

Future Impact of 4G on Business in Bangladesh

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ABSTRACT

Technology and Business are going together. Business is changing every moment. Since Communication technology is a dynamic process so it creates the new scope for doing business with first and secure mode. Today Business is mostly involving with modern technology and Communication those come from the continuous development of version of technology. First, affordable, flexible internet can act to grow the Business condition and can provide better customer experience. As 4G (4th Generation) internet provides great speed, flexibility, reliable internet connection with affordable price than 3G internet in Bangladesh so 4G internet has probable impact on the Business growth of Bangladesh. This paper has provided the impact of 4G internet on the Business conditions of Bangladesh and it has shown the factors of 4G like- Flexibility, great speed, affordable price, reliable internet connection, less time consuming, faster web site contents and faster browse those are directly related to grow the business of Bangladesh. As the 4G internet is started very recently in Bangladesh so it would play a vital role for Business owners and end users where the Business owner will get faster internet and website contents those will help for Business communication mix and result will ultimately go to Business growth. Some countries of the world are applying 5G technology for their business growth but in case of Bangladesh 4G would be essential tempo for business people to change business and to emerge new market with new demand.

Keywords: 4G, Business growth, Greater speed, Flexibility, New market, New demand.

INTRODUCTION

Bangladesh Telecommunication Regulatory Commission (BTRC) has awarded 4G licences to Banglalink, Grameenphone, Robi and Teletalk taking Bangladesh into the fourth generation data service era on February 19, 2018. Bangladesh is starting to get the advantages by using the 4G services although the 3G services are available in Bangladesh. According to the report of BTRC, the monthly average usage of data by a mobile internet user was below 100Mb when 3G services were launched more than four years ago and now it is around 700Mb. Today people are running to the 4G enable smartphone in Bangladesh although 10 percent of the users had 4G-enabled handsets at present and Bangladesh government is working to resolve the problem. Mobile telecommunications operator in Bangladesh are providing promise to their customers to provide speeds at 7 megabits per second (Mbps) as fast as the average of home broadband connection. Customers of 4G technology users are getting more advantages like- watching video in high definition, video calling, live online gaming and frustrating experience over mobile connections. The objective of using 4G is to offer seamless

multimedia services to users accessing an IP-based infrastructure through heterogeneous access technologies. IP is assumed to act as sticky for providing global connectivity and mobility among networks. This permits the network to increase automatically self-balance capacity and network utilization dynamically. How these features of 4G technology can impact positively on the Business of Bangladesh is the main objective of this study.

Objective of the Study

- To know the 4G related factors those have impact on Business of Bangladesh.
- To explore the future impact of 4G on the business of Bangladesh.
- To provide a 4G related Business Model.
- To make some recommendation to best fit of present business to get full utilities of 4G technology.

LITERATURE REVIEW

Using of Internet is increasing day by day in the modern era in the world. Most of the product and services sectors are involving with internet based activities. E-transaction, E- services and

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E-Commerce are involving nearly anything in the real world mostly in Government Organization, Banking services industries, Real Estate, Process Mortgages, Buying stocks, Ordering products, Healthcare, Private Organizations, Telecommunication Sector, Electronics Industry, Educational Institutions and so on. Usages of Internet are the mandatory part of E-transaction, E- services and E-Commerce where the telecom industry are playing vital role to provide the internet services. In Bangladesh 5G mobile technology has been started narrowly although 4G is in the growth stage not in the maturity stage. India's government neighboring country of Bangladesh has invested over \$32bn into 4G and getting behind telecoms infrastructure upgrades and has invested over \$32bn into 4G. In Bangladesh business customers and general customers are already anticipating the advantages of 4G. According to the survey of EE-commissioned 94% of IT decision-makers in the UK believe that 4G will be 'an important business tool', 84% of them are 'excited by the prospect of introducing 4G' and over 60% of them are hope

