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TELECOMMUNICATION INDUSTRY IN BANGLADESH: AN OVERVIEW

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Telecommunication Industry in Bangladesh: An Overview

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Abstract

This paper offers a comprehensive overview of the telecommunication industry in Bangladesh, emphasizing its significance and covering key aspects such as the market overview, regulatory environment, and technological landscape. The telecommunication sector plays a vital role in driving productivity and economic growth in the country, encompassing mobile, infrastructure, and satellite sectors. The paper highlights the industry's rapid growth, facilitated by expanding communication networks and services. Mobile technologies and services have been particularly instrumental, with widespread adoption of mobile phones and increased connectivity benefiting various sectors of the economy. The paper examines the industry's market size, growth, and market share, focusing on historical developments such as the introduction of mobile services and the entry of multiple operators. The regulatory environment is explored, with specific attention given to the role of the Bangladesh Telecommunication Regulatory Commission (BTRC) in licensing, spectrum allocation, competition management, quality of service regulations, consumer protection, and data privacy. Ensuring fair competition and safeguarding consumer interests are emphasized. The technological landscape is also discussed, highlighting advancements in infrastructure, network coverage, and telecommunication technologies. Deployment of 3G, 4G, and 4.5G networks has provided high-speed mobile internet access, while digital transformation initiatives have facilitated the adoption of digital financial services, e-commerce, and other platforms. In conclusion, the telecommunication industry in Bangladesh has experienced significant growth and transformation, contributing to socioeconomic development. However, challenges related to infrastructure, internet penetration, spectrum management, competition, and regulations need to be addressed to sustain growth and leverage the industry's potential for Bangladesh's digital future.

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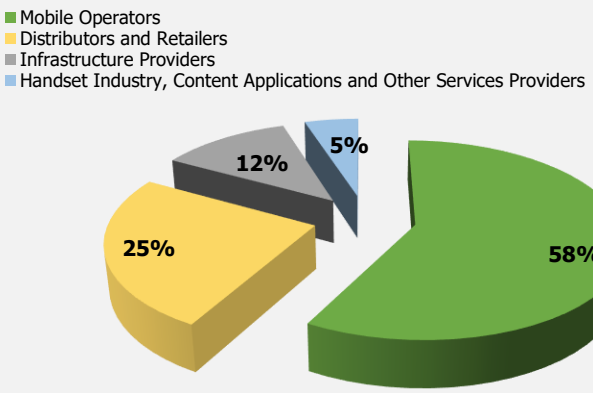
Table of Content

1 Introduction

Telecommunication is a vital component of the ICT sector and plays a significant role in driving productivity and economic growth in Bangladesh. The telecommunications sector in the country can be broadly categorized into three key areas: Mobile, Infrastructure, and Satellite. Over the past decade, the telecommunication industry in Bangladesh has experienced rapid growth, keeping pace with the country's social and economic transformation. Expanding communication networks and services has played a crucial role in facilitating this growth. Mobile technologies and services have driven the telecom industry's development. The widespread adoption of mobile phones and the availability of mobile services have contributed significantly to the sector's growth. The increasing connectivity and accessibility provided by mobile networks have positively impacted various sectors of the economy.

Figure 1. Contribution of the Sector



Additionally, the development and urbanization of the country have contributed to the expansion of communication infrastructure and services. The contribution of the sector is highly dominated by mobile operators, with a direct impact of 58%, followed by distributors and retailers (25%), infrastructure providers (12%), and the handset industry, content applications, and other services providers (5%) (SAMENA Telecommunications Council, 2019). The telecommunication sector is regulated by Bangladesh Telecommunication Regulatory Commission (BTRC) and the Posts and Telecommunications Division. BTRC distributes a tender notice for bidding to provide services to the consumers. Any telecommunication services are provided by the companies receiving the tender.

