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E-Government in Bangladesh: Development and Present State

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Abstract

The application of Information and Communication Technologies (ICT) by the government to deliver various services to the public, to ensure citizens' better access to public information, to simplify and ameliorate the process of governance refers as e-Government. Developing countries taking inspiration from developed nations' success in streamlining governance through e-Government, trying to adapt and replicate initiatives. Bangladesh ranks high among these aspiring nations. Nonetheless, there are hordes of predicaments that impede the effective execution of e-government in Bangladesh. This article relied on archival analysis of relevant laws, policy documents and academic papers on the issue and drawn conclusions based on these. It presented the concept of e-Government; discussed benefits to gain, barriers to face and probable road ahead for developing countries with special focus on Bangladesh. From the appraisal of existing programmes it is detected that e-Government holds many prospects for Bangladesh. If implemented properly it will enhance competence, increase transparency and will augment socio-economic development.

Key words: *e-Governance, e-Government, ICT, Public Administration, Developing Countries, Bangladesh*

1. Introduction: Recent decades marked by an extensive talk about the power of Information and Communication Technology (ICT) to significantly alter the structure of our society. ICTs present a unique prospect for nations to accomplish sustainable development and advance the welfare of their nationals. Started in developed and now vigorously followed by many developing and least developed countries (LDC) like Bangladesh, application of ICT tools to solve governance problems became popular. Widely known as e-Government, this approach has increasingly been mainstreamed in the development agenda of LDCs, and trusted to bring better efficiency, accountability, and transparency in governance to achieve development objectives faster. E-Government provides enormous prospect for countries to deliver public services, increase the capability of administration and promote economic and social development. The United Nation's 2030 agenda acknowledged that by using ICT, governments can better deliver critical social services for the citizens in key sectors like education, health, labour and employment, finance and social welfare (UNDESA, 2016).

But actualizing e-Government is hard and uptake among citizens can be time consuming. The transformation process from traditional to digital way of governance raises new challenges and

intricacies. In majority of the developing world ineptitude, limited competence and under-trained staff characterizes public administration. Technology is evolving fast, surpassing these governments' ability to respond and using ICTs to their benefit. Most of the e-Government models originated in industrialized nations and cannot be transplanted and replicated in Bangladesh and other developing countries sans-modification. By applying innovation and creativity, countries need to formulate an e-Government model that fits their social, political, economic, organizational and global context, its limitations and its goals. Bangladesh, so far, obtained moderate success in its journey towards e-Government; ranks top among 47 LDCs in e-Government development by United Nations e-Government Survey 2018 (UNDESA, 2018). But it still has many things to do to achieve a fully functional e-Government. This research elucidated the concept of e-Government, its evolution and classifications; discussed road maps prescribed for LDCs; scrutinized Bangladesh's current status, highlighted its successful initiatives and suggested some recommendations for future.

2. Rationale of the Study: Fresh interest about ICT's (Information and Communication technology) impact on a country's administrative functioning has paved the way for regarding e-Government as a development choice for Bangladesh. Successful implementation of e-Government will make the government procedures effective, proficient, transparent and accountable. To successfully do so, an appraisal of the present state of e-government preparedness, legal and policy regime, technological infrastructure, political will of the ruling elite is necessary. By doing so we can identify tasks and actions needed to be taken to fully exploit the promise of e-government for the betterment of Bangladesh.

3. Research Objectives:

This paper will try to address the following research questions:

- 1) What is the existing condition of e-Government in Bangladesh?
- 2) What are the available policies and laws to govern the e-Government services?
- 3) What position does Bangladesh hold in various global e-Government rankings?
- 4) What e-Government initiatives have already been taken?
- 5) What measures are required to deal with the challenges and utilize the opportunities for the successful implementation of e-Government in Bangladesh?

4. Research Methodology: This study is mainly depends on an examination of secondary sources. Webster & Watson (2002) opined that literature reviews offer the chance to amalgamate and replicate on earlier research and thus present safe grounding for the development of knowledge in any given field. This paper reviewed and analyzed published research in academic journals and books, e-Government-related national and international reports and policy documents, websites of government and private organizations in Bangladesh and other countries.

