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# The Era of Digitalization in Japan and Indonesia: The Third Perspective – Bangladesh

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**Abstract-** This paper is a comparative analysis of the transformative effect of digitalization in Japan, Indonesia, and Bangladesh. In the long run, Japan has been working toward an IT-oriented society. Following the 4IR, they hope to achieve a more advanced Society 5.0, with intensive applications of digital technologies, including IoT, AI, and robotics, across industries, especially manufacturing, to minimize human involvement and enhance the quality of production and society. Indonesia, on the other hand, is experiencing fast infrastructure-based growth. Digital inclusion and collaboration between the government and society are priorities for Indonesia to achieve sustainable growth and create an inclusive economy. To create this, they are quickly moving to focus on the digital economy. In Bangladesh, on its part, the Digital Bangladesh path has shown exponential growth in ICT infrastructure, mobile and internet penetration, the creation of e-government platforms, and high-tech exports. Using a desk review approach this qualitative research suggests that the human-oriented society model, industry-government-academia partnership, and extensive digital literacy of Japan can be adopted by Bangladesh for its overall growth and development. In addition, digital inclusion and public-private partnerships are the right routes for Bangladesh to learn from to achieve sustainable economic transformation, as is the case in Indonesia. This addresses the possibilities of adaptive learning in policy and regional collaboration to pioneer sustainable, inclusive, and innovative digital transformation in the rising economies.

**Keywords:** Digitalization, Society 5.0, Japan, Indonesia, Bangladesh.

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## Introduction

The digital revolution has become a decisive factor in the contemporary socio-economic landscape worldwide. The attempts of Japan and Indonesia to digitalize are quite different and informative about the changes aimed at digitalization in general and, in particular, in Bangladesh, which is a developing digital economy. The next stage towards Japan becoming Society 5.0 is the production of a highly connected digital space where the Internet of Things (IoT), artificial intelligence (AI), and robotics would collaborate to re-engineer the industrial and societal sectors, and in particular, the human-focused innovation and automation to enhance the manufacturing industry (Japan Cabinet Office, 2020). Indonesia is improving its digital economy through public-private partnerships, with a focus on digital infrastructure and inclusion. Meanwhile, the Digital Bangladesh project is developing ICT infrastructure and e-government services in Bangladesh and is among the region's emerging digital innovators (Romke, 2021). The paper proposes a flexible solution for Bangladesh by examining three indicators, drawing on Japan's experience and digital ecosystems, and on Indonesia's example of digital development and inclusion to realize a sustainable, inclusive, and innovative digital transformation.

When analyzing the Society 5.0 model in Japan, the market-driven digital economy in Indonesia, and the hybrid model in Bangladesh, one can see that the market, resources, and governance structure strongly influence the direction of digitalization. To align with the specifics of their socio-economic environment, developing economies such as Bangladesh should adopt a different approach rather than copying developed countries (Li et al., 2020).

## Literature Review

### *Japan's Society 5.0: The Comprehensive Policy Approach*

### Conceptual Framework and Strategy Vision

The Fifth Science and Technology Basic Plan of 2016 by Japan presents Society 5.0, which is intended to transform a human-oriented society through the coexistence of economic growth and social welfare, and to utilize integrated cyberspace and physical space (Cabinet Office, Government of Japan, 2020). The effort shifted in the Sixth Basic Plan (2021) to an emphasis on resilience, sustainability, and personal safety in the context of demographic pressures, i.e., an aging population and increasing medical expenses, with digital transformation becoming the key to survival. AI-based healthcare, geriatric-care robots, and increased productivity are solutions to these problems, and it is estimated that society 5.0 could grow by 30 percent by 2030. However, the reality is hard to predict (UNESCO, 2019).

## Japan's Centralized Digital Governance: Ethical AI, GIGA Initiative, and Digital Agency

In September 2021, the creation of the Digital Agency of Japan was an influential institutional innovation that established a single coordinating unit for digital governance across ministries that had previously been housed in separate institutes (López, 2025). This issue is one of the ongoing dilemmas of digital transformation: walled-off governance, in which various agencies adopt incompatible systems that cannot work together. Japan's centralized strategy theoretically does this, though implementation remains difficult.

In 2019, the Japanese Ministry of Education, Culture, Sports, Science, and Technology (MEXT) introduced the Global and Innovation Gateway to All (GIGA) School Initiative in response to existing inequalities and the essential role of technology in modern education. This educational reform aims at reducing regional disparities in ICT in the school sector.

The growing investment in Japan to expand public school financing is intended to support digital education by purchasing digital equipment and improving teacher training programs (Nae, 2024). An example of this approach is the GIGA School Program, which provides students with digital devices and internet access and presents it as an investment in human capital for a digital economy (Lopez, 2025). Nevertheless, there are some obstacles to successful teacher training and curriculum modification. Also, the strategy for developing AI in Japan is oriented toward its use in society, unlike those in the West, where AI is used in healthcare and disaster management. In 2023, the Hiroshima AI Process was announced, which might develop international principles of safe AI governance, making Japan a leader in ensuring transparency and human rights in AI (Takemi, 2025).

