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# Service Marketing Mix and Customer based Brand Equity in Mobile Telecom Industry in Bangladesh : A Study on Rajshahi District

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# Service Marketing Mix and Customer-based Brand Equity in Mobile Telecom Industry in Bangladesh: A Study on Rajshahi District

*A dissertation submitted to the Institute of Bangladesh Studies in partial fulfillment of the requirements for the degree of Doctor of Philosophy*


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# Certificate

We have great pleasure to certify that the dissertation entitled **Service Marketing Mix and Customer-based Brand Equity in Mobile Telecom Industry in Bangladesh: A Study on Rajshahi District** submitted by Mr. Md. Zahid Hossain to the Institute of Bangladesh Studies (IBS), University of Rajshahi, Bangladesh for the degree of Doctor of Philosophy in Marketing is an original research work done under our supervision and guidance respectively. To the best of our knowledge, this dissertation was not previously submitted for any diploma/degree/fellowship to any other University/Institute. Study related materials/ data collected from different sources have been duly acknowledged in this dissertation.

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# Declaration

I do hereby declare that the dissertation entitled **Service Marketing Mix and Customer-based Brand Equity in Mobile Telecom Industry in Bangladesh: A Study on Rajshahi District** submitted to the Institute of Bangladesh Studies (IBS), University of Rajshahi, as a part of the requirements for the degree of Doctor of Philosophy is my original work. Neither the whole nor any part of it was submitted to any other university or institute for any other degree or diploma. My indebtedness to other works has duly been acknowledged at the relevant places.

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**MD. Zahid Hossain**

# Abstract

Mobile telecom industry in Bangladesh becomes vibrant with a strong base of subscribers in recent years. But, average revenue per user (ARPU) being very poor with the lowest in the Asia Pacific region, unbending competition, high spectrum price being one of the highest in the world, high price of android mobile hand-set, price of non-voice services beyond affordability for a major portion of service recipients becomes challenging factors in terms of sustainability for the mobile operators and road to digital Bangladesh in connecting the globalized world. This condition led the researcher to work with the field; specifically aimed at investigating the relationship between Service Marketing Mix (SMM) and Customer-based Brand Equity (CBBE) followed by the influence of sources in measuring CBBE or customer mindset. The research tried to identify the key factors or elements of SMM with the degree to what extent they influence the dimensions of CBBE to increase brand equity for the mobile operators. The study also investigated to identify the significant factors of each source of CBBE with the degree to what extent they influence overall CBBE that set the platform to increase brand equity (financial brand value) for the operators in mobile telecom industry in Bangladesh with reference to Rajshahi district.

The research is descriptive in nature and used mixed (quantitative and qualitative) approach to draw meaningful results of the study objectives. The study conducted at Rajshahi district in Bangladesh. This sampling area is selected purposively for the convenience of collecting data which is treated as very significant for the quality outcome of a study. Again, consumer behavior in using mobile telecom services and the marketing practices of mobile operators at Rajshahi district comparing to other districts (urban to urban, semi-urban to semi-urban, and rural to rural) in Bangladesh are homogeneous in nature with very little exception. So, there would be no problem in generalizing and replicating the study in other districts of Bangladesh. For the study, three (3) areas namely Rajshahi sadar upazila, Godagari upazila, and Mohanpur upazila under Rajshahi district has been drawn randomly using lottery method out of nine (9) upazilas and again, two wards from the three (3)

selected upazila drawn as sampling area in the same manner. Target population for the study is those who are individual recipients and of the mobile telecom services in Bangladesh. Male and female subscribers of all the four (4) mobile telecom service operators in Bangladesh treated as sampling unit. To draw samples for the study, simple random sampling technique under the probability sampling method, is used. For determining the sample size, statistical formula used and therefore, absolute sample size resulted in three hundred and seventy eight (378) in number.

The study is consists of both primary and secondary data. The research work employed a cross-sectional survey design for data collection from the recipients. A structured self-administered questionnaire comprising of close (strongly disagreed…strongly agreed) ended statements, non-comparative itemized (Likert 1 to 5) rating scale of measurement used for the survey. To ensure the accuracy and maximize relevant data collection, both the English and Bangla version questionnaires have been used to conduct survey. After data collection, it is confirmed that the selected samples of recipients use a total of six hundred and seventy two (672) SIMs of different mobile telecom operators. The assimilated data of the study for six hundred and seventy two (672) SIMs have been processed and analyzed using the SPSS version 22 and AMOS 21. Secondary data have been collected through extensive literature review from relevant books, recent MS, M. Phil and PhD dissertation, research papers published in the referred journals and peer reviewed international conference proceedings, survey reports, BTRC reports, annual reports of the mobile telecom operators, web sites, newspapers, etc.

Findings represents according to the objectives aimed at. To achieve objective one, the study found the major drivers after the assessment of the industry eco-system. Researcher identified consumer behavior, competition, regulatory, technology, internet, value added services (VAS), smartphone, digitalization process, and affordability of the recipients for services as the major drivers in mobile telecom industry in Bangladesh. To achieve objective two, the researcher examined customers' usage characteristics, perception on mobile telecom services through seven (7) Ps they consume and attitudes towards the sources of customer-based brand equity.

To achieve objective three and four, the researcher used a survey with questionnaire to identify the services usage characteristics of the individual customers and their behavior towards service marketing mix elements and customer-based brand equity dimensions. The study found consumers to be more interested to use non-voice services though affordability was found to be poor. They showed different degree of perceptions towards SMM elements and CBBE dimensions. Researcher also found no effect of demographics on CBBE and its sources.

To achieve objective five and six, the researcher used Structural Equation Modeling (SEM) method after extraction of the key elements of the constructs using Principle Components Analysis (PCA) under Exploratory Factor Analysis (EFA). Thereafter, SEM method applied using Confirmation Factor Analysis (CFA) to find out whether the parameters produce significant CFA fit indices. The study tested the hypotheses developed from the conceptual model of the study. Finally, a structural model is developed. As the findings of objective five, the study found that service products, price, place, promotion, people, process, and physical evidence of SMM all have a major effect on brand awareness, brand association, perceived brand quality, and brand loyalty dimensions of CBBE. According to the result, price is the most dominating factor influencing brand awareness followed by people, process, service product, place, promotion, and physical evidence; further, price is the most influencing factor for brand association following with people, process, service product, promotion, physical evidence, and place; again, price placed the top in influencing perceived brand quality followed by service product, process, people, place, promotion, and physical evidence; finally, price is the most influencing factor for brand loyalty following with service product, physical evidence, process, people, place, and promotion.

As the findings of objective six, the study found that brand awareness, brand association, perceived brand quality, and brand loyalty as the sources of CBBE have a major effect in measuring overall CBBE. As per the findings, brand loyalty has the most effect in measuring CBBE followed by perceived brand quality, brand association, and brand awareness. Results of the fifth and sixth objectives are consistent with the model of Aaker (1991,1996); Yoo, Donthu and Lee (2000); and many research scholars.

The study also shed light on the inconvenience or problems recipients' faced and the challenges mobile telecom operators encounter in achieving high brand equity in Bangladesh. In this regard, researcher used survey data of consumers and various secondary sources. The topmost inconvenience service recipients' face in using services is the 'poor service quality' in terms of network interruption, poor quality network, below- graded video streaming experience. In addition to this, overfull messages interrupting attention, frequent offers to puzzle the mind, price beyond affordability for non-voice services, a significant number of users not comfortable in use of non-voice services in terms of activation and operating apps, packages, utility services though they like to use those, unable to handle android phone, poor broadband facilities in rural and few sub-urban areas depriving them from the experience of digital facilities, feeling uncomfortable with Id security in using apps among others that interrupt their regular life.Thereafter, the study found major challenges mobile operators encounter namely poor ARPU, high spectrum price, direct and indirect taxes and tariffs, and licensing fee, insufficient mobile tower to support 4G and upcoming 5G technology, dynamic consumer behavior, slow digitalization process and inadequate affordability of individual subscribers.