As more people gain access to telecommunication services, the industry experienced substantial growth. It is worth noting that the telecom industry's contribution to the economy extends beyond direct revenue generation. The mobile technologies and services sector alone accounts for more than 5% of Bangladesh's GDP through direct contributions and indirect economic effects(Forbes Business Council, 2022). Rapid changes have been observed in the lifestyle of the population. Connectivity has been an integral part of modern-day life, thus accelerating the growth in mobile communication and internet use. The latest technological advancement has allowed digital financial services, such as mobile banking, e-commerce, and digital content, to create different pockets for generating income for the new generations with increased employment. Social media platforms such as Facebook, WhatsApp, Viber, and video-streaming sites like YouTube have become part of everyday life for all classes of people, primarily young and middle-aged groups. The use of social media is growing every day, resulting in more and more internet data consumption. Every household in an urban and rural location has at least two cellular phones, including features and smartphones. At the end of May 2023, mobile telecom subscribers stood at 185.13 million, and mobile internet subscribers rose more than 36% from the previous month, standing at 172.62 million (BTRC, 2023).

A report by USAID estimated that the active mobile connections in Bangladesh will reach 190 million at the end of 2025, and the number of 4G users will be 41%, while the total number of smartphone users will go up to 138 million in 2025 (USAID 2019). Steady population growth and increased purchasing power will continue to drive the telecom sector growth. The telecom sector is becoming the key enabler for the country to achieve the targets set in the Sustainable Development Goals. However, there are different factors like market segmentation, market share, regulatory framework, technological advancement, and factors driving this sector which are highlighted in this report.

Figure 2. Mobile Telecom Subscribers till May 2023

2 Market Overview and Market Share

2.1 Historical Overview

The telecommunication industry in Bangladesh has undergone significant growth and transformation over the years. Its roots can be traced back to the British colonial period when telegraph lines were established. Following Bangladesh's independence in 1971, the Bangladesh Telegraph and Telephone Board (BTTB) was established to oversee telecommunication services, primarily focusing on landline telephony. In 1989, Sheba Telecom (Pvt) Ltd received license to operate the cellular services. Later Pacific Bangladesh Telephone Ltd (1989) and Bangladesh Telecom (1989) received the mobile phone license. In the 1990s, Grameenphone, a joint venture between Telenor and Grameen Telecom, were formed. Subsequently, other mobile operators like Banglalink (formerly Orascom Telecom Bangladesh) and Robi (formerly Aktel) entered the market, significantly growing mobile phone penetration and subscriber numbers. During this period, internet service providers (ISPs) emerged, offering dial-up and broadband connections to cater to the increasing demand for internet services. The government supported this by establishing the Bangladesh Submarine Cable Company Limited (BSCCL) to enhance internet connectivity. The introduction of 3G and 4G technologies further fueled the growth of mobile internet services, driving increased internet usage and data consumption.

The sector has changed drastically over the decade. A glimpse of change is highlighted below:

Table 1. Changes in Telecommunication Sector Over the Decade

Category	2002-03	2022 (June)
Teledensity	0.54%	106.23%
Internet Density	0.10%	72.57%
4G Mobile Subscriber (million)	-	79.1
Internet Subscriber (million)	1 Lakh	126.2
Internet Bandwidth Value (BDT Per Mbps)	1.27 lakh	(40-100)
Network Coverage	50 District	64 Division
Institutions with Different types of telecommunication service licenses	139	3,502
Tax Payment (BDT Crore)	120.07	68,908.29
Mobile Manufacturing Firms	-	14

Source: BTRC Annual Report 2021-2022

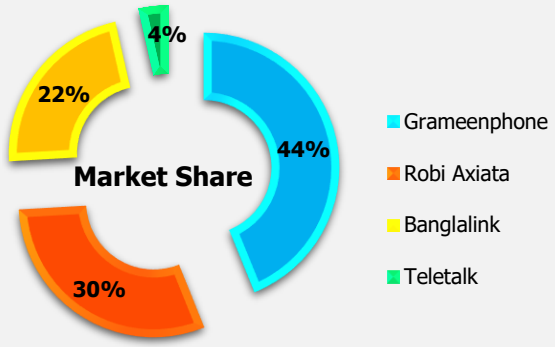
The telecommunication industry also witnessed the rapid growth of digital services such as mobile banking, e-commerce, and digital content. Companies like bKash, Nagad, and Rocket played a crucial role in providing financial services and expanding the digital ecosystem in Bangladesh. Bangladesh has made remarkable progress in increased connectivity, expanded mobile and internet penetration, and emerging

digital services. These advancements have contributed to the country's socioeconomic development and transformed how people communicate and access information.