## Japan's Digital Paradox: Top-Down Strength vs. Grassroots Stagnation

The general policy form of Japan, even Japan Society 5.0, can be discussed as a point of pride of the top-down institutional advantages of the process of digitalization, including the automation of factories. However, the real-life picture shows significant tensions in the form of the Digital Paradox of not having grassroots innovation engines similar to those in the United States or China. Cultural and structural issues that Japanese startups often face: a risk-averse banking system, lifetime employment, and regulatory conservatism smothering entrepreneurial energy, as the government allocates billions of dollars to digital infrastructure (Atay et al., 2024). This suggests that institutional cultures are so stiff that they cannot be shattered through policy mechanism.

Japanese Digital Paradox is shaped in the form of these top-down advantages colliding with grassroots stagnation through neoliberal restructuring devoid of a new regulatory mode where digital technologies enhance firm competitiveness

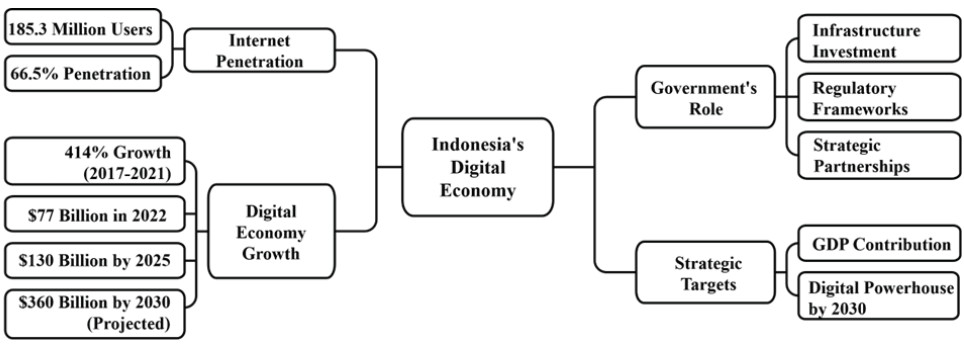
and productivity by means of AI and IoT and offset unpaid labor, skill deficit, and digital divide among big companies and SMEs unless a new regulatory mode is established (Shibata & Lechevalier, 2025). State-level policies of new capitalism do not reskill non-regular employees, sustain low consumer power, intensify work, or address institutional inertia that keeps keiretsu hierarchies and risk aversion in place, creating instability rather than accrued growth.

### *Indonesia's Digital Economy: State-helping Market Growth*

### Cost, Economic Positioning, and Economic Setting

The Indonesian model of digitalization is very different. With 185.3 million internet users in January 2024 (a 66.5% internet penetration) and a heavily mobile-first population, the digital economy in Indonesia has developed through market forces rather than a top-down plan (Lee Kuan Yew School of Public Policy, 2024). The government has played a lesser role in leading the transformation but has focused on enabling conditions, including infrastructure investment, regulatory systems, and strategic alliances. Figure 1 describes Indonesia's Digital Economy, its strategic growth, and its economic impact.

**Figure 1:** *Indonesia's Digital Economy: Growth and Strategy*




The White Paper on National Strategy of the Development of the Digital Economy of Indonesia 2023-2030 is quite specific in its goals:

- Making the digital economy’s contribution to the GDP rise to a higher level, and
- Raising Indonesia to the status of a digital powerhouse in Southeast Asia by 2030 (Oxford Business Group, 2024).

More importantly, the digital economy in Indonesia grew and continues to expand, reaching USD 77 billion in 2022, 22% higher than 2021 (Trade.gov, 2024; Oxford Business Group, 2024).

### Architecture of Implementation

The 6-pillar plan of the Digital Indonesia Roadmap 2021-2024 and the Making Indonesia 4.0 roadmap focus on infrastructure, human resources, business climate, innovation ecosystems, financial inclusion, and cybersecurity (Meidyasari, 2024). The basic connectivity issue in a geographically spread country like Indonesia is the Palapa Ring project, an enormous fiber-optic infrastructure spanning thousands of Indonesian islands. The 100 Smart Cities program is a strategy for urban-level digitalization that is not imposed nationally on Jakarta but gives cities the right to develop solutions appropriate to their particular context and to share best practices and common platforms (Trade.gov, 2024). The decentralized model recognizes Indonesia's myriad regional diversities and establishes the country's capacity.

It is the country's inclination towards e-commerce and fintech that is impressive about its direction. The Indonesian e-commerce market share accounted for 52% of the total ASEAN market value, and 59% of the total population bought products or services online each week (Oxford Business Group, 2024). Ecosystems of integrated super-apps, including Gojek, Tokopedia, Bukalapak, and OVO, are disruptive across e-commerce, digital payments, logistics, and services by bypassing conventional retail infrastructure.

