Inclusive e-Service or Risk of Digital Divide
The Case of National ICT Policy 2018 of Bangladesh

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Abstract:- ICT policy is required to facilitate e-services to the citizens and to guide stakeholders of ICT to minimize the socio-economic barriers in ICT facilities. This study has examined the vision, objectives, strategic themes of the National Information and Communication Policy (NIP) 2018 of Bangladesh to find out whether this policy addresses 'Digital Divide' and encouraging digital inclusion of Bangladesh. In last decade, the government of Bangladesh has initiated massive digitization, still the question remains, are the citizens receiving the e-services at doorstep or it is creating digital divide. Bangladesh is an agricultural country and 62% of citizen live in rural areas. Furthermore, for receiving e-services it requires ICT accessibility, engagement, and skill, but most of the citizen do not have those perquisites. That is why, rapid digitization and e-services of the government has created the possibility of digital divide. This study has investigated the e-services accessibility for the citizen as committed in ICT policy 2018. For this study, author followed a qualitative method for primary data collection. Author has examined the NIP 2018 with relevant policy documents and finds the underlying gaps and issues, which have the threats of digital divide. Author has also conducted FGDs and Key Informant Interview (KII) to find out possible policy solution. The author has identified the issues, challenges, and gaps while analyzing the NIP 2018. Despite that, the author has proposed, if the NIP 2018 would implement with priority and dedication, the government of Bangladesh can minimize the threats of digital divide and bring the e-services to the doorstep of the citizen.

Keywords:- ICT Policy 2018, Digital Divide, e-Service delivery, e-service accessibility.

I. INTRODUCTION

Bangladesh has achieved notable development in Information and communication Technology (ICT) towards seamless e-governance despite of social and economic challenges withing two decades (Rahman, 2016). To push forward the growth of the electronic governance on a right track, the National ICT Policy of Bangladesh was first adopted in 2002 followed by rounds of restructurings. To fulfill the election manifesto's pledges, Awami League Government in 2009, encompasses a new vision for implementing full-fledged ICT-driven governance (Shawon, 2021). 2nd version of ICT Policy was adopted in 2015 and 3rd version was in 2018 which is still in operation (BCC, 2019). Current version was formulated by the ICT division to implement eight strategic issues including digital governance, cyber security, social equity and universal access to education, research and innovation, skill development and employment generation, strengthening of domestic capacity to cope with the changes of emerging technologies. To implement the ICT Policy 2018, Bangladesh has gone through a rapid transformation in governance and public service delivery (a2i, myGov, 2022). But the question remains, is citizen of Bangladesh equally enjoying the benefits of ICT or we are creating a new barrier for them?

A major portion of citizen of Bangladesh do not have the affordability or proper skill in using the digital technology. The other side of the coin is that 9.1 percent of the country's total population have some sort of disability those do have difficulties to enjoy digital services (HES 2010, BBS). This inaccessibility to the public services results in inequitable society and creating digital divide. In this consequence, ICT more likely can create a line of divide andcan be responsible for increasing existing inequalities in the society (Babar, 2017). Keeping this phenomenon in consideration, it is undeniable to rethink the massive use of ICT and complete digitization. This study will focus on capturing the present scenario of e-governance in Bangladesh, social equity gap creating by massive use of ICT and propose policy solutions to minimize digital divide.

A. Background and significance

Bangladesh is maintaining the status of lower middle-income country (WB, The World Bank in Bangladesh, 2022). Still around 62% citizen of Bangladesh are living in rural areas (WB, 2022). But digital infrastructures are not well established in the rural part of Bangladesh. Though there are very few Union Digital Centre (UDC) in comparing with the growing demand. There are huge gaps in ICT infrastructures between urban and rural areas and it creates biasness (Hernandez, 2019).

Paradoxically, digital inequality is increasing as more people are connected. As technologies advance, this is increasingly not only the case between those online and those offline but also between those who have the technical and financial resources to use the Internet optimally and those who are barely online. The latter includes those who only have partial access to poor-quality or expensive data services that do not permit them to be 'always on' or to use data-intensive services. The gap is widening between those who passively consume a limited number of basic services and those able to put technology to full, productive use, some even to enhance their prosperity. The governance of this increasingly complex, adaptive global system is

arguably, after climate change, one of the wickedest policy problems facing nations (Commission, 2020).

