

## Chapter 08

# Role of E-Government in Public Services Delivery in Sri Lanka: A Review

**OG Dayaratna-Banda**

*University of Peradeniya*

**Nipuni Dissanayake**

*University of University of South-Eastern Norway*

---

### **Introduction**

Institutions in the private sector have always been at the forefront of adopting newer technologies to maintain the efficiency and effectiveness of their organizations, while governments have been lagging in adopting modern technologies in public institutions. The term electronic government (e-government) has been used to denote the use of digital technologies in the functions of government. According to Gartner Group (Kao et al., 2000), “e-government is the continuous optimization of services delivery, constituency participation, and governance by transforming internal and external relationships through technology, the internet and new media”. Hence, e-government includes government services provided to citizens, employees, businesses, and government agencies using digital technologies. In integrating e-government with public administration, Brown (2005) has expounded that e-government combines two elements of the government; ‘one is the environment within the government and in the society at large, created by the use of electronic technologies such as computing, email, the World Wide Web, wireless and other ITs, combined with management models such as client/citizen centricity and single-window convergence, and the other

element is the basic model of the state and public administration within that, linking the dynamics of democracy, governance and public management.

Integration of digital technologies to government functions has taken diverse forms and magnitudes in different countries, in which advanced economies are leading while developing countries are lagging. For example, in Sri Lanka, efforts to introduce digital and assistive technologies to the functions of the government commenced in the early 1980s by formulating national information technology (IT) policies but due to various barriers it was not appropriately implemented (Hanna, 2008).

Public services include activities governments manage to serve the citizens (CTFT, 2014). It is any service provided for a large number of citizens by the government (Grout and Stevans, 2003). The legislative and executive regulations define the functions of public services (Calabro, 2011). With the emergence of new challenges and needs of the citizens, public services often tend to undergo reforms and modernization. Many governments and public services organizations are trying to secure the fundamental changes in the design of public services delivery to provide better services to the citizens (Ferlie et al., 2003).

There are at least three main theories of IT in public administration. First, the theory of technological dynamism which argues that a critical driver of change in information systems is the theory of technology determinism (Voltis, 1992). According to this theory, when new technology appears, it creates change and will be adopted by public administration. Second, the reinforcement theory which argues that administrations implement IT if it supports their view of organizational change (Sherrod, 1971). Finally, it argues that in elections citizens choose candidates who have a similar position to them on the issues.

In the same way, information technology is adopted in public administration if it agrees with the public administrators' view on the organization's future direction. Third, the socio-technical theory which argues that organizations are made up of people in the social system that use tools, techniques, and knowledge to shape the organization (Pasmore, 1988). Finally,

it argues that the demands of the external environment influence technical change. These theories take the position that the adoption of information technology for organizational change significantly depends on the corporate cultures, social systems, and the views of the public administrators.

Deakin (1990) identified several aspects to be considered in providing better public services, including; (i) accountability between providers and users and community; (ii) representation and participation from the whole citizen body and users of the services through dialogue and consultative decision making; (iii) information about the availability, operation, organization and performance on users' interests; (iv) access including availability, ease and adaptability to meet the new needs; (v) choices to be freely made by the citizens; and (vi) redress through complaining channels and related procedures. In a system of e-government, if the government has given due regard to these aspects and has instituted the public services delivery mechanism, there shall be a responsible and trustworthy government that delivers public services efficiently, effectively and equitably.

In providing public services, governments may attempt to be innovative (Stewart, 1987) and encourage an influential role for the users to ensure a good service (Deakin, 1990). In addition, governments may attempt to build trust in public services delivery organizations (Hartley, 2005) through continuous efforts to transform the mechanism and methods of services delivery, so that the mechanisms should go beyond simple automation such as restructuring and transformation of public services delivery needs to be thought (Strover, 2002).

In attempts to provide public services efficiently, effectively and equitably, the introduction of novel technologies to the government has taken place since the 1990s in many countries worldwide. Information communication technology and related technologies became the central instruments in converting traditional governments into electronic governments (Anthopoulos et al., 2015) that sought to reduce costs of providing public services while improving the quality of the services and reach. However, going beyond the use of IT, many governments presently seem to practice complex e-government systems that have become a new administrative system.

E-government is used to improve efficiency, equity and effectiveness of public services delivery as it can reduce costs of public services delivery by using digital technologies. Khosrow-Pour (2009) has identified many significant benefits of electronic government, summarized in table 1. These make it clear that the introduction of e-government tends to significantly improve the quality of public services delivery that would create an effective government. The e-government contributes to improved public service, administrative efficiency, open government capabilities, ethical behaviour and professionalism of public employees, trust and confidence, and social values (Khosrow-Pour 2009; Carter, 2005; Cook and Harrison, 2015; Castelnovo, 2013; Ndou, 2004; Rose et al., 2015).

E-government cannot be considered as a single configuration of meaning, power and norms. Digitization of governments is as much cultural and interpretive as well as technical and objective (Chen, 2003; Chen et al., 2014). The introduction of IT into the government's functions will not automatically impact the improvement of public services. It significantly depends on the public services orientation of the government and social structures so that governments should be mindful of citizens' interests, values and needs in designing public services delivery mechanisms (Chen, 2003; Chen et al., 2014).

E-government is recognized to be uplifting the quality of governmental services by revolutionizing the entire governmental service, which is traditionally criticized for its inefficiency and lower productivity, particularly in developing countries (Giordano et al., 2015). Furthermore, with the mounting digital literacy rate and internet penetration followed by the arrival of smart handheld devices with a vast array of network-friendly applications, people eventually choose online services over time-consuming and costly manual and paper-based services. As a result, e-government is expected to contribute to quality enhancement, increasing cost efficiency, improved transparency, and greater equity resulting in greater democracy, minimization of corruption, investment-friendly atmosphere, increased economic growth and stability, and greater customer and employee satisfaction (Wadhwa, 2020; Patnaik, Pattnaik & Singh 2020).

**Table 1: Benefits of E-Government**

Type of Benefits	Description
Removed Boundaries	The electronic government will help break down the agency and jurisdictional barriers to allow more integrated whole-of-government services across the tiers of government. In addition, seamless access will be taken much further with electronic government, making the government more approachable.
Enhanced Accessibility	A government in the off-line environment can be challenging to access. It often requires visits to the government office, while some business activities can be conducted by phone. It can be problematic for people in regional and remote locations. The electronic government offers the potential to increase access to information and services significantly.
Improved services quality	The underlying goal of the electronic government is to improve service quality for all citizens. The electronic government represents convenient and reliable services with lower compliance costs and higher quality and value.
Integrated agencies	Cross-agency initiatives can lead to high-value services which provide efficiency benefits for citizens and the government. Scope for cross-agency initiatives exists where several services are closely related – that is, where information needs to be gathered from more than one agency.
Improved reputation	The electronic government helps build an image of a country as a modern nation, an attractive location for people to visit, and make businesses investments.
Greater citizens participation	The electronic government makes it easier for those who wish to contribute.

Source: Khosrow-Pour, 2009.

As characterized by Tennakoon (2020), transformation to e-government takes place on several key pillars. At the initial stage, the e-services are limited to disseminating information as governmental agencies set up their websites to share information about them and make the services and information available about contacting them. Next, the movement to official two-way transactions occurs, where sensitive information such as personal and financial information are exchanged between a governmental body and other parties. At stage two, privacy and security concerns are highly relevant to secure the transaction. The next stage is characterized by multipurpose portals, which allow customers to use a single point-of-entry to all citizens/customer-centric service deliveries. The e-governmental service demands may cut across different government agencies stressing all related governmental bodies to span their systems beyond the institutional boundaries. At stage four, personalization of the portal takes place, allowing citizens/customers to access a variety of services at a single website while accommodating a greater level of personalization for individual users. It calls for sophisticated web programming to enable interfaces with both electronic and non-electronic services. At the fifth stage, the fundamental transformation of government structures into e-forms, takes place. These standard services are clustered so that customers can enjoy a unified package of e-services instead of a set of disparate services. Hence, the departmental boundaries may become invalid and merge to create a network of institutions.

Finally, during stage six, transformation and full integration of e-governmental services arise. Front and back offices services are joined together via technology to offer seamless service delivery. This transformation process is usually a lengthy and incremental one and thus may take differing periods depending on the e-readiness of each governmental department (Tennakoon, 2020; Wadhva, 2020; Turban et al., 2015).