### Challenges and Limitations

The digitalization in Indonesia, and more specifically on Java Island, where 66.5 percent of the population lacks internet access, indicates a major gap that affects more than 90 million people (Lee Kuan Yew School of Public Policy, 2024). The cities have evolved 4G and new 5G networks, especially in Jakarta, which has widened the regional gap and acts as a barrier to inclusive development. In addition, the regulatory system in Indonesia cannot keep up with technological change, and investors are left in the dark, which hurts consumers. The Ministry of Communication and Digital Affairs is confronted with a complex set of issues: innovation, consumer protection, security, and healthy competition.

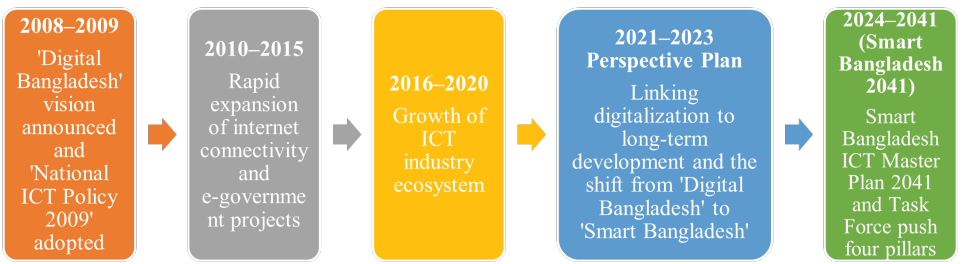
### *Initiation of Digitalization in Bangladesh*

"Digital Bangladesh" aims to use contemporary technology to influence all facets of both public and private life (GoB, 2018). The transformative vision calls for using ICT to improve human resources and reduce poverty. It also highlights the crucial role of ICT in resolving the nation's social, cultural, and economic problems. In order to achieve Digital Bangladesh, it lists the following four top priorities:

- Digital Government;
- ICT in Business;
- Connecting Citizens;
- Human Resources Development (GoB, 2018).

The implementation of a digital government comprising e-public services and e-administration, and the introduction of ICT in businesses, might enable better market access through ICT, promote ICT businesses, and expand ICT exports by developing human resources and connecting citizens. There is a timeline from 2008 to 2024, and Bangladesh aims to become Smart Bangladesh by 2041 (GoB, 2018). These are aimed at the transition from mere digitalization, such as online services and connectivity, to a knowledge- and innovation-based economy in which sophisticated technologies become the primary driver of growth. They aim to fully digitalize, go paperless, and make public services more transparent, thereby enhancing their efficiency and accountability. They also want to equip individuals and organizations with the fourth industrial revolution through digital capabilities, AI, IoT, and other emerging technologies, ensuring inclusivity and sustainability by leveraging technology to reduce inequalities in the region and across social groups (UNDP, 2021). Figure 2 explains the timeline of digitalization in Bangladesh.

**Figure 2:** *Timeline of Digitalization in Bangladesh*




Source: UNDP (2021)

Between 2010 and 2015, this vision was translated into rapid growth in internet connectivity and the implementation of major e-government initiatives to enhance service delivery to the population and administrative effectiveness. These programs contributed to the development of the ICT ecosystem, including software, services, tech entrepreneurship, and other supporting infrastructure, between 2016 and 2020. During the Perspective Plan period of 2021-2023, digitalization was formally linked to long-term national development, and the new approach, From Digital Bangladesh to Smart Bangladesh, was declared an overarching framework. Under the Smart Bangladesh 2041 agenda, to make this change, the Smart Bangladesh ICT Master Plan 2041 and the Smart Bangladesh Task Force might support it by promoting four key pillars that shall make digital technologies enablers of an innovative, inclusive, and sustainable economy through to 2041 (Rahman et al., 2022).

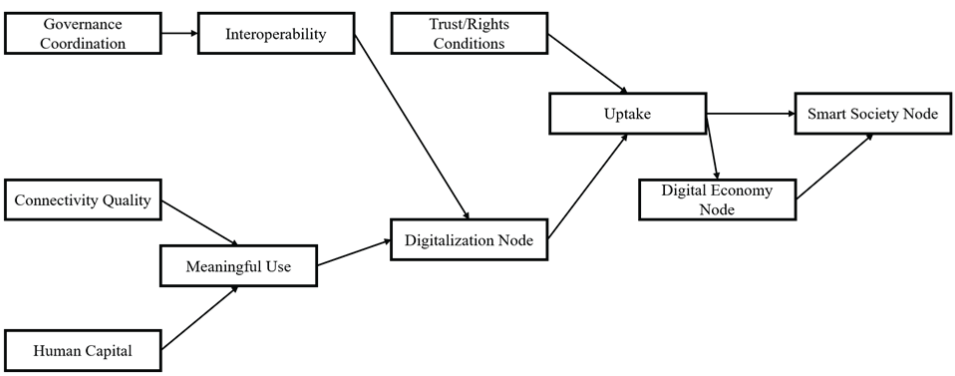
The main research gap in existing research is the lack of studies demonstrating how Bangladesh is integrating Japanese and Indonesian approaches to digitalization. While Japan has established a fully government-led, top-down, comprehensive structure, Indonesia is primarily focused on market-driven growth

through digitalization. Bangladesh essentially uses a hybrid strategy that balances market-driven efficiency with state-led direction.

