



# Bangladesh: Driving mobile-enabled digital transformation



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## Mobile for Development

Mobile for Development brings together our mobile operator members, the wider mobile industry and the development community to drive commercial mobile services for underserved people in emerging markets. We identify opportunities for social and economic impact and stimulate the development of scalable, life-enhancing mobile services.



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# Contents

	<b>Executive summary</b>	<b>2</b>
<b>1</b>	<b>Bangladesh national context</b>	<b>6</b>
<b>2</b>	<b>Government ambition for Bangladesh</b>	<b>10</b>
<b>3</b>	<b>How mobile supports achievement of the SDGs and Vision 2021</b>	<b>15</b>
	The role of mobile in a digital society	16
	Digital access and demand	17
	Education and digital literacy	21
	Gender	24
	Health	28
	Agriculture	31
	Mobile financial services (MFS)	35
	Government service delivery	38
	Supporting digital innovation	40
<b>4</b>	<b>Key action areas</b>	<b>42</b>
	<b>Appendix</b>	<b>47</b>



Executive  
summary

## Mobile industry and government together supporting social and economic progress

The mobile industry is uniquely positioned to play a critical role in the development of digital societies and support the achievement of the UN's Sustainable Development Goals (SDGs). Basic voice connectivity offers many societal, economic and environmental benefits. Upgrading to mobile broadband, to smartphones, and further to machine to machine (M2M) and the Internet of Things (IoT), together with rapid digital transformation, creates a significant opportunity for the mobile industry to support the development of resilient, inclusive economies in an increasingly digital world.

Vision 2021 is the political vision of where Bangladesh needs to be in 2021 – the 50<sup>th</sup> anniversary of Bangladesh's independence. The main goal is for Bangladesh to become a middle-income country, with poverty eradicated. Digital Bangladesh is one component of Vision 2021. It aims to bring socioeconomic transformation through information and communications technology (ICT). To implement Vision 2021, a long-term strategy was defined – the Perspective Plan (2010–2021). Specific strategies and the task of implementation have been articulated through two five-year plans (FYPs): the Sixth FYP (2011–2015) and the Seventh FYP (2016–2020). The Seventh FYP coincided with the launch of the UN SDGs. The Bangladesh government has embraced the SDGs and has incorporated the SDGs into its Seventh FYP.

In February 2016 at Mobile World Congress in Barcelona, the mobile industry became the first industry to commit to the SDGs. Mobile has been an important element in the progress Bangladesh has made and has a critical role to play in supporting the achievement of the Seventh FYP and the SDGs in Bangladesh. By June 2017, the industry had connected more than half the Bangladeshi population, up from 15% 10 years ago.<sup>1</sup> Beyond core connectivity, the mobile industry can provide applications and services that are vital to a digital society, including the following:

- Providing affordable access to basic voice and data services for primary and secondary **e-learning**, contributing **digital literacy** content to primary and secondary education providers, and enabling access to online teaching networks.
- **Empowering women**, making them more connected, safer and able to access information, services and life-enhancing opportunities (such as health, financial services and employment).
- Improving **health outcomes** by enabling access to formal and informal health-related information via voice, SMS and apps, as well as facilitating access to a broader suite of digital health services, including remote patient monitoring, telemedicine, digital booking systems and drug stock management.
- Improving **agricultural productivity** by providing access to nutritional information and effective agricultural practices, and connecting remote communities to digital agricultural marketplaces to increase price transparency, reduce price volatility of food commodity markets, improve price outcomes and increase the incomes of farmers.
- Expanding access to **financial services** through mobile money. By providing the poor with the financial services they need to manage cash flows and to save, the mobile money industry is helping eliminate poverty and supporting economic growth.

1 GSMA Intelligence

## Accelerating impact through collaboration

Given the progress Bangladesh has made over the past few years, it is well positioned to advance towards the achievement of the SDGs. However, remaining challenges – such as population growth, poverty and inequality, urbanisation, natural disasters and climate change – need to be addressed for Bangladesh to reach its Vision. The government and the mobile industry have an opportunity to work together to progress towards the Seventh FYP and SDG commitments.

**Closing the digital access gap:** Mobile operators have invested heavily to bring mobile services to Bangladeshis, with 3G covering 90% of the population. As part of Digital Bangladesh, the government has made significant progress making government services more accessible to its citizens. This has been achieved by integrating online services delivery and use of e-government to provide information and services to citizens. However, mobile internet uptake is still low, at 33% in Q2 2017. The key barriers to mobile internet adoption in Bangladesh are network quality, spectrum availability at affordable prices, taxation, affordability of services, lack of usability and skills, and local relevance. Prioritising efforts that target these barriers will be key to closing the digital access gap.

**Increasing basic literacy and digital literacy skills:** Making ICT part of the education curriculum is important in preparing the future workforce of the country. A limited number of education institutions currently have access to the internet or computer laboratories, and a limited number of teachers tutor basic computer skills in primary or secondary education. Nearly 30% of the population in Bangladesh are under the age of 19; it is important to prepare them for future jobs in a changing world. Government and mobile operators can work together to initiate digital education programmes for all, bring ICT into the school curriculum and partner with trusted NGOs to deliver hands-on training in digital literacy.

**Closing the gender gap:** Efforts to help women access mobile services help to catalyse broader gender equality across the social, economic and political dimensions, benefiting not only women themselves but also their communities, businesses and the broader economy. Women face similar barriers to men in accessing the internet, such as affordability and usability/skills, but more than men face barriers related to safety and harassment issues, and underlying social norms.

To close the gender gap, governments can collect, analyse and track sex-disaggregated data to inform policy, and involve women and relevant local communities from the outset when developing

policies, plans and budgets. Mobile operators can introduce more creative and transparent pricing to appeal to women’s price sensitivity; can target men in marketing campaigns to reach women in settings where men commonly make decisions about women’s access to mobile; and can use marketing campaigns to demonstrate how women’s use of mobile can benefit the whole family or household.

**Improving health outcomes:** In 2015, two-thirds of deaths in Bangladesh were caused by non-communicable diseases (NCDs), 25% by communicable, maternal, perinatal and nutritional conditions, and 8% by injuries.<sup>2</sup> Mobile operators and the government can provide services for patients to help prevent and manage NCDs, develop digital solutions for patient data collection and reporting, and digitise hospitals and clinics. This improves the quality of records and supports remote monitoring and diagnostics. Meanwhile, smart vehicles connected by IoT/M2M mobile technology can reduce congestion and collisions, contributing to improved safety for motorists and pedestrians.

**Increasing agricultural productivity:** Given the large and growing population, and high prevalence of underweight and stunted children, Bangladesh will potentially have to face the challenge of food security in the coming years. Agricultural productivity will need to increase to help overcome this problem. Mobile operators can help boost productivity by providing farmers with mobile-enabled information services on agricultural inputs and nutrition, prices for crops across markets and accurate weather data.

**Increasing financial inclusion:** The majority of all payments made in Bangladesh are still in cash. According to a report by the Better Than Cash Alliance, government entities, businesses and individuals make only 12% of payments by value and 6% of payments by volume electronically.<sup>3</sup> Mobile financial services have been live in Bangladesh since 2011, through a model where the bank is required to hold the licence. According to Intermedia Financial Inclusion Insights, more than half of the adult population in Bangladesh

<sup>2</sup> World Health Organization

<sup>3</sup> Building Digital Bangladesh: The Way Forward for Digitizing Payments, Better Than Cash Alliance, 2016

– approximately 65 million people – have access to a mobile phone but remain unbanked.

Uptake and use of mobile money services can be increased by digitising more payment streams – for example, wage payments in Bangladesh’s garment factories or digitising payments to farmers for procuring crops (business to farmer) and for agricultural subsidies (government to farmer). This benefits businesses, the government and farmers. In Bangladesh, some 18 million new mobile money accounts could be added by 2020 from digitising business-to-person (B2P) and government-to-person (G2P) payments, depending on the number of farmers engaged in formal value chains. Mobile operators could derive an estimated \$57 million for B2P payments and \$6.6 million for G2P payments by 2020.<sup>4</sup>

**Supporting innovation:** Given Bangladesh’s large and relatively young population, Bangladesh presents strong opportunities for innovative start-ups and investors. The start-up ecosystem in Bangladesh is still nascent compared to its Silicon Valley counterparts; the mobile industry, wider internet ecosystem and government need to work together to ensure that innovation can flourish. In particular, they can encourage the development of incubators, open up APIs to start-ups in the country to further nurture the local ecosystem, and help close the funding gap by setting up corporate venture-capital funds that invest in local start-ups at seed stage. Further efforts need to be undertaken to develop the human capital that will need to adapt to the new ideas and technologies.



**Both the government of Bangladesh and the mobile industry have demonstrated strong commitment to supporting progress towards the SDGs. By collaborating more closely on win-win opportunities that align with each stakeholder’s organisational goals, the government and industry have an exciting opportunity to unlock digital transformation for millions of Bangladeshis.**

<sup>4</sup> [Market sizing and opportunity in digitising payments in agricultural value chains](#), GSMA Intelligence, 2016

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1

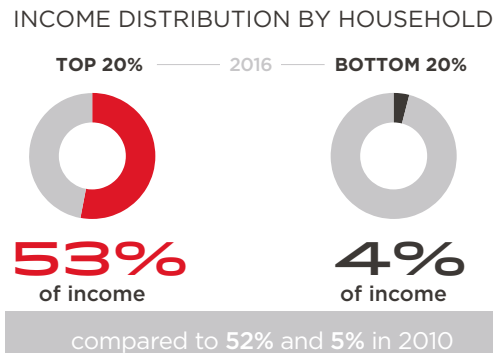
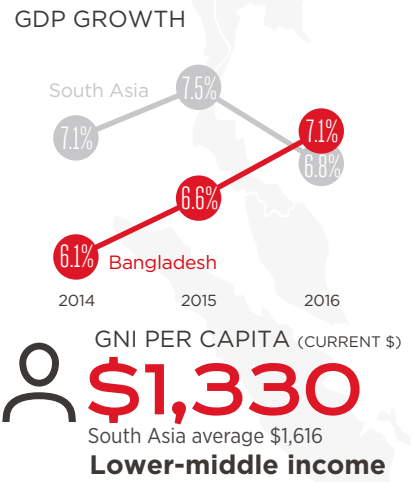
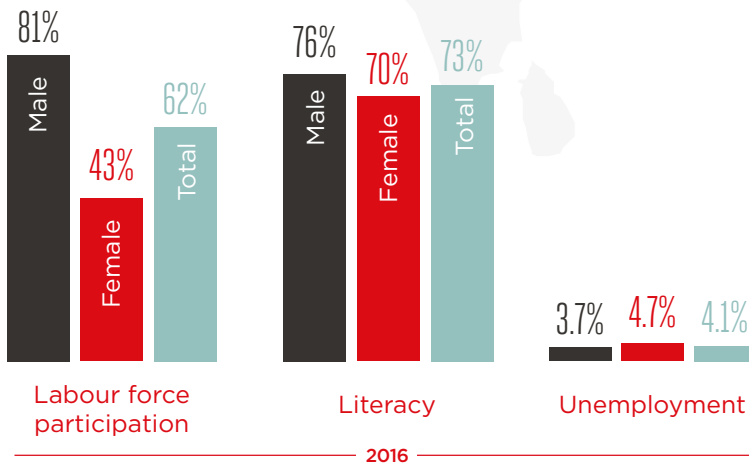
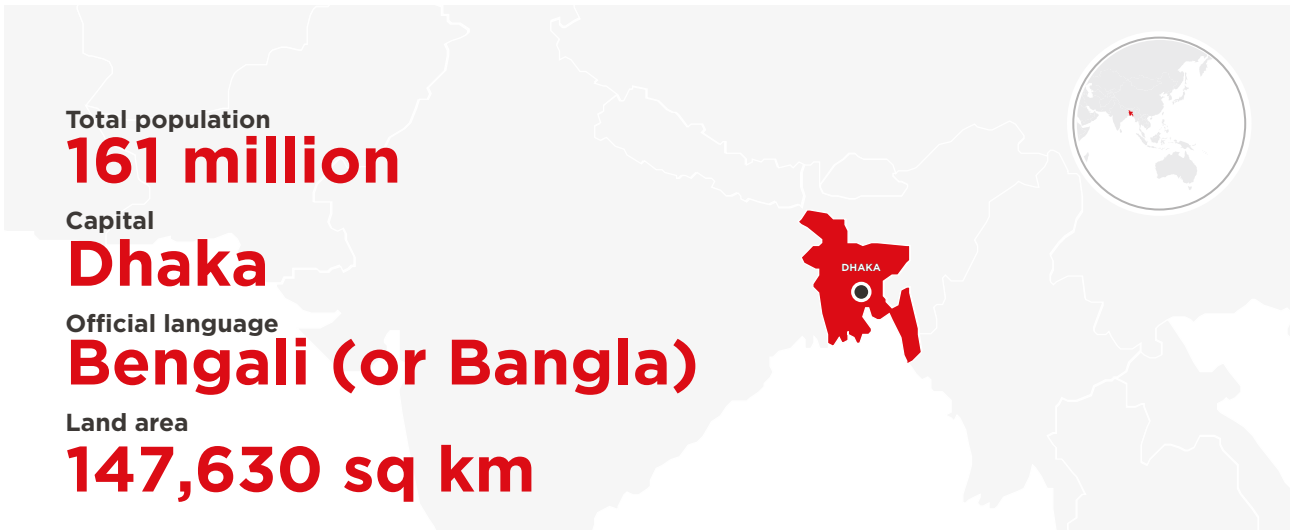
# Bangladesh national context