E-government has had a significant impact on public administration by changing the public service's environment, adding new concepts and methods to its operations, and changing the relative weight and relationships among established elements of public administration. E-government includes many elements such as citizen-centred service, information as a public resource,

new skills and relationships, impact on accountability and management models, technological advancements, and improved services. These activities of e-government can be understood through four broader perspectives: e-service, i.e., e-delivery of the government information, programmes, services; e-management, i.e., use of the information technology to improve the management of government from streamlining business processes to improve the flow of information within government offices; e-democracy, i.e., use of e-communication vehicles such as email and internet to promote citizens' participation in the public decision-making process; and e-commerce, i.e., the exchange of money for government goods and services (Cook et al., 2002).

As a technology-driven service delivery system, e-government possesses countless benefits for any country regardless of its size and economic status. E-government tends to enhance the service quality of the governmental services with improved efficiency and lowered cost (Bhuiyan, 2011). The governmental procedures tend to become simple to understand and easy to deal with once they are transformed into e-format. Likewise, the e-government carries great potential that can be fruitfully used to enhance the quality of public services.

There are several studies on the adoption of IT in government in Sri Lanka. First, most studies in this area have focused on administrative systems and reforms in Sri Lanka from a public administration perspective (Wanasinghe, 1994; Samaratunga & Bennington, 2002; de Alwis, 2013; Nanayakkara, 2015; Liyanage et al., 2019a). Second, some studies have analyzed the role of digital technologies in improving the functions of government institutions in Sri Lanka (Hanna, 2008; Weerakkody et al., 2009; Tennakoon, 2020). These studies emphasize the role of technology, especially information technology, in improving the functions of the government and governance. Third, a few studies have focused on examining the effects of IT on the efficiency of public services in Sri Lanka (Fernando, 2006; Deshani & Weerasinghe, 2015; Elapatha and Jehan, 2020; Alahakoon and Jehan, 2020). These studies analyze the role of IT in government from an information technology perspective.

This theoretical and empirical literature emphasizes several benefits of e-government, including; (1) making every information of the government available to all in the public interest; (2) making the government aware of the problems of the people; (3) increasing and encouraging people's participation in the governance process; (4) improving the country's information and communication technology and electronic media, for uplifting the country's economy by keeping governments, people and businesses in tune with the modern world; and (5) establishing transparency and accountability in the governance process; and reducing government spending on information and services (Hanna, 2008). E-government, therefore, is expected to generate many benefits to the society at large, including; (1) improving convenience; (2) promoting transparency; (3) saving the time of employees; (4) improving the accessibility of data; (5) unifying various departments/divisions of the government; (6) cutting public expenditure; (7) saving physical space; and (8) promoting sustainability (Bertrand, 2019; MDIIT, ICTA, 2019). It is expected to completely transform all government functions that will enable it to provide better services to society. However, how far these objectives have been achieved in the case of Sri Lanka is not yet thoroughly studied and revealed.

It is also clear that though there is an abundance of theoretical and empirical studies that have emphasized the role of e-government in improving the quality and efficiency of government, most developing countries, including Sri Lanka, appear to have not successfully attempted to reap the benefits of e-government. This study, discusses the relevance of these conceptual and theoretical insights to see how far the policymakers in Sri Lanka have been guided by these ideas and assess the progress of implementation of e-government as well as its effects. The existing empirical studies concerning advanced economies clearly show that e-government has contributed to significantly improving public administration. However, there is a lack of studies evaluating the implementation of e-government, its effects on the efficiency and effectiveness of public services delivery in Sri Lanka, and the prevailing institutional, social and cultural impediments to implementing e-government in Sri Lanka. To fill this void, this paper will review and discuss the implementation of digital technologies in government,

the contribution of e-government efficiency and the effectiveness of public services delivery. In addition, the review will identify various impediments to implementing e-government initiatives in Sri Lanka that needs to be addressed through public policy and legislation to convert the traditional government into e-government.

The remainder of this paper is organized as follows. Section two has focusses on the progress of introducing digital technologies in public institutions in Sri Lanka since the early 1990s. Section three analyzes the role of digitalization of the functions of the government in Sri Lanka in determining the efficiency and effectiveness of public services delivery. Section four pays attention to various impediments existing for the digitalization of government. The last section presents the concluding remarks.

### **Implementation of E-government in Sri Lanka**

Integration of digital technologies to various government institutes in Sri Lanka commenced in the early 1990s. These include digitalization of regional pension and decision support system, integrated rural development programme, activities of Export Development Board, project monitoring for state accounts, operations of the banking sector, employee provident fund, government press, citizens database, Lanka Educational and Research Network, and utility billing. Digitalization in these functions has happened in different magnitudes, however the progress achieved is low. Sri Lanka's experience of introducing e-government has been one of moderate success even though computing was introduced to Sri Lanka as early as 1962 when IBM supplied the Insurance Corporation with accounting machines (Samaranayake, 1998). Soon after, the State Engineering Corporation and later the Department of Census and Statistics, using their IBMs, provided computing facilities to many state agencies and universities. In 1977, a lump-sum depreciation scheme was introduced under a new government that promoted a free market economy to encourage computerization (Hanna, 2008). That prompted many state and private sector organizations to use computers. From this initiative, Sri Lanka has come a long way with myriads of achievements, failures, and obstacles in incorporating e-government practices into governance, public and private service delivery.

Sri Lanka introduced the open economic model, which was highly inspired by Neoliberalism, in 1978. However, it has not been able to eliminate the deep-rooted socialist practices in its political stance. The dichotomy between Neoliberalism and Socialism is sharply visible in Sri Lankan economic and political spheres. The rivalry between these two major ideologies has affected shaping the e-government initiatives of Sri Lanka since its renewal and restoration process in the late 1970s. With the introduction of Neoliberal economic policies, Sri Lanka also incorporated New Public Management practices into its governance structure. This was a significant turning point in the attempt of incorporating e-government into public services delivery in Sri Lanka. Later this process was also stimulated by merging the approach of Public-Private Partnerships (PPP) into the governance mechanism of Sri Lanka, which directly determined the structures and functions of the model of e-government in Sri Lanka. The following sections of this paper have briefly explained the evolution of e-government in public service delivery in Sri Lanka by taking appropriate examples.

With the advent of the microcomputer and the personal computer in the 1980s, the Minister of Education introduced computers to a large number of schools, along with curriculum development and teacher training, conducted with the aid of a few universities competent in IT. A comprehensive plan was developed to introduce computing to all universities and train university lecturers. British Aid supported overseas training and equipment purchases (Hanna, 2008). Meanwhile, the University Grants Commission, a state body, also supported the programme. As a result, many public sector institutes followed computerization projects. Some of those projects were featured by the Asia Pacific Development Center (APDC) in its Asian case studies on public sector computerization, alongside examples from India, Malaysia, Singapore, and Thailand (APDC 1986). Analysis of such projects points to some common patterns in their successes and failures.

Information Technology (IT) was introduced to school syllabuses and universities as an academic discipline around the 1980s; after four decades now, its performances can be evaluated. It can be stated that there are a lot of peaks and valleys in this process as IT education has taken place through

trials and tribulations. Still, it is recognized that IT education is limited to urban schools in Sri Lanka. IT education has not successfully tapped the rural schools in underdeveloped areas in Sri Lanka by the moment of writing this paper. This situation results from the unequal distribution of resources, regional development disparities, weak public policies and decision making, and lack of physical and human resources. Nevertheless, Sri Lanka has a high adult literacy rate of nearly 92 per cent from 1981 to 2021 due to the free education system (World Bank, 2020). In comparison, the percentage of the computer literate population is only 32.0 per cent in 2020 (Department of Census and Statistics, 2020). The availability of personal computers at the household level varies between 22 per cent to 23 per cent in the period from 2018 to 2020 (Department of Census and Statistics, 2020). There is a considerable scarcity of IT teachers in government schools in Sri Lanka, especially in rural areas.

The destruction caused by the thirty-year protracted civil war in Sri Lanka prevented socio-economic development and progress of any governance initiative in the Northern and Eastern parts of the country in many ways. This civil war has also caused a drawback in IT education and infrastructure development to facilitate such education in war-affected regions. Apart from these factors, many school students show resistance and sluggishness in IT education, even in schools in urban areas. This circumstance resulted from long-term conservative practices in the Sri Lankan education system with deep socio-economic and psychological roots. It has been identified that a particular percentage of students maintain the same lethargy towards IT practices even after enrolling in universities. To address this challenging situation, most faculties in most of the state and non-state universities in Sri Lanka have introduced mandatory IT courses with credits to make every student familiar with computer usage. However, this kind of forceful exercise cannot make computers a student-friendly application without gaining the confidence and passion of students. Moreover, the government, since 2015, launched a credit facility system for university students with zero interest rates to buy laptops to support their university education.