to extend 4G 'within six months of its launch.' Bank of America Merrill Lynch is expecting there will be 5 million Indians on 4G this year, reaching 180 million by 2018 but In Bangladesh according to BTRC Only 26 lakh mobile phone users have embraced 4G technology. It's anticipated that there will not be a big cost difference between 3G and 4G, and that many users will bypass 3G altogether, going from 2G to 4G (translatemedia.com). According to the Global Digital Report nearly half of Bangladesh's population (49% Bangladeshis use internet) currently uses internet. The total number of Internet Subscribers was 80.483 million at the end of December 2017 and has reached 90.501 Million at the end of August 2018. On the other hand the total number of Mobile Phone subscription was 145.114 million at the end of December 2017 and has reached 154.179 Million at the end of August 2018 in Bangladesh (BTRC). Today Users of Bangladesh are now consuming more data as they are dependent on internet for their daily life. Now in Bangladesh the current Internet speed is 2.1 Mbps in boundary area level.

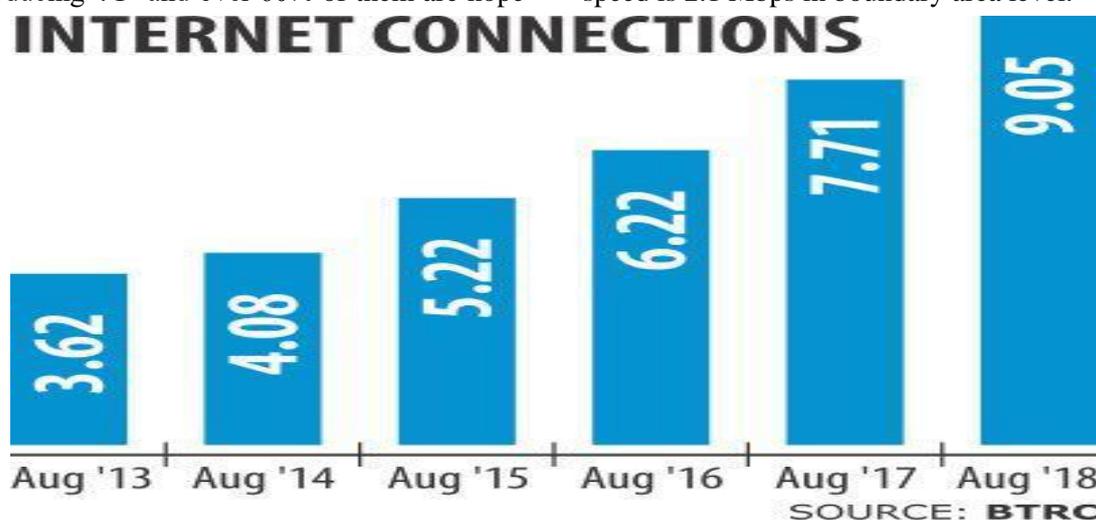


Fig 1.1 Internet connections (www.btrc.gov.bd)

Current Situation of 4G and Its Impact

Bangladesh performs close to the regional averages across metrics of mobile market development, despite having lower income than neighboring countries. Notably, Bangladesh is

above the regional average in subscriber penetration, while only slightly below in mobile internet and in the proportions of 3G and 4G connections.

| Country | Unique Subscriber penetration | Mobile internet penetration | Proportion of 3G Connections | Proportion of 4G Connections |
|---------------|-------------------------------|-----------------------------|------------------------------|------------------------------|
| Bangladesh | 53% | 33% | 20% | 0% |
| India | 48% | 35% | 18% | 1.7% |
| Southern Asia | 50% | 34% | 21% | 1.9% |
| World | 65% | 48% | 32% | 23% |

In 2015, mobile technologies and services generated 6.2% of GDP in Bangladesh, a

contribution that amounted to around \$13 billion1 of economic value. This includes the

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direct impact of the mobile ecosystem as well as the indirect impact and the increase in productivity brought about using mobile technologies. According to the data of BTRC, in August 2018 the number of active internet connections in Bangladesh hit 9.05 crore and 57.33 lakh with fixed broadband internet users, 8.47 crore are connected with mobile internet and the rest use WiMAX of them. Top mobile phone operators are expanded network robustly for bringing more customers under the 4G service quickly.