### *Theoretical Framework*

The theoretical framework analysis can be conducted only after clarifying why Japan, Bangladesh, and Indonesia were selected for this study. The first is that all three countries are Asian, and their economic experiences and indicators are rather similar. The second rationale is that, as a developing country, Bangladesh must be a close follower of developed countries such as Japan and Indonesia, which are performing exceptionally well in digitalization. This study aims to identify the implications of the quality divide for meaningful digital participation in Bangladesh and for uneven access to digital services, driven by the lack of high-quality networks and by the lack of inclusivity in digital networks. This study further aims to compare these contexts with the strategies implemented by Japan and Indonesia in the absence of quality infrastructure, and to highlight the significant growth in digital inclusion in these two countries. This study also examines the fragmented fabric of digital governance in Bangladesh and what can be learned from Japan and Indonesia to improve institutional performance and digital transformation. To ensure rapid development, digitalization is the key. In the present world, the digital economy and smart society need to be adopted by every nation, and exactly this was done by Japan and Indonesia. Besides, these two components are treated as mutually reinforcing analytical nodes because the official Smart Bangladesh ICT Master Plan 2041 itself incorporates national transformation as an integrated system of governance, economy, and societal pillars. To create a smart society and ensure governance coordination, quality connectivity, and skilled human capital are much-needed components. There is a casual pathway to achieve this objective (ICT Division Bangladesh, n.d.). The framework is portrayed duly in Figure 3.

**Figure 3:** *Theoretical Framework*




According to Figure 3, the core pathway is governance coordination to interoperability, where the practical interoperability lever is the Bangladesh National Digital Architecture, which works to ensure connectivity quality and human capital, both of which indicate meaningful utilization. If this meaningful

use can be ensured, it might improve the quality of digitalization in Bangladesh and create a pathway towards a smart society (Van Dijk, 2017). In that pathway, if governance coordination, connectivity quality, and human capital are properly utilized, then trust/rights in the pathway will increase, and it will deliver smart-society outcomes. To ensure this, Bangladesh needs to follow in the footsteps of Indonesia and Japan. Therefore, this research identifies the infrastructural strategies and digital governance coordination that can be adopted from these countries. Moreover, as discussed above, this is highly necessary because, in the era of digitalization, no country can develop without a digital economy.

## Research Method

This study seeks to provide an in-depth overview of the role of digitalization in Japan and Indonesia, and what Bangladesh can learn from them. It adopts an interpretivist philosophy, which accommodates many perspectives and is crucial for synthesizing diverse insights from other studies and real-world contexts on digitalization. Moreover, this study employs a desk review strategy alongside an inductive approach as part of its qualitative research methodology. As for the desk review strategy, document analysis and web surfing methods have been adopted, and the authors have studied and critically analyzed numerous secondary sources. The information sources used in the records are very diverse in terms of media, including articles, excerpts from chapters, books, reports, scholarly journals, newspaper clippings, and web pages, among others.

The thematic data analysis method invented by Braun and Clarke (2006) was used to discuss several documents containing secondary data, which was not prevalent in previous studies. Ethical data management is also ensured, as ethical norms and APA 7th edition citations are followed to maintain academic integrity. The discussion section is well organized into sections and subsections, is clear, and provides readers with an opportunity to evaluate the outcomes of the analysis.

**Figure 4:** *Methodology of this Research*

However, this study addresses two research questions. They are given below:

- How does the "quality divide" in Bangladesh's mobile internet affect meaningful digital participation, and how does this contrast with Japan's and Indonesia's infrastructural strategies?
- How does fragmented digital governance work in Bangladesh, and what coordination lessons from Japan and Indonesia are most applicable?

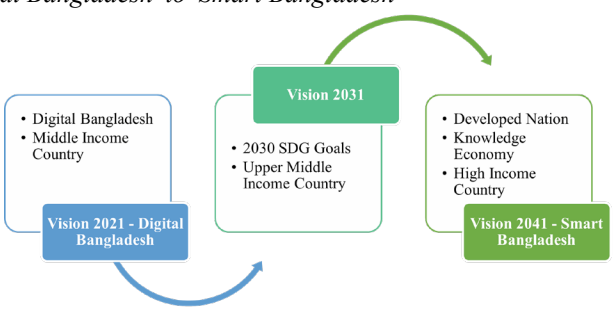
## Findings and Discussion

### *Bangladesh as the Third Perspective: A Hybrid Model of Digital Transformation*

### From Digital Bangladesh to Smart Bangladesh

The Bangladesh digitalization process is a hybrid approach that combines aspects of the top-down and market-driven approaches. The Digital Bangladesh program came into being in 2009 to leverage information and communication technology to enhance efficiency and transparency of the government and ultimately, to create a developed and inclusive society (Romke, 2025). Bangladesh is ambitious and has a vision for a knowledge- and innovation-based, highly digitalized economy by 2041.