2.2 Market Size, Growth, and Market Share

By 2030, the number of unique mobile internet subscribers will increase, driven by the growing utilization of internet data. It is expected to have a Compound Annual Growth Rate (CAGR) of 9.6% (Farheen S Rahman, 2021). Additionally, the Bangladesh Telecom Market is projected to experience significant growth, with an estimated CAGR of 24.08%, reaching a value of USD 14.78 billion by 2028 (Mordor Intelligence, 2023).

Figure 3. Mobile Telecom Market Players



According to data from the Bangladesh Telecommunication Regulatory Commission, the three leading mobile operators in the country, namely Grameenphone, Robi Axiata (Airtel is included), and Banglalink, collectively held around 96.28% of the mobile market share. The Grameenphone comprises the highest market share with 44% shares, followed by Robi Axiata with 30% shares, Banglalink with 22% shares, and Teletalk with 4% shares.

2.3 Market Segmentation

The telecom industry in Bangladesh can be segmented into several categories based on different factors. The telecommunications industry is divided into three primary categories based on the types of services:

- Mobile telephones: This segment includes mobile voice calling, SMS (Short Message Service), and mobile data services.
- Fixed line telephones: This segment encompasses landline telephony services provided through wired connections.
- Internet and broadband: This segment includes broadband internet services, both fixed and mobile, provided by internet service providers (ISPs) and mobile operators.

This sector provides services across multiple segments to cater to customers' needs and market demands. The telecom industry is dynamic, and new segments may emerge with technological advancements and consumer behavior changes. The type of customers can be used to segregate the industry further. For instance, individuals subscribe to telecom services for personal use, such as making calls, sending messages, and accessing the internet, whereas businesses and organizations use telecom services for primary operational purposes, including communication within the organization and with external stakeholders. Segmentation based on other factors includes:

- Geographic Location (Rural and Urban)
- Pricing and Tariffs
- Value-added Services (Mobile Financial Services and Content Services)
- Other wholesale services like call routing or network connectivity between different telecom operators and International Gateway Services

2.4 Market Players providing different Services

Different market players are providing different categories of services. Bangladesh Telecommunication Regulatory Commission (BTRC) grants licenses to different government and private organizations. The numbers are listed in the different categories below.