ICT sectors are meant to be agile, volatile, and fast paced technology (Serrat, 2021). So, it requires continuous upgradation and reskilling for both service seekers and service providers. It has a high possibility to meet tremendous challenges to remain updated. This also creates segmentation of divide, and it is ongoing process. Moreover, most of the software or solution farm in Bangladesh do not consider in whole of approach and the idea of co-design, co-creation, and collaborative thinking mostly absent. Still, most of the public services are not disability sensitive and not inclusively designed. Massive digitization without considering inclusive design is also creating extra layer of barriers for receiving public services.

In addition, Covid-19 situation has also punched hard in social equity equilibrium and encouraged significate digital division (Aziz, Islam, & Zakaria, 2020). Bangladesh has ranked 119th among 193 countries in the UN E-Government Development Index (EGDI) 2020, which was 115th in 2018 report and the E-participation index 95th among 193 countries (UN, 2020). Bangladesh a long way to travel to achieve the desirable rank. According to the World Bank, Individuals using the Internet (% of population) in Bangladesh was reported at 12.9 % in 2019 and which is not satisfactory number (WB, 2022). This ultimately creates inaccessibility for the non-skilled or low-skilled citizen, even for the service providers, to public service, which results in digital divide.

B. Objectives
- To investigate the e-services accessibility to the citizen as committed in ICT Policy 2018.
- To find out the way of addressing 'Digital Divide'.
- To recommend the policy options for new generation e-service delivery.

C. Research Question
The policy papers are instructive and analytical documents, and it can be a debatable issue that it will successfully fit in socio-economic realities. Bangladesh has diverse social groups and communities, that is why, a single policy, most of the time, remain ineffective or not beneficial for all. Therefore, this study focuses on National ICT Policy 2018 and its strategic themes leads to doorstep service delivery or digital divide. This study also describes the components of digital divide and how it has been addressed in National ICT Policy (NIP) 2018. Considering the facts, the study raises the following research questions to meet the objectives,
- How can ICT policy 2018 ensure e-service accessibility to address digital divide?
- How can digital divide be measured, defined, and addressed?
- What are the ways of improving e-service delivery system?

II. LITERATURE REVIEW

A. ICT and the Social Structure of Bangladesh
Social structure of Bangladesh is complex and has its multi-channel issues and challenges, which leads to multi-layer of division and inequalities. Bangladesh is marked one of the world's densely populated country, where 162 million people are living in only 1,47,570 km2 (BBS, 2011). People living below the poverty line are around 20%, where Bangladesh is achieving GDP growth rate above 6% (ADB, 2022). Although Bangladesh has met the targets of MDGs successfully, but long way to go for meet the targets of SDGs.

It is no denying fact that Bangladesh has social inequality, income inequality, gender & disability insensitivity, and significant unemployment rate (Williams 2018). In addition, around 62% of Bangladeshi are living in rural areas and there is a margin of benefits for the citizen between rural and urban areas. Though the economy is gradually shifting from agriculture to manufacturing and service industries. There is significant income inequality in urban areas, as 20% of the population are occupying half of the income (GSMA, 2018). Political environment of Bangladesh is highly polarized, as some of the democratic institution is not institutionalized. Local government is highly depended on central government in terms of financial power (Khan, 2017). Bangladesh is also considered one of the worst vulnerable countries in climate change. Bangladesh is facing the risk of floods, cyclone, earthquakes, and natural disasters every year. Lot of people pushed back to poverty due to these natural calamities.

Despite of the social division and inequalities, Bangladesh has identified one of the fastest growing digital and telecom markets in the world. Strong political commitment and will of the ruling government 'Awami League' has contributed the progress of ICT industry in Bangladesh. The government has engaged both Public & Private sector to build ICT infrastructure and public services development, and as a result the shares of ICT investment have been increased from around 2% to 6% of the country's GDP (GSMA, 2018).

B. ICT Policy Framework
There was no significant change in ICT and telecommunication sector regarding policy documentation until early 90s which were solely controlled by the government. Later on, private sector started investing in ICT and got a positive boost (Hasan M. Z., , 2012). The government of Bangladesh felt the necessity of adopting policies on ICT and telecommunication. After words, the government of Bangladesh has formulated Telecommunication Policy (1998); Telecommunications Act (2001); National ICT Policy (2002); Access to information act (2009); establishment of Bangladesh Telecommunication Regulatory Commission (BTRC) (2002), National ICT Policy 2015, National Telecommunication Policy 2015, ICT (Amendment) Act 2016, Digital Security Act 2018 and so on. Recently the government of Bangladesh has adopted National ICT

Policy 2018 addressing the diverse issues and challenges of the previous policies.