Finally, the study suggests the mobile operators in Bangladesh for triggering holistic marketing approach to achieve sustainable competitive advantage. The determinants determined as the most significant through this study may be considered as the key inputs for the strategic fit in the design of SMM for higher CBBE or brand value. Furthermore, the operators of the industry and concerned authorities need to collaborate for improving the conditions that can enable an environment necessary to achieve higher brand equity, higher market performance, and finally sustainable competitive advantage. The study can be replicated to other areas, other service sectors or industries in Bangladesh to get desired outcome.

# List of Abbreviations and Acronyms

| | |
|---|---|
| 2G | : 2nd (Second) Generation Network |
| 3G | : 3rd (Third) Generation Network |
| 4G | : 4th (Fourth) Generation Network |
| 4Ps | : Product, Price, Place, and Promotion |
| 7Ps | : Product, Price, Place, Promotion, People, Process, and Physical Evidence |
| ARPU | : Average Revenue Per User |
| BMBA | : Bangladesh Mobile Phone Businessmen Association |
| BTCL | : Bangladesh Telecommunications Company Limited |
| BTRC | : Bangladesh Telecommunications Regulatory Commission |
| BTTB | : Bangladesh Telegraph and Telephone Board |
| CRM | : Customer Relationship Management |
| CSR | : Corporate Social Responsibility |
| FDI | : Foreign Direct Investment |
| GDP | : Gross Domestic Product |
| GPRS | : General Packet Radio Services |
| GSM | : Global System for Mobile Communication |
| ICT | : Information and Communication Technology |
| ISO | : International Organization for Standardization |
| ISP | : Internet Service Provider |
| IT | : InformationTechnology |
| ITU | : International Telecommunications Union |
| LAN | : Local Area Network |

| | |
|---|---|
| LTE | : Long Term Evolution |
| MMS | : Multimedia Messaging Service |
| OECD | : Organization of Economic Cooperation and Development |
| PSTN | : Public Switched Telephone Network |
| QoS | : Quality ofService |
| R&D | : Research & Development |
| SIM | : Subscriber IdentificationModule |
| SMS | : Short MessagingService |
| SPSS | : Statistical Package for the Social Sciences |
| T&T | : Telegraph and Telephone |
| VAS | : Value Added Service |
| VOIP | : Voiceover Internet Protocol |
| VPN | : Virtual Private Networks |
| WTO | : World Trade Organization |

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# Chapter One
# Introduction

*This chapter includes a brief discussion on service marketing mix and brand equity with the relation to mobile telecom industry in Bangladesh, further it proceed to problem statement, research questions and objectives, justification of the study and its overall scope. Finally it ends with organization of the dissertation with concluding remarks.*

## 1.1 Prelude

Brand equity is one of the core assets that increase the cash flow of the business. From a behavioral standpoint, it is significant in representing differentiation that lead to competitive advantage basing on non-price competition to all marketers. It is a strategic orientation that creates promise and repeatation of consumption, increases the economic value of shareholders. Concern for the brand and its equity, a marketer makes a position in the minds of the customers.[1]

Effective creation, management, and monitoring of the brand are major challenges for brand management. As the branding strategies are flexible to adapt to the increasing competition in the market and the customer knowledge of the brand, it has become very difficult to effectively create, manage and maintain the brand equity of brands. Brand equity creates the added value or preference a single product creates through its brand name.[2] Keller believes, brand value creates from customer's reaction (customer perspective) and response to firm's marketing strategies when customers' are familiar with multiple brands.[3] Therefore, the brand name increases both the strategic and economic value of the owners.

One of the issues that marketers face is how to invest in marketing to achieve the highest efficiency and increase brand equity. Studies on brand equity and the

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[1] Christopher Lovelock, and Jochen Wirtz, *Service Marketing: People, Technology, Strategy,* 6th ed. (New Jersey: Pearson education limited, 2007): 59-60.

[2] David A. Aaker, *Brand Portfolio Strategy: Creating Relevance, Differentiation, Energy, Leverage, and Clarity,* (Free Press, Glencoe, IL, 2004): 86.

[3] Kevin, Lane Keller, *Strategic Brand Management: Building. Measuring. And Managing Brand Equity*, 2nd ed. (Upper Saddle River: NJ, Prentice-Hall, 2003): 962.

impact of marketing mix on it, are not enough to safeguard the risks of the investment and maintain its effectiveness.[4] The concept of brand equity is a key indicator in determining the health of a brand, and it is an issue that should be constantly reconsidered as an important step in effective brand management.[5] Since brand equity is a multidimensional concept, consisting of brand loyalty, brand awareness, perceived quality, brand associations and other assets owned by the brand, it provides benefits and value to the business.[6]

Since the strategic use of marketing mix is a business mindset in marketing, it is often crucial in determining the product offering or branding strategy that encompasses a company's activities to drive demand for its products.[7] There is no doubt about the changes in the socio-economic environment, and the resulting change in the competitive arena, which requires a marketing mix in a sustainable manner.[8] This mix includes all types of actions a business takes to influence demands. Therefore, the study aims to investigate the relationship between the elements of the service marketing mix and the customer-based sources of brand value measurement in order to obtain a complete customer mindset in the industry of mobile telecommunications in Bangladesh. In this process, the service marketing mix can be used to increase brand equity for mobile telecom service brands from the customer perspective and act as a guide to assess and determine brand value.

## 1.2 Defining the Basic Concepts

This section defines the basic terms pertinent to this study.

### Service

A service is any form of act or performance, that one party; service marketer can provide to another party; consumer, which is basically intangible and does not result in ownership of it; It may or may not be linked to a physical product.[9]

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4 Gondolfo Dominici, "From Marketing Mix to E-Marketing Mix", *International of Business and Management*, 4(9) (2009):17-21.
5 David A. Aaker, (2004): 6.
6 David A. Aaker, *Managing Brand Equity: Capitalizing On The Value Of A Brand Name*. (New York: The Free Press, 1991): 127-128.
7 Aghaei et al., "An examination of the relationship between Services Marketing Mix and Brand Equity Dimensions," *Social and Behavioral Sciences* 109 (2014): 865 – 869.
8 Gondolfo Dominici, (2009): 18-19.
9 Ibid.

**Service marketing mix**

A mixture of elements that can satisfy consumers of services is the service marketing mix. Several studies criticize the traditional concept of the marketing mix (product, price, distribution and promotion) first introduced by Borden in 1948.[10] Booms and Bitner in 1981 introduced additional "3 P's" into the marketing mix of services-people, physical evidence and process to have a comprehensive model.[11]

**Customer**

A person, organization, or any other entity purchase product or service from another person, organization, or any other entity is defined as customer. They are categorally two types: a business or trade customer who purchases for further processing or re-sale and an individual customer who purchases for end-users.[12] This study used individual customers in the process.

**Customer Perception**

Customer perception is used to identify how customers perceive the quality of service they get. On a larger scale, customer perception is the overall image of the business by the customer including corporate image, expectations, external influences, quality of service, etc. The process by which a person selects, arranges, interprets and describes these stimuli and modifies them becomes their own world view. Even though they are both exposed to the same thing in the same environment, no two people experience the same thing. Perception theories try to elucidate consumer behavior through the reasoning of taking decision whether to purchase a certain product or service. Perceptions such as self-perception, benefit-perception, price-perception, perceived customer value or customer belief in a brand etc. determine consumer behavior.[13]

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[10] Robert Kent, "Faith in the Four Ps: An Alternative," *Journal of Marketing Management 2,* no.2 (1986): 145-154.