Table 2. Licenses and Registration Certificates Category wise

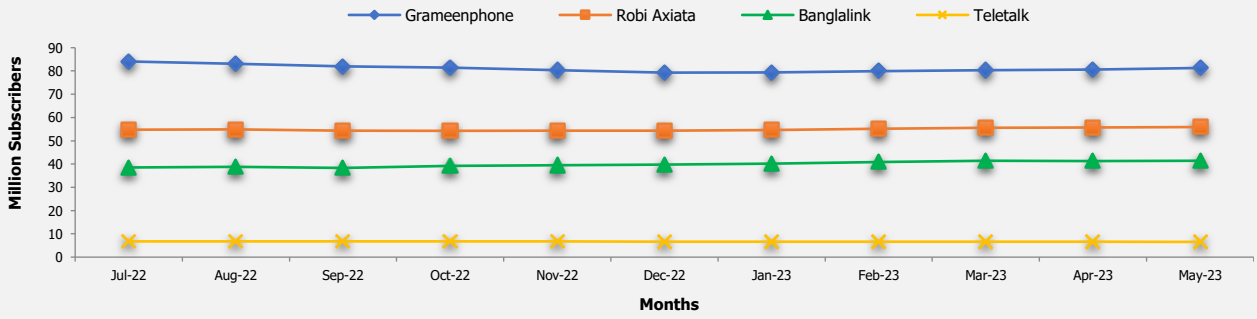
SL.	Category of License and Registration Certificates	Number of Licensees
1	Submarine Cable Licenses	4
2	International Gateway (IGW) Licenses	24
3	Interconnection Exchange (ICX) Licenses	26
4	International Internet Gateway (IIG) Licenses	34
5	Mobile Number Portability (MNP) Licenses	1
6	Broadband Wireless Access (BWA) Licenses	1
7	Cellular Mobile Telecom Operator Licenses	5
8	3G Cellular Mobile Phone Services Operator Licenses	4
9	4G/LTE Cellular Mobile Phone Services Operator Licenses	4
10	International Terrestrial Cable (ITC) Licenses	7
11	Tower Sharing Licenses	4
12	Public Switched Telephone Network (PSTN) Operator Licenses	11
13	Nationwide Telecommunication Transmission Network (NTTN) Service Provider Licenses	6
14	National Internet Exchange (NIX) Licenses	10
15	National Internet Exchange (NIX) Licenses	51
16	Internet Protocol Telephony Service Provider (IPTSP)– Nationwide Licenses	37
17	Internet Protocol Telephony Service Provider (IPTSP)– Central Zone Licenses	3
18	Internet Protocol Telephony Service Provider (IPTSP)– Zonal Licenses	3
19	Internet Service Provider (ISP) – Nationwide Licenses	124
20	Internet Service Provider (ISP) –Divisional Licenses	377
21	Internet Service Provider (ISP) – District Licenses	142
22	Internet Service Provider (ISP) – Thana/Upazila Licenses	2,206
23	VSAT User Licenses	13
24	VSAT Provider Licenses	1
25	VSAT Provider with HUB Licenses	3
26	Telecommunication Value Added Services (TVAS) Registration Certificate	132
27	Call Center Registration Certificate	179
	Total	**3,412**

Source: BTRC

2.4.1 Mobile Telecom Services

With the rise in population, the use of mobile telecom services increased. It has become a part of daily life in rural and urban areas. The mobile telecom has total subscribers of 185.13 million till May 2023 (BTRC), which has grown by 0.50% from the previous month.

Figure 4. Monthly Changes in Number of Subcribers



The voice services of the mobile telecom industries allow one to make local, national, and international calls, either on a pay-per-minute basis or through bundled minutes offered in various packages. The services also include SMS (Short Message Service) and data services. Mobile data services are delivered through technologies such as 2G, 3G, 4G/LTE, and increasingly 5G allowing people to access internet on

mobile devices, to browse the web, use mobile apps, and access digital content. Other value-added services are provided through mobile telecom services. It includes mobile financial services, entertainment, content subscriptions, and utility services accessible through mobile devices.

Nevertheless, BTRC auctioned 190MHz 5G spectrums earning USD 1.23 billion or BDT 106.45 billion. To power the latest telephony, four telecom operators bought these spectrums. Out of the total spectrum of 220 MHz, 30 MHz remained to be sold as 100 MHz at 2.3 GHz bands and 120 MHz at 2.6 GHz bands.

Table 3. Spectrum Allocation

Category	GP	Robi	Banglalink	Teletalk
Total Spectrum Acquired (MHZ)	107.4	104	80	55.2
Current User Density per MHZ (Lakh)	17	12	9	2.6

Source: The Business Standard

Table 4. Newly Procured Spectrum

Operators	Newly Procured Spectrum (Out of 220 MHz, 190 MHz was sold on March 31, 2022)	
GP	60	From 2.36 GHz Band
Robi	60	
Banglalink	40	From 2.6 GHz Band
Teletalk	30	