5. Literature Review: By scrutinizing the application of online government services in thirty countries Prattipati (2003) found that countries which have high per capita GDP, better access to Internet, more competitive and less restricted ICT environment, and invested heavily on ICT are countries with heavy usage. Appraising forty e-Government projects in developing and transitional countries Heeks (2003) conclude that mere 15% of the projects were successfully achieved major objectives. He graded 50% as "partial failures" and 35% as "total failures". Carter & Belanger (2005) identified apparent user-friendliness, compatibility, and reliability as the most important factors when citizens decide to use e-Government services. Mittal & Kaur (2013) pointed to the elements like people's lack of knowledge, content scarcity in local language and concern over

security of personal data for hindering the successful execution of e-Governance in India. Schuppan (2009) refutes 'one size fits all' solution for e-Government implementation in developing countries. By analyzing e-Government initiatives in sub-Saharan Africa he opined that only transferring technology and content from developed countries to the region will not beget success as developing countries' context is different. By comparing ICT-use of government in India, Pakistan, and Bangladesh with Korea, Jin-Wan & Hasan (2015) found that price of technology, infrastructural deficiency, shortage of human resources and a feeble private sector made the true e-Government a remote ambition for three South Asian neighbours. Liton & Habib (2015) identified online service index, e-Participation Index, limitation of ICT infrastructure, scarcity of human resources, low-level of trust, Tele communication infrastructure components and deficiency of knowledge as some of key barriers to attain e-Government in Bangladesh. Exploring the recent condition Chowdhury & Satter (2013) cautioned that Bangladesh government's ambition to achieve e-Governance by 2021 will be difficult to realize.

6. Conceptualizing e-Government

6.1 E-Government-Definition

The trend that became known as Electronic government or e-Government is not easy to define. As Joia (2006) puts it, "E-government is still an exploratory knowledge field and is consequently difficult to define accurately." To infoDev/World Bank (2009), "e-Government refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government". Organisation for Economic Co-operation and Development (OECD, 2003) defined e-Government as "The use of ICTs, and particularly the Internet, as a tool to achieve better government". According to European Commission (2016), "E-government refers to the use of information and communication technology in public administration procedures. One aspect of e-government, on its demand side, concerns the interaction of individuals or enterprises with public administrations through ICT". Gartner, Inc. defined e-Government as "the complete optimisation of service delivery, constituency participation and governance by transforming internal and external relationships through technology, the internet and new media" (Baum & Maio, 2000). Chen et al. (2006) defined e-Government as "a cost effective solution that improves communication between government and their constituents by providing access to information and service through online, also it's a permanent commitment made by government to improve the relationship between the private citizen and the public sectors through enhanced, cost effective, and efficient delivery of services, information and knowledge." Cook et al. (2002) opined "e-Government has four dimensions in relation to major functions and activities of governments: (e-Service) which is the delivery of government information electronically, (e-Management) which is the use of ICT to improve management and communication within and outside government structures, (e-Democracy) use of ICT to enhance the citizens participation in democratic activities and (e-Commerce) online transaction of goods and services".

OECD (2003) proposed a four point typology of definitions:

1. "Internet (online) service delivery and other Internet-based activity such as e-consultation"
2. "E-government is equated to the use of ICTs in government. While the focus is generally on the delivery of services and processing, the broadest definition encompasses all aspects of government activity"

3. “E-government is defined as a capacity to transform public administration through the use of ICTs or indeed is used to describe a new form of government built around ICTs. This aspect is usually linked to Internet use”

4. Definition offered by the OECD, “The use of ICTs, and particularly the Internet, as a tool to achieve better government”.

It is obvious from above mentioned definitions that e-Government is not simply the use of computer in government offices. It is the conviction that technology can improve the quality of governance and enhance the accountability and transparency of government. As Okot-Uma (2004) puts it, “Electronic governance inherently involves new styles of leadership, new ways of debating and deciding strategies, new ways of accessing services, new ways of transacting business, new ways of accessing education, new ways of listening to citizens and communities of practice and new ways of organising and delivering information”.

6.2 E-Government- History and Evolution:

According to Scholl (2017), in the 1990s, classifying “something ‘electronic’ was meant to suggest modern, novel, and future-oriented undertakings supported by information and communication technology (ICT)”. In those early days of Internet and web there was a trend to coin new concepts by combining a term with the term ‘electronic’ like “electronic business,” “electronic commerce,” and “electronic democracy”. “Electronic government” (later e-Government) was also a product of this era. The idea was first promoted by IT industry and trade press and received subsequent recognition by academia and policy makers. 1950s saw an interest in using technology in public administration to enhance efficiency. In the 1970s there was an effort to apply the principles of MIS (Management Information System) in public administration. Internet boom in 1990s paved the way for a greater application of ICTs towards a citizen oriented responsive governance system. In 1993, the US government pioneered the effort to introduce e-Government through a programme named National Performance Review. Afterward, among others the United Kingdom (the Green Paper entitled ‘government.direct’), Australia (entitled ‘Clients First’), Canada and The Netherlands followed suit. G8, OECD, the World Bank, the European Commission and other international organizations encouraged the initiatives. The European Commission initiated the eEurope project, which centering among other things on government online. Next three decades saw the idea’s global expansion.