C. National ICT Policy 2018

National Information and Communication Policy (ICT) 2018 or NIP has been formulated with one vision, five chapters, 8 objectives and 55 strategic themes. The vision of the policy is stated below:

"Establishing a transparent, liable, and accountable government using Information and Communication Technology (ICT); skill manpower development; ensuring social justice and building a 'Digital Bangladesh' by 2021 and turning Bangladesh into a knowledge-based developed nation by 2041, with government services reaching at the doorsteps of the people through public and private partnership."

1st chapter of NIP includes the headline and some important definitions. 2nd chapter consists of Vision and Objectives of the policy. Strategic themes are covered in 3rd chapter. 4th chapter contains policy ownership, monitoring and review plan. Last chapter of the policy comprises structure and conventions. NIP has set 8 distinctive objectives including 1. Digital government, 2. Digital security, 3. Social equity and universal access, 4. Education, research and innovation, 5. Skill development and employment generation, 6. Strengthening domestic capability, 7. Environment, climate & disaster management & 8. Enhancing productivity. The relevant objectives, strategic themes and actions are listed in annexure 1.

III. METHODOLOGY

This study has followed a qualitative method to find out the answers to the research questions by thoroughly investigating the National Information and Communication Policy (NIP) 2018. This study has also focused on 'Digital Divide" by analyzing through a befitting theoretical framework. For identifying the level of digital divide, the author has examined the NIP 2018 with relevant policy documents and made comments on the underlying gaps.

The author has arranged two focused group discussions (FGD) and one key informant interview (KII) to find out the impact ICT policy on e-service delivery

platforms and to recommend possible policy solutions. Suggestion and recommendation have been made for improving e-service delivery model for Bangladesh.

This study also interviewed purposefully selected four key informant interviews. Since both the secondary and primary data are qualitative in nature data analysis followed the content analysis method.

IV. THEORETICAL FRAMEWORK

A. Conceptualizing Digital Divide

Information and communication technology (ICT) is aggressively capturing the social and economic system of the modern world. Accessing the private, public or economic lifestyle the ability and the skill to operate ICT seems as prerequisites and components to social inclusion. It has been a phenomenal to put an "e" to the terms as "e-inclusion" or "e-participation" as in ICT regarding the context of social inclusion (Selhofer & sing, 2002). Other side of the coin is obviously social exclusion, which leads to the group of disadvantaged people for instance due to unemployment, poor housing, low-income level or any other situation. The term "digital divide" can use as a synonymous to e-exclusion. The digital divide can be defined as differences between individuals, households, companies, or regions related to the access to and usage of ICT (OECD, 2001). Although it is considered that the "digital divide" can be measured with the level of accessibility to the internet and having the skill to use digital devices. In this paper, the author defines the term "Digital Divide" as the lack of digital accessibility to the public services.

B. Measuring Digital Divide

Helsper has described that digital inclusion is measured and grouped into three broad categories (Helsper, 2008). ICT access, ICT engagement (the nature and extent of engagement with technologies), ICT skills. This framework has also been used by International Telecommunication Union (ITU, 2020). This study is analyzed based on these three distinct areas of digital inclusion to evaluate the National ICT policy 2018 of Bangladesh and added three more areas e-services, e-service delivery platform and quality e-services to the citizen to get wider perspectives.
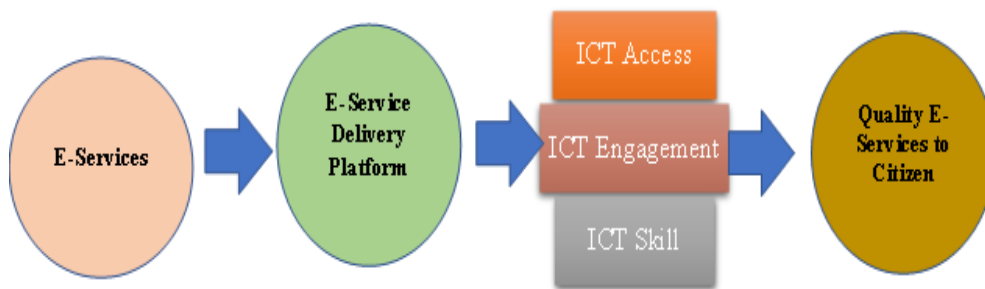
Figure 1: Helsper's digital service flow model (modified by the author)

a) *E-Services:*The government take the initiative to digitize all the government services for ensuring transparency, accountability, and the quality of the services. It has multichannel benefits for the service seekers too, for exampling tow time, cost and visit for government e-services.