**Figure 5:** *'Digital Bangladesh' to 'Smart Bangladesh'*




Source: ICT Division (2023)

Another project suggested in Bangladesh in 2021 is Digital Bangladesh, planned to become Smart Bangladesh in 2041 through the construction of 4,550 Union Digital Centers (Asian Productivity Organization, 2024). The centers give rural populations access to government services, internet access, training, and entrepreneurial guidance, which are not well catered to by market-driven models due to limited access. Currently, Bangladesh ranks 115th in the E-Government Development Index, which is an improvement, but it still needs improvement (United Nations, 2018). The fact that Smart Bangladesh's transition is an indicator of a holistic approach that utilizes emerging technologies, including AI, IoT, and big data, to create societal change (Mamun, 2024; Sultana, 2024). Besides, Bangladesh has a specific economic objective: to achieve a smart Bangladesh by 2041. Table 1 below depicts this.

**Table 1:** *Smart Bangladesh Vision 2041: Economic Goals*

| Indicators | Year-Wise Economic Goal | | |
|---|---|---|---|
| | 2021 | 2031 (Projected) | 2041 (Projected) |
| **Per Capita Income (USD)** | 2,824 | 5,000 | 12,500 |
| **Economic Position in the World** | 40th | 29th | 23rd |
| **The ICT Sector in GDP** | 0.76% | 5% | 20% |
| **Important Technologies** | Advanced | Emerging | Future |

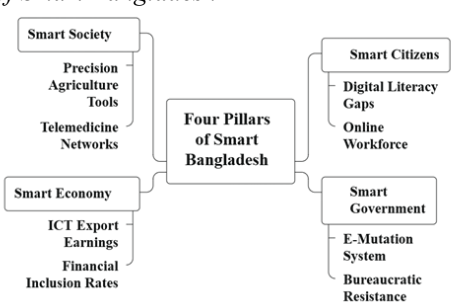
Source: ICT Division (2023)

Table 1 shows that Bangladesh's economic landscape has a long-term vision focused on sustained prosperity and greater ICT involvement in the country's growth. The per capita income was 2,824 USD in 2021, and the country is estimated to rank 40th in the world economy, where the ICT sector contributed only 0.76 percent to GDP and is predominantly based on high-level (though rather limited) technologies. It is hoped to increase ICTs' contribution to GDP to 5 per cent by 2031, raise the world ranking to 29th place, and raise per capita income to 5,000 USD as the economy embraces a wider range of emerging digital technologies. By projection in the year 2041, the country is expected to have a per capita income of 12,500 USD, an economic level of about 23rd among the world economies, and a transformative 20% level of ICT in the GDP, when there is extensive adoption of future-oriented technologies that will form the foundation of an all-smart and innovation-driven economy.

## The Four Pillars of Smart Bangladesh

The Smart Bangladesh framework is grounded in four pillars that relate to one another, namely Smart Citizens, Smart Government, Smart Economy, and Smart Society (Munim, 2023). This framework demonstrates that Bangladesh is addressing digitalization holistically rather than focusing on narrow aspects such as infrastructure or economic development. The four pillars of Smart Bangladesh are stated below:

**Figure 6:** *Four Pillars of Smart Bangladesh*




Source: Created by the authors based on data derived from FICCI (2023)

A detailed explanation of the four pillars of smart Bangladesh is given below:

- **Smart Citizens** focuses on skills and digital literacy and understands that without access to technology infrastructure, people will not use it well. With Bangladesh being the second-largest provider (16) of the online workforce in the world, after India, it shows that human capital in the digital economy exists (Asian Productivity Organization, 2024). Nonetheless, considerable disparities in digital literacy persist, especially among rural residents, women, and the elderly.
- **Smart Government** aims to make all government services efficient, transparent, and accessible by 2030, and to make the whole government transparent and e-governance-enabled (Mamun, 2024). Programs such as the E-Mutation system for land records and the e-GP system for government procurement are clear signs of core progress in reducing corruption and improving service delivery. However, according to Romke (2025), in his primary interviews with policymakers, the implementation process often fails due to bureaucracy, insufficient training, and a heavy reliance on the internet.
- **Smart Economy** focuses on developing the ICT sector, fostering technology startups, growing e-commerce and fintech systems, and increasing ICT export earnings several times (Rahman, 2023). The IT/ITES industry expanded to 280 million per year, which is not significant compared to competitors in the region. Bangladesh aims to achieve a penetration rate of more than 90% for digital financial services, a monumental scale change given current rates of financial inclusion.
- **Smart Society** makes use of digital technologies to enhance healthcare (telemedicine networks in remote areas), education (networks of virtual learning platforms at all levels), and agriculture (IoT devices and tools to improve precision agriculture on half of farms by 2030), as well as to encourage sustainable development and environmental conservation (Mamun, 2024). These are ambitious goals, maybe too ambitious, given the existing infrastructure and resource limitations.