**Table 2: Early Stage Key E-government Initiatives in Sri Lanka**

	<b>Initiative</b>	<b>Description</b>
1.	Regional pension and decision support systems	In the mid-1980s, the Sri Lankan Treasury introduced two IT pilot projects at the Government Agent's Office in Kalutara, a district close to Colombo.
2.	Integrated Rural Development Programme	In the early 1980s, Sri Lanka introduced the Integrated Rural Development Programme (IRDP) in all districts of the country. Funding came from several donor countries.
3.	Trade	In the early 1980s, the Export Development Board took some enterprising steps to support export trade.
4.	Project monitoring for state accounts	In the mid-1980s, the Department of National Planning initiated the use of IT for monitoring development projects. The department had a remote link to the minicomputer system at the National Institute of Business Management, a state sector pioneer in IT training and consulting services.
5.	Banking sector	Local banks moved to computerization early, driven in part by competition from foreign banks that had already done so. The Central Bank of Sri Lanka then established an automated interbank clearinghouse in the late 1980s.
6.	Employees' Provident and Trust Funds	The Employees' Provident Fund is managed by a board that functions under the Ministry of Labor. Nevertheless, its computerization was handled by the Central Bank, using its mainframe computer.
7.	Government printer	In 2000, the agency made a digital version of the Government Gazette available through its intranet. However, the publication is still not available on the internet.
8.	LK portal	The Computer and Information Technology Council of Sri Lanka (CINTEC) launched a national Web portal named www. Lk. The portal had been linked to several websites, such as the website of the Information Department and some Sri Lankan newspapers.

9.	Department of Inland Revenue	The Department of Inland Revenue began its computerization programme several decades ago. However, progress was slow, and the department was left with a legacy of manual operations and an IT-illiterate workforce.
10.	Citizen database	One of the most apparent e-government initiatives would be integrating the data relating to citizens and sharing these data across agencies.
11.	Lankan Educational and Research Network	As email came into use, at least between computer scientists, Sri Lankans overseas created a store and forward email facility: a volunteer took a daily telephone call from the United States, then sent the day's collection of email to the University of Moratuwa. Thus began SLNet, which later turned into the Lankan Educational and Research Network (LEARN).
12.	Y2K Task Force	The task force consisted of professionals from key agencies. They all worked as a team and kept the Cabinet, and the public informed.
13.	Utility billing	Billing and payment collection for utility services, telephone, electricity, water are excellent targets for computerization.
14.	Release of examination results	The Department of Examinations has been computerizing the scoring and administration of national exams for more than 30 years, continually modernizing and improving the system. Recently, the department released the results of the national exams through the internet, giving hundreds of thousands of candidates' instant access to their results.

Source: Hanna, 2008.

However, there is a tremendous improvement in this prevailing situation with action taken to digitalize school and university education to overcome the challenges posed by the Covid 19 global pandemic. The importance of IT education is highlighted in this paper because the graduates are the ones who will later implement the e-governance practices in public service delivery after a massive bulk of them are appointed as public officials in the public administration sector in Sri Lanka. Table 2 summarizes the early stage key e-government initiatives in Sri Lanka (Hanna, 2008) that have shown significant success in improving the quality of government.

In 1983, the Government of Sri Lanka (GoSL), for the first time, introduced the National Computer Policy. The Information and Communication Technology Act No. 27 of 2003 was introduced in 2003, and the Information and Communication Technology Agency of Sri Lanka was established (Hanna, 2008; Devendra, 2021). In 2004, the ‘e-Sri Lanka Development Project’ was started, which included information infrastructure building, improvement of human resources in IT, citizen-specific service delivery, creating a modern government using IT for social and economic development, and endorsing Sri Lanka as a hub of IT (Devendra, 2021). The e-Sri Lanka initiative was expected to use IT to develop the economy of Sri Lanka by reducing poverty and thus improving the quality of life of its citizens (Dissanayake and Dissanayake, 2013). However, the massive Tsunami that occurred in the Indian ocean at the end of 2004 hit Sri Lanka and caused colossal destruction, which ceased and reversed the entire ongoing development in every sector, including e-government, by grabbing the essence of the entire national resources to rebuild the destroyed regions. The natural disasters that Sri Lanka has experienced during the last thirty years have significantly diverted the resources allocated to e-government initiatives into disaster relief, rehabilitation and reconstruction.

The Information Communication Technology Agency (ICTA) was established in July 2003 by the government to define, catalyze, and lead the implementation of the country’s IT policy (Hanna, 2008; Hapuarachi, 2011). The ICTA has an effective institutional model that draws on the unique e-development experience of other countries. Independence has been granted

to implement a multi-pronged programme of activities called “Auctioning ideas” (Hanna, 2008; Hapuarchchi, 2011). Since the launch of the e-Sri Lanka initiative in 2002, the country began to develop IT that sought to address the digital divide by disseminating IT to the regions and provinces outside of Colombo, particularly in the rural areas (Gamage and Halpin, 2006). The e-Sri Lanka was envisioned as a framework for creating an enabling environment where the government partnered with stakeholders to develop infrastructure and establish e-government services. The e-Sri Lanka roadmap transformed into the multi-donor funded e-Sri Lanka Development Project, with the Communication Technology Act no. 27 of 2003, under which the Information and Communication Technology Agency (ICTA) was established for implementing the organization of the e-Sri Lanka Development Project. The ICTA’s mandate was strengthened by the IT (Amendment) Act no. 30 of 2008, making the apex IT policymaking body and executive agency for IT (Hanna, 2008; Hapuarchchi, 2011). By today, it can be found that ICTA has achieved some of its desired goals, but not all of them. One of the main barriers in achieving its objectives was finding the vast amount of initial capital needed for the projects launched by the ICTA to promote e-government in Sri Lanka. In this case, the financial assistance provided by the United Nations Development Programme (UNDP) and the local NGOs like ‘Sarvodaya’ contributed extensively to bring the experience of e-government to many marginalized and underdeveloped areas in Sri Lanka.

The e-government initiative was further enhanced with the National IT Policy and Action Plan prepared by the Information Technology Ministry in 2011. In addition, a digital strategy known as “Smart Sri Lanka” was introduced in 2013 with the “One Government 2020” strategy in 2020. The Cabinet of Ministers approved both the 2011 and 2013 strategies for implementation. One Government 2020 strategy was a unified e-government strategy that envisioned a ‘fully integrated, citizen-friendly, cost-effective and converged service delivery to all by 2020 through a responsive and networked government’ (MDIIT, ICTA, 2019). However, many of these programmes and actions in these three documents have thus far been left unimplemented, having little bearing on the development of the national digital agenda.

In 2017, the government introduced ‘Vision 2025’, a policy roadmap to make Sri Lanka a prosperous nation by transforming the country into the knowledge hub of the Indian Ocean by facilitating the social-market economy. This action plan also emphasized the importance of adequately incorporating e-government into the public services delivery to strengthen democratic values by minimizing prevailing corruption in the public sector. As the latest initiative, the National Digital Policy of Sri Lanka from 2020 to 2025 was introduced. It envisioned ‘a better life for people by transforming Sri Lanka into a sustainable country that is prosperous, knowledge-based and inclusive by 2025’. This National Digital Policy outlines Sri Lanka’s digital agenda for 2020 to 2025. The policy provides high-level principles and a conceptual framework for Sri Lanka to achieve sustainable economic development and growth by creating an innovative economy and effective governance. Furthermore, the policy prescribes the key drivers and enablers essential for Sri Lanka’s development as a digitally-empowered nation. The two main pillars identified under this policy relate to the broader economy and governance. The critical enablers are connectivity and networks, digital skills and culture, trust and confidence, and governance and leadership. In addition, the digital potential is a cross-cutting enabler focusing on future-proofing all digital solutions considered in each pillar and enabler (MDIIT, ICTA, 2019).

These highly ambitious agendas experienced limited implementation and minimum success in Sri Lanka. There has been much hype and rhetoric of the role of e-government with limited fragmented actions in certain institutions while most public institutions are far behind the digital age. For decades, the shifting of power between political parties that has resulted in high-level political instability in Sri Lanka has reversed many of the progressive policy changes in e-government with sudden and unpredictable government changes. As a result, the prevailing power struggle in Sri Lanka has lost many fortunes, including overall socio-cultural, economic and political development. One example of this chaotic situation is from 2018 to 2020; within two years, the Sri Lankan government was dissolved, and new governments came into power more than three times.