Source: World Bank, UN, ILO, Bangladesh Bureau of Statistics

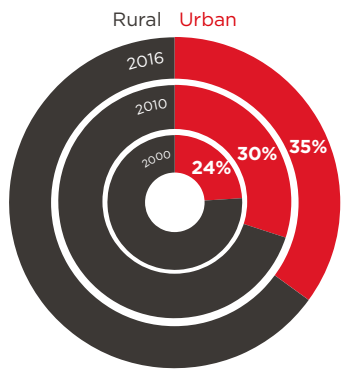
# 1 Bangladesh: key facts



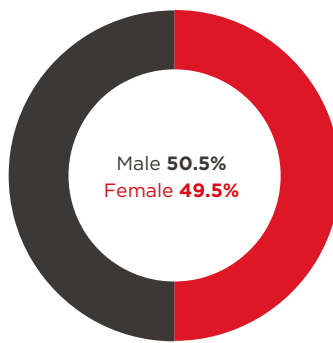
POPULATION

 **171**  
MILLION  
by the end of 2020

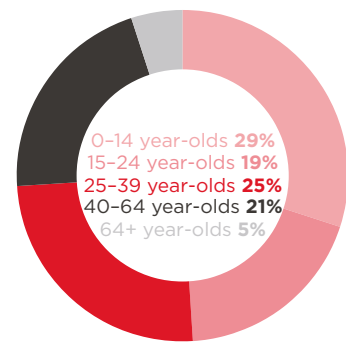
**#** Population density  
**1,252 people/km<sup>2</sup>**  
one of the highest in the world:  
**3x that of India and 5x that of Pakistan**



INCREASING URBANISATION



EVEN GENDER SPLIT



YOUNG POPULATION

ECONOMY SHIFTING FROM AGRICULTURE TO MANUFACTURING AND SERVICES

AGRICULTURE	INDUSTRY	SERVICES
<p>15% of GDP or \$31 BILLION down from 18% in 2010, or \$20 billion</p> <p>42% of labour force in 2016 down from 47% in 2010</p> <p>47% is informal</p> <p>Top products rice, jute, tea, wheat, sugarcane, potatoes</p> <p>Challenges population pressure and environment (e.g. flooding)</p>	<p>29% of GDP or \$61 BILLION up from 26% in 2010, or \$29 billion</p> <p>19% of labour force in 2016 up from 17% in 2010</p> <p>67% of non-agriculture employment is informal</p> <p>Biggest industries by production jute, cotton, garments</p> <p>Textile industry accounts for 80% of total exports</p> <p>Ship building and ship breaking are growing industries, as are pharmaceuticals, leather and steel</p>	<p>56% of GDP or \$119 BILLION 56% in 2010, or \$62 billion</p> <p>39% of labour force in 2016 up from 35% in 2010</p> <p>Major services</p> <ul style="list-style-type: none"> <li>IT</li> <li>travel</li> <li>transport</li> <li>financial services</li> </ul>



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2

# Government ambition for Bangladesh

Vision 2021 was an important element of the political manifesto of the Bangladesh Awami League Party, the current ruling party, in the run up to winning the general election in 2008. It is the political vision of where the nation needs to be in 2021 – the 50<sup>th</sup> anniversary of Bangladesh’s independence.

<b>WHAT</b>	<b>Vision 2021</b>	The main goal is for Bangladesh to become a middle income country, with poverty eradicated
	<b>Digital Bangladesh</b>	Bring socio-economic transformation through information and communication technology (ICT)
<b>HOW</b>	<b>Perspective Plan (2010–2021)</b>	The Perspective Plan is the road map for achieving the targets of Vision 2021; it lays down a long term strategy to make that happen.
	<b>Sixth Five Year Plan</b>	Specific strategies and the task of implementation will be articulated through the two five-year plans: the Sixth Five Year Plan (2011–2015) and the Seventh Five Year Plan (2016–2020)
	<b>Seventh Five Year Plan</b>	

The main goal of Vision 2021 is for Bangladesh to become a middle-income country, with poverty eradicated. Other than higher per-capita income, the vision for 2021 is that citizens will have a higher standard of living, be better educated, have better social justice and have a more equitable socioeconomic environment. Sustainability of development will be ensured through better protection from climate change and natural disasters. The vision comprises eight interrelated goals:

- 1 to become a participatory democracy
- 2 to have an efficient, accountable, transparent and decentralised system of governance
- 3 to become a poverty-free, middle-income country
- 4 to have a nation of healthy citizens
- 5 to develop a skilled and creative human resource
- 6 to become a globally integrated regional economic and commercial hub
- 7 to be environmentally sustainable
- 8 to be a more inclusive and equitable society.

An integral part of Vision 2021 is Digital Bangladesh. The aim is to bring socioeconomic transformation through ICT. Digital Bangladesh has four key priorities: developing human resources ready for the 21<sup>st</sup> century; connecting citizens in ways most meaningful to them; taking services to citizens’ doorsteps; and making the private sector and market more productive and competitive through the use of digital technology. The country has so far made good progress in all four areas, with particular advances in making government services more accessible to citizens.

One of the key drivers of this progress is the Access to Information (a2i) programme. a2i started from the Prime Minister’s Office with funding from the United Nations Development Programme (UNDP) in 2007, and the US Agency for International Development (USAID) joining in 2012. The government of Bangladesh has now become the biggest contributor to the programme, which is at the centre of the coordination and implementation of Digital Bangladesh. The programme aims to improve quality, widen access and decentralise delivery of public services to citizens of Bangladesh. Some of the early results include training more than 200,000 civil servants and thousands of Digital Centre Entrepreneurs to implement e-services centrally. More than 4,500 Union Digital Centres have been launched in the country to facilitate access to public services for underserved citizens.

## Perspective Plan and Five Year Plans

To implement Vision 2021 a long-term strategy was defined – the Perspective Plan (2010–2021). This provides the roadmap for accelerated growth and outlines broad approaches for the eradication of poverty, inequality and human deprivation. Specific strategies and the task of implementation have been articulated through two five-year plans (FYPs): the Sixth FYP (2011–2015) and the Seventh FYP (2016–2020).

During the Sixth FYP, Bangladesh has accelerated the pace of the socioeconomic transformation, in some cases surpassing its targets. A key driver of progress has been steady GDP growth – at an average of 6.3%, even during a global recession. Over this period, Bangladesh moved from a low-income country to a lower middle-income country. Factors that have contributed to the success of the Sixth FYP include:

- disbursement of social safety nets, which has led to a decrease in poverty and extreme poverty
- enhancing financial inclusion through mobile money and the 10 Taka accounts<sup>5</sup>
- empowering women and reducing gender inequality
- harnessing technology and innovation for development.

The Seventh FYP builds on the success of the previous plan while addressing areas of shortfall. The three focus themes of the plan are:

- GDP growth acceleration, employment generation and rapid poverty reduction
- a broad-based strategy of inclusiveness with a view to empowering every citizen to participate fully and benefit from the development process
- a sustainable development pathway that is resilient to disaster and climate change, entails sustainable use of natural resources, and successfully manages the inevitable urbanisation transition.

The three focus themes span 10 categories. Specific targets have been assigned to each category to be met by the end of the FYP in 2020.

Seventh FYP categories



The Seventh FYP coincided with the launch of the UN Sustainable Development Goals. In September 2015, all 193 UN member states, including Bangladesh, adopted the SDGs. The aim of these goals is to end poverty, protect the planet and ensure prosperity for all. The 17 SDGs are shown in Figure 2.

<sup>5</sup> The Bangladesh Central Bank launched a campaign to be able to open an account with a deposit of BDT10 (approximately \$0.10)

Source: UN

## 2 The UN Sustainable Development Goals



The Bangladesh government has embraced the SDGs and incorporated them into its Seventh FYP (see Table 1 and Appendix for more details). The framework to achieve the Seventh FYP and SDGs has been put in place, but challenges remain in the execution. In particular, the government has:

- identified the clear responsibilities of the ministries and agencies to achieve the SDGs
- reviewed the means of data generation and data coordination in the country (Bangladesh has data for 70 indicators and partially available data for 108 indicators. Data is not available for 63 indicators)
- worked on a Monitoring & Evaluation Framework for SDG implementation, which will soon be finalised<sup>6</sup>
- developed an SDG Tracker, launched in September 2017,<sup>7</sup> to monitor and track progress
- created an action plan for implementation of the SDGs in alignment with the Seventh FYP
- determined the financing needs for SDG implementation with a view to mobilising internal and external resources
- introduced an Annual Performance Agreement (APA), a results-based performance management system, across the whole public sector
- developed a plan to improve the capacity of the relevant stakeholders so that they can perform their roles in an effective way to implement the plan and make significant progress.

6 See <http://www.sdg.gov.bd/>

7 See <http://a2i.pmo.gov.bd/data-to-policy/sdg-tracker/>

Source: GSMA intelligence

# 1 Seventh Five Year Plan and the SDGs

Seventh FYP category	Related SDGs
Income and poverty	 
Sector development	 
Macroeconomic development	
Urban development	
Human resource development (education, health and population)	  
Water and sanitation	 
Energy and infrastructure	  
Gender equality, income inequality and social protection	  
Environmental sustainability	   
ICT development	 

## Key challenges to sustainable development

According to UNDP,<sup>8</sup> Bangladesh met several of the targets of the UN Millennium Development Goals (MDGs).<sup>9</sup> By maintaining this momentum, Bangladesh is well positioned to progress on the achievement of the SDGs. However, substantial challenges remain.

- **Population:** the population of Bangladesh has been growing rapidly, from just over 100 million in 1990 to 161 million<sup>10</sup> in 2016, and is expected to grow to more than 215 million by 2050.<sup>11</sup> A large and rapidly growing population requires a sustained increase in agricultural production to ensure food security. The expanding agricultural production will inevitably put significant pressure on the environment.
- **Poverty and inequality:** despite progress in reducing poverty rates, 40 million people still live in poverty and approximately 20 million live in extreme poverty (\$1.90 per day).<sup>12</sup> Since 2010, poverty has decreased significantly in rural areas, at around 25% of the rural population for poverty and 29% for extreme poverty. However, given the increase in urbanisation, urban areas have seen an increase in poverty rates from 2010 to 2016, with extreme poverty increasing by more than 20%. Poverty rates tend to be higher in male-headed households compared to female-headed households: poverty rates were 25% and 20% respectively and extreme poverty 13% and 10% respectively in 2016.
- **Unplanned urbanisation:** Bangladesh has been experiencing a rapid increase in its urban population. In 2000, 24% of the population lived in urban areas; this increased to 35%<sup>13</sup> in 2016 and is expected to overtake the rural population share by around 2040. The rapid migration to urban areas and inadequate infrastructure to meet demand is a significant issue for the country.
- **Natural disasters and climate change:** Bangladesh experiences frequent natural disasters, which can result in deaths, damage to infrastructure and economic assets, and have a negative impact on livelihoods, particularly those living in poverty. Bangladesh is considered to be one of the most climate-vulnerable countries. Climate change will only intensify the natural hazards that the country already faces.

<sup>8</sup> See <http://www.bd.undp.org/content/bangladesh/en/home/post-2015/millennium-development-goals.html>

<sup>9</sup> The MDGs were the world's targets for addressing extreme poverty in its many dimensions (income poverty, hunger, disease, lack of adequate shelter and exclusion) while promoting gender equality, education, and environmental sustainability by 2015

<sup>10</sup> Bangladesh Sample Vital Statistics, Bangladesh Bureau of Statistics, 2017

<sup>11</sup> Population Projection of Bangladesh: Dynamics and Trends 2011–2061, Bangladesh Bureau of Statistics, 2015

<sup>12</sup> Household Income and Expenditure Survey 2016, Bangladesh Bureau of Statistics, 2017

<sup>13</sup> MSVSB Project, Bangladesh Bureau of Statistics, 2016



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3

How mobile supports  
achievement of the  
SDGs and Vision 2021

## The role of mobile in a digital society

A digital society refers to the seamless interaction between all aspects of an individual's life via digital technologies, through a network of intelligently connected devices and interoperable services. Citizens living within a digital society can access and interact with public and private services, such as utilities, education, healthcare, retail and transport, at anytime and anywhere, leading to increased efficiency and productivity not just for themselves but for institutions too, resulting in improved quality of life.

In most emerging markets (including Bangladesh), due to limited fixed line infrastructure, connectivity has mostly been mobile based. By providing connectivity, mobile operators are uniquely positioned to play a critical role in the development of digital societies. Mobile operators and the broader mobile ecosystem provide the devices, applications and services that are vital to a digital society.

Mobile technology plays a critical role in supporting the achievement of the SDGs and Vision 2021 in Bangladesh. Basic voice connectivity offers many societal, economic and environmental benefits. Upgrading to mobile broadband, to smartphones, and further to M2M and IoT, together with rapid digital transformation, creates a significant opportunity for the mobile industry to support governments in meeting their SDG commitments. We examine below priority areas and challenges that Bangladesh is facing, and what mobile can do to help address them.

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## Digital access and demand

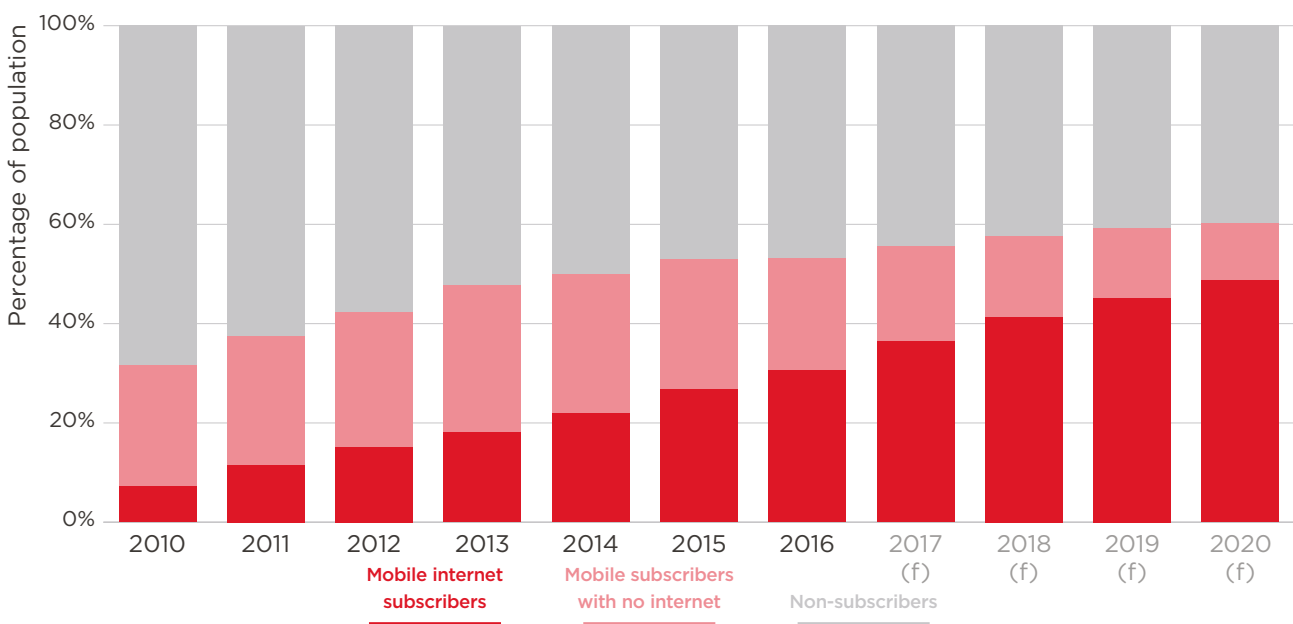
The mobile industry’s core service is provision of connectivity that enables communications, service access and empowerment. Mobile connectivity reduces the costs of accessing information and can create or expand markets by enabling the mechanisms for buyers and sellers to discover each other and conduct transactions, driving growth that is more inclusive.