[11] Bernard H. Booms, and Mary Jo Bitner, "Marketing Strategies and Organisation Structures for Service Firms. In Marketing of Service Special Educators," *American MarketingAssociation* (1981): 46-51.

[12] Philip Kotler, and Kevin Lane Keller, *Marketing Management,* 12th ed. (New Jersey: Pearson Education Inc, 2006): 402.

[13] Leon G. Schiffman, and Leslie Lazar Kanuk, *Consumer Behavior,* 7th ed. (New Jersey: Prentice-Hall, 2000): 113.

## Brand

From the consumers' perspective, a brand is mental associations a customer maintains, which add to the perceived value of a product or service.[14] A brand is used to distinguish a product from that of its competitors.[15] To the customer, a brand helps them answer the difference between competing products or services of the same category.

## Brand Equity

The strength of the brand reflects in the minds of consumers and what they have experienced and learned about the brand over time. Brand equity is brand's added value to a product. It is brand assets and responsibilities linked to a brand; its name and its symbol add or subtract value for a product or service offer to a business firm and/or individual customers of the firm.[16]

## Customer-based Brand Equity

CBBE is "a set of brand characteristics and obligations that are inferred or added to the value that a product or service provides as a name or symbol for a business or its customers."[17] It is created when consumers are likely to pay more for an equivalent level of brand quality for its name and strong affiliation.

## Competitive advantage

Competitive advantage defines as the distinct skills providing relative superiority in skills and resources than other competitors.[18] It confines the additional value created by a company which allow consumers to differentiate a product or service from its substitutes' even alternatives in the target market.[19] Therefore, it provides a win-win result for both the bcustomers and the service marketer.

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[14] Bruce Kapferer, Ritual dynamics and virtual practice: Beyond representation and meaning. *Social Analysis*, 48(2) (2004): 35-54.

[15] Aaker, D.A. (1991): 92.

[16] Kevin Lane Keller, "Conceptualizing, Measuring, and Managing Customer-Based Brand Equity," *Journal of Marketing* 57(1) (1993): 3.

[17] Ibid

[18] George S. Day and Robin Wensley, "Assessing advantage: a framework for diagnosing competitive superiority," *Journal of Marketing*, 1988, 52(2): 1-20.

[19] Nicole P. Hoffman, "An examination of the" sustainable competitive advantage" concept: past, present, and future." *Academy of Marketing Science Review* 4 (2000): 1-16. In J.B. Barney,

## 1.3 Context of the Study

Mobile telephone network is a radio network which is distributed in various geographical areas called as cells. Each cell is consists of least one transmitter and one receiver, recognized as Basic Transceiver Station (BTS).[20] In this network process, each cell uses a different set of frequencies from other neighboring cells so as to avoid interference and provide bandwidth guarantee for each cell.

The mobile telecommunications industry is one of the vibrent service sectors in Bangladesh. Four mobile operators are now operating in Bangladesh, namely Grameenphone Limited, Banglalink, Robi Axiata Limited (merger[21] of Robi and Airtel) and Teletalk Bangladesh Limited. The mobile telecommunications industry in Bangladesh is changing rapidly due to its strong growth and changing customer demand i.e. customers are looking not only for functional benefit, but also for emotional benefit. From the firm perspective, a strong service brand is a combination of the three dimensions i.e. the company's promise about the brand, what others' being said, and how the company deals with the services. To consumers, a strong brand is about its qualifications, and how well customers better understand the invisibles of the services. Both perspectives make the focus more on brand management and its importance.[22]

Based on the simultaneous dynamic business challenges, organizations are facing unbending competition to gain competitive advantage which might be sustainable. So, marketers should try to improve themselves and strengthen their loyalty to customers more in a rapid pace. Building a strong brand is the best resistance to simultaneous changes in the business landscape. It can improve the

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"Gaining and Sustaining Competitive Advantage," 2nd edition Prentice Hall *Upper Saddle River*, 2002, NJ 4 (1): 1-22; Bernadette Whelan, "A Framework for Sustainable, Competitive Advantage for the Irish Pharmaceutical Industry," PhD diss., Waterford Institute of Technology, 2013; and P.K. Kevin, "Sustainable Competitive Advantage, What it is, What It is Not." *Business Horizons*, 1986.

[20] Bangladesh Telecommunication Regulatory Commission, "*Cellular Mobile"*, http://www. btrc. gov.bd/ cellular-mobile.

[21] Bangladesh Telecommunication and Regulatory Commission (BTRC), http://www.btrc.gov. bd/cellular- mobile-August, 2019.

[22] Leonard L. Berry, "Cultivating Service Brand Equity," *Journal of the Academy of Marketing Science* 28, no.1 (2000): 128–29.

competitiveness of the firm to support its increased vigor. It also reduces risks of customers like social and financial risks among others in purchasing in the best convincing way. Moreover, it adds a booster to confidence towards the company and its service. Again, for a strong brand, customers become enthusiastic to pay more for the same level of services of others. As a result, it provides security and growth, competitive differentiation, premium prices, higher sales volume, economies of scale, higher profitability, and higher asset value in a sustainable manner in the competitive landscape. Moreover, it creates a long-term stable demand and higher market share. All of these benefits add to the profitability of the business if the organization can establish a strong brand/higher brand equity; also means, as brand strength being assessed, brand value comes first. Therefore, marketers need to be vigilant about the service marketing mix and its effect on brand equity dimensions, leading to a strong customer mindset.

## 1.4 Statement of the Problem

According to Bangladesh Telecommunications Regulatory Commission (BTRC), Due to privatization and liberalization of policies, mobile sector experienced a explosive growth in terms of subscriber numbers and mobile internet penetration over the past decade in Bangladesh. Still the growth continues to come from urban, semi-urban and rural areas, especially SIM card penetration from rural areas with cheap mobile handset, surfing the internet for using social media while mobile internet, video streaming, utilities, other daily activities, and multiple SIM card penetration from urban and semi-urban areas.[23]

But the cell phone penetration in terms of growth in percentage is decreasing year by year although the rate of unique subscriber is increasing slightly.[24] Therefore, operators must be innovative in revenue streams other than basic voice calls with different dimensions supporting basic human needs in employment, education, health, utility, financial services and other VAS etc. to implement ‘Digital Bangladesh’ in real sense.

[23] http://www.btrc.gov.bd/content/mobile-phone-subscribers-bangladesh-june-2019.
[24] The Daily Star (online report), Mobile subscription slowing down, April, 20, 2019.

Bangladesh adopted cellular technology as the first country in the south-east Asia when Citycell started its commercial operations in 1993 in Bangladesh.[25] Emergence of several mobile service operators in Bangladesh has broadened the markets to include all economic hierarchies in both urban and rural areas. It created a competitive environment and provided subscribers with such environment to choose a mobile operator easily. Moreover, being classified as low-income country, the combination of limited disposable income and more mature use dictates Bangladeshi customers as more perceptive. As a result, the pressure of choosing independent customers has made service brand management important as well. This indicator leads mobile operators to be more attentive in investing on developing effective service marketing mix elements to increase brand equity in a sustainable manner.