4G

4G stands for 4th generation of mobile phone technology that is update form of the existing 3G and 2G mobile technology. 4G technology offers more features and benefits than what 3G currently offers. 4G technology provides much

faster speed of internet than 3G. Actually 4G wireless network is end-to-end Internet Protocol connection which is considered as pure data connection wireless network. 4G the successor of the 3G is the fourth generation of mobile phone communications standards. 4G provides ultra-broadband internet access & high data transfer rates for mobile devices. 4G networks suitable for use in USB wireless modems for laptops for its high data transfer rates. The data transfer speed of 4G is 100Mbps, 150Mbps and 300Mbps where the future speed will be up to 1000Mbps. 4G mobile networks offer amazing speed, Flexible Bandwidth Usage, & Better spectral efficiency and they took the mobile market by storm. The following table (Fig: 1.2) shows the characteristics of generation of mobile phone technology-

| Technology | 1G | 2G | 2.5G | 3G | 4G |
|----------------|-------------------------------------|--------------------|----------------------------------|---------------------------------|--------------------------------|
| Year | 1970 | 1980 | 1985 | 1990 | 2000 |
| Standards | AMPS, NMT, Hicap, CDPD, TACS, ETACS | GSM, i-DEN, D-AMPS | EDGE, GPRS | CDMA 2000, WCDMA | Single Standard LTE-Advanced |
| Data Bandwidth | 1.9 kbps | 14.4 kbps | 384 kbps | 2 Mbps | 200 Mbps |
| Core Network | PSTN | PSTN | PSTN packet network | Packet network | INTERNET |
| Multiplexing | FDMA | CDMA TDMA | TDMA CDMA | CDMA | OFDMA |
| Service | Analog Voice | Digital Voice | Packetized Data, Higher Capacity | Higher Capacity, Broadband Data | Broadband Data With High Speed |

Source: (Agarwal, A, 2014)

Fig: 1.2 Series & features of generation of mobile phone technology.

METHODOLOGY

Exploratory research design has been used for leading the research project. The objectives of the project is to know and explore the 4G related factors those have future impact on Business of Bangladesh. Secondary data and experts discussion have been used to discover the various factors of 4G technology that have impact on Business. In addition this study reviewed most of the international and national research work related to impact of 4G technology specially on Business.

