service responsibilities, service beneficiaries, and the channels that make services available. Service channels would handle the different devices, locations and means of the service delivery. It is critical to manage the chain of delivery right through to its last link, which more often than not defines the end of customer satisfaction. Management of the service processes and the associated performance measures provide the closed loop for process control.

At the base of the framework is the actual IT Infrastructure and the necessary technical devices covering backbone connectivity, computing infrastructure, security infrastructure and the integration of the technical and business processes delivering quality services.

The key component in the national services framework is the identity management process, specifically digital identity management. Digital Identity is the e-profile of a service seeker/beneficiary/provider, along with the unique identity and related credentials that establish—not just the identity but also trust between the different stakeholders [37]. This is the key to seek, deliver and benefit from the services across multiple channels of delivery in a seamless and flexible manner. Service beneficiaries and service providers would also interact with a high level of assurance in secure electronic transactional environments. This should lay the foundation for 24 hour service availability and the necessary security in the service delivery.

The next section concludes the article.

VIII. CONCLUDING REMARKS

In this article, we presented a conceptual framework for service governance on a national level. We intend this tool to be useful for governments and policy makers. The proposed framework could guide and motivate governments to develop and refine policy and practice and to self-regulate fields of service provision and governance. The components of the proposed framework reflect fields of practice that governments should engage in to ensure that their agencies comply with the national IT objectives, and that good management and effective monitoring of performance occur. Further research into practice within such a frame could provide useful insights to guide, develop and refine the framework.

We have also pointed out that today’s governments have evolved over centuries in their practices in relation to the management and development of economic and social resources. ICT has played a central role in supporting government efforts in multi-faceted domains while making them more transparent and answerable to their citizens.

In the context of globalization, governments need to understand the links between citizen satisfaction and the quality of services provided by government agencies. The development of citizen centered government systems would be in the interests of public welfare, improving both citizen satisfaction and cost effectiveness of the public sector. See also Fig. 15.
Fig. 15. Balancing citizen satisfaction with demanded service quality

Government quality programs involving TQM, BPR, and CRM should focus on improving manageable aspects of service-delivery systems, and should aim to measure citizen satisfaction and monitor reactions to change [48]. If quality programs are initiated, based on research with structured science and proven best practice, then improvement in quality should lead to greater satisfaction (ibid).

Modern digital identification technologies should be viewed as disruptive technologies. They have the potential to create new value systems, and to disrupt and displace existing public sector systems and technologies. Digital identification technologies provide higher levels of identity assurance and promote the development of more innovative and secure models of service delivery, enabling greater accessibility of government systems and facilitating choice of delivery channels.

Finally, the application of carefully chosen ICT could be seen as a "silver bullet" that has the potential to improve the overall performance and service delivery in the public sector. The link between citizen satisfaction and service quality should be addressed by government initiatives.

REFERENCES