6.3 Types of e-Government:

Focusing on major stakeholders like citizens, business entities, government employees, government agencies and other governments, e-Government generally sorted into four main categories. 1) Government to Citizen (G2C) is essential information diffusion to the people which includes filling up forms like passport, income tax etc, issuing various license and certificates like birth certificate, driving license and helping citizens in receiving fundamental services such as education, health care, entertainment and employment. 2) Government to Business (G2B) is trading of services between government and business sector which includes formulation and dissemination of relevant laws and policies, issuing necessary license and permits, paying tax and tariffs etc. 3) Government to Employee (G2E) is communication between the government and government employees and include things like leave application, job promotion, salary report, staff training. 4) Government to Government (G2G) is exchange of information between different government agencies at local level and different government at international level.

6.4 Stages of e-Government

Implementation of e-Government is often conceptualized in stages. The maturity model put forward by the Gartner Group contains four stages: web presence, interaction, transaction, transformation. Initially various government offices launch websites to post information to the citizens. Then communication becomes slightly two way and citizens can provide feedback through the website. Next stage allows people to finish a full transaction like license renewal online. In the final stage government services become more proficient, integrated and custom-made Baum & Maio, 2000). In a similar attempt Layne & Lee (2001) suggested cataloguing (information available in the web), transaction (user friendly interface facilitates interaction between government and people online), vertical integration (integrating systems across different levels) and horizontal integration (integrating systems across same level) to be the four steps needed. To Hiller & Belanger (2002) implementation of e-Government requires five stages: Information stage (a simple website for providing information to public), Two-way communication stage (allow citizens to give feedback), Transaction stage (citizens can enjoy services through online), Integration stage (entire government services assimilated in a single online portal) and Participation stage (allows citizens to participate in state affairs like elections online). United Nations' E-Government Survey 2008 proposed an e-Government evolution framework consisting of five stages: emerging (online presence only through a web page), enhanced (more information mostly through archived link), interactive (provision of online services like downloadable application forms), transactional (provision of two way communication like passport renewal, tax payment), connected (governments transform into a connected unit) (UNDESA, 2008).

7. Bangladesh e-Government Evolution:

Bangladesh, a small South Asian country (147,570 km²) with world's 8th largest population (of 163,882,000), achieved its independence through a bloody war of liberation in 1971 after a long history of colonial rule. Sustaining this huge load of people in a tiny speck of land proved to be a major governance problem for every successive regime. Practicing parliamentary democracy, Bangladesh is constitutionally obliged to its citizens to provide easy access to all basic services without any disparity. E-Government proved to be a desired path in this respect.

Siddiquee (2013) pointed out that e-Governance in Bangladesh developed in three sequential phases. Infrastructure Building Phase (1990 to 2005) initiated in the middle of 1990s by automating the ticketing system of Bangladesh Railway. Other remarkable projects of this period were the e-birth registration project of Rajshahi City Corporation, computerization of Bangladesh Bureau of Educational Information and Statistics (BANBEIS). These projects automated existing services and increased efficiency. A high powered ICT Task Force was created in 1997 and Support to the ICT Task Force (SICT) in 2001 to endorse and execute ICT and e-Government endeavors. An e-Governance Cell was created in each ministry to synchronize e-Government enterprises. In 2002, Ministry of Science and Technology was transformed into Ministry of Science and Information and Communication Technology. The National Computer Council was formed in 1983, later renamed to the Bangladesh Computer Council (BCC) in 1990 was assigned the responsibility of assisting e-Government projects. Bangladesh approved its first ICT policy in 2002, which declared ICT as a thrust sector.

Isolated E-services Phase (2006 to 2009) started the measured replacement of top-down approach by participatory approach in planning within ministries and government offices. Access to Information (a2i) Programme was established the in 2006, whose primary goal is to make sure trouble-free, inexpensive and dependable access to quality government services for every citizen. A2I aims to empower civil servants, facilitate people's participation in e-Government activities by

creating access points, both virtual and physical, where citizens easily, reliably and affordably avail public services; support non-government partnering with government agencies. In 2009 government declared the vision for a Digital Bangladesh. The vision centered on escalating Bangladesh's capacity to contend more efficiently in the global economy, and on constructing an open and efficient government competent of bringing services to the under-privileged. In 2009, an ICT Policy and an ICT Act was passed.