Source: The Business Standard

2.4.2 Infrastructure Providers

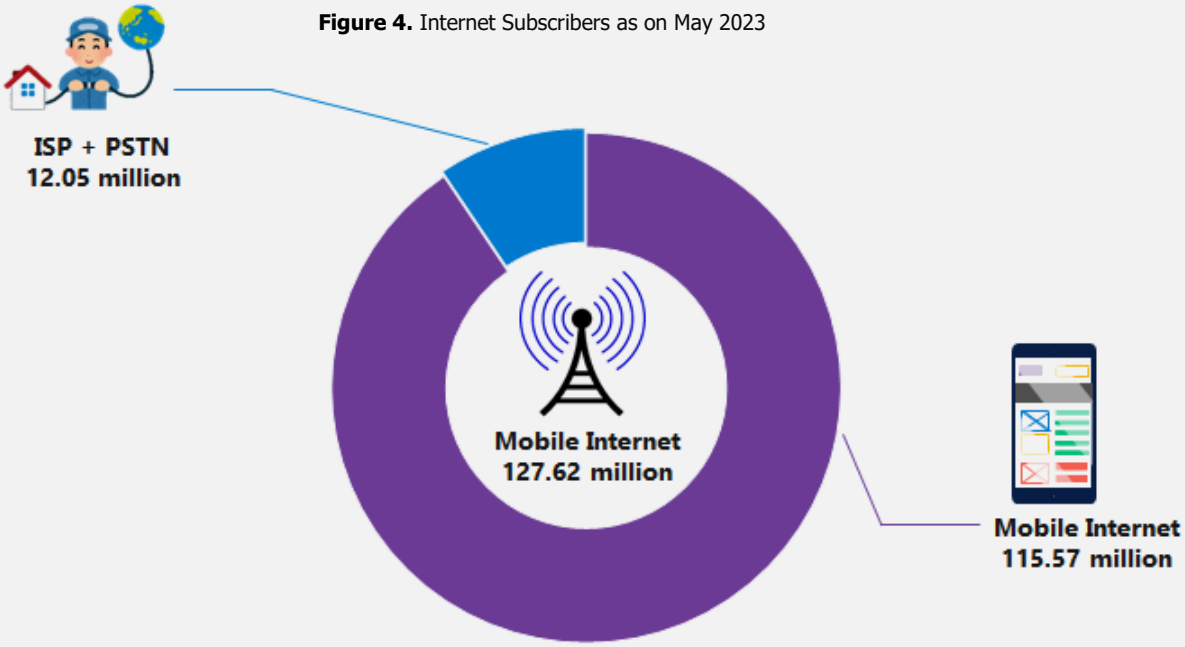
Some companies specialize in providing telecommunication infrastructure such as towers, fiber optic cables, and related infrastructure to support the operations of telecom service providers. Apart from the Mobile Network Operator, the Tower Sharing Operator includes edotco Bangladesh Co. Ltd, Summit Communications Limited, Kirtonkhola Tower Bangladesh Limited, Frontier Towers Bangladesh Ltd, and the state-owned operator, BTCL, which has the Tower Sharing Permit.

2.4.3 Fixed-line and Internet Services

The fixed-line operator in Bangladesh is Bangladesh Telecommunications Company Limited (BTCL), a state-owned operator which provides landline telephone services, broadband internet services, and other related services. Other than fixed-line operators, there are other internet service providers. To manage the interconnection between a country's domestic internet infrastructure and the global internet, the license for International Internet Gateway (IIG) is provided by the BTRC. Bangladesh Submarine Cable Company Limited (BSCCL) is responsible to manage and operate IIG for providing international connectivity for ISPs in the country (Annual Report 2021-2022). High-capacity IIG allows businesses, organizations, and individuals in Bangladesh to engage in various online activities, access global information, and participate in the global digital economy.

The total number of internet subscribers reached **127.62** million at the end of **May 2023**. The breakdown of internet subscribers is given below:

Figure 4. Internet Subscribers as on May 2023



Source: Association of Mobile Telecom Operators of Bangladesh

2.4.3.1 Mobile Internet

According to Speedtest Intelligence, among top mobile operators in Bangladesh in the first quarter of 2023, Banglalink delivered the fastest median download speed at 21.94 Mbps (Speedtest Intelligence, 2023).

Table 5. Download Speed Mbps

Provider	Median Download Speed Mbps
Banglalink	21.94
Grameenphone	17.60
Robi	13.20
Teletalk	5.38

Source: Speedchecker Ltd.