The mobile communication service touches the lives of the people of Bangladesh in many aspects of their daily life. Over the past ten years, mobile telecommunications services have changed socio-economic setting of the country and have played a central role in the development of Bangladesh economy. [26] Now people use their devices extensively to surf the internet and other value-added services (VAS). All this added value makes this service sector more vital for people. At present, value added and mobile financial services account for a small part of the revenues for mobile operators. However, it has been observed that, after the first stage of telecommunications growth, non-voice services have become the main engine of growth in this sector. There are countless application services such as games, video streaming, audio streaming, stock quotes, news, cricket updates, chat, etc. are becoming popular now-a-days. Each service differs from content, cost and demand and is offered customized for a different segment of subscribers.[27] With the proliferation of 3G, the scenario becomes changing dramatically as broadband media content services, mobile TV, online games, and utility applications such as e-governance, e-commerce, online education, online health, are stimulating the demand for more application services as well as innovations constantly. The introduction of

[25] www.btrc.gov.bd
[26] Syeda Rownak Afza, "Measurement of Service Quality in Bangladesh Mobile Phone Sector: Issues, Standards and Practices," PhD dissertation, University of Dhaka, 2015, 9-10.
[27] Guidelines for Telecom Value Added Service, 2016, http://ptd.portal.gov.bd.

4G / LTE in February 2018 has taken these non-voice services to the next level and global standard. In such a scenario, the VAS could generate significant revenue streams from economic, social, and environmentally friendly activities in order to achieve sustainable growth for mobile operators.[28] But, the input of VAS accounts for 3-4 percent of revenue generation for the mobile operators in Bangladesh, while it ranges from 17-18 percent in India. In Bangladesh, operators are lag behind most countries in the Asia-Pacific region.[29] Therefore, many opportunities exist to enter into the depth of the market with trendy and innovativeVAS.

Average revenue from both connectivity and subscriber base have declined in percentage over the past few years, while recurring revenue growth has also been declined at a rapid pace.[30] Moreover, ARPU in Bangladesh is the lowest in the Asia-Pacific region with poor amount of $ 2.9 in 2018.[31] This scenario is clearly a big challenge and an opportunity at the same time for the mobile operators in Bangladesh.

As capital expenditures (CAPEX) and operating expenses (OPEX) have increased due to rising spectrum prices which is one of the highest in the world, higher license fees for technologically neutral spectrum and additional industry-specific taxes, mobile operators need to leverage additional cash flow from the market to meet the challenges.[32] Therefore, opportunities are available to achieve a sustainable customer base to ensure sustainable profitability through a strong customer mindset.

With a wake-up call, mobile operators are advancing their technology in a rapid pace. Therefore, they face stiff competition including new sources. This leads them to constantly examine and modernize the service marketing mix tools to maximize their effects on society. Thus, competition and the pursuit of sustainable profit have called for greater customer attention. Brand equity plays a big role in

[28] GSMA country report, 2018, GSMA intelligence, GSM association, www.gsma.com.
[29] GSMA Intelligence, *Country Overview: Bangladesh*, *Value added services key to next phase of mobile growth*, (London: GSMA Intelligence, 2014), https://www. gsmaintelligence.com/ research /?file =140820-bangladesh.pdf&download.
[30] Ibid.
[31] GSMA country report, 2018, GSMA intelligence, GSM Association, www.gsma.com.
[32] Ibid

connecting customers' attention and generates increased cash flow; at the same time, can maintain brand loyalty. More importantly, it matches to the philosophy of mobile telecom operators. So, in the pursuit of service excellence, they should continue to build, and increase brand equity to achieve loyalty, and lasting competitive advantage. It will also impose a paradigm shift in communication through the digital revolution in Bangladesh and achieve Sustainable Development Goals (SDGs) followed by the vision for a middle-income country in 2023.[33]

Over the past decade, the central mobile telecom monopoly has been changed and a comparatively open or competitive market developed. Consequently, both functional and fundamental reforms been done in mobile telecom industry. Therefore, increasing attention should be paid to increase the overall value of customers. With rapidly changing technologies, dynamic customer needs, and growing awareness of customers, it becomes crucial to seek for increasing brand equity to retain existing customer base, attract prospects, and acquire market positioning by effective service program that turns into a unified program that achieve company's marketing goals as well as total value to customers. Therefore, mobile operators who use an integrated or holistic approach in the design, and trigger the components of the service marketing mix accordingly, have the major opportunity to build and/or increase customer-based brand equity for favorable customer mindset, and profitability in a sustainable manner.[34]

## 1.5 Research Questions of the Study

Major research questions are:

1. What drivers play the crucial role in the mobile telecom industry in Bangladesh?
2. What is the level of consumer behavior in respect to usage and services offered by the mobile operators in Bangladesh?
3. What are the relations between service marketing and brand equity and its sources in mobile telecom industry in Bangladesh?

[33] Ibid

[34] Kevin Lane Keller, "Conceptualizing, Measuring, and Managing Customer-Based Brand Equity," *Journal of Marketing* 57, no.1 (1993): 3-4.

## 1.6 Objective of the Study

Principal objective of the study is to measure the effect of service marketing mix on the factors of customer-based brand equity followed by the sources of CBBE towards customer mind-set in mobile telecom service industry in Bangladesh referring to Rajshahi district. To attain the principal objective of the study, researcher would like to go through the following specific objectives based on the research questions:

1. To assess the mobile telecom industry from demand and supply side and identify its major drivers;
2. To study the usage behavior of individual consumers in terms of consuming mobile telecom services;
3. To examine the consumer behaviour towards service marketing mix and brand equity in the context of mobile telecom services;
4. To determine the degree of effect service marketing mix (SMM) elements have on the brand equity sources in the mobile telecom industry in Bangladesh;
5. To examine the degree of effect brand equity sources have on the overall brand equity in the mobile telecom industry in Bangladesh;

## 1.7 Justification of the Study

For mobile operators in Bangladesh, the study could improve their understanding of how customers perceive brands. The results can be facilitated with a better understanding on the influence of the marketing mix element(s) over the customer-based brand equity. Additionally, knowledge of the study can help service providers to set standard for the SMM that could lead to improved performance and efficiency. Also, it can help mobile service providers find out which particular element of SMM needs more attention due to its relative importance. In addition, it can enrich and broaden the knowledge of mobile operators and decision makers on effective tools to consider in the marketing mix of services and develop marketing strategies in increasing CBBE for the mobile operators.The study will also explore knowledge for academic research as well.

## 1.8 Scope of the Study

The study works with elements of the service marketing mix i.e. service product, service price, service place or space, service promotion, service people, service process, physical evidence; and the sources of measuring customer-based brand equity i.e. brand awareness, perceived brand quality, brand image, brand loyalty for individual subscribers in mobile telecom industry in Bangladesh. Researcher also realized logistic support and facilities like library and secondary sources as essential to complete the study.

## 1.9 Organization of the Dissertation

The dissertation follows a process in which each chapter functions as the foundation for next chapter. After introduction and discussion of the subject, literature review, theoretical framework, and research methodology functions as the base in data analysis, and assembling empirical findings. After discussion of the empirical findings, a conclusion has been drawn to achieve the research objective.

**Chapter 1**

**Introduction:** This chapter comprises the introduction of service marketing mix, brand equity, necessity of branding along with some conceptual definitions around those, the context of the study, the problem statement, the research questions and the objectives, the justification of the research and its boundary, therefore, concluding remarks on the study in chapter conclusion.

**Chapter 2**

**Review of Relevant Literature:** This chapter includes various research works of different scholars about service marketing, brand equity, and their relationship in different national, cross-national and other settings as well. The chapter also incorporated relevant studies relating to this research. Finally, research gap is described followed by chapter conclusion.