Integrated and Transactional Services Phase (2010 to present) characterizes government's tendency to view e-Governance services as integrated, connected and transactional, rather than isolated. Several major steps have been taken to integrate government services across agencies and platform. A National Portal was developed in 2014. To help ministries to smoothly deliver e-Services a Digital Service Accelerator has been established. 'Leveraging ICT for Growth Employment and Governance' (LICT) (2013-2019), a project funded by the World Bank boosted ICT industry performance, also helped the government deliver digital services. The Bangladesh National Digital Architecture (BNDA) and e-Government Interoperability Framework (e-GIF) was created by the Bangladesh Computer Council (BCC). The benefits of BNDA are citizen centric improved governance, coordination and collaboration within government agencies, low Cost and smart service delivery, re-usage of infrastructures and services, setting standard of ICT products and services. Many departments are connecting their e-services with national e-service bus. BNDA has won prestigious WSIS award. Bangladesh adopting "Whole of Government" ICT Strategy to provide better, faster and more secure digital services to the people of Bangladesh. BCC has successfully developed the Blockchain platform, considered as the most secure technology in the world, to connect the online systems and services aiming to preserve the documents more securely. This platform will primarily check the use of fake certificates, admit cards.

8. E-Government Policy and Legal Regime in Bangladesh

8.1 Major Policies related to e-Government

Bangladesh Vision 2021: Brain child of present ruling party in Bangladesh 'Vision 2021' reflecting the dreams and aspirations of the nation, aims to build an economically inclusive, accountable and democratic country. Targeting 2021, the year Bangladesh turns 50 the Vision hopes to achieve the status of a middle income country. The Vision includes eight inter-linked goals. The goals are:

to become a participatory democracy, to have an efficient, accountable, transparent and decentralized system of governance, to become a poverty-free middle-income country, to have a nation of healthy citizens, to develop a skilled and creative human resource, to become a globally integrated regional economic and commercial hub, to be environmentally sustainable and to be a more inclusive and equitable society (Center for Policy Dialogue, 2007).

Digital Bangladesh: Digital Bangladesh, a strategic direction to achieve Bangladesh Vision 2021, proposes the use of ICT to reduce poverty and develop human resources. It also emphasizes that ICT is essential to overcome economic, cultural and social issues the country is experiencing. Digital Bangladesh emphasizes four areas (termed as four pillars): "Human Resource Development, Connecting Citizens, Digital Government, and Promotion of ICT Industry" (Access to Information Programme, 2011). Human resource development and connecting citizens form a foundation to implement a digital government composed of e-public services and e-administration and introduce ICT in businesses, which will enable better access to markets through the use of ICT, promotion of ICT business, and ICT export expansion. The digital government aspires to leverage ICT to offer affordable, transparent public services to the poor and the underprivileged. Main target areas are

agriculture, education, management of land and water resources, environmental changes, disaster management, social safety nets, law enforcement and local governments.

National ICT Policy: Aiming to build an ICT-driven nation supported by an information-based society and economy the first ICT Policy of Bangladesh was formulated in 2002. The policy emphasized the need to construct a country-wide ICT-infrastructure which can be used to provide all kinds of on-line ICT-enabled services. ICT Policy of 2009 was developed with a vision to spread utilization of ICTs throughout different sectors and providing e-Government services to the citizens economically. ICT Policy 2015 aimed to employ the power of ICT to assist the nation's effort to achieve the status of a middle income country. The most recent policy of 2018, aims to build Digital Bangladesh by 2021 and a knowledge-based developed country by 2041 (Korea International Cooperation Agency, 2018). A detailed action plan has been developed to achieve these targets. Tasks under this action plan were categorized in short, mid and long term time frame to be implemented from the present to the year 2041. Government will utilize digital system to deliver information and services. Obstacles to digitization will be identified and eliminated in every level. Transparency and accountability of government services will be guaranteed by proper utilization of digital technology. National digital network will be developed to connect all government offices. More community digital-center will be established so that people can access e- citizen services easily. National data center based application and content will be ensured. An integrated job portal for all government jobs will be established. Government employees will be given training to develop their digital skills. A National e-Governance Architecture and e- Governance Interoperability Framework will be formulated. Every citizen will be provided a single id. All government offices including education, health, agriculture, land, national parliament, justice and law enforcing agencies will be digitalized. Ensuring digital security will be given the highest priority. Steps will be taken to bring marginalized and disable people to the mainstream of society.

Information Security Policy Guideline 2014: The Guideline stressed the need for security of information digitized, processed and stored by government agencies while implementing e-Governance. By citing recent incidences of cyber-attack the document intends to help the government agencies creating specific policies most suitable to their security needs. The policy also outlines Strategy for Information Security and management of Risk, Threats and Vulnerabilities.

The National Cyber Security Strategy of Bangladesh 2014: The Strategy addresses the country's national security strategy. By synchronizing government, private sector, citizens and international cyberspace security efforts, this document aims to generate a consistent vision for 2021 keeping Bangladesh secure and flourishing. This strategy defines clear roles and responsibilities. Recognizing the shared nature of cyber insecurities, this Strategy necessitates a public-private partnership in banking, utilities and telecommunications sectors against cyber attacks.