b) *E-Service Delivery Platform:*For providing the digitize services to the citizen, the government can launch several e-service delivery platforms. These e-service delivery platforms are being used to deliver numerous government services to the citizen. Most of service delivery platforms of Bangladesh is trying to follow international protocol to maintain standard service flow for the citizen.

c) *ICT Access:*The indices of digital divide which focus on lack of accesses to ICT. Though recent policy and theoretical debate on digital divide gradually shifted from physical ICT infrastructure to quality of infrastructure and ICT engagement. Helsper (2008) defines ICT access in terms of quality, location and platform. In reference to the Helsper's point of view, the author defines access as enabling a user to access the e-services of the government related to connectivity, location and platform. High speed broadband internet connectivity has proved its significance in the digital world. (Aziz, 2020) describes indicators of infrastructure technology used by individuals, with a special focus on the broadband and wireless connectivity to measure how citizens are 'digitally included'. It is also important to mark how and where a citizen gets connected with ICT. For a citizen may not have internet connectivity at home, but he/she can avail the connectivity from nearby hotspot. E-service delivery platforms having variety of contents and ideas can provide more accessibility to the wide range of communities.

d) *ICT Engagement:*ICT accessibility, mobile phone connection, or/and internet connection are prerequisite but not enough for proper engagement with ICT. In addition, ICT literacy and or ICT skill may not sufficient to ensure ICT engagement. The pattern of ICT engagement of the citizen varies widely on location, contents, easy accessibility, and digital choices. Hence, the availability of digital resources and the platform can ensure ICT engagement for the citizen of different communities and cultures.

e) *ICT Skill:*Digital divide can be explained to the lack of training or hands-on experience of ICT. (Goggin, 2018) described that lack of skills and literacy is a second level of the digital divide. There is a shift of focus of attention from the physical ICT accessibility and engagement to the proper skill and knowledge of ICT. Though most of the developing countries are still lagging in ICT infrastructure than developed country.

f) *Quality E-Services to Citizen:*The service quality, trust in government, trust in e-government services and citizen satisfaction play a significant role in developing citizen loyalty to e-government services (Alkraiji & Ameen, 2021). Quality of the E-services is equally important like ICT accessibility, skill or engagement. Service quality refers to the citizen/customer/client's perception that the result from "a comparison of the expectation with actual service performance". In other words, service quality can be measured as how closely the service level that is provided matches the expectation (Parasuraman, 1985).

C. Layer of Digital Divide

The citizens have been categorized into five groups or layer. The citizens of the core layer and the primary have the capability of accessing the e-services of the government. This group of people are digitally included. Well-educated, financially and physically capable citizens may fall in these layers. The citizens of the secondary and tertiary layer, in certain condition, have the access and required skill to avail e-services.
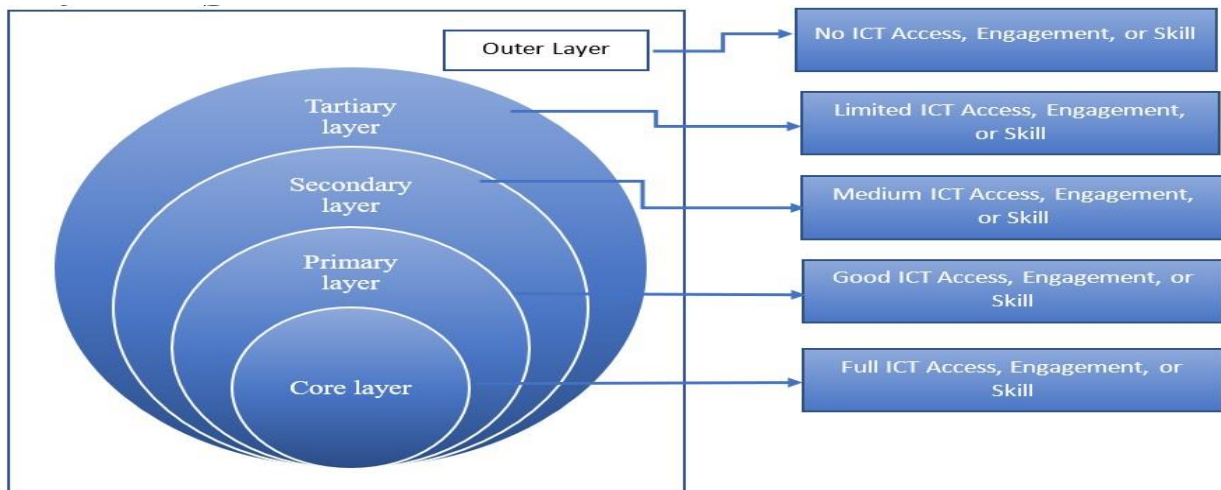

Figure 2: Layer of digital divide (prepared by the author from basic the idea of (Helsper, 2008))

People of rural, indigenous, disabled community, or different language and culture may fall in these layers. The citizens of the outer layer may not have engagement with ICT.