**Chapter 3**

**Theoretical Underpinning:** The chapter begins with the service industry orientation and its dominance in modern economy. Discussion about different theories and models of service marketing elements, brand equity building and its measurement took place in details. Finally, for the adoption of the elements for service marketing mix, and the dimensions of the brand equity models discussed with proper justification. Thereafter, a conceptual framework is prepared to frame the research work from those theories and models and the chapter ends with a concluding remarks.

**Chapter 4**

**Research Methods and Materials:** This chapter incorporates methods and materials to set a methodological path to achieve the objectives depicted in the conceptual framework. It starts with research philosophy and paradigm, continues with the research approach, the method, and the strategy to confirm the research design. The chapter also includes sampling process, questionnaire construction, data sources and data collection techniques, and finally data analysis tools and techniques with analysis process sequentially, thereafter, completes the chapter with drawing chapter conclusion at last.

**Chapter 5**

**Drivers of Mobile Telecom Industry in Bangladesh:** This chapter assessed the overall industry from both demand and supply side using primary and secondary data to portray a complete perception of both customer and mobile operators and identify the drivers of the industry. The chapter also includes the influences of other stakeholders to make the assessment complete. Finally the chapter discussed the problems of individual subscribers face now and then to consume services and the challenges mobile operators face to serve customers efficiently and gain competitive advantage, therefore, completes the chapter with conclusion.

**Chapter 6**

**Customer Behavior towards Mobile telecom Services in Bangladesh: A Survey Approach:** The chapter assessed the consumer behavior in terms of their usage

pattern and the services provided by mobile operators in Bangladesh. It includes demographic factors, usage characteristics regarding voice calls, costing, quality, VAS, network, technology, and perception towards marketing practices of operators were discussed.

**Chapter 7**

**Service Marketing Mix and Customer-based Brand Equity in Mobile Telecom Industry in Bangladesh:** The chapter examines the perception of the recipients to the degree of influence of marketing mix over customer-based brand equity dimensions, and the degree of effects of the sources of customer-bases brand equity to build overall brand equity analyzed by structural equation model for testing required hypotheses drawn. The chapter furthermore suggests the necessity of a strategic approach to maintain brand equity as a concluding remark and the chapter summarizes with the chapter conclusion.

**Chapter 8**

**Conclusion:** The concluding chapter highlights the key findings with its interpretation and discussion over it. The chapter also keeps an eye on suggestions provided for the mobile operators in Bangladesh. Further, the chapter highlights the contribution of the study, future research opportunities and limitation of study with concluding remarks along with chapter conclusion.

## 1.10 Conclusion

The chapter discussed about the study context, its justification along with its problem statement followed by objectives and chapterization of dissertation, and therefore, the conclusion to set the momentum for the following chapters.

# Chapter Two
# Review of Relevant Literature

*The chapter asks the researcher to work-out the problem of the study with concrete knowledge. It includes various research work undertaken by researchers around the world across nationalities and provide in-depth knowledge for further research. Finally, a research gap was filled to transfer the study.*

## 2.1 Introduction

The chapter details with a review of literature to develop an in-depth understanding about the research study and the research gap. All available relevent books, journals, research articles and essays have been reviewed collected from various sources. Therefore, the chapter reviews the studies related to the service marketing program and brand equity in different dimensions to enrich knowledge of the researcher to move the study further.

## 2.2 Review of Literature and Discussion

Every marketing action has the potential to influence brand equity as it is an accumulation of investments in brand marketing.[1] Packaging, logo, slogan, jingles, corporate image, country-of-origin, and promotional tools affect the brand value.[2] Again, expenses, marketing research costing, brand life-cycle, product portfolio, and brand-naming tactic influences brand equity.[3] So, there is a need to strategically maintain a brand and develop its sources of equity while making the right choice on adjusting the marketing program to strengthen and capitalize on the brand and support it.[4]

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[1] BoongheeYoo, Naveen Donthu, and Sungho Lee, "An examination of selected marketing mix elements and brand equit," *Journal of the Academy of Marketing Science*, 2000, 28 (2): 195-211.

[2] William Boulding, and Amna Kirmani, "A consumer-side experimental examination of signaling theory: do consumers perceive warranties as signals of quality?," *Journal of consumer research*, 1993, 2(1): 111-123.

[3] Carol J. Simon and Mary W. Sullivan, "The measurement and determinants of brand equity: A financial approac," *Marketing Science*, 1993, 12(1): 28-52.

[4] Kevin Lane Keller, and Lehman, D.R, "The brand value chain: Optimizing strategic and financial brand performance," *Marketing Management*, May–June (2003):26-31.

Keller found that marketing activities influence the brand equity, and suggested the use of SMM strategically in businesses to build brand equity or value.[5] Consumers' response to marketing activities may differ from lower level brand awareness to high brand loyalty depending on affective, cognitive, along with behavioral considerations.[6] They examined the effects of marketing activities i.e. pricing, sponsorship, intensity of distribution, and advertising on brand equity and found positive relations.

The study discussed on the influence of various elements of the marketing mix over the brand equity of services. The research included three categories of services namely banks, quick service restaurants and retail outlets of ten brands. Choice of categories of services and their respective brands were influenced by the sample; university students of Zagreb, Croatia. The results drew conclusions about the need for intensive efforts in terms of personnel, the advertising, the pricing level, internal appearance and the operation of the services. The brand image of the service was most strongly influenced by the employees of the service companies, followed by the two factors combined; physical environment and price level. Advertising intensity was found to have the least impact while price deals result in negative impact on the brand image.

In addition, research results showed that advertising intensity influence the brand awareness more strongly than the brand image. Research results clearly indicate a strategic brand management approach reinforcing brand equity rather than simply applying the brand sales in service industries, and deciding on the implementation of the individual marketing mix component. If the brand management only focuses on sales, marketing activities such as price reduction or others can increase sales early on, but actually becomes loser by undermining long-term brand equity. Research results also indicate, in the process of allocating marketing budgets to cover individual elements of the marketing mix, it is essential to consider the potential impact of each component of the marketing mix on building brand equity of the

[5] Kevin Lane Keller, M. G. Parameswaran, and Isaac Jacob. *Strategic brand management: Building, measuring, and managing brand equity* (India: Pearson Education, 2011).

[6] Tumer Ebru Kabadayi, Inci Aygun, and Cigdem Cipli, "The effects of marketing mix strategies on brand equity: mobile phone sector." *Journal of Global Strategic Management,* 2007, 2: 74-81.

brand. The study further indicates the need for careful selection of the elements of a sercice marketing mix to avoid eroding brand equity that exists, and achieve sustainable competitive advantage stems from high brand equity.[7]

Another study aimed at examining impact of selected elements of the service marketing mix and their influence on the customer-based brand equity from the mobile service recipients' perspective. The researcher made survey with questionnaire for a total of 1492 service recipients from Amman, Irbid and Zarqa in Jordan. The study found a significant impact of elements of the service marketing mix on customer-based brand equity. The result further showed, the promotion component has the most influence on brand awareness followed by processes, physical evidence, nature of service and people. Moreover, the result demonstrated that the price and the distribution component have no effect on brand awareness while all SMM components except the people component had a significant positive effect on brand image. The process component was the most influential in brand image followed by price, nature of service, promotion, physical evidence and distribution in order which contrast with previous research findings that people strongly influence brand image. The result shows that other than distribution all SMM elements have a major positive effect on perceived quality where process component was the one that most influenced perceived quality followed by promotion, nature of services, people, price and physical evidence in order. The results show that all SMM elements have a significant positive impact on brand loyalty. The process component was the most influential on brand loyalty followed by price, promotion, nature of services, distribution, people and physical evidence.[8]

Another study intended to study the factors that have a significant impact on the customer experience in mobile services leading to influence brand equity. The study was quantitative in approach.The survey was conducted with 100 samples. The

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[7] Edo Rajh, and Durdane Ozretic Dosen, "The Effects of Marketing Mix Elements on Service Brand Equity," *EconomicResearch* 22, no.4 (2009): 69.