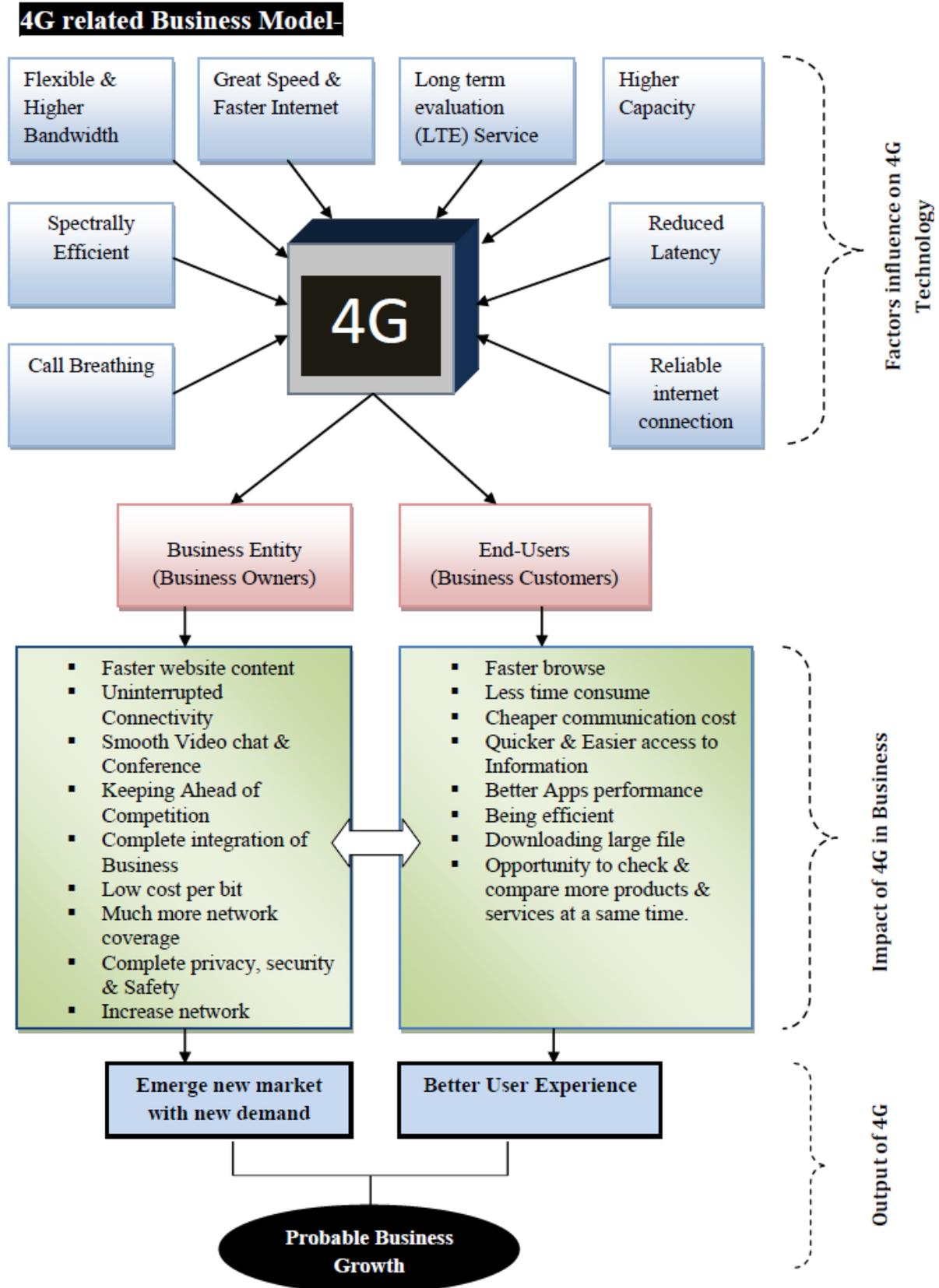
FEATURE OF 4G TECHNOLOGY

Support for interactive multimedia, voice, streaming video, Internet, and other broadband services

- IP based mobile system.

- High capacity, high speed and low cost per bit.
- Global access, service portability and scalable mobile services.
- Variety of Quality of Service driven services & Seamless switching.
- Better scheduling and call admission control techniques.
- Ad hoc and multi hop networks.
- Better spectral efficiency.
- Seamless network of multiple protocols and air interfaces (since 4G will be all). An infrastructure to handle pre-existing 3G systems along with other wireless technologies.

CONCEPTUAL FRAMEWORK



IMPACT OF 4G ON BUSINESS IN BANGLADESH

In 2015, mobile technologies and services generated 6.2% of GDP in Bangladesh, a

contribution that amounted to around \$13 billion of economic value. This includes the direct impact of the mobile ecosystem as well as the indirect impact and the increase in productivity

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brought about using mobile technologies (GSMA, 2017). 4G mobile internet will be able to surf 10x faster than 3G mobile internet on 4G enabled mobile. E-Business fully depends on the internet so it is not possible to imagine the E-business model without the internet. People of Bangladesh who are using 4G technology are getting more opportunity to e-Shopping. In Bangladesh E-business industry got an extra wing with the blessings of 3G mobile internet in the last couple of years. Now in Bangladesh more than 70 thousands online shoppers optimize their sites for mobile devices. Dhaka the capital city of Bangladesh with more than 1.5 crore people with huge traffic in the roads and shopping malls, people start responding to

online shopping enormously. E-business industry in Bangladesh more than 70% of the shopping is done from the smartphone or similar devices and has become more than 1000 crores turnover yearly. With reference to the experts, this industry will get bigger hit on launching the 5G mobile internet in Bangladesh. "4G internet is need of time for Bangladeshi e-Business industry. Graphics-rich content and videos are still not suitable for the 3G internet that we have right now. Secondly, if 4G comes in urban areas than the price of 3G will become totally affordable to everyone- especially the people living in remote and rural areas. So, a big change will happen overnight which will definitely help E-business industry as well".