The people of this layer do not have the capability, access, engagement, or skill for availing digital services.

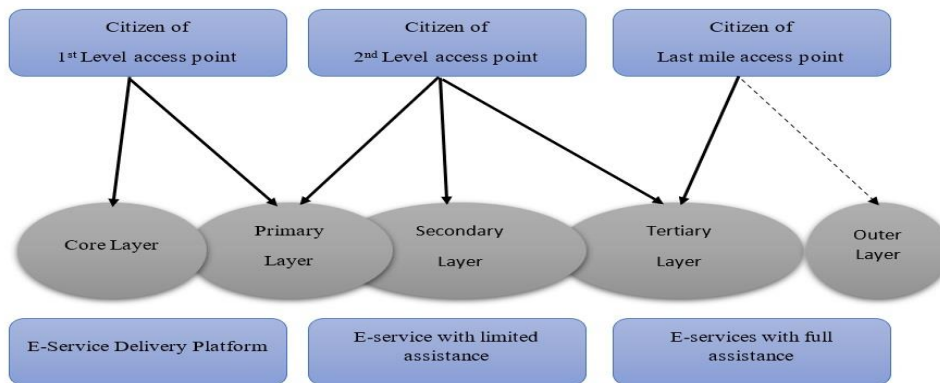*D. Level of e-service access points*

Figure 3: Level of service access points

a) Citizen of 1st Level Access point: E-service delivery platforms can be determined as the 1st level of access point. Citizens can directly receive services from the e-service platform. According to definition citizens of core and primary layer can avail services of this level of access point. For an example: the citizen who can apply and receive services directly from the e-service delivery platform without any help.

b) Citizen of 2nd Level Access Point: Digital services can be avail from those access points with 1st hand assistance. With the assistance from broker, helpline, chat, chatbot, language interpreter, citizens can receive the desired services. Citizens from primary, secondary, and/or tertiary layer can avail services from this level of access point.

c) Citizen of Last mile Access Point: Digital e-services of the government can be availed by the full assistance of the 3rd party. With the help of the agents, physical access points, and/or mediums, the citizen of the tertiary layer, or partially the citizen of outer layer can have the desired digital services.

V. DATA ANALYSIS & FINDINGS

A. Analysis on the Focus Group Discussions (FGDs)

The author has arranged two FGDs on the analysis of NIP 2018 and digital divide focusing on the e-service delivery. There were 28 participants joined the two FGDs. The participants of the first FGD were the micro merchants as they are the root level recipients of the government e-services. There are 15 disabled person, who are intrapreneurs and social activists, have participated the 2nd FGD. The author has conducted the FGDs on 9 & 10 April 2022 at ICT tower, Agargaon. The author has initiated the discussion on sequential manner and on preset topics.

Author started the second session to learn about the experiences about getting government services if they received any. Author received number of responses. But the following two responses are useful for the study to quote.

One of the participants of the FGD said, *"I am Kamal Hossain. I have a restaurant named 'Uzan Vati Hotel' in Agargaon area and I made small profit out of it to run my family. I do not have college degree, as I had to take the responsibility of my family at my early age. When I had started my restaurant business, I do not have any idea that I have to take number of licenses, registrations, and the certificates. After that, I had to take 10 different services from the government one by one. The services I have received were Trade license, TIN registration, VAT registration, Environment certificate, Fire certificate, Health certificate for my staffs, registration of my restaurant, license of restaurant, CM registration and product packing registration. I received TIN & VAT registration, as it was a e-services and very easy to apply. Moreover, I am not well educated, and my ICT knowledge is very limited. I am using smart phone, but I do not know how to get services from the government offices. That's why, sometimes I took the help from local brokers. I had received the services, but I faced difficulties. It would be easier for me if I came to know that what types of documents were required to open a restaurant and service specific mapping for each service. Some of the services are easier to apply as they are easy e-services, but some of those are very difficult to understand. It would also be appreciated if government engage some people to help me apply for it easily."*