[8] Hani Al-Dmour, Zu'bi M.F. Al-Zu'bi, and Dana Kakeesh, "The Effect of Services Marketing Mix Elements on Customer-Based Brand Equity: An Empirical Study on Mobile Telecom Service Recipients in Jordan," *International Journal of Business and Management* 8, no. 11 (2013): 13.

research found core service, product variety and promotion as the major impact factors on the customer experience.[9]

The study with the purpose of examining the relationship between marketing mix efforts and brand equity was conducted on mobile subscribers in Iran.The study found that more ads can help display the market better to have a greater awareness of the customers about the service product. Of all the mixed efforts, warranty had the largest influence on brand equity, which indicates that consumers care more about support services comparing to other features. The study also found the uniqueness of product as a significant attribute of brand equity.[10]

The study results indicate that product elements, distribution channels and promotional activities have a positive effect on brand loyalty. To achieve the objectives, data was collected through a survey of 384 mobile phone users in Bushire.Study results also revealed that satisfaction and trust acts as mediating variables.[11]

The purpose of the study was to examine the factors, which influences the customer loyalty to BSNL in India. The study found that reliability, relationships, image, value-added service, and the hassle of switching service operators affects the customer loyalty to BSNL. Study recommended that BSNL should look forward to improve quality of the network and customer service according to customer expectations.[12]

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[9] Mohammad Baitul Islam and AfrojaRehan Rima, "Factors Affecting Customer Experience in Telecommunication Services and Its Importance on Brand Equity: A Study On Telecommunication Companies in Bangladesh," *Interdisciplinary Journal of Contemporary Research in Business* 5, no. 8 (2013): 254.

[10] Nase Azad, OzhanKarimi, and Maryam Safaei, "An investigation on marketing mix efforts on brand equity: An empirical investigation in mobile phone industry," *Management Science Letters* 2, no. 4 (2012): 1435-1440.

[11] Adel Pourdehghan, "The impact of marketing mix elements on brand loyalty: A case study of mobile phone industry," *Marketing and Branding Research* 2, no. 1 (2015): 44-63.

[12] G. Palaniappan and A. Sengottaiyan, "Customer Perception towards Mobile Service- a Case Study of Bsnl in Bhavani Town," *International Research Journal of Engineering and Technology* 2, no. 4 (2015): 469.

Rownak Afza's study attempted to provide an empirical investigation into the quality of service issues and practices in the mobile telecommunication sector in Bangladesh. This study also attempted to establish an association between quality of service and perceived value, customer satisfaction and intention for survival. In addition, empirical study was carried out to determine the degree of net promotion score of different mobile phone operators in Bangladesh. The study used a positivist approach for research paradigm, quantitative in approachas to the study, cross-sectional design as a survey method to collect quantitative data. Interview with the key informants and focus group discussions for qualitative data was also been done. A total of 1200 recipients were surveyed in the market areas of six divisions. The results of the study represent that some of the specific quality of service standards used as a benchmark to measure the quality of service. A number of factors have emerged in this service which has a strong correlation with perceived value to customers, satisfaction and intention to continue. More importantly, this study found that even customers who realized that the quality of service is low, still wants to continue with the existing mobile operators due to various transfer barriers. The net promotion score of various mobile operators found to be very low and in some cases negative in score which can have a big impact on the profitability and growth of the mobile operators in Bangladesh.[13]

Muhammad Hussain Ansari, Mahmoud Jaafarbor and Moein Ansari studied the influence of elements of the marketing mix on brand name and logo value in fitness and exercise rooms. A total of 385 gym and aerobics clients were selected by cluster sampling. The hypotheses were tested by regression. The results showed that price, mall image, and sales promotion had a stronger positive relationship with gym branding than other items. The relationship between all elements of the marketing mix and brand value was also calculated.[14] Different dimensions of the image of a gymnasium can play an important role, including the design, physical facilities, behavior and appearance of the coach and staff, the quality of services and

[13] Syeda Rownak Afza. "Measurement of Service Quality in Bangladesh Mobile Phone Sector: Issues, Standards and Practices." PhD dissertation, 2015, University of Dhaka: 2-3.

[14] Mohammad Hossein Ansari, Mahmoud Jafarpour, and Moein Ansari, "The Relationship between Marketing Mix with Brand Equity in Fitness and Aerobic Gyms,"*International Journal of Educational Research and Technology* 5, no. 3 (2014): 36-39.

information provided to clients and speed of service delivery. The effect of sales promotion on gym brand value is less than that of gym image. Of the five elements of the marketing mix studied in the study, price was the only variable that negatively impacted gym brand equity. It should be noted that the key point here is the perceived price and not the actual price. Research has shown that the prices received by customers are at a high level.

Tony Menagan concluded in his concept paper that the focus is on adding brand values as a basis for differentiation at all levels of consumer/business interaction. A consumer brand represents a specific expression of the performance and characteristics of the product and a suggested approach to the symbolic values and meanings inherent in personality. Advertising is the most effective source of brand identity. Its main informational function is largely the performance specifications of the brand. The second function is to fill the brand with values similar to human values rather than machine-oriented and performance-oriented values. It seeks to add symbolic values and thus place the brand in the context of relevant lifestyle.[15]

Haque et al conducted this study to determine what satisfies customers in the telecommunications industry. The researchers limited the study to Khulna, a city in Bangladesh. A structured questionnaire was developed based on previous work and distributed to 300 Grameen Phone, Teletalk and Rabi customers who were carefully selected for the study. Only 288 correctly used concurrent questionnaires were used for the analysis. A customer satisfaction model was developed including variables taken from a comprehensive review of the previous literature. These variables are customer service, personal and business factors, perceived quality, perceived value, technological progress and corporate image.[16] The model was tested using STATA, the statistical package, and found that personal and market factor, perceived quality, perceived value, and corporate image were statistically significant.

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[15] Tony Meenaghan, "The Role of Advertising in Brand Image Development, "*Journal of Product & Brand Management* 4, no.4 (1995): 23-34.

[16] Md. ReazUddin,Md. EnalulHaque and JannatulFerdousBristy "Customer Satisfaction of Telecom Industry in Khulna City,"*Bangladesh European Journal of Business and Management* 6(23) (2014): 87-94.

The paper aimed at measuring the brand equity of Grameenphone Ltd in the context of the customer-based brand equity. The study used Millward Brown's Brand Dynamics Pyramid & Keller's customer-based brand equity (CBBE) model to measure brand equity. a survey of 208 users and non-users of Grameenphone was conducted. When developing the Grameenphone brand hierarchy, the value assigned to each item represents the brand awareness of consumers in respect to the dimensions of brand awareness; recall and recognition.[17]

This study examined the current and projected quality of service for Grameenphone users in Bangladesh. The study reveals a significant gap between the current and expected services in terms of network, customer service, physical facilities, billing, information service, mobile banking and service offerings. The study concluded that customer satisfaction is a dynamic phenomenon and maintaining its level requires a proactive response from companies to reach, build and retain satisfied customers.[18]

The paper aimed to study the potentiality of financial inclusion through mobile banking in Bangladesh. The study used the diffusion theory of innovation and the decomposition theory of planned behavior together to achieve the objectives of the research. Data was analyzed through Structural Equation Modelling (SEM). Results indicate that perceived financial cost, perceived risks, and subjective norms are the most influential factors influencing individuals' behavioral intention to adopt mobile banking services.[19]

The aim of this study is to study the impact of 7P service marketing (service product, price, location, promotion, people, material evidence, process), in obtaining the competitive advantage in five star hotels. The population of this study consists of clients residing in five star hotels (10 hotels with international chains) in

[17] SabihaMatin, "Customer Based Brand Equity Measurement: A Case Study of Grameenphone Ltd," *International Journal of Marketing and Human Resource Management* 7, No. 3 (2016): 27–40.