There are four mobile network operators in Bangladesh as defined by the regulator: Grameenphone, Robi, Banglalink and Teletalk. Qubee, Banglalion Communications and Ollo also operate in the market as 4G internet service providers. As of June 2017, Grameenphone dominated the market with a 45% share of connections, followed by Robi (29%), Banglalink (23%) and Teletalk (2%).<sup>14</sup> Mobile operators have connected a steadily increasing portion of the population over the past few years. In Q2 2017 54% of the population subscribed to mobile services, up from 32% in 2010. However, there is room for growth, with more than 70 million people still not subscribing to mobile services. Mobile internet penetration stands at 33%, up from 7% in 2010.

Bangladesh is mainly a prepaid and 2G market, and has one of the lowest subscriber ARPU levels in the world, at only \$3.13 per month. Mobile operators have been investing heavily in the region, with their 3G population coverage now at 90% of population. 3G connections today account for 25% of connections and are expected to represent more than half of connections by 2020. Smartphone adoption is around 30%, and is expected to grow to 55% by 2020.<sup>15</sup> The increase in smartphone adoption has been driven by the growth in market share of local brands Symphony and Walton. These brands offer affordable devices with preloaded apps and have on-the-ground presence, which helps build trust with low-income users.

Source: GSMA Intelligence

### 3 Mobile market evolution in Bangladesh



14 Bangladesh Telecommunication Regulatory Commission (BTRC)  
15 GSMA Intelligence

## Case studies of services expanding digital access

### Grameenphone WowBox

In Bangladesh, Grameenphone offers the digital service, WowBox – a lifestyle app that can be browsed without any data charges. This app also offers customers 20 MB of free data each week. In addition to browsing the content offered in the app (which includes daily news updates, lifestyle tips, games, sports, horoscopes, jokes and competitions), users can earn tokens (reward points) to spend on internet offers.

### Robi Internet4U

To bridge the awareness gap among young people of the benefits of the internet, Robi launched Internet4U – a campaign for college and university students across the country, teaching them “proper and safe” use of the internet as a tool for networking, learning and development. Through interactive sessions and live demonstrations, students are shown the power of the internet as a tool for self-education, skills development and employment. Around 5,000 people were targeted in this campaign.

### Infrastructure sharing pilot project

Mobile operators in Bangladesh joined a GSMA-led initiative to expand 3G coverage in rural Bangladesh. The initiative identified network coverage gaps across Bangladesh and developed recommendations for a commercially viable model to bridge these gaps. In collaboration with BTRC, the Telecom Ministry and other stakeholders, the industry will deploy 20 pilot sites across Bangladesh to prove the concept of network sharing through a multi-operator radio access network.<sup>17</sup> If the pilot is successful and it can be scaled to a national level, the benefits are substantial.

Benefits for the government and regulator:

- 1 Address coverage and social inclusion issues in priority rural locations
- 2 Explore application of policy considerations for mobile broadband rural expansion
- 3 Demonstrate benefits to government of introducing a more favourable regulatory environment on a national basis

Benefits to the operators:

- 1 Demonstrate further commitment from operators to supporting a Digital Bangladesh
- 2 Allow operators to explore alternative investment, revenue and technology models
- 3 Explore viability of infrastructure sharing in driving forward rural broadband expansion

<sup>16</sup> Active network sharing is when two or more operators share passive network elements (these can include sites, towers, support costs such as energy and maintenance, and backhaul) plus active network elements (such as radio active network equipment and sometimes actual spectrum sharing)

## Challenges

Mobile operators have invested heavily to bring mobile services to Bangladesh, but mobile internet uptake is still low, at 33% in Q2 2017, below the average of South Asia, at 38%. According to the GSMA Mobile Connectivity Index<sup>17</sup> the key barriers to mobile internet adoption in Bangladesh are network quality, spectrum availability at affordable prices, taxation, affordability of services, basic skills and local relevance.

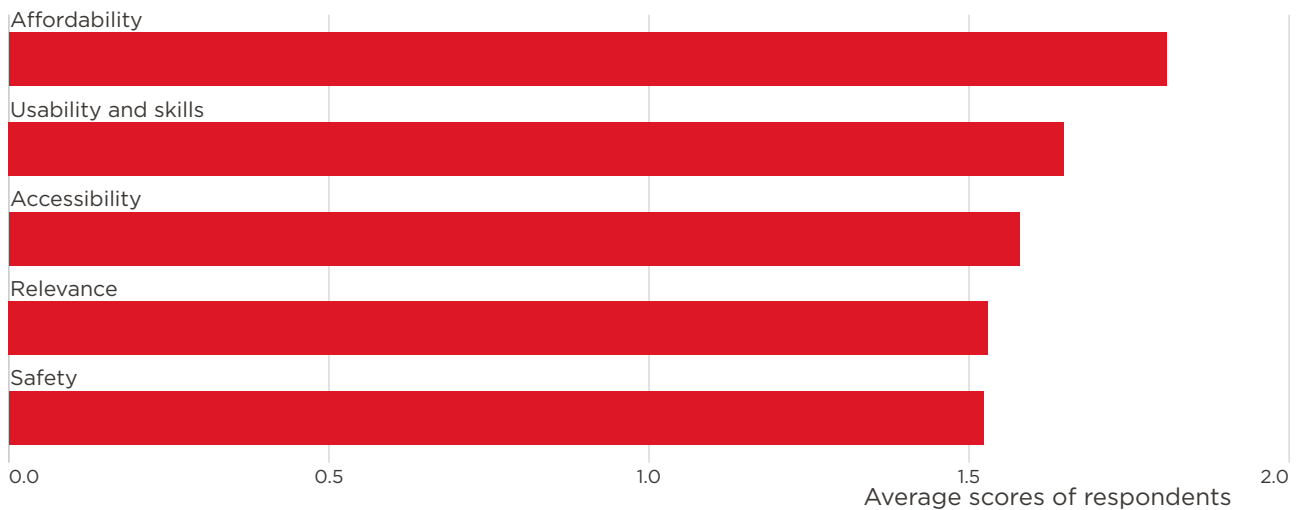
From a consumer perspective, other than some of

the barriers mentioned above, usability and skills are important barriers<sup>18</sup> too (see Figure 4).<sup>19</sup>

According to the GSMA Intelligence Consumer Survey, the affordability barrier is often due to a limited understanding of the benefits of the internet and a misperception around smartphone costs and data charges. Additionally, perceptions that online content is mainly in English contribute to the idea that the internet is for the educated, rather than for everyone.<sup>20</sup>

Source: GSMA Intelligence Consumer Survey 2017

## 4 Barriers to mobile internet adoption in Bangladesh



Respondents were asked to rate barriers to mobile internet adoption: 1 = not a reason/consideration; 2 = consideration but not a main barrier; 3 = one of the main barriers

The amount of spectrum assigned to mobile operators in Bangladesh is low compared to other markets. For example, only 70 MHz of spectrum has been assigned to 3G services. In Indonesia, which has a similar volume of population spread across a wider territory, 300 MHz is currently being used in different bands for 3G services.<sup>21</sup> In addition to the already limited amount of spectrum assigned, no Digital Dividend spectrum (700 MHz band) has been released so far. Allocation of the 700 MHz band for mobile services will offer substantial socioeconomic benefits while enabling operators to reduce capital and network costs, thereby accelerating rollout and lowering prices for end users. Furthermore,

the spectrum that has been assigned so far is not technology neutral, so mobile operators can only offer 3G on a subset of the 2100 MHz band. 4G has still not yet been deployed in Bangladesh. This may change with the auction planned for December 2017.

Mobile operators in Bangladesh paid nearly \$1 billion in recurring tax payments in 2016, which represented around 45% of total sector revenue (this excludes one-off spectrum and licence fees). Many of the taxes paid by mobile operators are specific to the sector or are imposed at higher rates for mobile than in other industries.<sup>22</sup> For example, corporate tax is at 40–45% if

17 The GSMA Mobile Connectivity Index measures the performance of 150 countries (accounting for 98% of the world's population) against the four key enablers of mobile internet connectivity – infrastructure, affordability, consumer readiness and content.  
 18 The barriers have been grouped into five categories: accessibility – to quality network coverage (as well as to electricity, handsets, agents and formal IDs); affordability – of handsets, tariffs and data (as well as the cost of charging your phone battery); usability and skills – digital skills and confidence in learning to use basic mobile phone functions, internet-based content and apps; safety – fears of using mobile and the internet due to, for example, vulnerability to phone theft, online harassment and fraud, and physical violence; relevance – lack of relevant services and content.  
 19 GSMA Intelligence Consumer Survey 2017. This survey includes data from 28 low- and middle-income countries. The survey involved face-to-face interviews with approximately 1,000 people in each country.  
 20 Bangladesh Mobile Internet Ecosystem Landscape, GSMA Connected Society, 2017  
 21 Infrastructure Economics Report. Recommendations for Mobile Broadband Coverage Expansion in Bangladesh, GSMA, 2017  
 22 Infrastructure Economics Report. Recommendations for Mobile Broadband Coverage Expansion in Bangladesh, GSMA, 2017

the operator is publicly listed, regulation revenue fees are 5.5% and the universal service fund (USF) revenue rate is 1%. This is a key factor in raising the affordability barrier for consumers. Looking at the total cost of mobile ownership for consumers, tax is more than 30% of cost for a basic usage basket and over 20% for a high usage basket.<sup>23 24</sup>

High levels of taxation and spectrum prices can have a significant negative impact on the incentive for mobile operators to invest in network infrastructure, and could have long-term implications for network coverage and 3G expansion. Regulatory fees and payments imposed on the mobile sector can represent a high burden and can vary substantially and unexpectedly from one year to another, adding uncertainty for market players. The high upfront investment required for mobile infrastructure and long repayment cycle present a number of risks to operators: in particular, once investment has been made, any unexpected changes in taxation and regulatory fees can impact directly on profitability, lowering returns.

## Actions

Actions that mobile operators and the government can take to overcome these challenges include the following:

- Upgrade existing mobile spectrum licences to technology-neutral licences without the imposition of additional fees to facilitate faster deployment of new technologies.
- Ensure timely release of spectrum while also supporting effective pricing of spectrum to facilitate better quality and more affordable services.
- Create a regulatory framework for tower sharing that allows for greater cooperation between operators in building sites and sharing tower infrastructure.
- Encourage passive and active network sharing among mobile operators; this is key to unlocking capital to make it more affordable for people to get connected.
- Reduce or remove sector-specific taxes and fees that distort the market.
- Remove consumer taxes that target access to mobile services.
- Reduce complexity and uncertainty of taxes and fees on the mobile sector and improve predictability.
- Reduce or remove import duties on handsets.
- Avoid excessive regulatory fees and taxes on revenues.
- Effectively utilise the social obligation fund (SOF) to improve network quality of service and ensure service availability in deprived areas where there is no commercial viability to deploy 3G/4G networks.
- Increase awareness of the benefits of the internet, especially as some may see mobile as a luxury good.
- Educate consumers about the real cost of handsets – for example, through marketing campaigns and through the agent network – to dispel perceptions among some consumers that smartphones are ‘out of reach’.
- Tackle misconceptions around data costs, through education campaigns.
- Assess the development of new services that mobile operators could provide to the population.
- Use manufacturing factories, Union Centres and schools as hubs for connectivity by offering Wi-Fi services, so unconnected users can download content to watch offline.

If taxes or regulatory fees are introduced or increased after an auction or during a licence period, these will negatively impact the operator business case, affect the rollout of network infrastructure and can have adverse effects on consumers. It also risks further exacerbating the rural coverage gap for the unconnected, as it is investment with the least immediate return – i.e. in rural areas – that is likely to be curtailed.

High levels of taxation also have an impact on the affordability of devices and mobile services. The high levels of import tax on devices, at 25%, is encouraging the import of devices through illegal channels. Inequality too has an impact on affordability, with people in lower income groups finding it more difficult to access mobile internet services. For the bottom 20% of the population by income, the total cost of mobile ownership as a share of income varies from 3% for a basic basket to 13% for a high basket, and tax as a share of monthly income varies from 0.8% to 2.6% respectively.<sup>25</sup>

23 Basic basket is a prepaid tariff and includes 100 MB of data; Low basket is a prepaid or postpaid tariff and includes 500 MB of data; Medium basket is a prepaid or postpaid tariff and includes 250 voice minutes, 100 SMS and 1000 MB of data; High basket is a prepaid or postpaid tariff and includes 5000 MB of data.

24 GSMA Intelligence

25 GSMA Intelligence

## Education and digital literacy

Mobile operators can provide affordable access to basic voice and data, enabling primary and secondary e-learning, contributing digital literacy content to primary and secondary education providers, and enabling teachers to exchange information and access professional support to improve teaching outcomes.