Another participant said, *"I am Md Abdullah Al Mamun. I am managing a leather business. I make leather-based product in my small factory. But I want to shed the light in different direction. I have a university degree, but I have physical disability. Due to an accident, I have lost my moveability. I use wheelchair for movement because I can't walk properly. I did not get any job, that is why I took help from my family and friend to start this business. After that I faced the reality towards a disabled man. There is a social stigma that the products of the people like me are not good. Even the government do not recognize us Entrepreneur with Disability. I have received 12 types of government services, some of them were digital services and some were traditional services. I got the e-services easily, as I can apply for them on*

my own. But for the manual services I took help from others. I could not visit the some of the government offices because they did not have wheelchair accessibility. Another fact is that I could not apply for a Bank loan. Banks and microfinance organizations are not willing to provide loans to entrepreneurs with disabilities like me. I will strongly suggest government to consider the issues of disabled entrepreneurs."

B. Key Informant Interview (KII)

The author has chosen one Key Informant Interview (KII) for this research purpose. That is Mr. Anir Chowdhury, policy advisor, Aspire to Innovate (a2i) programme, because of Mr. Chowdhury's vast experiences and knowledge on e-governance and, he is a resource person for many policy documents on ICT including NIP 2018. He is one of the members of the NIP 2018 Formulation Committee.Author has taken the interview at the office of a2i by asking the following 3 open-ended questions tohim. Those are (1) What do you mean by 'digital divide' focusing on e-service delivery? (2) To what extent NIP 2018 addresses digital divide? And (3) What is your proposal of minimizing digital divide and leveling the e-service access points?

a) What do you mean by 'digital divide' focusing on e-service delivery?

Mr. Chowdhury said, *"There can be no doubt that digital technologies progressed globally and are transforming societies in all aspects ranging across connectivity, financial inclusion, public services, health, education, trade and commerce, media communication, transportation, you name it. The world is becoming more and more faceless, paperless and cashless. There is no alternative for the government to digitize its services aggressively to cope with modern world. It is important to focus on digital inclusion and digital quality – e-Quality – globally and nationally. Billions are outright excluded from the "digital world" and there no exception in Bangladesh. At a rapidly digitized world, the digital divide often means exclusion from public service delivery, education, healthcare, and finances. Even for the people who are "digitally included", the experience is not meaningful enough for many of them to recognize it as high-quality, resulting in the same fate as for the "digitally excluded".*

b) To what extent NIP 2018 addresses digital divide?

Mr Chowdhury in his second question noted his answer, *"I think NIP 2018 is a good start for addressing the challenge of digital inclusion. NIP 2018 has addressed a good number of issues which were not included in the previous policies. The NIP 2018 is good policy and it covers a wide range of issues. Still, some of the measurement parameter of NIP 2018 are not clear. Based on the ICT polices, in last decade, Bangladesh has made good ICT progression. Among them, Multimedia Classrooms in over 110,000 schools, 4,176 Sheikh Russel Digital labs, developed over 32,000 skilled professionals for IT and ITES sector for skilled human resource. I am hopeful that the NIP 2018 will be a guideline to ICT revolution in Bangladesh."*

c) What is your proposal of minimizing digital divide and leveling the e-service access points?

Mr Chowdhury said, *"Minimizing digital divide or leveling the e-services access points will not be a short-term agenda. It has to be well-defined and time-bounded goal. It is definite that only NIP 2018 cannot do that in a manner. Furthermore, I will propose four major areas to mitigating the areas.*

- Last Mile Access: bringing the population, who are not under the coverage of internet, under internet coverage
- Information Asymmetry: information problems arise whenever a 'principal' contracts with an 'agent' to provide a good or a service, but the principal has insufficient information to assess whether a poor outcome was because of fraud by the agent or some other reason.
- Service Gaps: There are numerous digital services offered by the government but still there is a gap between the provider and receiver due to lack of proper access and availability of services and
- Digital literacy: While the economy is being digitized, it is imperative to simultaneously develop the digital savviness of citizens."

C. Key Findings

The National ICT Policy (NIP) 2018 is structed with a single vision and attached with eight objectives, fifty-five strategic themes, and 343 strategic actions. Is the vision aligned with national goal or can objectives meet the vision, or can the strategic themes reach each of the objectives? In this study, the author has analyzed the NIP 2018 thoroughly in accordance with the theoretical perspectives.

Sl	Discussion	Findings
1	Most of the government services of Bangladesh has already been digitized through rapid digitization process, system digitization, or the initiative of the concern govt offices. By 2021, Bangladesh has already digitized 83% of its total government services. The government has a plan to convert all its manual service to digital services by the end of 2022. Chapter 3 strategic theme (Digital Government), 3.1 of NIP 2018 (ICTD, 2018) ensures the delivering e-services to the citizen. Strategic theme 3.1 consists of 71 specific strategic activity includes the desired results, responsible authority, and timeline.	The goal of transferring manual services to e-services is specific, well-defined, and time-bounded. But there is few or no indication for the service process simplification. Because transferring the inefficient manual service to e-service can increase the inefficiency and make the access difficult for under-served people of the society.