| 3G users | Service | 4G users |
|---|-----------------------------|--|
| Average download speed of 3.75 mbps | Internet speed | 4G users will get 6 to 10 mbps depending on the quality of the handset. By comparison, the average speed in India is 7 mbps. |
| Takes nearly 20 minutes to download 1GB file | Download | To take 5-6 minutes to download a file of similar size |
| Buffering sometimes required | Video | Video will run smoothly |
| Operators' network is not of a similar quality across the country | Network | 4G will improve the quality of the network |
| 3G uses spectrum bands under 2100 | Spectrum | Operators can use any band of spectrum to provide 4G services |
| Currently call drop rate is high | Call drop | Call drop rates will be almost zero |
| Operators did not have any scope for tech neutrality | Technological neutrality | Operators can design the network as they wish using the 4G spectrum |
| Due to groups of users shifting to 4G, 3G users will get better internet speed, especially in remote areas | Overall service improvement | Not all the internet users will start 4G using on the same day, so the speed will benefit from a low user count |
| 3G is making the usage of many services such as online ticket purchasing, utility bill payment, and sharing rides easier. | New services | Many new services for consumers, especially in the banking and business sectors will be available for 4G users. |

Fig: 1.3 Differences & usages between 3G & 4G mobile phone technology.

In Bangladesh, currently, a huge number of smartphones like iPhone, Samsung, HTC, Huawei, Micromax, Oppo, Xiaomi and more are 4G LTE enabled smartphones. As of February 2018, there are 7.75 crore active mobile internet connections in Bangladesh while 3.23 percent of them are now using 4G on their phones (BTRC).

That means the users are currently using the 4G technology and also they are ready to welcome 5G internet. From the following screenshot from an E-business site it will be clear that more than 80% of the users are using coming for high-end Android devices.

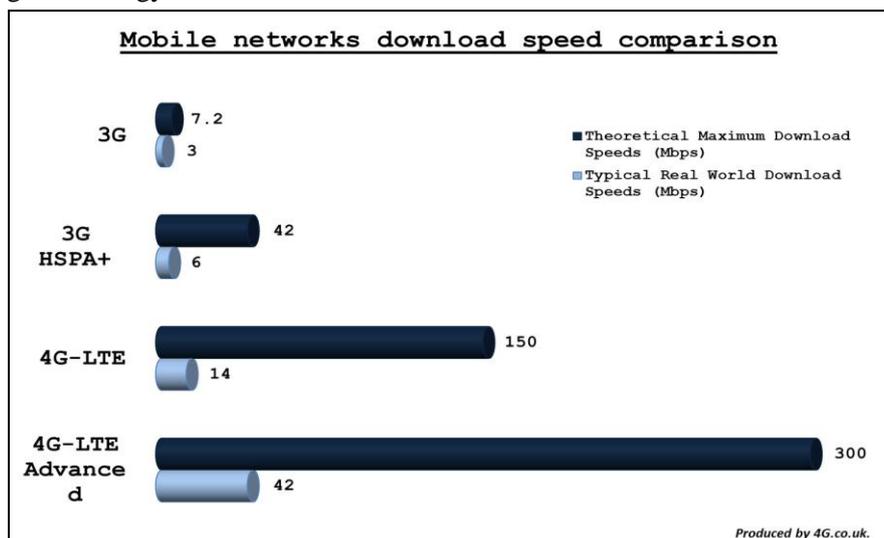
| Operating System | Sessions | % Sessions |
|------------------|----------|------------|
| 1. Android | 607,611 | 83.81% |
| 2. iOS | 60,712 | 8.37% |
| 3. (not set) | 36,509 | 5.04% |
| 4. Windows Phone | 13,187 | 1.82% |
| 5. Windows | 2,545 | 0.35% |
| 6. Samsung | 1,325 | 0.18% |
| 7. Nokia | 1,245 | 0.17% |
| 8. BlackBerry | 792 | 0.11% |
| 9. SymbianOS | 465 | 0.06% |
| 10. Linux | 436 | 0.06% |

Fig 1.4 Operating systems used in smartphone.