Bangladesh has made significant improvements in terms of access to education, with net enrolment rates in 2015 of more than 90% in primary education and 57% in secondary education. However, enrolment rates for tertiary education have dropped significantly. Despite increased access to education, literacy rates are still at 73%.<sup>26</sup> BRAC, a development organisation based in Bangladesh, has been offering for the past 20 years programmes for pre-primary and primary non-

formal education for disadvantaged and out-of-school children in Bangladesh. Both BRAC pre-primary and primary schools are free of charge. Since the launch in Bangladesh, BRAC primary schools have expanded into other countries; there are currently more than 22,000 schools operating throughout the world. This has contributed to an increase in literacy rates in Bangladesh from less than 50% in 2001 to more than 70% in 2016.<sup>27</sup>

### Case studies of education initiatives

#### Robi mobile education initiatives

Robi partnered with **10 Minute School**, the first online platform in the country to offer a free solution including: admission guidance and tests for all leading public and private universities in Bangladesh; online courses, tutorials and quizzes on all subjects in the national curriculum for Junior School Certificate (JSC), Secondary School Certificate (SSC) and Higher Secondary Certificate (HSC) students; and content related to aptitude courses such as Scholastic Aptitude Tests (SAT), International English Language Testing Service (IELTS), General Records Examinations (GRE) and the Graduate Management Admission Test (GMAT).

Robi 10 Minute School is the country's biggest online school at present. The school has more than 50,000 enrolled students and 400,000 students in its live coaching classes conducted using Facebook Live. To date, the school has taken 327 live classes and produced more than 1,740 video tutorials. The government signed an agreement with Robi 10 Minute School to take education content across its 2,000 digital labs and 30,000 multimedia classrooms in primary schools.

**Robi Shikharthi service** is an SMS, IVR and WAP/web-based educational service that disseminates educational information content (such as vocabulary, grammar rules and general knowledge). Examples of content include education tips, learning courses, public exam advice and schedules for exams.

**Robi Classroom** is a video-based learning portal that provides tutorial content for students at primary, secondary and higher secondary levels. In addition to academic tutorials, professional learning courses will also be available in the future. Users will be able to either opt in for specific subjects or buy the complete bundle on a daily, weekly, fortnightly or monthly basis. The service was launched in August 2017 to help students learn their national curriculum from home.

26 World Bank  
27 World Bank

## Case studies of education initiatives

continued

### Grameenphone education initiatives

JAAGO Foundation is working to establish a free international standard school in every district of the country. To accomplish its objective, JAAGO Foundation in collaboration with Grameenphone Ltd and Agni Systems Ltd introduced the concept of **Online School** in Bangladesh. This is designed to bridge the quality gap in education through modern technology. A rural classroom is connected to a teacher in Dhaka via video conferencing. The classes are operated with a teacher from the JAAGO Foundation's Teaching Centre and two local teachers in the rural area. Online School started in 2011 in Gazipur as a pilot project with 80 students. Currently, it is operating 10 online schools in Gazipur, Rajshahi, Gaibandha, Madaripur, Bandarban, Lakshmipur, Dinajpur, Rangpur, Hobiganj and Teknaf.

Grameenphone has also partnered with Wikimedia Foundation to provide **Wikipedia for Grameenphone** users, to make information accessible and affordable for mobile internet users. Grameenphone is also helping **localise high-quality educational content** from the Khan Academy for students in Bangladesh. Through the initiative "Localizing Khan Academy", Grameenphone is collaborating with the Agami Education Foundation (Bangladesh) and Agami Inc. (US) to translate the Khan Academy platform into Bengali and make available the Khan Academy Bangla site.

### a2i education initiatives

To enhance student-teacher interaction, a2i launched **Multimedia Classroom**. This comprises a laptop with internet connectivity and a multimedia projector to be used as an extension of traditional

schooling. There are now more than 38,000 multimedia classrooms, of which 23,000 are in secondary schools and over 15,000 at the primary level, with more in the pipeline. Around 8 million students and 200,000 teachers are reached through this initiative. a2i is piloting an integrated device (solar powered computer and low power LED TV with battery) for schools in areas that experience erratic power supply or are still off-grid.

In addition, a2i has launched an e-learning platform, **MuktoPaath**, for skills development. In Bangladesh, there is still dependence on traditional face-to-face training methods that cost more and are more difficult to keep up to date, leaving the workforce without the proper training required. There are segments of society who experience challenges with travel, such as the disabled, mothers and carers. The e-learning content provided by a2i can be used by anyone at any time. There are currently 30 public and private partners, and the platform counts more than 15,000 clicks per month.

### Banglalink education initiatives

Banglalink has launched three education services – Education Portal, MegaMind and MEDU. Through the **Education Portal**, customers can access information on SSC, HSC, university admission test preparation, general knowledge, English learning related preparation and exam queries. The daily subscription fee is BDT0.20/day (\$0.0024/day). **MegaMind** is an m-learning solution that uses SMS and IVR to provide knowledge to subscribers. The monthly subscription to the services costs BDT0.25 (\$0.003). Meanwhile, **MEDU** provides general knowledge, exam tips and career counselling via SMS, IVR and WAP.



## Challenges

In addition to increasing traditional literacy skills, it is important to increase digital literacy skills among Bangladeshis. Currently, only 3% of primary and 22% of secondary education institutions have access to the internet and 1% and 38% of primary and secondary education institutions respectively have computer laboratories. Primary and secondary curricula include subjects on basic computing, but in secondary education only around 10% of teachers currently tutor basic computer skills.<sup>28</sup>

In Bangladesh, nearly 30% of the population are under the age of 19 – the future workforce of the country. A little over one-fifth of the labour force have no formal education whatsoever, more than a quarter have received only some years of primary education, and around 30% have made it to secondary school. The remaining 20% have attended upper secondary school or above, with just over 6% having received tertiary education.<sup>29</sup> Given a shortage of skilled labour, education and skills development are an important investment area for the future workforce.

## Actions

Actions that mobile operators and the government can take to overcome these challenges include the following:

- Initiate digital education programmes for all.
  - Bring ICT into the school curriculum and other educational establishments to guarantee that the citizens of tomorrow receive the skills necessary for the modern economy.
  - Consider partnering with a trusted NGO to deliver hands-on training on digital literacy.
  - Design digital literacy training by identifying the target audience, reviewing the solutions currently available and engaging with local and global experts. Once the content has been created, test it and understand the best ways to engage with the audience to then refine the final content. Subsequently, conduct workshops and monitor the impact of the training.
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28 UNESCO  
29 Bangladesh Bureau of Statistics

## Gender

Gender equality and women empowerment are key components of both the Seventh FYP and the SDGs. SDG target 5b requires countries to enhance the use of enabling technology, in particular information and communications, to promote the empowerment of women. Mobile can empower women, making them more connected, safer and able to access information. Mobile also provides women with access to services and life-enhancing opportunities, such as health information and guidance, financial services and employment opportunities, often for the first time.<sup>30</sup>

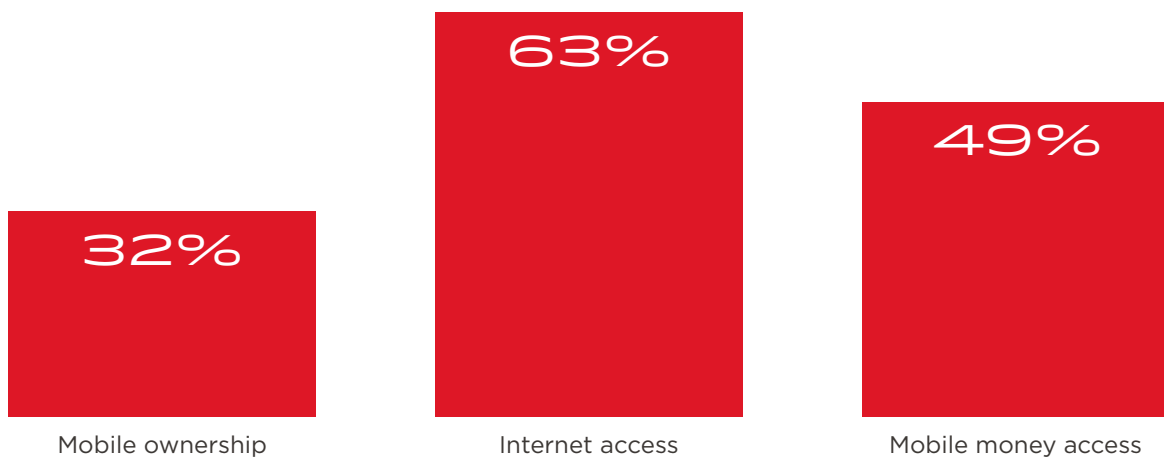
With an average remaining gender gap of 33%, South Asia is the second-lowest scoring region in the 2016 Global Gender Gap Index, ahead of the Middle East and North Africa region. Bangladesh is ranked the highest in the region and 72nd in the world, having closed just under 70% of its overall gender gap. Bangladesh ranks particularly high in the political empowerment sub index, at seventh in the world.<sup>31</sup> Bangladesh has achieved gender parity in enrolment in primary and secondary school education, but this has not yet been achieved for tertiary education. The gender parity index for literacy is 0.89, higher, and therefore more equal, compared to the South Asia average of 0.75. Targets in the Seventh FYP on gender

equality on education include raising the female-to-male ratio in tertiary education from 70% to 100% and raising the female-to-male literacy ratio for the 20–24 age group to 100% from the current 86%.

While mobile technology has been spreading quickly, it has not done so equally. South Asia as a region has the greatest gender gap<sup>32</sup>, especially for more sophisticated services such as mobile internet and mobile money. Bangladesh is no different, with the gap in mobile phone ownership at 32%, the gap in internet access being particularly prominent, at 63%, and the mobile money gap just under 50%.<sup>33</sup>

Source: GSMA Intelligence and Intermedia Financial Inclusion Insights

### 5 Gender gap in Bangladesh



30 Bridging the gender gap: Mobile access and usage in low- and middle-income countries, GSMA, 2015

31 World Economic Forum

32 GSMA Connected Women define the 'gender gap' as how less likely a female is to own a mobile phone than a male. Gender gap in ownership (%) = ((male take-up) - (female take-up)) / (male take-up)

33 GSMA Intelligence and Intermedia Financial Inclusion Insights

## Case studies of mobile services promoting gender inclusion

### Infolady

The Infolady initiative is driving mobile internet adoption and use in Bangladesh. iSocial, short for Infolady Social Enterprise Limited, is a model for empowering communities through female entrepreneurship. Developed by Dnet in 2004, the Infolady model is a “women-for-women” family-based “infopreneurship” model, where a female entrepreneur equipped with ICT devices travels around villages on a bicycle, and facilitates well-being of the marginalised through creation of informed choices. The women are empowered as entrepreneurs by charging for performing digital services for communities, also giving the programme a sustainable business model. The model created more than 100 women entrepreneurs in Bangladesh in four different pilot phases. The Infolady model served more than 450,000 rural citizens between 2011 and 2015.

### MAMA Bangladesh

MAMA (Mobile Alliance for Maternal Action) Bangladesh, known locally as Aponjon, is a public-private initiative that leverages mobile phone penetration to deliver health education messages to new and expectant mothers. The programme is led by the Bangladesh social enterprise, Dnet, in partnership with the government of Bangladesh’s Ministry of Health and Family Welfare. The mobile operators involved in this project are Banglalink, Citycell, Grameenphone and Robi. The initiative was piloted in 2011 and was scaled to the whole country in 2012. The platform is a voice and SMS broadcast service, but also includes a helpline and mobile app. Today, there are just under 2 million subscribers to the service, of which 70% are new mothers, around 20% are expectant mothers and just under 10% are gatekeepers (household members who women rely on when they do not own a phone themselves).

### English and ICT for Adolescent Girls project (EITA)

In 2012, the British Council, in partnership with BRAC’s Adolescent Development Programme, launched the English and ICT for Adolescent Girls project (EITA). This aims to address the gender digital divide and create job opportunities for girls by breaking down the barriers they face in learning digital skills and English. Since launch, the project has evolved to become English and Digital for Girls’ Education (EDGE).

The project uses after-school, community-based computer and learning centres for girls within the existing BRAC adolescents clubs. The project uses laptops preloaded with British Council digital resources, solar-powered radios and micro SD cards preloaded with audio for mobile phones. Some of the teenage girls taking part are trained as peer leaders, who can then teach the others using digital resources and speaking activities. Today, there are 364 clubs in Bangladesh, 799 peer leaders and 8,973 participants.

### a2i gender initiatives

The Department of Women Affairs and a2i have launched **Joyeeta** to empower women economically by giving them a platform to exhibit their handmade crafts and products. More than 16,000 women entrepreneurs are connected across the country through Joyeeta and can participate in income generation through this platform.

Additionally, a2i launched a health app, **Ma O Shishu**, to improve maternal care and reduce maternal and infant mortality rates. The mobile app provides healthcare check-up and vaccination notifications for pregnant mothers and new-born children. The initiative was launched in Sadhanpur. Results show an almost 100% reduction in maternal and infant mortality rates.