It is a widespread practice in Sri Lanka; with the power shifts in the political sphere, the public policies also change, including the previews of ministries. Accordingly, the politicians use their influence to change the top positions in the public administration sector and assign their political supporters to those positions to implement their party policies at the ground level in the country. The political culture and identity politics tainted by cronyism, nepotism, favouritism, patronage systems, and various conflicts of interests have adversely affected the implementation of e-government in Sri Lanka since its very beginning. In this manner, in present day Sri Lanka, this high-level political instability and party-based governance instead of policy-based governance have severely damaged the coherence and smooth function of e-government in a plethora of ways.

During the dominion period from 1948 to 1972, Sri Lanka, which inherited a public administration system from colonial rule, had experienced an efficient public administration under the Ceylon civil service, which was simultaneously reformed to create the current administrative system when Sri Lanka became a republic in 1972. During this period, the late Lee Kuan Yew, the founding Prime Minister of Singapore, who spearheaded Singapore to move from a third world country to a first world country, visited Sri Lanka in the 1950s when he was travelling to the UK for studies. He had envisioned developing Singapore to the level of development he saw in every sector in Sri Lanka that prevailed during that era. He was fascinated by the effective and efficient public sector with offices equipped with modern facilities and the public services provided for the citizen free of charges like education and health under the welfare system and rich natural resources of Sri Lanka in that particular passage of history. The public sector in Sri Lanka has not experienced a significant improvement including the adoption of newer technologies. Countries that were far behind Sri Lanka in terms of public sector performance have made significant strides in improving the quality and efficiency of government.

## **Effects of E-Government on Public Services Delivery in Sri Lanka**

Sri Lanka's efforts to introduce e-government has produced mixed results. Table 3 provides data on the e-government survey of the United Nations regarding Sri Lanka. Data indicates that Sri Lanka has made significant progress in introducing e-government since 2003. There is substantial progress in e-government development index value, e-participation index rank, e-participation index value, online services index value, and telecommunication infrastructure index value. However, the e-government development index and human capital index have remained stagnant, though there have been some spikes in specific years during the last two decades. That the e-government development rank has remained almost stagnated during the last two decades indicate that Sri Lanka has failed to implement e-government initiatives to improve the efficiency and effectiveness of government. Many countries that started government initiatives long after Sri Lanka have gone very far in implementing e-government services. Sri Lanka appears to be a case of much political hype and limited success in implementing e-government services.

The efficiency of public services delivery can be achieved under the conditions of maximizing the results of action about the resources used, and it is calculated by comparing the effects obtained in their efforts. Measuring the effectiveness normally requires: (i) estimating the costs the resources consumed in the effort; (ii) estimating the result, the outputs; and (iii) comparing the two. However, it is challenging to evaluate the efficiency of the public services delivery because of the inherent nature of the public services in which there is difficulty in numerically measuring the outputs. Due to measuring issues, attempts have been made to examine efficiency in order to understand whether the introduction of IT has contributed to reducing the cost of the public services that were previously delivered without the support of IT. However, this type of evaluation is not sufficient to assess the outcomes of e-government accurately, and more research and data analysis is required in this matter.

**Table 3: E-government Indicators of Sri Lanka**

Indicator	2003	2010	2012	2014	2016	2018	2020
E-Government Development Index rank	84	111	115	74	79	94	85
E-Government Development Index value	0.38	0.39	0.43	0.54	0.54	0.57	0.67
E-Participation Index rank	37	82	109	33	50	85	66
E-Participation Index value	0.29	0.14	0.07	0.64	0.66	0.62	0.71
Online Service Index value	0.27	0.26	0.37	0.65	0.65	0.66	0.71
Telecommunication Infrastructure Index value	0.03	0.10	0.19	0.23	0.24	0.31	0.52
Human Capital Index value	0.84	0.83	0.73	0.73	0.73	0.74	0.76

**Notes:**

1. The E-government Development Index is a composite measure of three important dimensions of e-government, namely: provision of online services, telecommunication connectivity, and human capacity
2. The E-Participation Index assesses, on a 0-to-1 (best) scale, the quality, relevance, and usefulness of government websites in providing online information and participatory tools and services to their citizens.
3. Online Participation Index measures the online presence of all 193 United Nations Member States, which assesses national websites and how e-government policies and strategies are applied in general and in specific sectors for delivery of essential services
4. The telecommunication Infrastructure Index measures the existing infrastructure required for citizens to participate in e-government.
5. Human Capital Index is used to measure citizens' ability to use e-government services.

Source: UN e-government survey, <https://publicadministration.un.org/egovkb/en-us/Data/Country-Information/id/161-Sri-Lanka>

Sri Lanka appears to have spent a significant amount of taxpayer and donor-funded money to introduce IT into public services delivery during the last two decades. Most public services that have not adopted e-governance in Sri Lanka were not efficient, and the institutes that have adopted digital technologies have shown efficiency improvements (ICTA, 2008; Jehan et al. 2010; Elapatha and Jehan, 2020; Alahakoon and Jehan, 2020). It should be mentioned that the time-saving potential, transparency and accountability, high percentage of accuracy compared with the manual services, resources efficiency in the services delivered through the e-government have contributed to gaining such efficiency and effectiveness.

Several e-government initiatives in public institutions have contributed to improving public services delivery in Sri Lanka. The e-motor revenue license project introduced in the Western Provincial Department of Motor Traffic has enabled vehicle owners to renew the annual revenue license in a few minutes or obtain the license by making payments online. The project on digitization of birth, marriage and death certificates implemented by the Registrar General's Department has enabled residents to obtain a copy of any of the three certificates in a few minutes. The e-human resource management project implemented by the Combined Services Division in the Ministry of Public Administration has led to a high degree of efficiency improvement, saving time and resources spent on administering annual transfers of public servants. The Department of Immigration and Emigration has adopted IT successfully to improve its efficiency and effectiveness through a policy of paperless operations which includes the issue of passports to citizens and border control activities at the international airport in Colombo, the department has been able to achieve efficiency improvements through IT integration and training and motivation of staff (Hanna, 2008; Adhikari, 2014). These are some of the successful e-government initiatives that have contributed to improving the efficiency of public services delivery in Sri Lanka (Chandraguptha, 2012).

Many initiatives in e-government have also brought many other unexpected positive outcomes. The e-government initiatives that have converted traditional public services into digital platforms have reduced

or eliminated the need for the public to visit government offices regularly. This is a significant outcome when it comes to time and resources saving. One of the most important things is that many of the roads in Colombo and other urban areas close to the government offices had a high level of road traffic during office hours. This situation was resulted in visiting thousands of people visiting Colombo and other cities every day to accomplish their public service requirements. That consistent traffic caused an enormous loss in time and money and environmental pollution, including air and noise pollution. Those were severe impediments in Sri Lanka's journey towards sustainable development. Therefore, increased usage of e-government has contributed to achieving sustainable development by reducing resource wastage and improving resources efficiency as its indirect outcome.

E-government has contributed to improving public services delivery in Sri Lanka in several ways, including; reduction of citizens' and organizations' time, efforts and the cost of services; improvement of service delivery and citizens' satisfaction; creation of more work opportunities; improving the efficiency of government agencies; improving services through a better understanding of users' requirement; sharing of good practices and information among various government agencies efficiently and effectively; creating productivity gains by assisting government's policies; improving transparency and accuracy of decisions; and helping build trust between government and citizens. Effectiveness is the capability to produce the desired result or the desired output from a given set of inputs, which is a performance indicator. When the public services delivery is effective due to e-government, it indicates that e-government has generated the intended or desired outcomes. It expects to benefit and address cutting budgets and the critical financial situation government institutions face (Dissanayake, 2011; Abu-Shanab, 2020; Nam, 2019). However, political, economic, and cultural disparities across countries affect the variation in the impact of e-government on government effectiveness and efficiency. By analyzing the aspects mentioned above, it is apparent that proper implementation of e-government practices can promote Sri Lanka's commitment to achieving Sustainable Development Goals (SDGs) by 2030. The Agenda 2030 is a people-centred agenda built on the foundation of transparency, accountability and inclusion.

Hence, both e-government and the SDGs agenda have a great potential in mutually incorporating each other to achieve their objectives.

Though e-government generates significant positive outcomes for public institutions, most public sector officials had no understanding of the value of e-government and seemed to perceive that e-services have no public value (Nufna & Fernando 2020; Alahakoon and Jehan 2020; Liyanage et al., 2021). Therefore, this kind of personal perspectives and ideologies have hindered the progress of e-government in some places. This situation indicates the importance of implementing effective awareness-raising campaigns at every level of society to avoid misunderstandings of the community on e-government in order to fully gain the actual benefits of e-government. However, the e-government initiative of the Ministry of Public Administration has significantly contributed to improving the effectiveness of the services of the ministry.