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When people will have a smartphone with 4G internet- you will be able to browse any E-Business site faster. That means you will be able to check and compare more products at the same time you are doing now. 4G internet will be 10x faster. E-Business fully depends on the internet, not only for the business owners but also need for the end users. Neighbor country of Bangladesh India is a high impact on 4G internet on E-Business. Users are getting a better experience. They are able to surf different E-Business sites more swiftly. They can compare and choose the right product more conveniently. In Bangladesh, users are ready, operators are almost ready- just we are waiting for the sunlight. Most of the internet users in Bangladesh are young although only 10 percent handsets in Bangladesh are 4G-enabled and they are more curious to know about new technology and products. Online Shopping will be the next destination. Faster internet means, a faster site that means better user experience. E-Business industry is going to more diversified besides Facebook, news and press media and other social media. The E-Business market will be at least 4x bigger than current days by taking the benefits of 4g technology as faster 4G mobile

internet will definitely boost the E-Business market and will generate more thoughts of online shopping. Positive economic outlook, increasing investment in 4G network by telecom operators, prospect of 5G and LTE era enabling faster internet and proliferation of low-cost smartphones indicate a much bigger “online” population by 2021 than the 90% population coverage govt. is projecting currently (data.gov.bd). New businesses have arrived in the growth position with the development of the interne because of our homes, workplaces, factories, educational institutions, and transports would be swarmed with internet-based sensors which would bring forth a truly connected society. 4G will change the way we communicate, live, work, play, or connect to each other. The report said, between 2017 and 2023 connected IoT devices are expected to increase at a rate of 19%, driven by new use cases and affordability. Bangladesh may have come a long way with its digital vision and everybody will be connected but the introduction of 4G would take the country further. In terms of its economy, it (4G) is likely to take a leap towards becoming a middle-income nation.



(Source: 4G.co.uk)

Fig 1.5 Mobile networks download speed comparison.

Standard 4G is around five to seven times faster than 3G which offering theoretical speeds of up to 150Mbps that equates to maximum potential speeds of around 80Mbps in the real world. 4G or long-term evolution (LTE) services is a data connection technology faster than the existing 3G services. Dynamic network capacity and coverage of 4G leads to accommodate the changing consumers’ patterns of buying the product and services.

How 4G LTE Can Help Business

The present business benefits/use cases using 4G LTE are:

- Fast time to setup: It is possible to set up wireless connectivity for Point-of-Sale (POS) machines, connectivity to central office inventory, telephony etc through LTE based connectivity which can be provided within

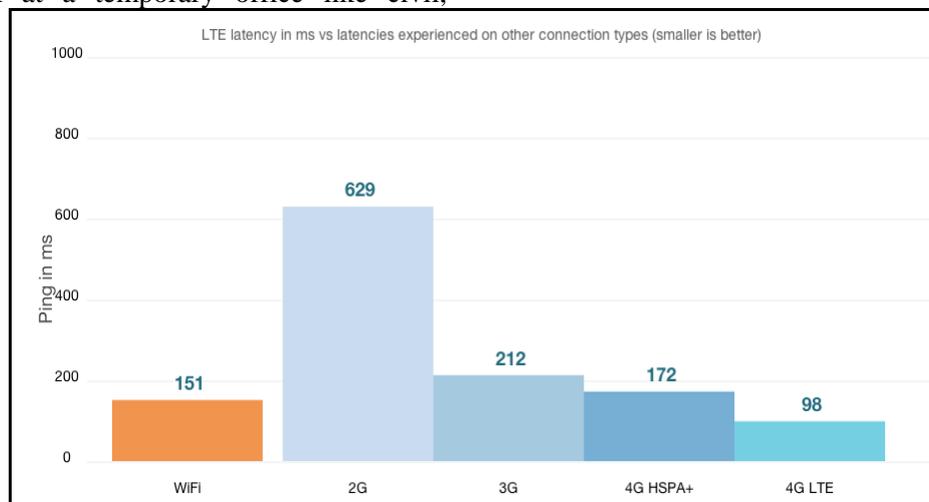
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few hours without hassles of wiring, installation.