[18] Azmat Ullah, "Existing and Expected Service Quality of Grameenphone Users in Bangladesh," *The Asian Journal of Technology Management (AJTM)* 8, No. 2 (2015): 151-59.

[19] Md. Nur Alam Siddik, Gang Sun, CUI Yanjuan and Sajal Kabiraj "Financial Inclusion through Mobile Banking: A Case ofBangladesh," *Journal of Applied Finance & Banking* 4, No. 6 (2014): 109-136.

Amman/Hashemite Kingdom of Jordan. Five hundred questionnaires were distributed and (330) were returned. Then the questionnaire was estimated at (66%) of the total number of the sample size. This study used a set of inferential and descriptive statistical methods for data analysis and hypothesis testing. The study came to several conclusions; There is a great concern for the safety and security during the stay of the customers, and the brand of the hotel for the international chains is very important for the customer, where the furniture and the equipment of the room attract the customer more that the green environment, and the hotel guests see the competition that exists in the hospitality industry in Jordan. The researcher concluded the study with several recommendations. Hotel management should pay more attention to service providers, training and development, pay more attention to customer safety, and develop good loyalty programs that serve customers, pay more attention to customer safety, Pay attention to the term green and use the best technologies available for social media such as Facebook and Twitter as marketing techniques.[20]

This research study was analyzed in detail by a questionnaire survey involving all kinds of people, especially young people. 171 responses were collected at random to find out the change intentions of different mobile phone users using four predictors, namely quality of outcome, perceived engagement, price, and anger event. The results of the study showed that with all the other factors influencing customer change intentions, the key factor remained profitability.[21]

The study reveals, in order to be competitive, the most effective approach for companies is to use the full potential of their human resources in the context of developing the knowledge and skills to advance their performance towards the purpose of the organization. It is also seen that senior managers are more and more aware than ever in the implementation of a performance management system where the success of the system is highly dependent on employee participation in the formulation and implementation of the process. The study added that all mobile operators in Bangladesh

[20] Hameed Abdulnabi Al-Debi and Ashraf Mustafa, "The Impact of Services Marketing Mix 7P's in Competitive Advantage to Five Stars Hotel - Case Study Amman, Jordan," *The Clute Institute International Academic Conference Orlando, Florida, USA* (2014): 39-48.

[21] Ayesha Saeed, NaziaHussain, and Adnan Riaz, "Factors Affecting Consumers' Switching Intentions,"*European Journal of Social Sciences* 19, No. 1 (2011): 54-61.

have introduced this system, but the perception of employees is still unclear in some cases. Lack of communication and reluctance of managers to implement the work of the system becomes an obstacle in practical, and employees develop a false (illusive) impression of the system. The study concluded, if organizations want to benefit from the system, managers must make sure that all employees know its parameters and commit to the performance management system.[22]

The objective of this study is to determine the determinants of customer loyalty among GSM subscribers in the Northwest of Nigeria. This study takes a survey research approach and a logistic regression model. Study suggests that perceived price fairness does not affect customer loyalty in the Northwest of Nigeria. In addition, this study revealed that the main factors that influence whether a GSM subscriber would report brand loyalty are perceived quality of service, perceived brand image and perceived customer satisfaction. This study suggests that GSM service providers should continue to provide high quality service delivery in the Northwest of Nigeria and hence across Nigeria in order to retain customers.[23]

The study attempts to analyze the gap between customer expectations and perceptions in the telecommunications industry in Bangladesh to allow mobile operators to improve. Both descriptive and inferencial statistical tools used to analyze the pooled data and test the hypotheses of the research study. The study concludes that mobile operators must be strategic in terms of pricing, network facilities and promotional activities in the intense competition to close the gap between customer expectations and perceptions of quality of services.[24]

The study was conducted to uncover the pattern of awareness of mobile phone use and usage among students at Dhaka University in Bangladesh. The study found that

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[22] KanijFatamaZaman and Mohammad TanviNewaz, "Employees' Perception about the Performance ManagementSystem in Mobile Phone Companies of Bangladesh," *Management Development:* A Quarterly Publication of Bangladesh Institute of Management (BIM) 28, No. 1&2 (January-June 2013): 33-34.

[23] Yusuf A.Hashim, "Determinants of Customer Loyalty among Subscribers of Global System for Mobile (GSM) Communication in North-Western Nigeria." (Paper presented at the WEI International Academic Conference Proceedings, New Orleans, USA, 2014): 127-133.

[24] Md. AshrafulAlam, Debashish Roy and RehanaAkther, "Consumers' Expectation and Perception toward Mobile Telecommunication Usage in Bangladesh," *Asian Business Review Asian Business Consortium* 6, no. 1 (13), (2016): 57-64.

Dhaka University students are highly aware, and students of science and business schools use cell phones for educational purposes more than arts faculty. It was also found that female students use the mobile phone more than boys for educational purposes.[25]

This paper aims to examine the predecessors of consumer brand preference in terms of branding of telecom services in Jordan. A survey with questionnaire was used to track the attitude of respondents toward brand preference and its predecessors of mobile service providers in Jordan. University students in Jordan were used as samples and 648 questionnaires were received finally through data collection. The data was processed through the SPSS program where Principal component analysis (PCA) was applied to determine the predecessors of brand preference. Multiple regressions were performed also to study the relative influence of determined factors on brand preference. The result shows how each of these precedents contributed to brand preference. The study concluded that this study contributes to theorizing by proposing and testing one of the first holistic models to incorporate numerous brand preference precedents in consideration.[26]

In this study, researchers investigated the antecedents of customer satisfaction and loyalty to recommend service factors that might be applied strategically to maintain leadership in the telecom industry in Bangladesh. The study used 150 Grameenphone (GP) subscribers as samples. Chi-Square test of customer satisfaction and customer loyalty/retention factors indicate that GP subscribers are satisfied with their service, but 40% of them are unwilling to recommend a general practitioner to potential users. The results conclude that customer satisfaction and loyalty can improve if the operator focuses on service factors namely service quality, service charges, network quality, and value added services. The study revealed some potential service factors that can help GP to gain competitive advantage and retain a positive impression on the clients' mind.[27]

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[25] Ataur Rahman, "The Awareness and Usage of Mobile Phone among Students of Dhaka University in Bangladesh," *Journal of Business Studies* XXXV, no. 3 (2014): 17-30.

[26] Ahmed Alamro and Jennifer Rowley, "Antecedents of brand preference for mobile telecommunications services," *Journal of Product & Brand Management*20 no. 6 (2011): 475–486.

[27] Md. Asfaqur Rahman and Md. Hasebur Rahman, "Strategic Service Factors Leading to Grameenphone's Success," *Global Journal of Management and Business Research: E-Marketing* 15, no. 6 (2015): 48-57.