The effectiveness of e-government services was impeded by institutional and cultural factors inherent in public organizations (Irfan, 2017). The effectiveness of e-government on public services delivery has been constrained by a lack of interpersonal and fully fledged computer users, the absence of goodwill of politicians and bureaucrats, and inadequate e-government infrastructure in government institutions in Sri Lanka. This situation can be identified in highly professional entities like state universities in Sri Lanka. In addition, a certain degree of dogmatism infused into the institutional culture has caused such deterrents.

The contribution of e-government to improving public services delivery has not always been uncontroversial as many conditions tend to govern the success of e-government. For example, in an empirical study concerning the case of Indonesia, it has been revealed that there is a misleading perception that assumes that e-government alone is sufficient to achieve better public service, but evidence suggests that the role of e-government in improving public service tends to significantly depend on factors such as financial support, maintenance of the technology, and work culture of the e-government management (Aritonang 2017). This situation is also highly relevant and applicable in the Sri Lankan context. In addition, even though

some e-government programmes have demonstrated efficiency and economic gains, many are struggling to make a convincing case, and effectiveness and other end-outcomes are even more challenging to achieve (Yang & Rho, 2007).

The success of e-government tends to significantly depend on several factors, including political, social and group rights, resources, organizational leadership, strategic planning and collaboration and the status and recognition of human rights in the society. The experience of many countries in the world overwhelmingly suggests that the institutional, political, social and economic context under which the e-government is implemented tend to play a significant role in determining the impact of e-government on the efficiency and effectiveness of public services delivery. In this case, it is vital to mention the importance of the Right to Information Act, No. 12 of 2016 in the journey of amalgamating e-government into a broad practice at each level of governance. This Act has been perceived as a milestone in citizen-friendly policies in Sri Lanka that can lay the foundation for democracy, open governance, citizens' active participation in governance. The Right to Information of 2016 is a legally binding document that can enhance transparency and accountability in government functions. According to the provisions of this Act, the government of Sri Lanka has the legal obligation of providing information upon the request of the public regarding specific governmental actions which are open to the public. When paying attention to the recent achievements and practices in e-government in Sri Lanka, the Right to Information Act of 2016 paved the way for the people-centred e-government in Sri Lanka by incorporating internationally recognized standards and values related to human rights protection and promotion.

In the case of Sri Lanka, the impact of e-government in public sector performance is not free of controversy. In a comparison of Sri Lanka and the United Kingdom, implementation of e-government is constrained by several barriers, including political, organizational, and technical contexts that in turn dampen the effects of e-government on improving efficiency and effectiveness of public services delivery. The achievement of outcomes, the development of trust, and the effectiveness of public organizations, the public

value of e-government in Sri Lanka is unsatisfactory in all the dimensions of public value generation (Weerakkody et al. 2009; Karunasena et al 2011). This predicament has been inevitable because of the lack of e-services, the security threat to public information in public organizations, the low adoption of information and communication technologies in government, and the low uptake of available e-government initiatives. Human resources quality and user attitudes of public institutions tend to determine the impact of e-government on public sector performance significantly.

The public sector in Sri Lanka still follows the outdated Weberian bureaucracy. The Sri Lankan public sector has been branded as highly bureaucratic, hierarchical-oriented, and corrupt. There is also a significant trust deficit in public administration in Sri Lanka, showing a severe principal-agent problem. The people in Sri Lanka have a lower trust level towards governance and public institutions (Ramasamy, 2020). The existing despairing attitude of the people towards public administration and management in Sri Lanka has negatively affected its performance in many ways. Accordingly, through this research, it was also recognized that the prevailing socio-cultural factors, including public attitude, also play a significant role in gaining the actual benefits of e-government. If attention is paid to the circumstances in Sri Lanka, e-government has become unable to function properly at every level in society due to the fading nature of public trust.

Problems about the system quality, service quality and lack of a precise centrally planned mechanism for implementing information systems have dampened the potential benefits of IT in improving public sector performance. Government institutions use IT applications mainly for personal administration and accounting purposes (Pushpakumara, et al, 2014; Liyanage et al, 2019b). There is no wide or comprehensive usage of IT in government institutions, as functions such as transport, performance management, customer feedback, marketing are excluded. At the beginning of 2022, the Government of Sri Lanka intends to introduce an electronic payment method in public transportation, which has been common in most countries for many years. This project was abandoned and postponed many times in history due to internal factors like less motivation and resistance. A

lack of IT literate employees, issues of maintaining IT software and hardware, internet problems, and data protection problems have prevented the public institutions benefiting from e-government.

Because of the inherent weaknesses and chronic inertia existing in public institutions, the e-government programme has failed to transform public sector organizations in Sri Lanka compared to those of many developed countries which have recorded successful e-government achievement episodes. However, a slight improvement in overall e-government practices in Sri Lanka has been noticed recently with the new normalcy created by the Covid 19 pandemic. Most public institutions and officials who previously resisted e-government had to adapt to e-governance since they had no other efficient alternative in maintaining and continuing public services delivery under the circumstances of the Covid 19 pandemic. Six distinct strategies, that should be adopted include; i) an information infrastructure development program to ensure affordable access to information, communication, electronic services, and other content; ii) a coherent investment strategy to provide transparent, effective and efficient public services by re-engineering government processes and empowering technology; iii) an e-society development program to empower the most vulnerable communities in Sri Lanka by promoting innovative use of IT; iv) an IT-literate development program to build up an IT-skilled workforce; v) an IT industry development strategy to develop the domestic IT sector to ensure sustainable economic growth in the country, and vi) a program designed to create policy and a regulatory environment and to develop leadership and institutional capacity building to support IT-based developments and reforms to implement the e-government programme in Sri Lanka effectively (ICTA 2005). However, failure to implement a comprehensive programme of public sector reforms while implementing e-government has seriously dampened the positive role of e-government on the efficiency and effectiveness of public services delivery. The success of the implementation of e-government and the potential benefits when implemented appears to depend significantly on several social, political, economic, cultural, institutional and policy factors in Sri Lanka, some of which act as impediments.

Business Process Management (BPM) and Business Process Outsourcing (BPO) sectors in Sri Lanka are firmly positioned by factors like the country's high literacy rate, the talent pool that comprises IT literate experts, some investor-friendly policies, and an encouraging business environment. Moreover, public utilities like broadband and satellite connectivity have shown rapid growth in the past few decades. However, it can be identified that the development of digital infrastructure has not been distributed equally throughout Sri Lanka. Many people in underdeveloped areas do not have sufficient access to IT equipment and telecommunication facilities, especially internet facilities. This factor is one of the massive obstacles in promoting e-government in Sri Lanka. Nevertheless, the country's internet coverage was expanded to 19.5 per cent in 2015, compared with the average of 1.1 per cent in 2005 (Antonio, 2016). Meanwhile, Sri Lanka was the first in the South Asian region which introduced 4G broadband technology in 2013 (Antonio, 2016).

Consequently, Sri Lanka's IT and digital infrastructure sectors have a pivotal role in driving the nation towards sustainable human development and economic growth and enabling an innovative environment that respects knowledge and wisdom. All the above-detailed aspects have contributed a lot to uplift the standards of e-government in Sri Lanka in several ways. In these circumstances, the role of the e-government and its efficiency and effectiveness in services delivery have gained unprecedented significance.

One of the most popular election promises of the coalition government, which came to power in 2015, was introducing free Wi-Fi facilities to every nook and corner in the country by 2020. They attempted to fulfil this goal by launching Google's pilot project, 'Google Loon', but it did not succeed due to technical failures. The current government is also striving to improve Sri Lanka's digital infrastructure by prioritizing the reviewing of the government's rules, regulations, policies, and other legislation practices regarding the IT sector to enhance the capacity, productivity, and utility of e-government services in Sri Lanka, especially to deliver public services amidst the Covid 19 pandemic.

Anyhow, the efficiency and effectiveness of any governance strategy have closely connected with affordability. The overall efficiency and effectiveness of e-government in Sri Lanka has been adversely affected by the high tax rates imposed by the GoSL. Currently, Sri Lankans have to pay several types of taxes for accessing IT gadgets and telecommunication services, including the internet. From 2019 to 2021, the tax rate for internet services was 10.20 per cent, and that of telecommunication services other than internet services was 22.60 per cent (Telecommunications Regulatory Commission of Sri Lanka, 2021). The other types of telecommunication taxes include the Telecommunication Levy, CESS, Value Added Tax (VAT) and Nation Building Levy (NBT), the Environmental Tax imposed from 2019 and the other taxes by telecommunication services providers. Apart from the tax hikes, currently, the GoSL has decided to restrict the import of telecommunications equipment. As a result, most of them have been labelled as luxury items and an additional tax has been imposed on them. This current unfavourable environment was identified as a massive hit in the efficiency and effectiveness and the further development of e-government in Sri Lanka through this research. As mentioned above, the GoSL strives to create a conducive environment for digital infrastructure development, but on the other hand, it imposes heavy taxes on telecommunication services. Therefore, it can be concluded that this contradictory situation has negatively impacted the quality and standards of e-government in Sri Lanka.