- **Healthcare:** Mobile connectivity has already proved to be a major beneficiary for health care business. Patients can consult with doctor via video conferencing, remotely send the reports to doctor, ambulances are also now connected to hospitals while en-route and provide necessary treatment to patients.
- **Connected automobiles:** Since then many automobile companies had introduced hotspots in cars (using LTE) for infotainment, Wi-Fi connectivity for passengers, geo navigation etc. automobiles are connected with smartphone through 4G technology. Today transportation systems have been improved in Bangladesh using 4G LTE.
- **Temporary business setup:** Getting a wired network at a temporary office like civil,

mechanical site and construction site would be difficult and hard to maintain. On the other hand, setting up a LTE based network would be easy to setup and maintain that facilitate fast network connectivity with low failure rate saves a lot of money for such businesses.

- **Time to repair:** Network connectivity based on LTE will be available within few hours even if it fails. 4G Mobile networks have a good reputation for running for years without facing an outage.
- **Reduced latency:** 4G reduce the latency and improve the speed of data that have positive impact of growing the whole condition of business. Average latency is calculated by milliseconds. The following graph displays the comparative average Mobile network latency-



(Source: cablefree.net)

Fig 1.6 Average Mobile network latency

4G also has a better response time than 3G – due to lower “latency” where download speeds aren't the only thing that has been improved and this means that a device connected to a 4G mobile network will get a quicker response to a request than the same device connected to a 3G mobile network.

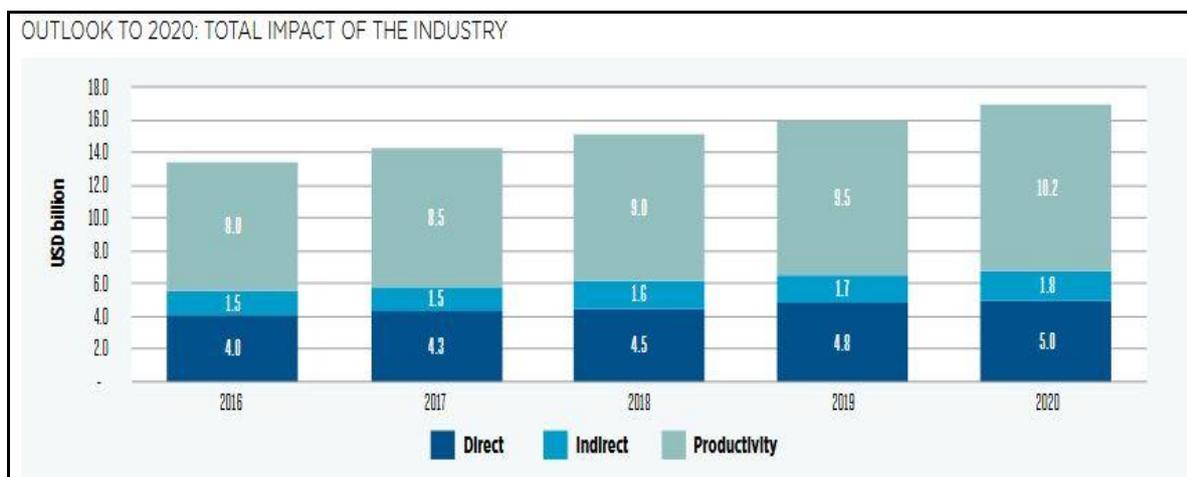
- **Flexible Bandwidth Usage:** Spectrum flexibility is a key feature of 4G technology. The availability of various paired and unpaired frequency bands with the flexible transmission bandwidth provides a high data rate that makes opportunity to the people to minimize cost and time for faster communication through using internet.