8.2 Major Laws related to e-Government:

Major laws related to e-Government and ICT are Bangladesh Computer Council Act 1990, Telecommunication Act 2001, Right to Information Act 2009, Information and Communication Technology Act 2006, Bangladesh High-Tech Park Authority Act 2010 and Digital Security Act 2018.

Bangladesh Computer Council Act 1990: Bangladesh Computer Council was created by this law to promote the use of computers and informatics aiming at social and financial uplift of the country. Determining the national policy, founding training centre, providing reports and publishing projects and schedules, organizing discussions, workshops and training, establishing contact and co-

operating with all national or foreign, official or private institutions, determining the standard of computer and info technology were among its responsibilities.

The Bangladesh Telecommunication Act, 2001: This act was a major effort towards liberalizing the telecommunication sector in the country and put forward fundamental ground rules for private sector participation like licensing of internet and telecom services. An independent agency Bangladesh Telecommunications Regulatory Commission (BTRC) was established under this act to oversee and guide the process.

The ICT Act, 2006: This act was enacted in 2006 and later amended in 2008 and 2009 to prevent cybercrimes and regulate e-Commerce in Bangladesh. It deals with issues like electronic signature and electronic records, certification of electronic signature, penalty for violating the law, penalty for cybercrimes (like hacking, posting libelous information) and establishment of cyber tribunal.

The Right to Information Act, 2009: This act acknowledged that the freedom of expression as guaranteed by the constitution made right to information as an integral part of democratic governance. Any citizen can claim information from public offices which they are bound to provide. Under the law an Information Commission has been established to develop and monitor the policies for revealing information to the public. The Commission also handles appeals and complaints.

Bangladesh High-tech Park Authority Act 2010: This law was enacted to make provisions for the establishment of ICT industry based Hi-Tech Park throughout Bangladesh. A Hi-Tech Park Authority was also created for proper management, operation and development of the parks.

Digital Security Act 2018: Replacing the ICT Act of 2006 this new law ratified with the objective to prevent and control cybercrime and protect the nation and public life. This act broaden the definition of cybercrime which includes propaganda against Father of the Nation and liberation war, incite ethnic or religious hatred, posting offensive comments to malice others, digital forgery and fraud and cyber terrorism. It suggests strong punishment for various types of cybercrime.

9. Bangladesh in e-Government Global Ranking:

Countries all over the planet are trying to implement e-Government and at various levels of maturity. So, measuring a country's position in e-Government is beneficial to formulate policies and strategies appropriate for a country. There are some indexes and indicators proposed by organizations recognized globally calculate a nation's place in e-Governance and e-Government.

E-Government Development Index (EGDI) prepared by The United Nations Department of Economic and Social Affairs (UNDESA) assess a country's level of ICT use to provide a variety of e-Government services to the citizens. This Index measures a nation's position based on three sub-indexes, namely online service delivery, telecommunication infrastructure and human capital and makes a composite index which described in a scale of 0 to 1. In the latest available report of this two-yearly publication Bangladesh stood 115th amongst 193 nations under survey and scored 0.4862. Among South Asian neighbours Sri Lanka was placed at 94th position with a score of 0.5751, India at 96th place scored 0.5669, Maldives at 97th scored 0.5615, Nepal at 117th scored 0.4748, Bhutan placed at 126th scored 0.4274, Pakistan at 148 with a score of 0.3566 and Afghanistan stood 177th scored 0.2585 (UNDESA, 2018).

Electronic connectivity among government and citizens are key component of e-Government. Bangladesh has been ranked 73rd in the Global Connectivity Index (GCI) 2019 presented by Chinese tech giant Huawei. The GCI considered variables like ICT investment, ICT maturity, and digital economic performance to calculate the position of 79 countries. Bangladesh scored 28 in a scale where top performer the United States scored 85. Based on performance, GCI grouped countries

into three clusters: starters, adopters, and frontrunners. Bangladesh, a starter, has seen significant growth in smart phone demand and mobile broadband subscriptions over the years due to improved experience with more affordable mobile and fixed broadband, better cyber security, and cloud services. Bangladesh currently is three positions above Pakistan (76th with score 27) and seven positions below India (65th with score 34) in the GCI rankings. The report termed Bangladesh as one of the four "Top Movers", quickest countries to adopt digital technology for transforming their economies, alongside Ukraine, South Africa and Algeria (Huawei, 2019).