## Challenges

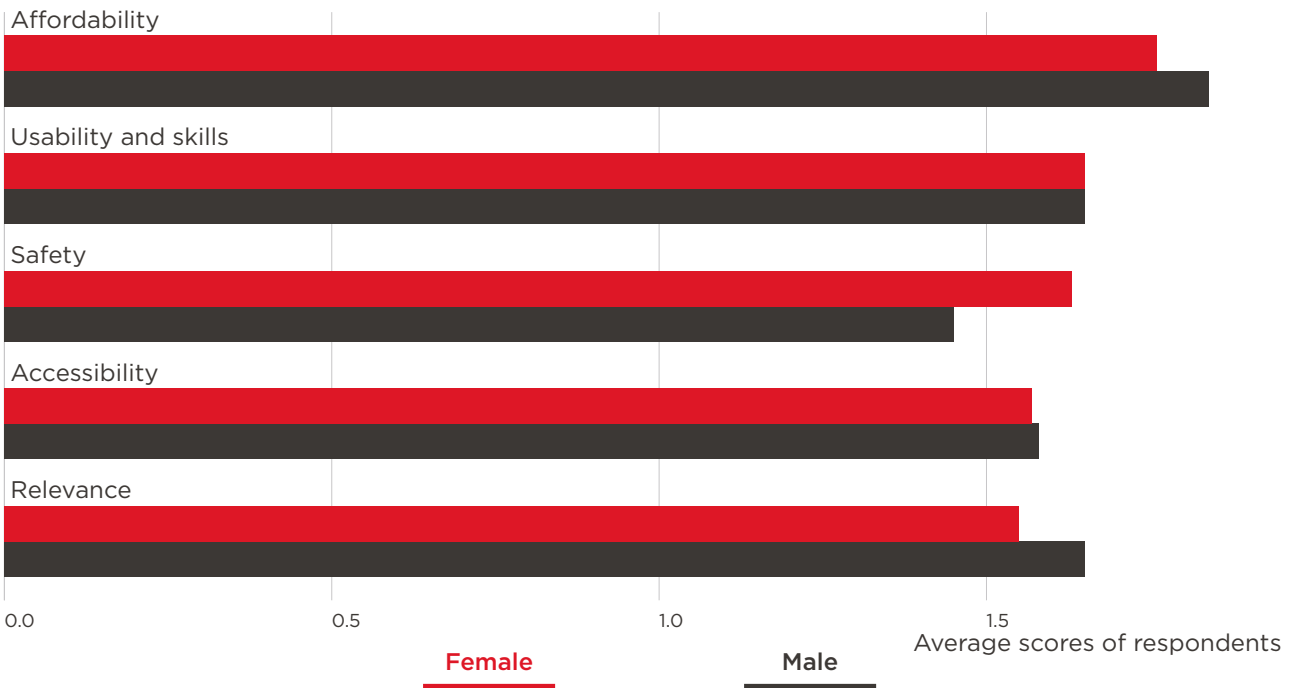
Despite progress in recent years, Bangladesh continues to have one of the highest child marriage rates worldwide – 52% of girls are married before the age of 18.<sup>34</sup> Child marriage violates girls’ rights to health, education and opportunities, exposes girls to violence throughout their lives and traps them in a cycle of poverty. This directly hinders the achievement of many of the SDGs. In February 2017, Parliament adopted the Child Marriage Restraint Act 2017 allowing child marriage in “special cases”, but such cases have not been defined. In Bangladesh, the rate of violence

against women is high. According to the World Bank, in 2011 over half the women between 15 and 49 had been subjected to physical and/or sexual violence in the previous 12 months. This is an obstacle to equality, development and peace.

Many barriers prevent consumers in general from accessing the internet in Bangladesh. Women face similar barriers, such as affordability and usability/skills, but more than men face barriers related to safety and harassment issues, and underlying social norms.<sup>35</sup>

Source: GSMA Intelligence Consumer Survey 2017

## 6 Barriers to mobile internet adoption by gender in Bangladesh



Respondents were asked to rate barriers to mobile internet adoption: 1 = not a reason/consideration; 2 = consideration but not a main barrier; 3 = one of the main barriers

34 UNICEF  
35 GSMA Intelligence Consumer Survey 2017

## Actions

Efforts to help women access mobile services help to catalyse broader gender equality across the social, economic and political dimensions, benefiting not only the women themselves but also communities, businesses and the broader economy. Mobile operators across Asia are driving the effort to accelerate digital and financial inclusion for women through the GSMA Connected Women Commitment Initiative launched in 2016. So far, 32 operators have made a formal Connected Women Commitment, of which 11 are in Asia. In Bangladesh, Robi has made a formal commitment to increase the proportion of women in its mobile internet customer base.

Research published by GSMA Connected Women and Connected Society reveals that many women require a socially acceptable justification to begin using a mobile phone and the internet, typically needing to demonstrate the benefit to the household as a whole.<sup>36</sup>

Actions that mobile operators and the government can take to overcome these challenges include the following:

- Bring lower-cost handsets to customers.
- Introduce more creative and transparent pricing to appeal to women's price sensitivity, call patterns and daily routines.
- Invest in consumer insights research to better deliver services that meet the needs of women.
- Integrate user-centric design principles into handsets and services, and conduct user testing, pilot testing and product iteration with women.
- Target men in marketing campaigns to reach women in settings where men commonly make decisions about women's access to mobile.<sup>37</sup>
- Use marketing campaigns to demonstrate how women's use of mobile can benefit the whole family.
- Collect, analyse and track sex-disaggregated data to inform policy, particularly at a national and sub-national level, and integrate gender equality targets and key performance indicators into strategies, policies, plans and budgets, involving women and relevant local communities from the onset.
- Address the barriers women face that impede gender equality online, including affordable access; issues around safety, digital literacy and confidence; and the availability of relevant content.
- Support multi-stakeholder cooperation by developing tools and policies to enable national and international efforts, and effective sharing of best practices to address the digital gender gap.

<sup>36</sup> Triggering mobile internet use among men and women in South Asia, GSMA, 2017

<sup>37</sup> [Bridging the gender gap: Mobile access and usage in low- and middle-income countries](#), GSMA, 2015

## Health

Mobile technology enables users to access formal and informal health-related information via voice, SMS and apps. For example, pregnant women and new mothers can use mobile phones to access essential healthcare and nutritional information. Mobile can also facilitate access to a broader suite of digital health services, including remote patient monitoring, telemedicine, digital booking systems and drug stock management, which have the potential to improve a range of health outcomes. Mobile operators can enable the use of big data to address crises such as health epidemics; operators can provide critical information on the flow of people to and from affected areas and therefore help public health organisations more effectively respond to the spread of disease and better target relief efforts.

New mobile-driven IoT solutions can improve the delivery of healthcare services – for example, by equipping community health practitioners with connected medical equipment (e.g. diagnostics kits) that transmit data back to health centres in real time. New mobile-driven IoT solutions, such as smart vehicles, can also reduce the incidence of road and traffic accidents, which can help countries reduce the number of deaths and injuries.

Bangladesh has made many improvements in health over the past few years, such as reducing maternal mortality from 569 per 100,000 live births in 1990 to 176 in 2015; however, this is still higher than the Seventh FYP target of 105 per 100,000 live births. Meanwhile, mortality rates among the under-fives have decreased from 144 per 1,000 live births in 1990 to 38 in 2015, almost meeting the Seventh FYP target of 37. Life expectancy has increased from 58 years in 1990 to 72 in 2015. These achievements have led to an increase in health expenditure. In Bangladesh health expenditure is growing faster than the wider economy (GDP), with CAGRs between 2004 and 2014 of 7.2% and 5.8% respectively, which puts pressure on the finances of public and private payers.

## Case studies of health-related services

### Grameenphone Tonic Bangladesh

Telenor Health launched its first mobile health service, Tonic, in Bangladesh in June 2016, through Telenor's local operator Grameenphone. Tonic is a health and wellness platform that provides digital health services, such as preventative advice content, appointment booking, phone-based access to primary care, discounts on health tests and specialist care, and insurance in the event of hospitalisation. Users can choose between three packages: Tonic Premium (BDT298 or \$3.6 per month); Tonic Advanced (BDT128 or \$1.6 per month); or Tonic Basic (pay per call for primary care consultations, otherwise free). As of the end of 2016 there were 2 million users.<sup>38</sup>

### Banglalink mHealth initiatives

Banglalink has launched two health services in Bangladesh, Healthlink 789 and Mind Care 7899. With **Healthlink 789**, users receive basic health-related advice over the phone from healthcare professionals and 24x7 health counselling. In addition, 3G-enabled mobile phone users are able to talk to the healthcare professionals using video. As well as receiving counselling, subscribers can receive health-related tips over SMS. The service costs BDT5/minute (\$0.06/minute) and has been provided by Banglalink since 2008.

**Mind Care 7899** is a call centre service for Banglalink subscribers providing counselling on mental health-related issues from clinical psychologists and psychiatrists. As well as receiving counselling, subscribers of this service can also get mental health-related content over SMS, prepared by experts. The service costs BDT15 (\$0.18) for a seven-day subscription.

### Robi mHealth initiatives

Robi has launched four mHealth services.

**mDaktar** offers a combination of health services such as daily health and nutrition tips via SMS, doctor consultations over the phone, free life insurance and hospital cashback. Customers receive a discount at Milvik's partner hospitals across Bangladesh for no additional cost. **Robi Shassthosheba** is an IVR-based service Robi users can subscribe to and connect to a call centre to consult with a doctor or listen to recorded health content. **Robi Mind Tale** is a 24-hour service aimed at assisting people with mental illness. Robi users can access the service through IVR or a call centre and receive mental health-related tips via SMS. For all three above services there are about 500,000 customers; Mdaktar alone has more than 280,000 customers.

**Maya Apa Plus** is a digital healthcare and well-being assistant. It allows users to anonymously receive expert advice on health and psychosocial issues. This service can be used via SMS and through an app. The SMS service allows Robi users to ask questions in Bengali, English or Banglish. Approximately 10,000 customers use the service per month.

38 Scaling digital health in developing markets, GSMA Intelligence, 2017

## Challenges

According to the World Health Organization (WHO), in 2015 two thirds of deaths in Bangladesh were caused by non-communicable diseases (NCDs). The most common NCDs in Bangladesh are cardiovascular diseases, in particular strokes and ischaemic heart disease. A national NCD plan, the Strategic Plan for Surveillance and Prevention of Non-Communicable Diseases in Bangladesh, 2007–2010, has been adopted, but implementation has been slow.

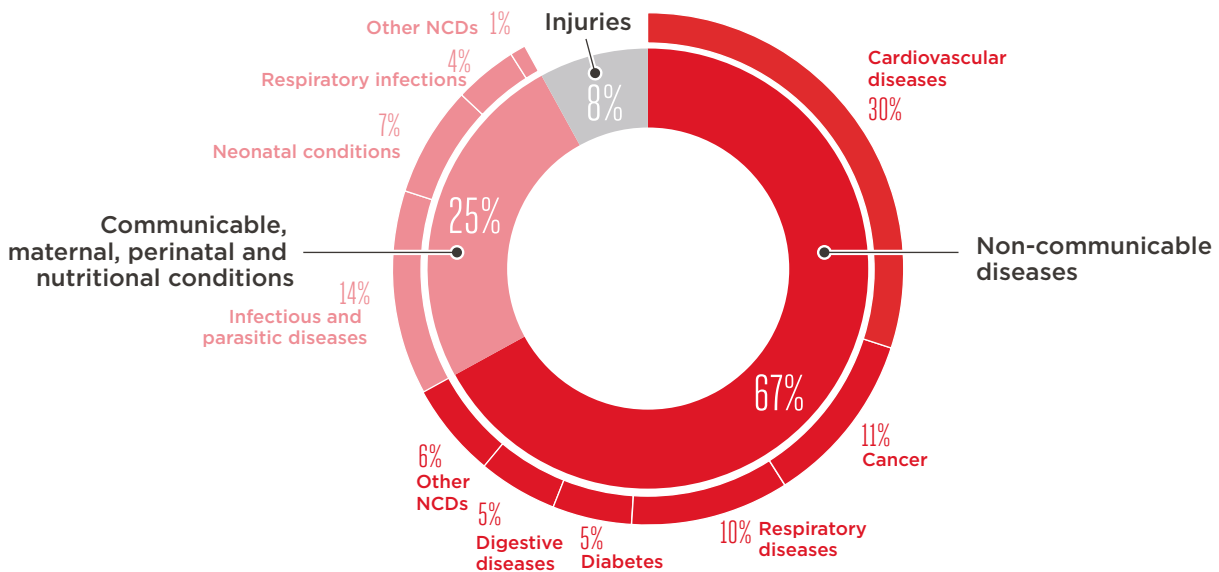
Other causes of deaths are communicable, maternal, perinatal and nutritional conditions (25% of deaths) and injuries (8%). One of the causes of maternal and perinatal deaths is the low proportion of births attended by skilled

health staff. At the end of 2014 only 24% of births in Bangladesh were attended by skilled staff; this is lower than the South Asia average of 72% and the Seventh FYP target of 65%.

Road accidents account for one of the most frequent causes of death by injury. According to a report from the National Committee to Protect Shipping, Roads and Railways, the number of casualties and number of road accidents in the first six months of 2017 increased by 18.4% and 8.6% respectively compared to the same period in 2016. Between January and June 2017, 2,297 people were killed in 1,983 accidents, compared to 1,941 killed in the same period for 2016.

Source: WHO

## 7 Deaths by cause in Bangladesh



## Actions

Actions that mobile operators and the government can take to overcome these challenges include the following:

- Provide services for patients to prevent and manage NCDs.
- Educate health professionals on the use of ICT.
- Develop digital solutions for patient data collection, reporting and telemedicine. This will improve the quality of records and support remote monitoring and diagnostics.
- Digitise hospitals and clinics, allowing use of solutions for remote patient monitoring, remote diagnostics, health data management, data security and imaging.
- Improve drug stock management by digitising health systems, to ensure the availability of medicines when and where needed.
- Develop M2M technology to enable ‘smart’ vehicles that can reduce congestion and collisions, contributing to improved safety for motorists and pedestrians.