2.4.3.2 Public Switched Telephone Network (PSTN)

The usage of public switched telephone networks (PSTN) has witnessed a significant decline, with the number of users falling below half a million. This decline can be attributed to the increased mobile phone penetration, which became popular among the population. In contrast, landline operators have struggled to expand network coverage, leading to a decreased reliance on traditional landline telephony. Bangladesh Telecommunications Company Limited (BTCL), the state-owned telephone company, has been the sole operator of PSTN for over five years. As of January 2023, Bangladesh Telecommunications Company Limited (BTCL) had 466,000 telephone customers, most of whom utilized the PSTN service. This figure indicates a decrease from the previous year when the customer base stood at 480,000 (Hasan, 2023).

2.4.3.3 Internet Service Providers (ISP)

Several internet service providers (ISPs) in Bangladesh offer broadband services to residential and business customers. Some of the major ISPs include Bangladesh Telecommunications Company Limited (BTCL), Robi Axiata Limited, Banglalink, Grameenphone, and private ISPs like Link3 Technologies, Amber IT Ltd., BDCOM Online Ltd., Access Telecom BD Ltd., ICC Communication Ltd., BRACNet Ltd., Amber IT Ltd., aamra Networks

Ltd., Triangle Services Limited, Dot Internet, Carnival Internet, and MetroNet Bangladesh Ltd (BD, 2022).

2.4.4 Other Telecommunications Service Providers and Transmission Network

In addition to **Mobile Network Operators (MNOs)** and **Internet Service Providers (ISPs)**, there are several other telecommunications service providers in Bangladesh. For instance, **International Gateway Operators (IGWs)** handle international voice calls and data traffic between Bangladesh and other countries. Some prominent IGWs in Bangladesh include Grameenphone, Robi Axiata, and Banglalink. Then there is **Interconnection Exchange (ICX)** operators provide interconnection services between different telecom operators within Bangladesh. They facilitate the exchange of voice, data, and other telecommunication services between operators. Another infrastructure facility that is a medium of exchange for internet traffic locally within Bangladesh between ISPs and other network operators includes **National Internet Exchange (NIX)**. It helps to improve internet connectivity and reduce international bandwidth costs.

Apart from the Bangladesh Submarine Cable Company Ltd, the government has chosen three private companies to grant them licenses for establishing, maintaining, and operating submarine cables. This decision comes in response to the increasing demand for bandwidth due to a significant rise in data consumption. The initial investment of the three firms in total stood at BDT 2,000 crore (Hasan, 2022). The four companies with Submarine Cable Licenses include:

- ⇒ Summit Communications
- ⇒ Cdnet Communications
- ⇒ Metacore Subcom Ltd.
- ⇒ Bangladesh Submarine Cable Company Ltd.

3 Regulatory Environment

Bangladesh's telecommunication sector's regulatory framework and policies are primarily governed by the Bangladesh Telecommunication Regulatory Commission (BTRC). Some critical aspects of the regulatory framework and policies include (Legislative Information Bangladesh Telecommunication Regulatory Commission):

3.1 Licensing, Spectrum Allocation, and Managing Competition

BTRC oversees the licensing process for telecom operators, ensuring fair competition and compliance with regulations. Spectrum allocation is managed by BTRC, which assigns frequency bands to operators for various services such as voice, data, and other wireless applications. The efficient use of the radio frequency spectrum is ensured through periodic auctions and renewal processes. Spectrum auctions are conducted to assign frequency bands to operators based on demand and the government's strategic goals. BTRC promotes competition in the telecommunication market and prevents monopolistic practices. Measures are taken to ensure a level playing field for all operators and to prevent unfair practices that may hinder competition and consumer choice.

3.2 Quality of Service (QoS) Regulations

BTRC sets QoS standards to ensure telecom operators provide reliable and satisfactory services to consumers. Parameters such as call completion rates, network availability, and data speed are monitored and enforced to maintain acceptable service levels.

3.3 Consumer Protection and Rights

Regulations are in place to safeguard consumer interests and protect their rights in the telecommunication sector. BTRC ensures operators adhere to fair pricing, billing transparency, privacy protection, and addressing consumer complaints.

3.4 Interconnection and Access Regulations

BTRC regulates operators' interconnection to facilitate whole network communication. Access regulations ensure that telecom services are available to all regions, including rural and underserved areas, through fair access agreements and universal service obligations.