### *Comparative Digitalization in Japan and Indonesia: Implications for Bangladesh*

#### Development of Infrastructure: Quality versus Coverage

One of the most important insights from comparing these three cases is that infrastructure quality is more important than coverage statistics. There is a different scenario regarding this in Japan, Bangladesh, and Indonesia. Table 2 presents a comparative analysis of this across Japan, Bangladesh, and Indonesia.

**Table 2:** *Country-Wise Digital Infrastructural Development: Quality vs Coverage*

| Country | Main Approach to Infrastructure | Coverage Focus | Quality of Service Focus |
|---|---|---|---|
| **Japan** | State-led, high-standard networks | Not obsessed with headline coverage numbers | Strong emphasis on stable, high-speed connectivity that enables real digital use |
| **Indonesia** | National backbone (Palapa Ring) to link islands | Extends reach to remote regions and islands | Design the bandwidth so that business, education, and health services can run online |
| **Bangladesh** | Very rapid mobile network rollout | Achieves about 97% mobile coverage in principle | Only a small share of users enjoy reliable 4G; rural speeds are often too weak |

In Bangladesh, mobile network coverage is 97%, and only 4% of people can access 4G; hence, there is a quality-based digital divide, with people in rural areas experiencing poor speeds that are insufficient to support higher levels of digital activity. Conversely, Japan focuses on the quality of infrastructure to enable the successful use of digital infrastructure for work, study, and service provision. Equally, the Palapa Ring project in Indonesia underscores the need for adequate bandwidth on remote islands to meet critical economic, educational, and healthcare needs. It considers connectivity a prerequisite to development (Oxford Business Group, 2024). The principle that Bangladesh and other developing countries should learn is that a rush to a coverage level without prior focus on service quality could lead to false improvements.

### Human Resources: The Bottleneck

To create a digitalized country, having digital skills among the population is a key factor, and it is a main concern for these three countries. The development of human capital is considered of great importance in the three countries, but the ways it is pursued differ significantly across them. Bangladesh can learn many lessons from Japan and Indonesia about policies for human capital development with digital skills. Table 3 clarifies the main approaches of these three countries and their key risks related to human capital as a bottleneck in digitalization.

**Table 3:** *Human Capital as a Bottleneck in Digitalization*

| Country | Main Approach to Digital Skills | Main Gaps / Risks |
|---|---|---|
| **Japan** | State-led 'GIGA School' program with devices, connectivity, and teacher training in all schools. | Risk of uneven use across schools and subjects if support is not continuous. |
| **Indonesia** | Market-oriented training led by private firms and platforms for MSMEs and young workers. | Rural and poorer groups may be left out if they cannot pay or access these services. |
| **Bangladesh** | Strong share in global online freelance work, but mainly among young, urban, educated men with English skills. | Rural people, women, and less educated citizens remain largely excluded from digital work. |

The 'GIGA School' program in Japan systematically provides digital gadgets and connectivity with accessibility to all students and elaborate teacher training courses (Fukuyama and Garcian Huidobro, 2025). This might be a significant governmental expenditure in universal digital capability as a platform for future economic engagement. It shows the value of universal, school-based investment in basic digital capability, and this is a great learning for Bangladesh.

Indonesia's strategy is more market-oriented, with private-sector activities to train digital skills, especially for MSMEs (Micro, Small, and Medium Enterprises) and young employees entering the digital economy (Lee Kuan Yew School of Public Policy, 2024). It highlights how market ecosystems can scale skills but need public steering for inclusion. These training ecosystems are market-based, but are not substituted by government programs. In Bangladesh, many unemployed youth live in rural areas. By adopting Indonesia's strategy, Bangladesh can leverage this large pool of people and train them in digital skills and English, enabling them to have a significant impact on Bangladesh's economy.

Bangladesh is a country that is especially challenged. Although Bangladesh is providing 16% of the online workforce in the world, it only reflects a constituency of a small section of the population, mostly young, urban, educated men who understand the English language (Asian Productivity Organization, 2024). Most Bangladeshis, especially rural inhabitants, women, and less educated people, are still excluded from the digital opportunities we discussed above. To solve this, they need specific interventions that go beyond market-driven solutions, including subsidized training, vernacular content, language user interfaces, and culturally suitable delivery systems.

## Governance Structures: Coordination and Fragmentation

There are corresponding coordinating organizations in Bangladesh, Indonesia, and Japan to carry out the digitalization process and remove any obstacles. However, they face particular issues and address them differently. That being said, Bangladesh may learn a few things from Indonesia and Japan as a developing nation. Table 4 portrays this duly.