# Agriculture

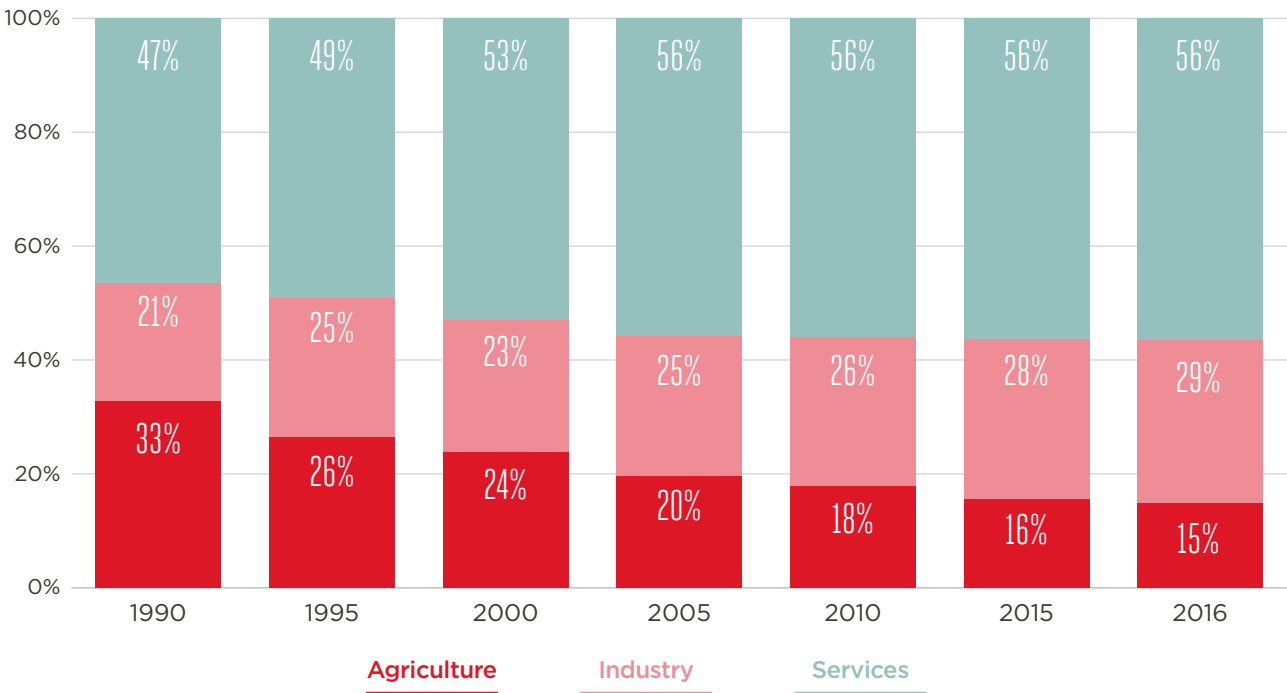
Mobile offers a strong opportunity to support agriculture in Bangladesh. Mobile information services can address agricultural information needs (including those related to crops, dairy, poultry and aquaculture); they can facilitate access to nutritional information and effective agricultural practices; connect remote communities to digital agricultural marketplaces to increase price transparency; reduce the price volatility of food commodity markets; and improve price outcomes and incomes of farmers. The digitisation of payments in agricultural value chains can enable financial inclusion in rural segments. Monitoring data acquired by crop and weather sensors can also be used to increase harvest productivity and adapt to climate change.

In Bangladesh, just over 40% of the labour force works in agriculture, with nearly half working in the informal sector. While agriculture has grown in absolute terms, its contribution to the economy has shrunk, from 20% in 2005 to 15% in 2016. This decrease has been driven

by a strong services sector and growing industry sector. However, Bangladesh has made good progress in ensuring self-sufficiency in cereal production. Cereal yield in Bangladesh was 4,618 kg/hectare in 2014, higher than the average for South Asia.<sup>39</sup>

Source: World Bank

## 8 Sector growth as percentage of GDP



## Case studies of mAgri services

### Banglalink Krishi jigyasha 7676

**Krishi Jigyasha** is an agriculture information service that provides information related to vegetable and fruit farming, poultry, livestock and fisheries. Users dial 7676 to talk to an expert for advice on their problems. At present, the service can help address issues in areas such as harvests, pesticides, agro diseases, seeds, fertilisers, poultry and livestock feed, and fisheries techniques. The service has been helping farmers in Bangladesh since 2009.

### Grameenphone Krishi Sheba

Grameenphone **Krishi Sheba** is an agricultural value-added service (Agri VAS) launched in December 2015 in partnership with VAS partner, Win Miaki and support from the GSMA mAgri programme as part of the mNutrition initiative. The service provides users with access to seasonal agricultural content from planting to post-harvest, for crops and livestock. Users pay BDT3 (\$0.04) per week to receive one outbound dialling (OBD) call per week per crop with one additional nutrition message.<sup>40</sup>

As of December 2016 there were more than 750,000 users. Grameenphone derived some added value from the service, with Krishi Sheba users less likely to have 'silent status' (no activity on the SIM). In February 2017, 5% of the Krishi Sheba base had been silent for more than 90 days, compared to 14% in a random sample of the Grameenphone base who do not use the service.<sup>41</sup>

### Robi mAgri initiatives

Robi has two live mAgri services in Bangladesh, Krishibarta and Krishi Radio. The services combined reach approximately 3,000 customers per month.

**Krishibarta** is an IVR and call centre based agricultural service. Robi users can listen to pre-recorded agriculture-related content or use the call centre to talk to agricultural specialists. Different types of information are available through this service, relating to areas such as weather, production and cultivation techniques, diseases and insects, plant nutrients, water usage, prices and stock.

**Krishi Radio** is an IVR-based service for farmers. Users can receive IVR and OBD content related to Krishi Bishesh Buletin, Chashabader Upodesh, Abohawar Khobor, Shofol Krishok/Krishanir Shakkhatkar and Krishi Binodon. The services provide agricultural news, advice, weather updates, knowledge sharing and entertainment.

### Tracking and tracing shrimp farming

In 2016, USAID, WorldFish and SourceTrace launched a service that uses Quick Reading Codes (QRC) to help consumers of shrimps farmed in Bangladesh to trace, through a smartphone app, what they are eating. Consumers can learn the date of delivery, whether banned substances were used during the processing, if production complied with bio-safety rules, if the farming was environment-friendly, and whether it avoided using child labour. As this programme expands it will aim to benefit 200,000 shrimp farmers in Bangladesh. The objective of this programme is to reduce the cost of tracing and monitoring the production of shrimp farming.

### a2i agricultural initiatives

a2i, using its Service Innovation Fund, has enabled public servants and private innovators to devise mobile-based solutions to address the needs of farmers, including production planning, input application, plant disease identification and protection. The Department of Agricultural Extension has already made three such innovations (**Krishoker Janala**, **Krishoker Digital Thikana** and **Pesticide Prescriber**) available to more than 15,000 field level agricultural extension officers and around 200,000 farmers, with potential to reach another 15 million farmers. To maximise the impact of such innovations, a2i is now working with the government to launch a portal for all agricultural extension services (including information, inputs and incentives) that will be available on both mobile and web-based platforms. The overarching objective is to empower farmers with relevant, timely and up-to-date information that can make farming both productive and profitable.

<sup>40</sup> [Creating scalable, engaging mobile solutions for agriculture](#), GSMA, 2017

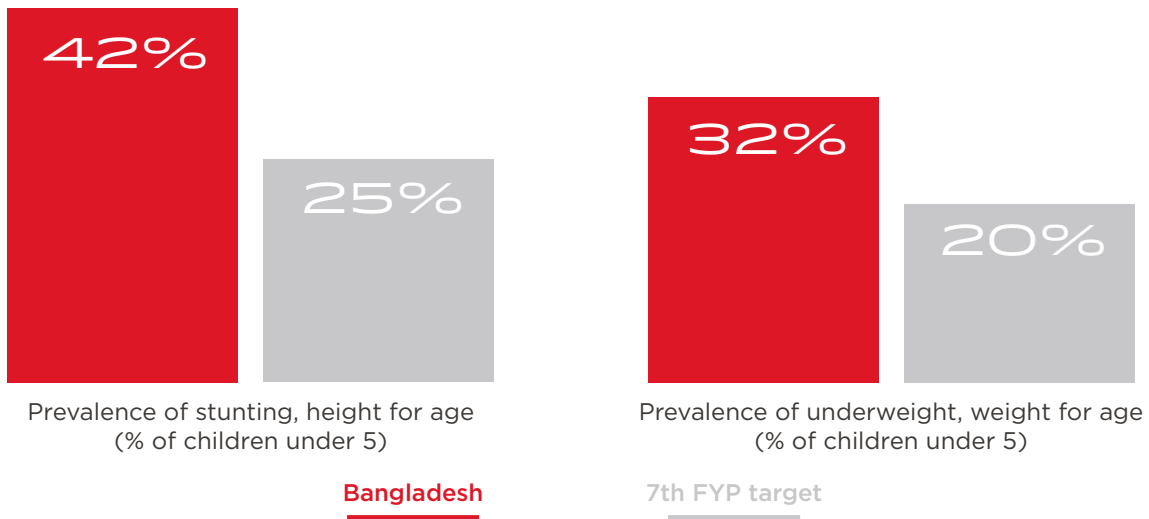
<sup>41</sup> [Grameenphone Krishi Sheba: A mobile agriculture service in Bangladesh](#), GSMA, 2017

## Challenges

One of the key challenges that Bangladesh will potentially have to face in the coming years is food security. Given the large population and high population growth, agricultural production will need to grow faster to meet food requirements. Bangladesh is facing challenges in terms of nutrition, with a high prevalence of underweight and stunted children. This could be exacerbated if agricultural production does not grow fast enough to keep up with the population growth. This could slow down the achievement of the Seventh FYP targets.

Source: World Bank

### 9 Malnutrition in Bangladesh



Note: Data is for 2013

Disaster and climate risk is also a factor in agricultural production. Bangladesh is one of the most environmentally vulnerable countries in the world, with floods and storms the most common natural disasters. Between 2010 and 2017, Bangladesh was affected by 36 natural disasters, with more than 1,000 fatalities, over 23 million affected and total damage amounting to more than \$1 billion.<sup>42</sup>

## Actions

Actions that mobile operators and the government can take to overcome these challenges include the following:

- Help increase productivity by providing farmers with mobile-enabled information services on agricultural inputs and nutrition, prices for crops across markets and accurate weather data.
- Digitise agricultural value chains – for example, through track and trace systems and payments to farmers:
  - Mobile-enabled track and trace systems support agribusinesses facing the pressure from global markets of ensuring that supply chains are not only reliable and efficient but also adhere to international standards and are traceable. For farmers, these tools can also enable efficiency and transparency into the last mile, via for example digital receipting.
  - Digitising payments to farmers for procuring crops (business to farmer) and for agricultural subsidies (government to farmer) is beneficial for businesses and the government, as it can lower the cost of distributing payments, facilitate real-time and scalable payments to smallholder farmers across multiple locations, mitigate cash-handling risks such as theft and fraud, and enable transparent and traceable transactions. For farmers, digital payments pave the way to financial inclusion as they help to create an entry point to financial services and a recorded financial history.
- In Bangladesh, some 18 million new mobile money accounts could be added by 2020 from digitising business-to-person (B2P) and government-to-person (G2P) payments, depending on the number of farmers engaged in formal value chains. Mobile operators could derive an estimated \$57 million for B2P payments and \$6.6 million for G2P payments in 2020.<sup>43</sup>
- Deploy services to provide early-warning, emergency communication and broadcasting before, during and after natural disasters.

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43 [Market sizing and opportunity in digitising payments in agricultural value chains](#), GSMA Intelligence, 2016

## Mobile financial services (MFS)

The provision of financial services via a mobile platform, particularly mobile money, is one of the most dynamic innovations in the mobile industry and has provided significant social and economic benefits for users. Mobile money is expanding access to financial services. By providing the poor with the financial services they need to manage cash flows and to save, the mobile money industry is helping eliminate poverty and supporting economic growth. Additionally, mobile money can facilitate payment of utility bills and school fees.

The majority of payments made in Bangladesh are still made in cash. According to a report by the Better Than Cash Alliance, government entities, businesses and individuals make only 12% of payments by value and only 6% of payments by volume electronically.<sup>44</sup>

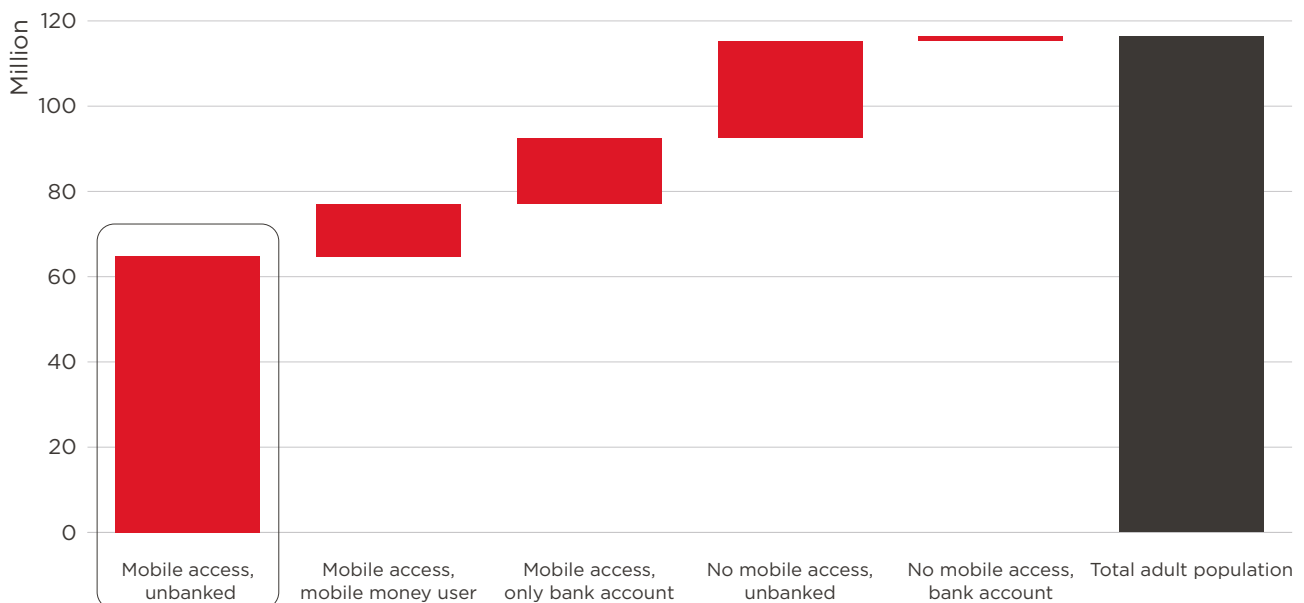
Mobile financial services have been live in Bangladesh since 2011, through a model in which the bank holds the licence. According to the Bangladesh Central Bank, as of July 2017 there were 17 banks providing mobile financial services through a network of more than 770,000 agents. There were 54 million registered users (just over 45% of the adult population), half of whom were

active users. The average number of daily transactions was around 4.9 million with a daily transaction value of BDT7.5 billion (approximately \$90 million).<sup>45</sup>

MFS is beginning to see some success in Bangladesh but there remains a sizeable gap to fill. According to Intermedia Financial Inclusion Insights, although 85% of the population in Bangladesh have access to a mobile phone, 66% of the population remain financially excluded. There are therefore opportunities to digitise more payment streams such as person-to-government payments, as being pursued through the government's a2i initiative.