World Economic Forum introduced the Global Competitiveness Index (GCI) to measure and rank economic competitiveness of a country. This index marked the performance of a country based on 12 index component it called pillars. These are institutions, infrastructure, macroeconomic environment, health and primary education, higher education and training, goods market efficiency, labour market efficiency, financial market development, technological readiness, market size, business sophistication and innovation. In the GCI 4.0 2019 rankings, Bangladesh placed at 105th position among 141 countries under study, scoring 52.1 out of 100. India came 68th scored 61.4, Sri Lanka 84th scored 57.1, Nepal placed at 108th scoring 51.6 and Pakistan 110th with a score of 51.4. According to the Report, public-sector performance of Bangladesh scored 52.3 (in a 0-100 scale), ranked 62nd among 141 countries; e-participation scored 0.80 (in a 0-1 scale), ranked 50th among 141 countries; government's responsiveness to change scored 3.8 (in a 1-7 scale), ranked 67th; legal framework's adaptability to digital business models scored 3.3 (in a 1-7 scale), ranked 93rd; government long-term vision 4.5 (in a 1-7 scale), ranked 33rd; 80 % of population has electricity access which placed Bangladesh at 108th position; mobile-cellular telephone subscriptions per 100 population is 97.3 which placed the country at 106th; mobile-broadband subscriptions per 100 population is 37.6 which ranked the country at 115th; fixed-broadband Internet subscriptions per 100 population is 6.3 ranking Bangladesh at 88th; fiber internet subscriptions per 100 population is 2.5 placing Bangladesh at 49th; with 15% of adult population as internet users the country ranked at 132nd (World Economic Forum, 2019).

Daniel Kaufmann of Natural Resource Governance Institute (NRGI) and Brookings Institution and Aart Kraay of World Bank Development Research Group jointly formulated the Worldwide Governance Indicators (WGI). This indicator measures individual governance dimensions like voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law and control of corruption of 200 countries. In 2018, Bangladesh scored -0.73 (in a higher the better scale of -2.5 to +2.5) with percentile rank 27.59 (percentile rank 0-100 indicates rank of country among all countries in the world. Higher values correspond to better governance) in voice and accountability indicator. It scored 1.03 in political stability and absence of violence indicator with percentile rank 13.81, -0.75 in government effectiveness indicator with percentile rank 21.63, -0.83 in regulatory quality indicator with percentile rank 19.23, 0.64 in rule of law indicator with percentile rank 28.37 and 0.91 in control of corruption indicator with percentile rank 16.83 (Kaufmann & Kraay, 2019).

The Network Readiness Index (NRI) initially endorsed by the World Economic Forum and now continued by the Portulans Institute aims to measure how capable a country's ICT and related structures are to spearhead its development endeavours. NRI 2019 ranks a total of 121 economies, where Bangladesh secured 101st position and scored 34.48 (in a scale of 0-100). Pakistan and Nepal are behind Bangladesh placed at 104th and 106th scored 33.38 and 32.96. India and Sri Lanka fared better than Bangladesh scored 44.81 and 42.42, placed at 79th and 83rd position. Four pillars treated as foundation of the Index are Technology, People, Governance and

Impact; where each pillar is further divided into three sub-pillars. Bangladesh ranked 51st position in Government online services indicator, 62nd in ICT use and government efficiency, 95th in Secure Internet servers, 78th in Cyber security, 74th in Online trust and safety, 72nd in Legal framework's adaptability to digital business models, 85th in ICT regulatory environment, 51st in E-Participation, 96th in Availability of local online content (Portulans Institute, 2019).

A USA-based international civil society organization, World Justice Project (WJP) compiled Rule of Law Index 2020 which portrayed a picture of how people perceive and practice rule of law worldwide. Of its eight factors Open Government Index is one which gauges the openness of a government. By openness it means how extensively a government share information with its citizens specially information about laws and legal rights. The index scored and ranked 128 countries on a scale of 0 to 1, with 1 indicating the greatest openness. Bangladesh ranked 93 with a score of 0.43. Among its South Asian neighbours India ranked 32 and scored 0.61, Nepal ranked 58 scored 0.52, Sri Lanka ranked 59 scored 0.51, Pakistan ranked 91 scored 0.43, Afghanistan ranked 100 scored 0.41 and Myanmar ranked 109 scored 0.37 (World Justice Project, 2020).

10. Selected E-Government Initiatives in Bangladesh:

In Bangladesh much like most of the developing countries, government is the key provider of public services and public information. So the primary duty to guarantee delivery of these services even to those who are the least served assigned on government. The idea of providing government services digitally was non-existent in Bangladesh before 2008. At present, government is capable of providing 40 percent services online which it aims to increase at 90 percent by 2021 and hundred percent by 2023. From Access to Information Programme and National Digital Architecture to Union Digital Centres and Digital One Stop Services a number of e-Government projects are presently running in Bangladesh. We will converse about some of these briefly.