Table 1: E-Services of the government

Sl	Discussion	Findings
1	The government of Bangladesh has launched national portal which includes more than 25,000 government offices. Citizens are receiving e-services and information services from the portal. Another e-service platform myGov has been initiated to unify all the government services in single address. For digitizing the payment system, ekPay platform has been initiated (a2i, 2022). Chapter 3 strategic theme 3.1 (Digital Government), of NIP 2018 (ICTD, 2018) ensures the structure, interoperability, and architecture of the e-service delivery platform.	The targets specified in NIP 2018 for establishing e-service delivery platform are well enlisted. In the long run, the platforms are needed to be interoperable and interconnected. From the FGD establishing sector-wise or business-wise service bundle is necessary. For an example, a leather businessman or owner of a restaurant do not know which services or how many services are required for his business. Then a sector-wise or business-wise service bundle should be considered.

Table 2: E-Service delivery platform

Sl	Discussion	Findings
1	The government of Bangladesh has taken steps for ensuring high speed internet connection. Optical fiber internet connection up to Union (lowest tier of administrative unit) is considered one of the milestones for ICT accessibility. Bangladesh has almost 12 crore mobile network users as well as 9 crore internet users. According to the Bangladesh Bureau of Statistics, in 2019, only 5.6 per cent of households in Bangladesh had a home computer and only 37.6 per cent of households had access to the internet at home. Chapter 3, strategic theme 3.3 (Social Equity and Universal Access) of NIP 2018 (ICTD, 2018) ensures the ICT accessibility to the citizens.	The cost of the internet is still very high for many people. Rural, haors, chars areas and hill districts are lagging behind in internet connectivity. The whole Bangladesh should be under the coverage of internet with low cost. Educational institute requires free internet.

Table 3: ICT Access

Sl	Discussion	Findings
1	The ICT usability varies in communities, location, or other barriers. Only high-speed internet connection or the knowledge is not enough for ensuring ICT use or ICT engagement. Concerning to that matter, creating variety of contents and medium help to increase the engagement. Chapter 3, strategic theme 3.4 (Education, Research, and Innovation), strategic theme 3.6 (Strengthening Domestic Capacity), strategic theme 3.8 (Enhancing Productivity) of NIP 2018 (ICTD, 2018) partially encourage ICT engagement.	Many e-service delivery platforms are not accessible for the person with disability or the community with special needs. The UI of the platforms should be multilingual, content rich, and accessible for all.

Table 4: ICT engagement

Sl	Discussion	Findings
1	For improving the ICT skill set, ICTD, directorate of ICT, and relevant organization has taken initiatives. Promotion and adaption of ICT education is another way to incorporate ICT skill. Chapter 3, strategic theme 3.4 (Education, Research, and Innovation), Strategic theme 3.5 (Skill Development and Employment Generation), strategic theme 3.8 (Enhancing Productivity) of NIP 2018 (ICTD, 2018) partially encourage ICT engagement.	NIP 2018 address this issue for the younger generation. There should be enough training and learning session, and opportunity for hand-on experience for the adults with limited education. Special focus would be given to persons with disability or the community with special needs.

Table 5: ICT skill

Sl	Discussion	Findings
1	For maintain the optimum quality services, services are needed to be improved gradually. It is necessary to take the feedback from the citizen and encourage citizen participation. Strategic them 3.1 (Digital Government) only includes the issues of the participation. Citizen participation, and monitoring and feedback mechanism are must for ensuring good quality e-services.	Increasing citizen participation and improving feedback mechanism will be needed. Suitable feedback mechanism and reporting system should be considered. Present system citizen participation and addressing grievance redressal system is not much user friendly

Table 6: Quality E-Services to Citizen

VI. RECOMMENDATIONS

Policy gaps are identified in the previous section, which may lead to 'Digital Divide' in the society. Some solutions are also made with working experience of the author. The following recommendations has been made on three categories of the citizens upon their accessibility to the e-services of the government. But the recommendation might not be all inclusive.