Source: GSMA Intelligence based on Intermedia Financial Inclusion Insights

### 10 Mobile financial services opportunity



44 Building Digital Bangladesh: The Way Forward for Digitizing Payments, Better Than Cash Alliance, 2016  
 45 See <https://www.bb.org.bd/fnansys/paymentsys/mfsdata.php>

Because of the regulatory framework in place in Bangladesh, mobile network operators are working in partnerships with banks. The role of the mobile operator is thus limited to one of a delivery channel: both digital (USSD access) and physical, with a supporting agent network. However, mobile operators

have launched other services. For example, Banglalink launched the Bangladesh Post Office Mobile Money Order (MMO) service through cash points, Post Office branches and post e-centres, expanding the availability of the service to approximately 215,000 agent locations across the country.

## Assessing the success of mobile money<sup>46</sup>

Globally mobile operators have proven they can address the needs of the unbanked or the underbanked by building a sustainable business over time that is complementary to their core mobile business. Mobile operators have seized the opportunity and successfully driven the MFS business because of the inherent synergies with aspects of providing mobile money services: distribution channel, the mobile channel, trusted brand and investment incentive. Examples of successful implementations of mobile money services by mobile operators include Vodafone's M-Pesa in Kenya and Telenor's EasyPaisa in Pakistan.

Recent large-scale quantitative analysis by the GSMA shows that mobile operator-led mobile money deployments have been more successful in developing and delivering digital financial services (DFS) than non-operators:

In terms of active account growth, mobile operators obtain an average of almost 45,000 active accounts within one year of launch – 60% higher than for non-operators. By the fifth year of launch, this difference grows to almost four-fold. There is still scope to unleash this potential.

In terms of transaction value, by year five, operator-led services on average have a mobile money transaction value equivalent to 15.6% of a country's money supply, compared to 1.4% for non-operator services.

Tanzania provides an example of enabling regulation leading to a successful implementation of mobile money services. The regulator in Tanzania decided to let regulation follow innovation and support financial inclusion, while managing the risks. When mobile operators approached the Bank of Tanzania (BOT) to introduce the idea of mobile financial services, the existing regulation provided little guidance on the private sector, and the Electronic Payment Scheme Guidelines of 2007 only covered risk management for banks and other financial institutions. However, the BOT allowed mobile money services to launch while applying sufficient safeguards and carefully monitoring developments. Based on its oversight of service providers, the BOT has developed regulations that are more comprehensive. This approach has enabled the country's mobile money market to flourish.<sup>47</sup>

46 GSMA Mobile Money  
47 [Enabling mobile money policies in Tanzania](#), GSMA, 2014

## Challenges

The Better Than Cash Alliance, Business Finance for the Poor in Bangladesh and DFID<sup>48</sup> highlight that Bangladesh has been challenged by the lack of competition and cooperation in the provision of MFS. Currently bKash is the market leader with more than 80% market share. To accelerate growth of MFS in Bangladesh it is important to improve the regulatory environment, which will have a positive impact on competition in the MFS market.

In addition, there is an opportunity for existing providers to deliver on financial inclusion goals by building a full digital ecosystem of products and payment services over the mobile money channel and driving account adoption and usage.

## Actions

Actions that mobile operators and the government can take to overcome these challenges include the following:

- Build on ongoing dialogue to create a national financial inclusion strategy with a private-public coalition around the national goal of sustainable financial inclusion.
- Increase understanding of MFS among consumers. According to Intermedia Financial Inclusion Insights, there is good awareness among Bangladeshis of MFS (92% of the population), but not many of them are using the services (40% of the population).
- Increase uptake and use of mobile money services by digitising more payment streams – for example, wage payments in Bangladesh’s garment factories. According to Intermedia Financial Inclusion Insights, employed Bangladeshis are more financially engaged than the average Bangladeshi.<sup>49</sup>
- Increase mobile wallet adoption and usage, by building a vibrant mobile money ecosystem of services enabled by APIs.
- To unleash the potential of mobile money and develop an efficient financial sector, regulators should create an open and level playing field that allows both banks and non-bank providers to offer these storage and payment services – particularly operators, which are well suited to building sustainable services and extending the reach of the formal financial sector.
- Assess the impact of mobile-enabled international money transfers on the economic growth of Bangladesh.
- Authorise mobile money providers to provide cross-border and international remittance services to customers.
- Link the National Identification System with remote account opening and risk-based KYC.<sup>50</sup>

48 Building Digital Bangladesh: The Way Forward for Digitizing Payments, Better Than Cash Alliance, 2016

49 The Case for Wage Digitization in Bangladesh’s Garment Factories, Intermedia Financial Inclusion Insights, 2016

50 Building Digital Bangladesh: The Way Forward for Digitizing Payments, Better Than Cash Alliance, 2016

## Government service delivery

E-government refers to the use of ICT to enhance the speed, efficiency and effectiveness of service delivery by the government to citizens. E-government can be an effective tool for facilitating integrated policies and public service by promoting accountable and transparent institutions through open data, e-participation and participatory decision-making as well as advancing online services to bridge the digital divide.<sup>51</sup> Governments around the world have been particularly proactive in enabling a greater number of services to be accessed online via SMS, mobile apps and social media tools.

As part of Digital Bangladesh, the government has made significant progress in making government services more accessible to citizens. This is reflected in the UN E-Government Development Index (EGDI) in which Bangladesh has made the largest gains with a global ranking of 124th (out of 193 countries),

compared to a ranking of 148th in 2014. This increase has mainly been driven by an increase in the Online Service component, which focuses on integrating online service delivery and use of e-government to provide information and services to citizens.<sup>52</sup>

### Case studies of e-government services delivery

#### Digital services for land

a2i in collaboration with the Cabinet Division, Ministry of Land and land-related agencies, is working on ensuring prompt, reliable and high-quality land services for the underserved. In particular, the digital system will allow access to land records electronically at Digital Centres, changing records of rights digitally, electronic inheritance management, electronic deed registration, electronic payment of land-related service charges (including land revenues), and the digitisation of public land management and urban land leasing. These initiatives are being integrated into the a2i Land Information and Services Framework (LISF).

#### Civil Registration and Vital Statistics (CRVS+)

A National Steering Committee for CRVS (including the Cabinet Secretary as Chair, 18 permanent secretaries as members, and technical support from a2i) is designing an integrated service delivery platform to connect to all public agencies hosting departmental digital service registers. The aims of this platform are to streamline nearly 100 different social safety net programmes; to develop shared health records for citizens to help build medical histories; to detect and prevent underage marriages; and to recognise citizens properly and uniquely from birth to death. This will help to break silos, include more people more visibly in the formal civil system and deliver services to everyone.

51 United Nations e-government survey 2016, 2016  
52 United Nations e-government survey



## Case studies of e-government services delivery

continued

### Online Environment Clearance Certificate (ECC)

With innovation management and incubation support from a2i's Service Innovation Fund, the Department of Environment has developed a web-based Environmental Clearance Certificate Application System that can be accessed online 24x7 by anyone, anywhere. Entrepreneurs can fill in and submit a simple, online web form with scanned copies of all necessary documents attached, instead of going through a long, manual process. The entire application processing system can be tracked, and when the certificate is ready, a

notification SMS and email are sent with the address of the office from where it can be collected. As a result, 200% more applications than before were submitted within seven months of launch.

This innovation is one of many being initiated by a new generation of government officers who have greater empathy for citizens' needs and support from within the government to generate more user-centric innovations. a2i's empathy-based innovation toolkit has been instrumental in this transformation within the government, with the application of ICT playing a catalytic role.

## Challenges

Although Bangladesh has made a significant leap forward in the EGDI ranking, it still has room for improvement. In particular, the Telecommunication Infrastructure Index (TII) and Human Capital Index (HCI) had relatively low scores, at 0.1193 and 0.3973 respectively. The TII score reflects uptake of internet services and fixed & broadband subscriptions. The score in the HCI reflects literacy levels, enrolment in school and years of schooling.

The vast majority of payments in Bangladesh are made in cash. An estimated 69% of the value of payments made by governments are digital, but this accounts for only 1.1% of the total number of transactions made. G2P payments account for around half the total value of government payments; this shows that the infrastructure for G2P salary payments is in place, but more needs to be done to enable employees to be paid digitally. Currently, employees are paid through cheque payments which need to be cleared before the bank releases the funds, which takes time and increases cost. Employees therefore prefer to get paid in cash if they have a choice.<sup>53</sup>

## Actions

Actions that mobile operators and the government can take to overcome these challenges include:

- Develop human capital through education; this is a key factor to adapt to innovative ideas and technologies.
- Enforce ICT-based education from the primary to tertiary level.
- Enable electronic fund transfers to be cleared more quickly, so that employees can shift the way they get paid to digital transfers.
- Devote sufficient resources to extending a supportive learning environment in rural areas and use e-government services to deliver education, healthcare, financial disbursements and other life-enhancing services to help lower barriers to mobile and mobile internet adoption.
- Provide the underserved with the tools to interact and engage with their local community through e-government services. This can in turn also help boost the availability of locally relevant content.

53 Building Digital Bangladesh: The Way Forward for Digitizing Payments, Better Than Cash Alliance, 2016

## Supporting digital innovation

Given Bangladesh’s large and relatively young population, the country presents strong opportunities for innovative start-ups and investors. The government has already taken significant steps to develop an enabling innovation ecosystem. Aside from setting up IT and software parks where innovators and inventors can access infrastructure, mentorship support and training facilities are also being made more accessible through online and offline certification courses.

A few start-ups are starting to gain traction, including:

- Biponee.com, an e-commerce platform
- Sobji Bazaar, which produces and delivers organic agricultural products to customers
- Lidia May, which aims to bring local handmade crafts to the global market
- Dam.com.bd, an online shopping database that gathers and compares price information of products
- Cloud Based Medical System for Preventive Healthcare (CMED Health Limited), a platform that aims to reduce deaths caused by non-communicable diseases by offering solutions that help people become more aware of their health status. It was nominated the most promising seed-stage start-up of Seedstars Dhaka 2017.

In June 2017, the GSMA Ecosystem Accelerator launched the second round of its Innovation Fund. Some 14% of the pitches from Asian start-ups came from Bangladesh – the third highest in Asia Pacific, after Indonesia and Pakistan.<sup>54</sup>

### Case studies of supporting digital innovation

#### Grameenphone

Grameenphone has launched its own incubator, GP Accelerator, a four-month bootcamp that provides seed funding, expert mentors, in-house development resources and investor access. The programme accelerates five start-ups at a time. GP Accelerator is now working on the fourth batch of start-ups.

#### Banglalink

Banglalink, in conjunction with the ICT Minister, has launched an IT incubator. Bangladesh’s first ICT incubator under public-private partnership was launched in 2016. The platform is designed to identify and grow innovative digital ventures. Around 400 teams participated in a national contest, with 10 winners gaining access to office space for a year, allowing them to accelerate their growth while making use of a co-working environment. Banglalink has also started a mentorship platform at the incubator to provide aspiring digital entrepreneurs with access to mentorship events.

54 ["Ecosystem Accelerator Innovation Fund Round 2: Insights from Asia Pacific start-ups' applications"](#), GSMA Ecosystem Accelerator, September 2017

## Case studies of supporting digital innovation

continued

### Innovation Fund from a2i

The a2i programme from the Prime Minister’s Office has been operating its own Service Innovation Fund to engage and empower the whole of Bangladesh to co-create novel solutions to development challenges and boost their chances of making an impact at scale. Some 170 pilots have already been funded. The success of these has inspired government offices to self-fund more than 800 innovation pilots

across Bangladesh. Innovation competitions are held at regular intervals to encourage innovators from all levels of society to come forward. a2i’s Innovation Lab provides incubation and co-creation space from within government premises. In the future, a2i is planning to create a network of innovation hubs at academic institutions, where it sees a large concentration of talent.

## Challenges

Starting and growing a business is inherently challenging. As in other markets, start-ups often suffer from a lack of funding, limiting expansion and research and development. Protection of intellectual property rights can also be an issue for small start-ups without access to/funding for legal advice.

## Actions

The start-up ecosystem in Bangladesh is still nascent. It will take a coordinated effort and collaboration from the mobile/internet ecosystem and public sector agencies to ensure that innovations can flourish into fully fledged businesses, ultimately generating relevant online content organically:

- Encourage the set-up of other in-house incubators.
- Open up APIs to start-ups in the country to further nurture and enable the local ecosystem to grow.
- Help close the funding gap by setting up corporate venture-capital funds that invest in local start-ups at seed stage.
- Discuss a national framework on data protection and international flows of data.

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4

Key action areas

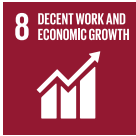


Both the government of Bangladesh and its mobile industry have demonstrated strong commitment to meeting the Seventh FYP and supporting progress towards the SDGs. By collaborating more closely on win-win opportunities that align with each stakeholder’s organisational goals, the government and industry have an exciting opportunity to unlock digital transformation for millions of Bangladeshis.

Table 2 shows how the actions can contribute to the Seventh FYP focus areas.