### **Impediments to Adopting E-Government in Sri Lanka**

The introduction of IT in public institutions in Sri Lanka is confronted by many impediments ranging from issues of organizational culture to external factors. One of the most striking barriers faced by developing countries such as Sri Lanka is the lack of funds to invest in digitalization. Public institutions are confronted with severe budgetary constraints to make the required initial investments to establish e-government systems. The fixed cost of establishing e-government appears to be significantly high, which is beyond budgetary allocations. Financial constraints have significantly impeded the implementation of the e-government programme in Sri Lanka, even though

the government has spent taxpayers' money and international donor-funded money for this purpose (Liyanage et al, 2021).

A lack of IT literate employees is a significant barrier to implementing e-government services in the public sector (Liyanage et al, 2021). Employees of public institutions are recruited mainly through competitive examinations, while a significant number are recruited through political appoints, especially to the semi-governmental institutions. One of the key impediments to introducing IT into public administration is the fact that employees do not have the technical skills and competence to use IT resources for public services delivery. Part of the problem lies the fact that IT requirement is not included in the prerequisites for recruiting for most of the occupations in the public sector. To implement e-government successfully, all public sector employees should possess essential IT skills, including basic computer operations, cybersecurity knowledge, online communication tools, remote working, social media marketing and web search skills. Apart from them, various types of administration software such as management information systems, accounting information systems, learner management systems are highly beneficial. Therefore, a lack of an IT-savvy staff in public sectors hinders the implementation of IT-oriented public services delivery.

Converting to e-government is also hindered by the fact of lack of institutional reforms, including regulatory restructuring. Government institutions differ from private sector institutions in many ways, including their processes, culture, and ways of working (Kanungo, 2011). Government organizations are plagued by phlegmatized and lackadaisical work systems. Government organizations often tend to resist drastic changes usually associated with technology-based interventions. The bureaucratic dimension, as the dominant organizational dimension, tends to be hostile to introducing more efficient and productive systems. The urge to control and exert authority over the lower categories of employees force the higher-level officers to prefer procedural guidelines and protocols that are not primarily compatible with e-government systems. Organizational restructuring and reforms are required in the public sector to implement e-government systems fully and efficiently.

Conventional legal and regulatory frameworks tend to affect the effective implementation of e-government frameworks significantly. The traditional public administration system has been organized to be operated under a paper-based managerial framework for operations and reporting purposes. Conventional legal and regulatory frameworks and arrangements often hinder the use of e-government (Angelopoulos, et al, 2010). In Sri Lanka, public sector institutions are governed by various Acts of Parliament, financial regulations and administrative regulations, and government establishment codes. These regulatory arrangements specify how organizational matters should be operated. These regulations, procedures and protocols have been arranged considering the conventional system of government which is not compatible with the newer ways of managing affairs using e-government systems. Regulatory and legal arrangements existing for the management and operations of the public sector institutions for public services delivery often hinder the use of e-government services in Sri Lanka (Liyanage et al 2021). It has been shown that the ‘implementation of e-government principles and functions requires a range of new rules, policies, laws and governmental changes to address electronic activities including electronic archiving, electronic signatures, the transmission of information, data protection, computer crime, intellectual property rights and copyright issues’ ([www.e-spincorp.com](http://www.e-spincorp.com)).

Corruption and e-government appear to have a two-way relationship (Mistry and Jalal, 2012). While the introduction of e-government tends to significantly reduce corruption in government, existing corruption in government may hinder the introduction of more transparent and trustworthy e-government initiatives. The e-government initiatives may be viewed by corrupt officialdom and politicians as mechanisms that prevent bribery, corruption, embezzlement, and rent-seeking activities. Most existing studies in this area argue that e-government can reduce corruption by addressing the issue of asymmetric information, poor accountability, government inefficiency, and service delays (Aduwo et al, 2020). However, some studies have shown that e-government may not necessarily reduce corruption in government (United Nations, 2020). In contrast, there is evidence that overinvestment in ITs might have led to more opportunities for corruption

in government (Charoensukmongkol & Moqbel, 2014). This makes it clear that the relationship between e-government and corruption in government is seemingly contentious in which corrupt regimes may not prefer to adopt e-government as it would reduce the space to engage in corrupt activities.

The introduction of e-resources to the public sector has always been a hot topic among trade unions. A slew of economic studies has predicted that new advances in the use of IT in government will automate or change a significant number of jobs (Reshef, 1993; Nissim and Simon, 2021). E-government initiatives may make some occupational roles redundant and some skills obsolete so that there is a strong basis for trade unions to resist the introduction of e-government. As a result, the introduction of e-government is not seemingly well received by the employees because of the perceived fear of layoffs and reduction in additional benefits. As a fact, automation of public institutions using IT leads to a reduction in employment opportunities in the public sector. Moreover, introducing e-government and E-Systems would significantly reduce the employees' need to engage in overtime work. Since overtime earnings appear to be a constant source of income for most employees, the support to introduce e-government will be lacking. Trade unions would also take that anti-e-government stance since it would reduce employment opportunities and overtime opportunities. These forces would create significant internal resistance to the introduction of e-government so that the attempt to improve efficiency, effectiveness and equity through e-government would be a hard-fought exercise.

A conventional system of public administration that has created a particular form of work ethics for employees in public institutions might not necessarily support the efforts to improve the efficiency and productivity of public services delivery (Kaisara & Pather, 2010). In addition to a lack of worker motivation for e-government, governments might face ethical dilemmas using IT in delivering government services. In the information age, what constitutes ethical and unethical conduct has to be redefined and reconstituted in public organizations. Furthermore, ethical issues in the context of management information systems and accounting information systems constrain the effective use of e-government services. Hence, there should be

new initiatives to address the new forms of shirking practices and misuse that might emerge due to the management and operations of public institutions in the e-government system.

### **Concluding Remarks and Policy Implications**

This paper reviewed the role of e-government in improving public services delivery in Sri Lanka which has, over the years, spent a significant amount of funds on e-government initiatives aiming to improve the efficiency and the effectiveness of public services delivery. The theoretical and empirical literature suggests that e-government has significantly improved the efficiency and effectiveness of public services delivery. In Sri Lanka, e-government initiatives that have been fully implemented in certain public institutions have shown significant improvements in the efficiency and effectiveness of public services delivery. However, according to the e-government survey of the United Nations, the progress made thus far in implementing e-government initiatives in Sri Lanka is not satisfactory. The introduction of e-government to improve efficiency and effectiveness has been impeded by many factors in Sri Lanka, including severe budgetary constraints faced by public institutions and poor leadership and motivation. Chronic impediments confronted by public organizations to adopt e-government include a lack of IT literate workforce in the public sector, unfavourable institutional cultures that protect rigid hierarchy and red tape, strict procedures and protocols and work norms, and incompatible legal and regulatory frameworks available for public sector organizations, persistent corruption and resistance from workers and trade unions due to the fear of possible layoffs and reduction in additional benefits due to the adoption of technology, and unsuitable work ethics and lack of professionalism which has prevailed for a long time.

The review reveals several actions that need to be taken by the government to convert the traditional government into e-government. First, the entire public administration systemic must be reformed and restructured to suit the digital age. Work norms and work ethics should be redesigned and reshaped for the public sector employees to work in a digitalized government. A comprehensive and time-bound e-government programme needs to be

implemented into the entire government, all institutions and all possible operations. Administrative regulations and financial regulations governing all governments institutions need to be reviewed and revised to suit the operations in a digital platform. A tall and hierarchical administration structure that is built on colonial vertical monitoring and supervision framework needs to be converted to a flat administrative system. This requires revising and reforming procedural guidelines, administrative protocols, and the entire modus operandi of public institutions. National procurement guidelines need to be revised to suit the digital age. There is no doubt that the transformation of traditional government into e-government will result in a modern state that can deliver public goods and services efficiently, effectively, equitably, in a trustworthy manner which would result in a resulting in a people-centred democratic government that is inclusive and sustainable.