Access to Information (a2i) Programme: With assistance of the UNDP a2i programme was established in 2006 to spearhead the government's effort to transform the country into a Digital Bangladesh. By making policy decisions, taking a plethora of e-Governance initiatives, guiding and assigning ministries and agencies specific role this project at the Prime Minister's Office has become the real nucleus of e-Government efforts in Bangladesh (Access to Information Programme, 2020).

National web portal: Any country's national web portal is the place where it can showcase all its e-Government activities and lead people to desired links under one umbrella. Bangladesh launched the national web portal in 2014. This portal provides links to all administrative units in Bangladesh from grass root to national level. It became the biggest public portal in the world contains over 25,000 websites. Bangladesh National Web Portal has added two million contents and e-directory including information on 700,000 government employees and officials (Access to Information Programme, 2016).

Bangladesh Forms Portal: The portal was created in 2015 to provide citizens the opportunity to download, fill up and submit any kinds of government form and application in a single web platform. A major step towards e-Governance, this service currently offers 1,400 forms out of which 1,200 forms are editable in PDF format to be filled up. More downloadable forms and online form submission facilities are being added.

Bangladesh Trade Portal: Bangladesh has launched an online trade portal in 2016, the first of its kind in South Asia, with a view to serving the business community with one-stop point for

export-import related information. Anyone from home and abroad can now gather basic information on doing business in Bangladesh like the overview of Bangladesh economy, existing trader regulations and procedures, import and export guide, business startup process etc (The World Bank, 2016).

Union Digital Centers: Widely considered as a major e-Government effort in Bangladesh Union Digital Centres (UDCs) located at the lowest echelon of administration became a door to e-Services for mass people. These centres decentralized the delivery of public services by acting as one-stop information and service delivery channel. Run as micro-enterprises by one male and one female entrepreneur, these centres use modern ICT to offer services like birth and death registration, exam registration, telemedicine, job application, passport application, mobile financial services, citizen certificate, photocopy, photography, computer composing, internet browsing, electricity and utility bill payment, job search, land records etc. Already 323 million services have been provided from digital Centers to 76.8 million citizens (Access to Information Programme, 2018).

Digital One-Stop Services – Introduced in 2018, digital one stop services Eksheba, Ekpay and Ekshop offer citizens the chance to receive various government services, paying utility bills and doing e-Commerce online (Access to Information Programme, 2019). Ekseba will work as an intermediary and provide access to government services. Currently, it offers 162 services and gradually will be connected to all three thousand services. Ekpay, single-stop payment platform provide facility to the citizens to pay their utility bills, water bills, education related fees and other payments. Ekshop is an e-Commerce platform connecting rural entrepreneurs to customers and industry stake holders and facilitate marketing of rural products.

Online Birth Registration Information System: Online Birth Registration information System (BRIS) was introduced in Bangladesh in 2010 enable the government to track every citizen so that necessary services can be planned and offered. Now “all over the country, 4571 union council, 319 municipality, 15 cantonment board and 124 zonal office of 11 city corporations total 5029 register office and in aboard there are 53 registrar office of Bangladesh missions in 42 countries subtotal 5082 register office are doing online birth & death registration” (Office of the Registrar General, Birth & Death Registration, 2000).

e-Government Procurement (e-GP): To improve the competence and transparency in public procurement government implemented a broad e-GP solution in 2011. It is a web based system which includes the total procurement lifecycle and records the all procurement activities. Already a number of offices started using the e-GP. The system will be rolled-out across all the procuring entities in phase by phase. Potential tenderers from home and abroad can submit tender application and pay tender fees through the procurement portal. 38 banks are now linked to e-GP.

e-Tathyakosh : A national e-Content repository, Jatiyo e-Tathyakosh was launched in 2011. With more than 100,000 contents on 10,000 topics it is the biggest collection of contents in Bangladesh on issues such as health, education, agriculture, law and human rights, non-farm activities, disaster management, employment, science & technology, trade & commerce etc. This online repository has developed to act as a single point platform for easy delivery of livelihood information (Access to Information Programme, 2014).

e-Porcha: Until recently land record system in Bangladesh was carrying the legacy of colonial era. Issuing process of any land based document was complicated, expensive and time consuming. E-

Porcha replaced the old system, digitized land records and introduced electronic system making it easier for people to receive documents (Access to Information Programme, 2018a).

e-Health: Parallel to traditional system of health consultation citizens can now take the advantage of telemedicine facilities. All government hospitals from local level to specialized national level are equipped with mobile phone and web camera. Citizens can take medical advice free of cost by calling the designated doctors and local level hospital patients can receive medical advice from specialist physicians through video conferencing (Hoque et al., 2014).

e-Book: From 2011, all primary and secondary level text books available free of cost from e-book platform.

e-TIN and Online Tax Payment: Electronic Taxpayers Identification Number (e-TIN) registration process started in Bangladesh on 2013. Potential tax payers can apply for registration, calculate and prepare tax returns and submit online.

e-Krishi (eAgriculture): Recognizing ICTs potential to agriculture, Bangladesh emphasized e-Krishi by using modern ICTs in mix with traditional mass media to diffuse agricultural information. e-Krishi enable farmers and other stakeholders to share relevant knowledge and resources easily.