Sl	Discussion	Recommendations
1	Citizen of 1st Level Access point: Citizens can directly receive services from the e-service platform. Citizens with good knowledge and skill on ICT can avail services of this level of access point.	To level up the confidence of the citizen, service delivery points should be readily available at every public places. Citizen's behavioral pattern should be identified for designing more dynamic and user-friendly UI and access points. Business-wise or sector-wise service bundle should be incorporated like many One Stop Service (OSS). For example, if someone wants to start restaurant, he doesn't need to know the number of services required, he will get all the services in a single bundle. Considering Service Process Simplification (SPS) before digitization will have great impact on citizen's experience.
2	Citizen of 2nd Level Access point: Digital services can be avail from those access points with 1st hand assistance. With the assistance from broker, helpline, chat, chatbot, language interpreter, citizens can receive the desired services. Citizens from primary, secondary, and/or tertiary layer can avail services from this level of access point.	Creating more dynamic, multilingual, modern, and interactive assistance. For example, automatic voice helpline, chatbot with multiple language and so on. Introducing 4IR technology including AI should be introduced at every service access points to deliver the e-services more efficiently and should have sufficient and suitable digital contents for all communities of the country. Creating all community enabled ease feedback mechanism for understanding the demand of the citizen and encourage citizen participation. Ensuring high-speed and low-cost internet. Free of cost internet for educational institutions. Encouraging adult-learning platform and improving hand-on experience.
3	Citizen of Last mile Access Point: Digital e-services of the government can be availed by the full assistance of the 3rd party. With the help of the agents, physical access points, and/or mediums, the citizen of the tertiary layer, or partially the citizen of outer layer can have the desired digital services.	Citizen of this access points needs physical contact points. To minimize the digital divide, it is necessary to build physical access points for the citizens of last mile. Bringing the e-services to doorstep of the citizen without even asking of the citizen. For example, citizen will receive birth registration, national ID card, citizenship certificate, and so on automatically.

Table 7: Accessibility Points for the Citizen

VII. CONCLUSION

The ICT policy papers are meant to ensure general ICT accessibility for the citizen, no matter what are the social or economic status of the citizen or the communities. It is also true that only internet coverage cannot minimize digital divide in the society. The fact is that digital inclusion and digital quality can ensure high-quality digital experience in receiving e-services. That is why, the author sets three objectives for this paper and tries to answer the three research questions to formulate the objectives. The research questions are answered in 'Finding' and 'Recommendation' section by critically analyzing the NIP 2018. The analysis of the NIP 2018 is done by constructing a theoretical framework. The author finds the gaps for digital inclusion, namely service process simplification before digitization, sector-wise service bundle, free internet for educational institution, hands-on learning session for adults, feedback mechanism for citizen participation, improving UI, bringing 4IR technology and so on. Despite of these issues, challenges, and gaps identified, the NIP 2018 covers the major loopholes addressing the digital divides. Therefore, the author thinks that, if the NIP 2018 is implemented with priority and concern, the government of Bangladesh can minimize the threats of digital divide and bring the e-services to the doorstep of the citizens.

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ANNEXURE 1

- **Strategic Themes of the National ICT Policy 2018[1]**

A. *Digital Government*
- To ensure providing government information and services digitally.
- Ensuring transparency and accountability in providing government services through digital method.
- Ensuring infrastructural development and maintenance so that public can avail all kinds of services and government information digitally.
- Enhance the capacity of service provider so that they can deliver all the services and information digitally to the public.
- Taking steps for establishing interoperability and informational system architecture with digital connectivity among the various departments of the government to ensure flawless exchange of information.
- Ensure digitalization in all kinds of government fields like education agriculture, health, land, legislative, Judiciary and create skilled human resources according to demand.

B. *Education, Research, and Innovation*
- To include information technology related education in all stages of educational system including primary education and keep it regular update with time.
- Regular update educational syllabu[i]s according to the demand of employment and increase reciprocal co-operation between educational institutions & information technology related industry.
- Ensure the usage of ICT in specialized education.

C. *Skill Development and Employment Generation*
- To develop infrastructural capacity for creating ICT occupational according to the demand of national & international market.
- Taking necessary steps to ensure the ICT related occupational training for upgrading the skill.

D. *Strengthening Domestic Capacity*
- Establish software technology park /industry and also develop& maintain reliable ICT related infrastructure.

E. *Enhancing Productivity*
- Ensuring the highest usage of digital devices in communicational system.
- Ensuring good health for all with the highest usage of digital devices.
- Encouraging digital technological depended industry to ensure modernization of agricultural sector & food curity.

[1] National ICT Policy 2018 is written in Bangla. Author translated the Bangla documents in English. There may be a slight possibility of change in meaning.