## References

- Abu-Shanab and Emad, A. (2020), 'E-Government Contribution to Better Performance by Public Sector', *Open Government: Concepts, Methodologies, Tools, and Applications*, Qatar: Government Book, DOI: 10.4018/978-1-5225-9860-2.ch001
- Adhikari, N. (2014) 'E-Governance in Sri Lanka', available at: <https://www.slideshare.net/NalinAdhikari/egovernance-in-srilanka>
- Aduwo, E.B., Ibem, E.O., Afolabi, A.O., Oluwumi, A.O., Tunji-Olayeni, P.F., Ayo Vaughan, E.A., Uwakonye, U.O. and Oni, AA (2020), 'Exploring anti-corruption capabilities of e-procurement in construction project delivery in Nigeria', *Construction Economics and Building*. 20 (1), 56 76, available at: <https://doi.org/10.5130/AJCEB.v20i1.6964>
- Alahakoon, M.U.I. and Jehan. SN (2020), 'Efficiency of Public Services Delivery – A Post ICT Deployment Analysis', *economies*, Vol. 8: 97
- Angelopoulos, S., Kitsios, F., Kofakis, P. and Papadopoulos, T. (2010), 'Emerging Barriers in E-Government Implementation', 9th IFIP WG 8.5 International Conference on Electronic Government (EGOV), Lausanne, Switzerland. pp.216-225.

- Anthopoulos, L., Reddick, C., Giannakidou, G.I. & Mavridis, N. (2015), 'E-Government as an Innovative Product: Theories and Case Study'. In Christopher G. Reddick, & Leonidas Anthopoulos, *Information and Communication Technologies in Public Administration: Innovations from Developed Countries*, Boca Raton, Florida: CRC Press, pp. 125-140
- Antonio, J. (2016), Taxing a nation's talk time - Sri Lankans to pay over 49% tax via telcos with new VAT increase, available at: <https://www.ft.lk/article/571131/Taxing-a-nation%E2%80%99s-talk-time-%E2%80%93-Sri-Lankans-to-pay-over-49--tax-via-telcos-with-new-VAT-increase>
- Aritonang, D.M. (2017), 'The Impact of E-Government System on Public Service Quality in Indonesia', *European Scientific Journal* 13(35), DOI:10.19044/esj.2017.v13n35p99
- Bertrand, A. (2019), 'How does digital government become better government?' available at: [https://www.ey.com/en\\_gl/government-public-sector/how-does-digital-government-become-better-government](https://www.ey.com/en_gl/government-public-sector/how-does-digital-government-become-better-government)
- Bhuiyan, S.H. (2011), 'Modernizing Bangladesh public administration through governance: benefits and challenges', *Government Information Quarterly*. Vol. 28 (1): 54-65, available at: <https://doi.org/10.1016/j.giq.2010.04.006>
- Brown, David, (2005), 'Electronic government and public administration', *International Review of Administrative Sciences*, Vol. 71(2):241-254 [DOI:10.1177/002085230505388]
- Calabro, A (2011), *Governance Structures and Mechanisms in Public Service Organizations: Theories, Evidence, and Future Directions*. London & New York, NY: A Springer Company
- Carter, L. and Bélanger, F. (2005), 'The utilization of e-government services: citizen trust, innovation and acceptance factors', *Information Systems Journal*, Vol. 15: 5-25
- Castelnovo, W (2013), 'A Stakeholder based approach to public value'. *Paper presented at the 13<sup>th</sup> European Conference on eGovernment*, Italy: Como
- Center of Technical and Functional Training (2014), *Teaching Materials for Training for Trainers on Public Services*. Indonesia: National Institute of Public Administration

- Chandraguptha, B.D.A. (2012), 'e-Government Concepts and Practices in Sri Lanka', *Survey Journal*, issue 80: 4-8
- Charoensukmongkol, P. & Moqbel, M. (2014), 'Does investment in ICT curb or create more corruption? A cross-country analysis', *Public Organization Review* 14 (1): 51-63, available at <https://doi.org/10.1007/s11115-012-0205-8>
- Chen, H. (2003), 'Digital government: Technologies and practices', *Decision Support Systems* Vol. 34: 223-27
- Chen, Yu-Che and Tsui-Chuan Hsieh. (2014), "Big Data for Digital Government". *International Journal of Public Administration in the Digital Age (IJPADA)*, Vol. 1: 1-14
- Cook, M. (2002), 'What Citizens Want From e-Government', in CTG E-Government Publications, available at: [http://www.ctg.albany.edu/publications/what\\_citizens\\_want.htm](http://www.ctg.albany.edu/publications/what_citizens_want.htm)
- Cook, M.E. and Harrison, T.M. (2015), 'Using public value thinking for government IT planning and decision making', Paper presented at the Proceedings of the 15<sup>th</sup> Annual International Conference on Digital Government Research
- de Alwis, RK (2013) *Administrative Reforms in Sri Lanka*. Colombo: Godage
- Deakin, N. & Wright, A. (1990), *Consuming Public Services*, London & New York, UK & NY: Routledge
- Department of Census and Statistics Sri Lanka (2020) *Computer Literacy Statistics - 2020 (First six months)*, available at: <http://www.statistics.gov.lk/PressReleases/ComputerLiteracyStatistics-2020-FirstSixMonths#:~:text=Percentage%20of%20Computer%20Literacy%20population,between%202018%20to%202020%20period>
- Deshani, A.L. & Weerasinghe, RN (2015), 'Public Entrepreneurship and Delivering Public Services Effectively: A Study in Public Organizations in Galle District'. In Proceedings of the 12<sup>th</sup> International Conference on Business Management, Nugegoda, Sri Lanka
- Devendra, H. (2020), "E-Sri Lanka Development", available at: <https://www.coursehero.com/file/101204299/E-Sri-Lanka-Development-Hasanthi-Devendrapptx/>

- Dissanayake, DMR. (2011) 'Information Communication Technology (ICT) Policy of Sri Lanka and its Impacts to Socioeconomic Development: A Review of Sri Lankan Experience', *Journal of Education and Vocational Research*, Vol. 1(2): 53-59
- Dissanayake, S., Dissanayake, L. (2013), 'Development of e-governance in Sri Lanka', In *Digital Public Administration and E-Government in Developing Nations: Policy and Practice*, pp. 307-316
- Elapatha, V.W. & Jehan, S.N. (2020) 'An Analysis of the implementation of business process re-engineering in public services', *Journal of Open Innovations: Technology, Market, and Complexity*, Vol. 6: 114
- Ferlie, E., Hartley, J. & Martin, S. (2003) 'Changing Public Service Organizations: Current Perspectives and Future Prospects', *British Journal of Management*, Vol. 14, S1-S14
- Fernando, R.L.S. (2006), 'Managerial Innovation in Service Delivery in Public Sector Organizations in Sri Lanka', in *Governance and Development*, Bangladesh: Shrabon Printing Press, pp. 221-237
- Gamage, P. and Edward, F.H. (2007) 'E-Sri Lanka: Bridging the digital divide', The Electronic Library. 25. 693-710. 10.1108/02640470710837128, available at: [www.emeraldinsight.com/0264-0473.htm](http://www.emeraldinsight.com/0264-0473.htm)
- Giordano, R., Lanau, S., Tommasino, P. and Topalova, P. (2020) 'Does public sector inefficiency constrain firm productivity? Evidence from Italian provinces', *International Tax and Public Finance*, Vol. 27(4): 1019-1049
- Grout, Paul and Stevans M. (2003) *Financing and Managing Public Services: An Assessment*, CMPO Working Paper Series No. 03/076
- Hanna, N.K. (2008), *Transforming Government and Empowering Communities: The Sri Lankan Experience with e-Development*, Washington DC: The World Bank.
- Hapuarachchi, A. (2011), 'Application of ICT in Rural Development in Sri Lanka', *Global Media Journal*, Vol. 2(2), available at: <http://caluniv.ac.in/globalmdiajournal/Winter%20Issue%20December%20%202011%20Articles/A1%20Hapuaracchi.pdf>