Government to Person (G2P) and Person to Government (P2G): From 2018 efforts have been started to digitize the payment of government's Social Safety Net (SSN) programmes. . There are at present 140+ SSN programmes being administrated in the country by 23 Ministries and Divisions. Digitization of the manual SSN payment system will considerably decrease time and cost for both recipient and government. An initiative, e-Challan, has been piloted from 2018 to commence the procedure of transferring person's payment directly to government treasury. Passport fee, national ID correction fee and police clearance certificate fee can be pay through e-Challan along with the conventional way of submitting (Access to Information Programme, 2020a).

11. Conclusion and Recommendations:

It is obvious from various policy papers and research reports that e-Government is a big opportunity to modernize administration and governance for developing countries. Bangladesh is keen to utilize the prospect. By reviewing related policies and laws, analyzing various e-Government initiatives this research found that the country achieved some major progress specially in delivering public services. Bangladesh is stretching e-Government along every probable sector-education, agriculture, poverty alleviation, health, trade and commerce etc to improve transparency of public services. Nevertheless, there are problems like infrastructural deficit and change management to be conquered prior to complete gains can be obtained. As United Nations e-Government Survey 2018 puts it: "Bangladesh is a notable example of a country with a Very High-OSI (0.7847) but a much lower EGDI score (0.4862), placing the country in the Middle-EGDI level group. The EGDI score for Bangladesh was pulled down by low levels of development in TII and HCI" (UNDESA, 2018). Here OSI refers to Online Service Index, EDGI E-Government Development Index, TII Technological Infrastructure Index and HCI Human Capital Index. This research recognizes the fact that each country has its individual technique to process and implement its e-Government determined by its ICT infrastructure, social, political economic and other factors. Keeping these factors in mind the article put forward some recommendations for Bangladesh which include technology, citizen, organization and environmental elements to support the progress of e-government.

Following recommendations could be prescribed for Bangladesh to attain excellence in governance, improved service delivery and better accessibility considering its current position, situation, achievements and aspirations.

- 1) Bangladesh government should continue its support for e-Government initiatives strongly. It should play the decisive role to legislate and regulate e-Government activities.
- 2) A broad based consensus about e-Government programmes among all major political parties should be formed so that a change in power doesn't suspend the ongoing projects and obscure the future of e-Government in Bangladesh.
- 3) Common mistake of technology fixation should be avoided. Instead of focusing primarily on technical aspects organizational and social aspects should be given due priority. Changing technology-focused attitude needs time and should be addressed from the beginning of a programme.
- 4) Extensive programmes should be taken to make people familiarize with the concept of e-Government. Even though e-Government activities are being practiced in more and more countries, there remains a significant lack of knowledge about the services in general population. Mass media, educational institutions can be used to spread the information.
- 5) Not only awareness, people should be motivated to actively engage in designing, advancing and using e-Government solutions. In Bangladesh, citizens with low digital competencies comprised the majority of e-Service receivers. So e-Government solutions should be adapted to their digital skills, which can be ensured only through their active participation in the whole process.
- 6) Emphasis should be given on educating people about information technology and internet. ICT related lessons are increasingly being embedded in primary and tertiary level national curricula. But adults living beyond the traditional education system posed the risk to be sidelined and digitally excluded if special efforts like distance learning are not taken.
- 7) Staffs in government offices should be trained to properly handle the new electronic services and motivated to be friendly to the very people they serve.
- 8) E- Government related content creation in vernacular Bangla language should be prioritized. Although English is widely used and understood in Bangladeshi offices, for a vast majority of population Bangla is the language of convenience.
- 9) A nationwide strong ICT infrastructure, a favourable ICT ecosystem, a vibrant ICT workforce should be developed and an uninterrupted 24/7 power supply capability should be stressed.
- 10) Steps are needed to overcome digital divide based on financial condition, education level, mental and physical disability and gender. These divides pose a serious threat to achieve an all inclusive e-Government.
- 11) Government should give importance to achievable small sized e-Government projects instead of trying to accomplish all at once and fail. Transforming an existing system is a huge task. Splitting the process into small modules according to circumstances, technology and requirements will increase the chance to succeed and initial successes will create favourable attitude among stakeholders about e-Government.
- 12) Accept the fact that a transition to e-Government cannot be achieved over night. Governance changes developing countries are trying to achieve in a decade developed countries took century.

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