**Table 4:** *Governance Structures in Digitalization*

| Country | Main Coordinating Body | Level of Coordination | Main Problem |
|---|---|---|---|
| **Japan** | Digital Agency | **High** Cross-ministry steering with a clear mandate. | Risk of over-centralization and slow adaptation, but silos are reduced. |
| **Indonesia** | Ministry of Communication and Digital Affairs | **Medium** Sector-focused lead ministry with some cross-government role. | Coordination depends on other ministries' cooperation; authority is softer. |
| **Bangladesh** | ICT Division plus multiple line ministries | **Low** Many parallel projects and weak integration. | Overlaps, incompatible platforms, and gaps in responsibility. |

The establishment of the Digital Agency in Japan to coordinate ministries' efforts in digital matters presents a core governance problem: bureaucracies in silos and competing systems (Fukuyama & Garcasia-Huidobro, 2025). The central actor in Japan is strong and can coordinate standards and prevent the use of duplicate systems, and this should be a lesson for Bangladesh. Conversely, the Ministry of Communication and Digital Affairs in Indonesia is less centralized, suggesting it has fewer powers (Trade.gov, 2024). They imply that a lead ministry might be successful if it has clear rules and political backing.

The political organization of Bangladesh remains highly decentralized, with digital programs divided among different ministries and agencies. The ICT Division also gives some consideration to coordination, but large-scale integration has not been achieved (Romke, 2025). This leads to redundancy, incompatible systems, and loopholes where agencies do not share responsibilities. Enhanced institutional coordination mechanisms are among the Smart Bangladesh transition's priorities. In short, Bangladesh needs a stronger coordination mechanism with the power to set standards and approve major digital projects.

## Economics Models: Productivity vs. Inclusion

There might occasionally be an intriguing contradiction between digitalization plans that prioritize inclusion and those that prioritize productivity. Bangladesh, Indonesia, and Japan have all experienced these wars. However, there are certain benefits from this struggle, and these nations are attempting to strike a balance by emphasizing inclusivity, as digitalization will soon lead to an economic boom (Table 5).

**Table 5:** *Economic Models: Productivity vs. Inclusion*

| Country | Main Digitalization Focus | Beneficiaries | Inclusion Approach |
|---|---|---|---|
| **Japan** | Productivity and efficiency through Society 5.0, AI, and robotics to cope with aging and labor shortages. | Firms in advanced sectors and highly skilled workers are receiving growing attention from older citizens. | Seeks to "leave no one behind," including elderly people, over the long term. |
| **Indonesia** | Digital economy growth, exports, and unicorn creation; strong focus on GDP and market expansion. | Urban consumers, digital firms, platforms, and startups. | Inclusion mainly through market channels such as fintech and e-commerce access. |
| **Bangladesh** | Rhetoric stresses rural people, women, and marginalized groups, but implementation favors urban, educated users. | Already capable urban groups who can quickly show economic returns. | Limited, as investments rarely reach those with low initial skills or access. |

The Society 5.0 of Japan specifically aims to improve productivity and address the demographic challenge of doing more with fewer workers by leveraging AI and robotics (Cabinet Office, Government of Japan, 2021). This is about the trade-off between a productivity strategy and high levels of inclusion in digital economies, in particular in Indonesia and Bangladesh. It also highlights that Indonesia is committed to GDP growth and unicorn startups. However, it is unsafe to focus on growth-first models that fail to address the needs of lower-income populations. Conversely, the rhetoric of Bangladesh focuses on the integration of the marginalized groups, yet the policies are often biased towards favoring urbanized and educated groups (Sultana, 2024). The argument in this discussion is that short-run investments may be incompatible with the long-term outcomes of advocating inclusion and productivity to enhance overall potential, curb inequality, and promote innovation. This short-termism is evident in Japan's attempts to ensure that no one is left out of the digital transformation, even the old (UNESCO, 2019). Besides, Bangladesh must also consider inclusion as a long-term investment in productivity rather than a social adjunct.

## Social Impacts: Beyond Economic Metrics

Their contribution to GDP or productivity rates is only a small part of the social aspects of the digital world. Digitalization has both social negative and positive effects. This was the case in Japan, Indonesia, and Bangladesh, among others. This is portrayed accordingly in Table 6.

**Table 6:** *Social Impacts Beyond Economic Metrics*

| Country | Positive Social Impacts Due to Digitalization | Negative Social Impacts Due to Digitalization |
|---|---|---|
| **Japan** | Uses AI and digital tools for elderly care, disaster response, and healthcare, reflecting a focus on safety and dignity in an aging society. | Risk of over-reliance on data systems, privacy concerns, and pressure on vulnerable groups to adapt to new technologies. |
| **Indonesia** | Fintech and digital platforms expand financial inclusion and basic services to people on remote islands. | Rising exposure to debt, fraud, data misuse, and platform dependence for basic services. |
| **Bangladesh** | Union Digital Centers (UDC) reduce petty corruption and increase transparency in service delivery. | Growing worries about surveillance, loss of privacy, job shifts, and erosion of local languages and cultures. |