- Hartley, J. (2005), 'Innovation in Governance and Public Services: Past and Present', *Public Money & Management*, Vol. 25: 27-34
- ICTA. (2008), *Government Organizations Visitors' Survey*, Information Communication Technology Agency of Sri Lanka, Colombo, available at [www.icta.lk/](http://www.icta.lk/)Information and Communication Technology Agency of Sri Lanka (ICTA) (2019) *National Digital Policy for Sri Lanka 2020-2025*, available at: [https://www.kdu.ac.lk/ekdu/images/acts/Draft\\_National\\_Digital\\_PolicyFINAL07102019.pdf](https://www.kdu.ac.lk/ekdu/images/acts/Draft_National_Digital_PolicyFINAL07102019.pdf)
- Information and Communication Technology Agency of Sri Lanka, (2005), *e-Sri Lanka*, Colombo, Sri Lanka, available at: <http://www.icta.lk>
- Irfan, MIM. (2017), 'The Role of E-Governance in Administrative Efficiency and Combating Corruption: Case of Sri Lanka', *Global Journal of Management and Business Research: G Interdisciplinary*, Vol. 17(2): 01-20
- Jehan, S.N., Nishantha, G.G.D. & Jehan, S.Q. (2010), 'E-governance initiative in Sri Lankan public service delivery', in Proceedings of the 12th International Conference on Advanced Communication Technology (ICACT), Gangwon-Do, Korea, Vol. 7-10: 1625-162
- Kaisara, G. & Pather, S. (2010), 'Relevance of Ethics in e-Government: An Analysis of Developments in the WWW era', Conference: 6th International Conference on e-Government, Cape Town
- Kanungo, S. (2011), 'Organizational Culture and E-Government Performance: An Empirical Study', *International Journal of Electronic Government Research*, Vol.7(2): 36-58
- Kao, Lesley P., Andrea Di Maio, French Caldwell, & Kathy Harris, (2000), 'Key Issues in E-Government Strategy and Management', *Research Notes, Key Issues*, 23, <https://www.gartner.com/en/documents/306621/key-issues-in-e-government-strategy-and-management>
- Karunasena, K, Deng, H and M. Singh (2011), 'Measuring the public value of e-government: A case study from Sri Lanka', *Transforming Government People Process and Policy* 5(1):81-99, DOI:10.1108/17506161111114671

- Khosrow-Pour, Mehdi. (2019), *E-Government Diffusion, Policy, and Impact: Advanced Issues and Practices*. (Information Resources Management Association, USA). DOI: [10.4018/978-1-60566-130-8](https://doi.org/10.4018/978-1-60566-130-8)
- Liyanage, K, Ramesh, R. & Sivakumar N. (2019a), 'Public Administration in Sri Lanka: An Inquiry into Structure, Reforms, and Management', *Civil Service Management and Administration in South Asia*, Switzerland: Springer International Publishing, pp 281-304.
- Liyanage, P.M.T.S.K., Wickremasinghe, P.D.D.M. & Gunethunga, G.P.P. (2019b), 'Current Context of Information and Communication Technology (ICT) Usage and Its Issues and Challenges in Public Sector Organizations in Sri Lanka', International Conference on Business Innovation (ICOBI), 22 November, Colombo, Sri Lanka.
- Liyanage, P.M.T.S.K., Gunatunga, G.P.P. & Wickramasinghe, P.D.D.M. (2021), 'E-government Adoption in Sri Lanka - Barriers and Challenges from International Perception; A Literature', Review, available at: <http://repo.lib.sab.ac.lk:8080/xmlui/handle/123456789/1750>
- Macrotrends, (2022), Sri Lanka Literacy Rate 1981-2022, available at: <https://www.macrotrends.net/countries/LKA/sri-lanka/literacy-rate>
- Mistry, J. & Jalal, A. (2012), 'An Empirical Analysis of the Relationship between e-government and Corruption', *The International Journal of Digital Accounting Research*. Vol.12(6): 01-35
- Nam, T. (2019), 'Does E-Government Raise Effectiveness and Efficiency?: Examining the Cross-National Effect', *Journal of Global Information Management*, Vol. 27(3): 120-138
- Nanayakkara, V.K. (2015), 'Sri Lanka Administrative Service (1963–2013): A Fifty-Year?', *Journal of Sri Lanka Institute of Development Administration*, Vol. 5: 79-93
- Ndou, V. (2004), 'E-government for developing countries: Opportunities and challenges', *The Electronic Journal of Information Systems in Developing Countries*, Vol. 18: -1-24
- Nissim, G. & Simon, T. (2021), 'The future of labour unions in the age of automation and at the dawn of AI', *Technology in Society*, Volume 67, November

- Nufna, N. & Fernando, R.L.F. (2020), *Public Value of E-Government: The Case of Ministry of Public Administration and Home Affairs in Sri Lanka*, Open Government: Concepts, Methodologies, Tools, and Applications
- Pasmore, W.A. (1988), *Designing Effective Organizations: The Sociotechnical Systems Perspective*. New York: John Wiley & Sons Inc.
- Patnaik P., Pattnaik S. & Singh P. (2020), 'Use of Data Analytics for Effective E-Governance: A Case Study of "E-Mutation" System of Odisha', in Borah, S., Emilia Balas, V., Polkowski, Z. (eds), *Advances in Data Science and Management. Lecture Notes on Data Engineering and Communications Technologies*, 37. Singapore: Springer
- Patnaik, P. & Pattnaik, S. (2020), 'Impact of Decision Science on e-Governance: A Study on Odisha Land Records System. In Patnaik', S., Ip, A., Tavana M. & Jain, V. (eds), *New Paradigm in Decision Science and Management. Advances in Intelligent Systems and Computing*, 1005. Singapore: Springer
- Pushpakumara, H.M.C, Wanniarachchige, M.K, Peiris, D.S.U. & Samantha, R.L. (2014), 'Determinants of Information System Success in Public Sector Organizations: With Special Reference to Organizations Located in the Matara District of Sri Lanka', Proceedings of the 3rd International Conference on Management and Economics, 26-27 February 2014, Faculty of Management and Finance, University of Ruhuna, Sri Lanka
- Ramasamy, R. (2020), 'Governance and Administration in Sri Lanka: Trends, Tensions, and Prospects', *Public Administration and Policy*, Vol. 23(2): 187-198
- Reshef, Y. (1993), 'Employees, unions, and technological changes: A research agenda', *Journal of Labor Research*, Vol. 14: 111-129
- Rose, J., Persson, J. S., Heeager, L. T. & Irani, Z. (2015), 'Managing e-Government: Value positions and relationships', *Information Systems Journal*, Vol. 25(5): 531-571
- Samaranayake, V. K. (1998), 'Fifty Years of Information Technology', in AV de S. Indraratne, (ed), *Fifty Years of Sri Lanka's Independence- A Socio-Economic Review*, Colombo
- Samaratunga, R. & Bennington, L. (2002), 'New Public Management: Challenge for Sri Lanka', *Asian Journal of Public Administration*, Vol. 24(1): 87-109
- Sherrod, D. R. (1971-1972), 'Selective perception of political candidates', *Public Opinion Quarterly*, Vol. 35(4): 554-562

- Stewart, J. & Clarke, M. (1987), 'The Public Service Orientation: Issues and Dilemmas', *Public Administration*, Vol. 65: 161-177
- Strover, S. (2002), 'Citizens' Perspectives on E-government', in William J. MacIver, Jr., & Ahmed K. Elmagarmid. (eds), *Advances in Digital Government: Technology, Human Factors, and Policy*, Boston: Kluwer Academic Publishers, pp. 243-258
- Telecommunications Regulatory Commission of Sri Lanka (2021) *Public Notice - Effective Tax Rates*, available at: <https://www.trc.gov.lk/public-notice-effective-tax-rates.html>
- Tennakoon, WDNSM (2020), 'E-Governance Way Forward: Challenges and Opportunities for Developing Countries, evidence from Sri Lanka', *International Journal of Business, Economics and Law*, Vol. 21(2): 51-61
- Turban, E., King, D., McKay, J., Marshall, P., Lee, J. & Viehland, D. (2015), *Electronic Commerce; A managerial perspective*, (8th ed), New Jersey: Prentice Hall
- United Nations (2020), *United Nations E-Government Survey 2020: Digital Government in the Decade of Action for Sustainable Development* (With addendum on COVID-19 Response). New York: UN
- Voltis, R. (1992), *Society & Technological Change*, Michigan: Worth Publishers
- Wadhwa, M. (2020), 'e-Governance in the healthcare sector in India', CSD Working Paper Series: Towards a New Indian Model of Information and Communications Technology-Led Growth and Development, Centre for Sustainable Development
- Wanasinghe, S. (1994), *Activating Administrative Reform Process in Sri Lanka*. Colombo: Institute of Policy Studies
- Weerakkody, V., Karunananda, A. & Dwivedi, Y.K. (2009), 'E-government Implementation in Sri Lanka: Some Lessons from the UK', *Information Technology for Development*, Vol. 15(3): 171-192
- Wijesinghe, D. (1997), *Administrative Reforms: International Perspectives and the Case of Sri Lanka*, Sri Lanka: Government of Sri Lanka
- Yang, K. & Rho, S.Y. (2007), 'E-Government for Better Performance: Promises, Realities, and Challenges', *International Journal of Public Administration*, Vol. 30(11): 1197-1217