3.5 Security and Data Privacy

Policies and regulations are in place to address cyber security concerns, protect personal data, and ensure the privacy of communication. Telecom operators must implement measures to secure their networks and comply with data protection regulations.

4 Technological Landscape

The technological landscape of the telecommunication industry in Bangladesh has witnessed significant developments in infrastructure and network coverage, advancements in telecommunication technologies, and digital transformation initiatives.

4.1 Infrastructure and Network Coverage

The telecommunication infrastructure in Bangladesh has undergone remarkable expansion and improvement. It includes a vast network of mobile towers, fiber-optic cables, and satellite links, enabling connectivity across the country. The government and private telecom operators have invested in expanding network coverage to reach rural and remote areas, aiming to bridge the digital divide and ensure access to telecom services for all citizens.

4.2 Advancements in Telecommunication Technologies

Bangladesh has adopted advanced telecommunication technologies. This includes the deployment of 3G, 4G, and 4.5G (LTE-Advanced) networks, providing high-speed mobile internet access to subscribers with newly procured 5G spectrum; operators have also begun exploring the upcoming technologies, which promises ultra-fast speeds, low latency, and support for emerging applications like Internet of Things (IoT) and augmented reality (AR)/virtual reality (VR).

4.3 Digital Transformation Initiatives

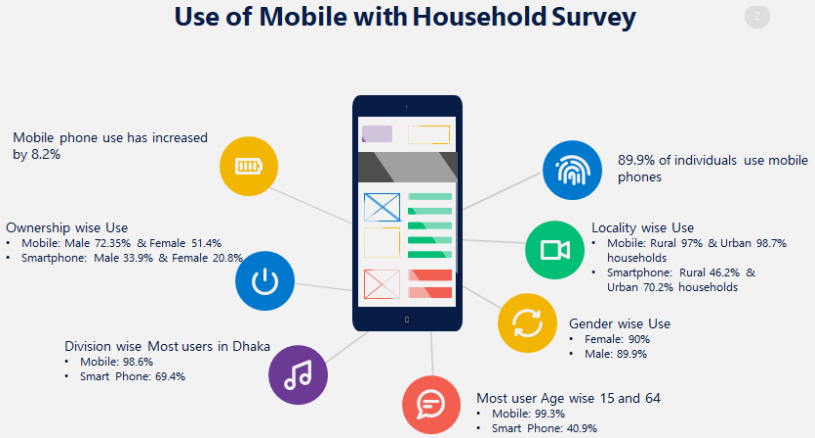
The government of Bangladesh has taken various initiatives to promote digital transformation across sectors. The "Digital Bangladesh" vision aims to leverage ICT to enhance governance, education, healthcare, and other areas of socioeconomic development. The expansion of digital financial services, such as mobile banking and digital payments, has promoted financial inclusion and transformed how people conduct financial transactions. The emergence of e-commerce platforms has facilitated online shopping, enabling businesses to reach a broader customer base and consumers to access a wide range of products and services.

5 Drivers of the Digital Ecosystem in Bangladesh

5.1 Expanding Consumer Market

Young populations of the country are eager to embrace digital services. With the rise of mobile phone use by households, the proportion of digital services and activities has increased in both rural and urban areas, and according to household survey conducted by Bangladesh Bureau of Statistics revealed detailed findings.

Figure 5. Household Survey 2022



5.2 Rising Internet use

The Internet Society has gradually transformed over time, embracing a wide range of Information and Communication Technology (ICT) products and services encompassing hardware and software applications. The number of active internet connections has increased. Every household in an urban and rural location has at least two cellular phones, including features and smartphones. Mobile Internet subscribers stand at 172.62 million at the end of May 2023 (Bangladesh Telecommunication Regulatory Commission).

5.3 A Young Urban Population with an Appetite for Digital Services

In 2022, 39.71% of the population lives in urban areas (Trading Economics, 2022) and about 10% of the total population is in the 15-19 age group, 9% are in 20-24 group and 8.71% in 25-29 group (Rahman, 2022). Around 99.3% of households who are under 15 and 64 years of age use mobile phones.