The interest in AI for elderly care, disaster response, and healthcare in Japan indicates that society is struggling with ageing populations and the risk of natural disasters (Atay, 2024). This describes how social goals such as care, safety, and resilience can be placed at the center of digital policy. The growth of fintech in Indonesia has significantly expanded financial inclusion and made banking services more accessible to unbanked groups living on remote islands (Lee Kuan Yew School of Public Policy, 2024). By establishing transparent, documented transaction methods, Bangladesh Union Digital Centers have reduced corruption in government services (Romke, 2025). This proves that app inclusion should be accompanied by consumer protection and digital rights. However, digital transformation does not pass without negative social outcomes, which are not reflected in official policy reports. The fact that classic industries have lost jobs, the invention of spyware technology that threatens privacy and civil liberties, the psychological impact of never being offline, and the demise of local cultures and languages in favor of a dominant digital culture (mostly in English) are game-changers.

Bangladesh is facing issues related to digital surveillance and civic space. Even though e-governance will reduce corruption, tyrannical forces will still leave detailed records of citizens to exploit. Securing the idea of digitalization as a more powerful instrument rather than a lesser threat to democratic systems, human rights, and civil liberties requires consciously protecting it, which is usually not given the proper attention amid the hurry to get development indicators on board. In this case, Bangladesh should be protected to ensure that e-governance enhances

democracy and rights, and does not foster control or fear.

**Recommendations for Bangladesh**

To realize the vision of Smart Bangladesh, the country should plan strategically with people-centric policies so that fellow citizens benefit more. Based on the comparative analysis in this study, several strategic recommendations can be drawn. Feasible recommendations for Bangladesh are as follows:

- Strengthening institutional coordination is particularly important for Bangladesh, as it is a developing country and will soon complete its LDC graduation. Apart from that, having a central Digital Bangladesh authority, as in Japan, is really important, as it will coordinate digital activities across ministries and mechanisms within the system.
- Quality should be the main focus, not coverage. Initially, Bangladesh's focus should be on the quality of digitalization; as these high-quality digitalized conditions increase, their coverage will expand. Bangladesh should focus on quality coverage rather than attempting to increase coverage to 4G/5 G levels. It will ensure that whatever coverage is available actually provides reliable, high-speed connections that allow people to play the game online.
- Digitally, all genders should be connected. In Bangladesh's rural areas, women are falling behind in terms of employment, education, digital resources, and other areas! Gender-based discrimination in digitalization cannot be used to accelerate progress. Here, combining operations related to barriers to women's access to digital devices, safe spaces for digital learning and reading, vernacular materials, and the use of digital technology applicable to women's economic activities is really important.
- The Union Digital Center model has already proven efficient; further scaling and diversifying those centers with a broader range of services, enhanced connectivity, and additional training can drive a significant wave of digital development in rural regions.
- The most significant element of the digital transformation will be AI technologies, which will need to be supported by the development of ethical frameworks, technical standards, and accountability procedures, based on long-term experience with AI in Japan.
- It is quite significant to invest in a digital skills pipeline and develop digitalized human resources. Increasing digital literacy and skills training not only for groups within the urban elite but also for displaced workers through retraining can be a breakthrough for Bangladesh's economic development.

Bangladesh, like Japan and Indonesia, is a mixture of the two styles, balancing state leadership and market efficiency. Like Japan, Bangladesh feels it must be better coordinated by the government, have a long-term plan, and carefully invest

in infrastructure and human resources. Similarly, Bangladesh understands the importance and value of innovation in the business sector, entrepreneurship, and market responsiveness, as does Indonesia. As a country implementing such policies, Bangladesh should pay attention to the recommendations outlined above. These suggestions will assist Bangladesh in achieving rapid, strategic, and sustainable development that would enhance international relations.

## Conclusion

A comparison of Japanese, Indonesian, and Bangladeshi digital transformations offers some insights. Firstly, it is the circumstances (demographic problems, resource potentials, institutional capacities, and development priorities) that dictate the strategies that can be followed and be effective. The all-round Society 5.0 framework in Japan is age-based; it tries to use AI and robotics. The Indonesian digital economy is market-based, leveraging the young, entrepreneurial population. The Bangladesh model of hybridity is a tricky mix of government-supported infrastructure, private-sector-supported innovations, and strategies for use in conditions of severe resource scarcity. Secondly, to successfully implement the digital transformation, it is required to focus on infrastructure, human resources, governance structures, and accessibility for all. Thirdly, the digitalization mechanism is not only a social and political transformation but also a technical one. Values, power, and social relations shape decisions about technological advancement. Fourthly, there are four elements of digital transformation in cross-border data flows, international platforms, cyber threats, and technological dependence that necessitate international cooperation. In the meantime, nations have their strategies on the local level. Collaboration in regional data governance, cybersecurity, and digital trade can help developing countries reap the benefits of digitalization and address a range of threats.

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