Source: GSMA intelligence

## 2 Seventh FYP and action areas

Seventh FYP category	Mobile operator role/actions	Related SDGs
Income and poverty	<ul style="list-style-type: none"> <li>• Increase awareness of the benefits of the internet, especially as some may see mobile as a luxury good.</li> <li>• Increase understanding of mobile financial services.</li> <li>• Educate consumers about the real cost of handsets – e.g. through marketing campaigns and through the agent network – to dispel perceptions among some consumers that smartphones are ‘out of reach’.</li> <li>• Tackle misconceptions around data costs, through on-the-ground as well as traditional education campaigns.</li> <li>• Assess the development of new services that mobile and data operators could provide to the population.</li> <li>• Build on ongoing dialogue to create a national financial inclusion strategy and create a private-public coalition around the national goal of sustainable financial inclusion.</li> <li>• Increase uptake and use of mobile money services by digitising more payment streams – for example, wage payments in Bangladesh’s garment factories.</li> <li>• Increase mobile wallet adoption and use, by building a vibrant mobile money ecosystem of services enabled by APIs.</li> <li>• Unleash the potential of mobile money and develop an efficient financial sector. Regulators must create an open and level playing field that allows both banks and non-bank providers to offer these storage and payment services – particularly mobile operators, which are well suited to building sustainable services and extending the reach of the formal financial sector.</li> <li>• Authorise mobile money providers to provide cross-border and international remittance services to customers.</li> <li>• Link the National Identification System with remote account opening and risk-based KYC.</li> <li>• Enable electronic fund transfers to be cleared more quickly, so that employees can change the way they get paid to digital transfers.</li> <li>• Devote sufficient resources to extend a supportive learning environment in rural areas and use e-government services to deliver education, healthcare, financial disbursements and other life-enhancing services to help lower barriers to mobile and mobile internet adoption.</li> <li>• Provide the underserved with the tools to interact and engage with their local community through e-government services. This can in turn also help boost the availability of locally relevant content.</li> </ul>	 

**Sector development**

- Help increase productivity by providing farmers with mobile-enabled information services on agricultural inputs and nutrition, prices for crops across markets and accurate weather information.
- Digitise agricultural value chains, for example through track and trace systems and payments to farmers:
  - Mobile-enabled track and trace systems support agribusinesses facing the pressure from global markets of ensuring that supply chains are not only reliable and efficient but also adherent to international standards and are traceable. For farmers, these tools can also enable efficiency and transparency into the last mile, via for example digital receipting.
  - Digitising payments to farmers for procuring crops (business to farmer) and for agricultural subsidies (government to farmer) is beneficial for businesses and the government, as it can lower the cost of distributing payments, facilitate real-time and scalable payments to smallholder farmers across multiple locations, mitigate cash-handling risks, such as theft and fraud, and enable transparent and traceable transactions. For farmers, digital payments pave the way to financial inclusion as they help to create an entry point to financial services and a recorded financial history.
- Encourage the start-up of other in-house incubators.
- Open up APIs to start-ups in the country to further nurture and enable the local ecosystem to grow.
- Help close the funding gap by setting up corporate venture-capital funds that invest in local start-ups at seed stage.
- Discuss a national framework on data protection and international flows of data.



**Human resource development (education, health and population)**

- Provide services for patients to prevent and manage NCDs.
- Educate health professionals on the use of ICT.
- Develop digital solutions for patient data collection, reporting and telemedicine. This will improve the quality of records and support remote monitoring and diagnostics.
- Digitise hospitals and clinics; this will allow the use of solutions for remote patient monitoring, remote diagnostics, health data management, data security and imaging.
- Improve drug stock management by digitising health systems; this will better ensure the availability of medicines when and where needed.
- Initiate digital education programmes for all.
- Bring ICT into the school curriculum and educational establishments to guarantee that their citizens of tomorrow receive the skills necessary for the modern economy.
- Consider partnering with a trusted NGO to deliver hands-on training on digital literacy.
- Develop human capital; this is a key factor to adapt to innovative ideas and technologies.
- Enforce ICT-based education from the primary to tertiary level.



Energy and infrastructure

- Develop M2M technology to enable ‘smart’ vehicles that can reduce congestion and collisions, contributing to improved safety for motorists and pedestrians.



Gender equality, income inequality and social protection

- Bring lower-cost handsets to customers.
- Introduce more creative and transparent pricing to appeal to women’s price sensitivity, call patterns and daily routines.
- Invest in consumer insights research to better deliver services that meet the needs of women.
- Integrate user-centric design principles into handsets and services, and conduct user testing, pilot testing and product iteration with women.
- Target men in marketing campaigns to reach women in settings where men commonly make decisions about women’s access to mobile.
- Use marketing campaigns to demonstrate how women’s use of mobile can benefit the whole family.
- Collect, analyse and track sex-disaggregated data to inform policy, particularly at a national and sub-national level, and integrate gender equality targets and key performance indicators into strategies, policies, plans and budgets, involving women and relevant local communities from the onset.
- Address the barriers women face that impede gender equality online, including affordable access; issues around safety, digital literacy and confidence; and the availability of relevant content.
- Support multi-stakeholder cooperation by developing tools and policies to support national and international efforts, and effective sharing of best practices to address the digital gender gap.



Environmental sustainability

- Deploy services to provide early-warning, emergency communication and broadcasting before, during and after natural disasters.



ICT development

- Upgrade existing mobile spectrum licences to technology-neutral licences without the imposition of additional fees, to facilitate faster deployment of new technologies to the benefit of the people of Bangladesh.
- Ensure timely release of spectrum while also supporting effective pricing of spectrum to facilitate better quality and more affordable services.
- Create a regulatory framework for tower sharing that allows for greater cooperation between operators in building sites and sharing tower infrastructure.
- Encourage passive and active network sharing among mobile operators; this is key to unlocking capital to make it more affordable for people to get connected.
- Reduce or remove all sector-specific taxes and fees that distort the market.
- Remove consumer taxes that target access to mobile services.
- Reduce complexity and uncertainty of taxes and fees on the mobile sector.
- Reduce or remove import duties on handsets.
- Avoid excessive regulatory fees and taxes on revenues.
- Effectively utilise social obligation fund (SOF) to improve network quality of service and ensure service availability in deprived areas where there is no commercial viability to deploy 3G/4G network.
- Use manufacturing factories, Union Centres and schools as hubs for connectivity by offering Wi-Fi services, so unconnected users can download content and watch offline.










# Appendix


Source: GSMA intelligence

## 3 Seventh FYP targets and the Sustainable Development Goals

Seventh FYP category	Seventh FYP target	Lead ministries/divisions	Related SDGs
Income and poverty	<ul style="list-style-type: none"> <li>Attain average real GDP growth rate of 7.4% per year over the Plan period.</li> <li>Reduction in the headcount poverty ratio by 6.2 percentage points.</li> <li>Reduction in extreme poverty by 4.0 percentage points.</li> <li>Create good jobs for the large pool of under-employed and new labour force entrants by increasing the share of employment in the manufacturing sector from 15% to 20%.</li> </ul>	<p>Cabinet division</p> <p>General Economics Division</p> <p>Finance Division</p> <p>Ministry of Labour and Employment</p> <p>Ministry of Industries</p>	 
Sector development	<ul style="list-style-type: none"> <li>Significant growth of the agriculture, industry and service sectors.</li> <li>Increase the contribution of the manufacturing sector to 21% of GDP by FY 2020.</li> <li>Substantial improvement of exports to \$54.1 billion by FY 2020.</li> <li>Achieve a trade-GDP ratio of 50% by FY 2020.</li> </ul>	<p>Ministry of Industries</p>	 
Macroeconomic development	<ul style="list-style-type: none"> <li>Total revenue to be raised from 10.7% of GDP to 16.1% by FY 2020.</li> <li>Maintain the current fiscal deficit of 5% of GDP.</li> <li>Government spending to be increased to 21.1% of GDP by FY 2020.</li> <li>FDI to be increased substantially to \$9.6 billion by FY 2020.</li> </ul>		
Urban development	<ul style="list-style-type: none"> <li>Infrastructural investment and civic facilities in peri-urban growth centres especially around Special Economic Zones.</li> <li>Inclusive housing and other civic services for urban inhabitants including for people living in informal settlements and slums.</li> <li>Inclusive urban planning based on sustainable land use planning and zoning.</li> <li>Increased productivity, access to finance, and policy support for urban micro-small and medium-sized enterprises.</li> </ul>	<p>Ministry of Housing and Public Works</p>	

<p><b>Human resource development (education, health and population)</b></p>	<ul style="list-style-type: none"> <li>• Achieve 100% net enrolment rate for primary and secondary education.</li> <li>• Percentage of cohort reaching grade 5 to be increased to 100% from current 80%.</li> <li>• Under-five mortality rate to be reduced to 37 per 1,000 live births.</li> <li>• Maternal mortality ratio to be reduced to 105 per 100,000 live births.</li> <li>• Increase immunisation against measles to 100% of children under 12 months.</li> <li>• Reduce proportion of underweight children among under-fives to 20%.</li> <li>• Births attended by skilled health staff to be increased to 65%.</li> <li>• Increase contraceptive prevalence rate to 75%.</li> </ul>	<p>Ministry of Agriculture</p> <p>Ministry of Fisheries and Livestock</p> <p>Ministry of Food</p> <p>Ministry of Health and Family Welfare</p> <p>Ministry of Education</p> <p>Ministry of Primary and Mass Education</p>	  
<p><b>Water and sanitation</b></p>	<ul style="list-style-type: none"> <li>• Safe drinking water for all.</li> <li>• Proportion of urban population with access to sanitary latrines to be increased to 100%.</li> <li>• Proportion of rural population with access to sanitary latrines to be raised to 90%.</li> </ul>	<p>Local Government Division</p> <p>Ministry of Water Resources</p> <p>Ministry of Social Welfare</p>	 

<p><b>Energy and infrastructure</b></p>	<ul style="list-style-type: none"> <li>• Installed generation capacity of electricity to be increased to 23,000 MW by 2020.</li> <li>• Ensure energy mix for energy security.</li> <li>• Electricity coverage to be increased to 96% with uninterrupted supply to industries.</li> <li>• Reduce system loss from 13% to 9%, improving energy efficiency and conservation.</li> <li>• Construction of 6.15 km Padma Multipurpose Bridge at Mawa-Janjira</li> <li>• Construction of 26 km Dhaka Elevated Expressway.</li> <li>• Construction of Dhaka-Chittagong expressway and upgrade of Dhaka-Chittagong highway to 4-6 lane.</li> <li>• Improve the multimodal transport network with a significant increase in the share of rail and waterways traffic.</li> <li>• Reduce urban traffic congestion with focus on Dhaka and Chittagong cities.</li> <li>• Reduce the incidence of road accidents.</li> <li>• Completion of the following high-priority mega-projects:             <ul style="list-style-type: none"> <li>- Padma Bridge, Deep Sea Port Project; MRT-6 project; LNG Terminal Project; Payra Port Project; Rooppur Nuclear Power Plant Project; Rampal Coal Power Project; and Matarbari Coal Power Project.</li> </ul> </li> </ul>	<p>Programming Division</p> <p>Energy and Mineral Resources Division</p> <p>Ministry of Industries</p> <p>Road Transport and Highway Division</p>	  
<p><b>Gender equality, income inequality and social protection</b></p>	<ul style="list-style-type: none"> <li>• Female to male ratio in tertiary education to be raised from current 70% to 100%.</li> <li>• Female to male literacy ratio for 20-24 age group to be raised to 100% from the current 86%</li> <li>• Encourage female enrolment in technical and vocational education.</li> <li>• Reduce or maintain the current income inequality of 0.45.</li> <li>• Spending on social protection as a share of GDP to be increased to 2.3% of GDP.</li> <li>• Ensure further reduction of migration and remittance transfer cost and facilitate remittances into productive investments.</li> </ul>	<p>Cabinet division</p> <p>General Economics Division</p> <p>Ministry of Women and Children Affairs</p> <p>Ministry of Social Welfare</p> <p>Bank and Financial Institutions Division</p>	  

<p><b>Environmental sustainability</b></p>	<ul style="list-style-type: none"> <li>• Increase productive forest coverage to 20%.</li> <li>• Improve air quality in Dhaka and other large cities and enact Clean Air Act.</li> <li>• Promote zero discharge of industrial effluents.</li> <li>• Restore and protect urban wetlands in line with Wetland Conservation Act.</li> <li>• Protect at least 15% of wetlands as aquatic sanctuary in peak dry season.</li> <li>• Establish and protect 500 meter-wide permanent greenbelt along the coast.</li> <li>• Complete land zoning for sustainable land/water use.</li> <li>• Integrate environmental, climate change and disaster risk reduction considerations into project design, budgetary allocations and implementation process.</li> <li>• Restore canals and natural water flows of Dhaka and other major cities.</li> </ul>	<p>Ministry of Environment and Forests</p> <p>Ministry of Disaster Management and Relief</p> <p>Ministry of Water Resources</p> <p>Ministry of Fisheries and Livestock</p> <p>Ministry of Shipping</p> <p>Ministry of Land</p>	   
<p><b>ICT development</b></p>	<ul style="list-style-type: none"> <li>• Improve teledensity to 100%, internet penetration to 100% and broadband coverage to 50%.</li> <li>• All primary schools to have at least one and all secondary schools to have at least three multimedia classrooms; 30% of primary schools and 100% of all secondary schools to have an ICT laboratory.</li> <li>• 25% of Community Health Clinics to provide teleconsultation with specialists in urban areas.</li> <li>• All G2P cash transfers and most P2G and B2G payments to be done digitally.</li> <li>• Most vital government services to be made available at all Digital Centres, through the national portal and over mobile devices; 100% of citizens and residents to have digital ID that is used in service delivery.</li> <li>• Social media to be regularly used for communications with various demand- and supply-side stakeholders.</li> <li>• Open government data and big data analysis to be regularly used in public decision support. Increase domestic ICT earnings to \$2 billion and export earnings to \$2 billion; 1 million trained HR for the ICT industry.</li> <li>• Spending on Research and Development to constitute 1% of GDP.</li> <li>• Robust cyber-security measures to be institutionalised.</li> </ul>	<p>Information and Communication Technology Division</p> <p>Posts and Telecommunications Division</p> <p>Ministry of Commerce</p> <p>Ministry of Industries</p> <p>General Economics Division</p> <p>Bank and Financial Institutions Division</p> <p>Ministry of Science and Technology</p>	 

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