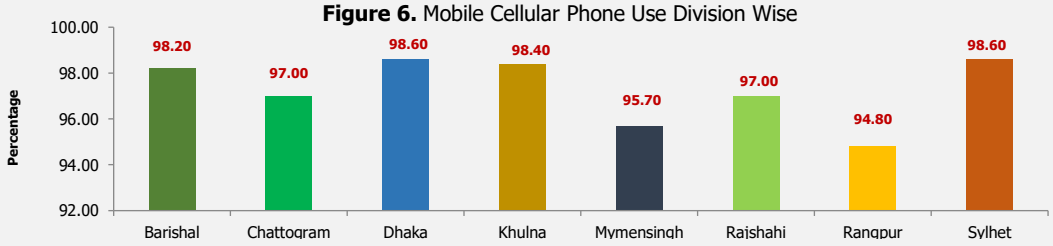
5.4 Positive government action

- National ICT Policy 2009.
- Digital Bangladesh Strategy 2021.
- National Digital Consumer Policy.

5.5 Division-wise Phone and Telecom Network Use

mobile phone use in different districts increased. The mobile used division-wise is shown in the following chart.

Figure 6. Mobile Cellular Phone Use Division Wise



Source: Survey on ICT Use and Access by Individuals and Households 2022

6 Conclusion

In conclusion, the telecommunications industry in Bangladesh has experienced significant growth and transformation over the years. Mobile technologies and services have played a crucial role in driving the industry's development, with widespread adoption of mobile phones and increasing connectivity. The sector's contribution to the economy extends beyond direct revenue generation, impacting various sectors and contributing to Bangladesh's GDP.

The industry has witnessed advancements in infrastructure, network coverage, and telecommunication technologies, including deploying 3G, 4G, and 5G networks. The government has taken initiatives to promote digital transformation and expand digital services, such as digital financial services and e-commerce platforms. However, the industry also faces challenges of infrastructure development, internet penetration, spectrum management, competition, and regulatory complexities. Addressing these challenges will be crucial for sustaining the industry's growth and leveraging its potential as a critical enabler for Bangladesh's socioeconomic development. With the ongoing advancements and efforts, the telecommunications industry in Bangladesh is poised to continue playing a pivotal role in shaping the country's digital future.

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About ECRL

Emerging Credit Rating Limited (hereinafter referred to as ECRL) began its journey in the year 2009 with the motive to deliver credible superior & quality credit rating opinion in various industry segments around Bangladesh. ECRL obtained credit rating license from Bangladesh Securities and Exchange Commission (BSEC) in June 2010 as per Credit Rating Companies Rules 1996 and also received Bangladesh Bank Recognition as an External Credit Assessment Institutions (ECAI) in October 2010 to do the rating of Banks, Financial Institutions and their borrowers and also from Insurance Development & Regulatory Authority (IDRA) in 2015 to do the rating of Insurance Companies & affiliated with Malaysian Rating Corporation Berhard.

Emerging Credit Rating Limited's team is oriented towards the continuous improvement of processes, striving for an important role in the leadership of the business world. Every individual in ECRL is committed to providing topmost ingenious Credit Rating Services and Comprehensive Research Services in Bangladesh. ECRL's rating services and solutions reflect independence, professional, transparency and impartial opinions, which assist businesses in enhancing the quality of their decisions and helping issuers access a broader investor base and even smaller known companies approach the money and capital markets. The Credit Rating process is an informed, well-researched and intended opinion of rating agencies on the creditworthiness of issuers or issues in terms of their/ its ability and willingness of discharging its financial obligations in a timely manner. Issuers, lenders, fixed-income investors use these risk assessments for the purpose of lending to or investment in a corporation (such as a financial institution, an insurance company, a non-banking corporation or a corporate entity) as well as evaluating the risk of default of an organization's financial obligations in terms of loan or debt.

Editorial Overview

ECRL Research *provides insights, opinions and analysis on Bangladesh and International Economies. ECRL Research conducts surveys and produces working papers and reports on Bangladesh's different socio economic issues, industries and capital market. It also provides training programs to professionals from financial and economic sectors on a wide array of technical issues.*

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