- **Cell Breathing:** Actually “Cell shrinkage” happens on 2G or 3G networks when a mobile tower trades coverage of capacity. 4G and 4G plus are higher capacity LTE networks that are designed to carry large amount of data and provides the cell breathing facilities for the smartphone users.

Outputs of 4G in Future Modern Business

The GSMA expects the economic contribution of the mobile industry in Bangladesh will continue to increase with right policies in place. By 2020 the mobile industry is expected to generate \$17 billion of economic value (GSMA, 2017). Probable outcomes of 4G in Business of Bangladesh are following-

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(Source: GSMA, 2017)

Fig 1.7 Average Mobile network latency

Enhanced Mobile Working

4G technology encourages the organizational employees to work remotely where 61% of Irish CEOs are designing a company by this way so that their employees can work remotely. The speed and reliability of 4G makes this possible for an organization.

Enhanced Innovation

4G Technology allows workforce to be more innovative and creative through connecting smartphones and tablets where 80% of CEOs in Ireland fall into line that connected devices with faster connection and download speeds can collaborate among team wherever they are.

Cloud Storage

4G makes it easier to share and edit documents, saving valuable time and lets you save to the cloud.

Quick access to Information

All business transactions through online are conducted promptly because 4G makes it possible to quick access to information.

Time consuming

As 4G is 10 times faster than 3G so it is possible to compare and check more products at a same time than 3G.

Apps work better on 4G

Businessman and customers can get more comfort and easy done of apps. Using with 4G network technology Businessman and customers can edit document or emailing. Business growth going to the apex position because the 4G network technology providing the following benefits in business- Facility to use latest mobile

technology, Changing better customer employees' and customers' expectation, Better user experience, Graphic rich content, Video advertising, Affordable Price of 3G, Faster browsing and so on.

CONCLUDING REMARKS & RECOMMENDATIONS

No business can flourish if its network is slow. The security aspect of this connected economy and lifestyle would also become vital with all the changes. Today Bangladesh is living in the high-speed world as much as it is trying to digitize itself. Though the concept of 4G mobile networks is steadily gaining popularity, connectivity is still limited to certain specified carriers and regions in Bangladesh. If Bangladesh spends a lot of money for fast network connections and Business designs their sites with this in mind yet customers have lower speed connections, this may result in fewer consumers accessing their site so 4G mobile technology works here as the higher speed connectivity in the consumers' smartphone and tab to be connected with high speed business sites and consumers can easily access the business sites with high speed. As Less consumers accessing their site most likely results in lower profits in addition to the extra cost of the faster network connection but on the other hand if the company designed for slower access yet customers have faster access, they could still lose out in profits So both parties need to use the high speed internet services so that Businesses will be more successful. 4G technology can help to add value to the Business and can help to make a quick profit.

A vast use of 4G technology in mostly all sectors of Bangladesh is bringing growth in

whole business and economy of Bangladesh. Although 4G technology making a positive impact on Government Organization, Private Organizations, Educational Institutions, Electronics Industry, Healthcare, Telecommunication Sector, Citizens and Banking services industries in Bangladesh but it has a big deal with the Business of Bangladesh by making a easy and fast platform for business entity and business customers. Technology costs tend to decline over time, a current viable business model should only become more profitable over time. 4G technology a t to provide uniform video, voice, and data services to the mobile host, based entirely on IP.

Private or public organization can improve their performance with the use of 4G technology by reducing their cost of travel, tracking the employees, instant update on all government projects implemented and by utilizing high quality of video conferencing. Education, commerce, governance, health services, transportation, banking, and all sorts of communications in general will undergo a massive change for the use of 4G in Bangladesh. As this growing internet-enabled population is becoming more digitally attuned every day, this means businesses catering to their several needs also require a parallel transformation.

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