The aim of this study is to uncover the factors that play an important role in the selection of telecom service provider. This research aimed at developing a research framework based on solid theoretical and literary expertise. The survey tools used on Bangladeshi consumers included demographic background, price, quality of service, quality and availability of products and promotions on consumer perception. Structural equation model was used and found price as the most influencing factor for the service quality, product quality and promotion. It is concluded that services and promotion activities are the key drivers in mobile telecom services in Bangladesh.[28]

This research study attempted to uncover the factors that have a significant impact on the customer experience in telecom services and results in influence over brand value. The study is quantitative in approach, data collected through a survey questionnaire from 100 mobilephone subscribers. The research results show that the basic services, variety of products, and promotional activities among the five factors considered, have a huge impact on the customer experience.[29]

The study investigated the effects of elements of the marketing mix on brand euity using the existing theories. In order to test research hypotheses, experimental research was conducted on undergraduate students at Zagreb Faculty of Economics and Business. The research results indicate the directions and degree of the effects of each element of the marketing mix on brand equity. Finally, the implications of the research findings on the theory and practices in brand management were analyzed in this research study.[30]

The aim of the study is to study identify the impact of elements of the marketing mix on brand name and logo value in aerobic and fitness gyms. The research involved 385 gym and aerobic clients selected through cluster sampling.

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[28] Ahasanul Haque, Sabbir Rahman and Mahbubur Rahman, "Factors Determinants the Choice of Mobile Service Providers: Structural Equation Modeling Approach on Bangladeshi Consumers," *Business and Economics Research Journal* 1, no. 3 (2010): 17-34.

[29] Mohammad BaitulIslamandAfrojaRehan Rima, "Factors Affecting Customer Experience in Telecommunication Services and its Importance on Brand Equity: A Study on Telecommunication Companies in Bangladesh," *Interdisciplinary Journal of Contemporary Research in Business*5, no.8 (2013):254-262.

[30] Edo Rajh, "The Effects of Marketing Mix Elements on Brand *Equity,"Economic Trends andEconomic Policy*, 102 (2005): 30-59.

Data were collected using a survey questionnaire and regression analysis was used to test hypotheses. The results showed that the price, shopping-mall image and sales promotion have a stronger positive relationship with the gym brand compared to other elements used in the study. Also, the relationship between all elements of the marketing mix and brand equity was tested. [31]

The purpose of this study was to examine the factors that may influence consumers' interest in purchasing musical products. Data for this study were obtained through questionnaires and analyzed using multiple regression analysis. The results show that the price has the largest influence on the purchase of musical products. It becomes the major consideration for purchasing music products, due to the possibility for consumers who only wish to spend money on a song they like. The study found, having digital music online can make it easier for consumers to choose and purchase whatever song they want, rather than buying a CD (compact disk) with many songs in it.[32]

The aim of this study was to develop and validate an empirical research model that describes the relationships between the key attributes of the value proposition identified for mobile value-added services and the underlying factors of brand equity. Survey data collected from 497 consumers on value-added mobile services. Data was analyzed using structural equation modelling to validate the research model. The results show that the customized and tangible attributes of mobile services are important determinants of key brand equity factors namely brand loyalty, perceived quality and brand awareness. The study concluded that the findings provide information on designing better strategies and delivering value-added services accordingly to increase brand equity and profitability for mobilephone operators.[33]

Review of literatures indicate that researchers (Aaker, 1991; 1996; Keller, 1993; Lane and Jacobson, 1995; Yoo, Donthu and Lee, 2000; Yoo and Donthu, 2001;

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[31] Mohammad Hossein Ansari, Mahmoud Jafarpour and Moein Ansari, "The Relationship between Marketing Mix with Brand Equity in Fitness and Aerobic Gyms," *International Journal of Educational Research and Technology*5, no. 3 (2014): 36-39.

[32] Reni Diah Kusumawati et al. "The Influence of 7Ps of Marketing Mix on Buying Intention of Music Product in Indonesia," *Procedia Engineering* 97, (2014): 1765–1771.

[33] ParisaValavi, "Factors Influencing Mobile Services Adoption: A Brand-Equity Perspective," *International Journal of Research in Social Sciences* 4, no. 3 (2014): 1-18.

Gil, 2007) have attempted to establish a relationship between the service marketing mix and brand equity in order to determine the brand value using selective constructs and items while ignoring others that make a perfect sense of using SMM and CBBE for brand management except very few research works enabling significant SMM and CBBE elements. It also demonstrates that CBBE is a multidimensional construct on which SMM generally effects positively, and dimensions of CBBE serve as the sources to measure CBBE as a whole (Aaker, 1991; 1996; Keller, 1993; Yoo, Donthu and Lee 2000; Yoo and Donthu, 2001). Of them service brands are very few and negligible number of studies been found on this topic in different cultures to set a concrete theory to follow anywhere. So, there is an opportunity to study the topic in the cultural context of Bangladesh to identify subscribers' usage behavior, perception towards SMM and CBBE with its sources, and know the degree of influence of SMM and CBBE dimensions to build and increase brand equity.

Review of literatures also reveal that all dimensions of SMM and CBBE are interdependent and that there is a specific service relationship between perceived price and perceived quality (Butt and Run, 2009; Lee, 2012). Some studies highlight the importance of the latest technologies and appropriate advertising campaigns to attract new customers in mobile communications services (Menezes and Carvalho, 2009; Reddy, 2013; Sekar, 2010). Some researchers found that better network coverage, recharging capacity, value added services (VAS), and high-quality internet installation are very important from the customer's point of view while service providers need to integrate the latest technologies to meet their customers, build the brand bring image through brand associations (Pharma and John, 2006; Sicar 2010). Some researches show that the service quality or the perceived quality leads to brand loyalty depends on several determinants and also a positive relationship exists between selective SMM and CBBE elements, customer satisfaction and service quality, service quality and price, customer satisfaction and customer loyalty, customer satisfaction and customer value, word-of-mouth advertisement and customer loyalty, price and customer loyalty etc. (Gronroos 1984; Parasuraman, et al., 1985, 1988; Nimako, 2012 and Lee, 2012).

From the review, it is also found that the service providers generally focus strategically on increasing their customer-base in non-voice revenue streaming services that increase Average Revenue Per User (ARPU), while some researchers specifically suggest mobile marketing for more inclusive financial services that serve individuals, businessmen, non-banked people and those who deal with banking and economic mobilization activities, to increase ARPU (Mittle and Lassar 1998, Woo and Fock 1999). Internet shopping or Internet marketing, and their economic and social importance have been discussed in a small number of studies. Some studies have recognized the importance of the latest technologies such as 3G, 4G and even 5G for successful digitalization and the achievement of the digital government goal in Bangladesh (Reddy 2013; Sekar 2010).

Few studies have pointed out that rural areas face a problem with network connectivity and internet facilities while the urban market must attract attention or focus on high quality internet facilities for smooth video streaming and latest apps. Some studies have looked at e-marketing, e-commerce, mobile-agriculture, mobile-health etc. Some studies have even argued that customer experiences are directly related to customers' behavioral outcomes, and therefore, brand loyalty improves sales and financial situation of the company. Review of the current literature shows that customers are both price and quality sensitive and their awareness and expectations are increasing day by day as they bear dynamic characteristics in a dynamic and competitive environment. Therefore, it is difficult for mobile operators to win the minds of the customers.

The above discussion indicates the importance of strategically building brand equity to gain a competitive advantage. This allows service brand managers to make decisions about selecting the elements of a particular marketing mix and taking their importance in increasing brand equity. Therefore, the discussion dictates for more researches that can provide insight into the effects of different elements of the marketing mix on the brand equity of services in various sectors, national settings, and cross-national cultures.

## 2.3 Research Gap

It is evident from the literature review that marketers are constantly under pressure due to changing subscribers' perception towards greater benefits and higher perceived value, slowing industry growth in the near future, forceful competition which leads to price and technology war, convenience and free to change operator, frequent changes in mobile handset configuration, decreasing ARPU etc. creates the challenges to manage brand(s) and their operations smoothly. Thus, the preferred way is to build and increase CBBE through the effective use of SMM elements. It will bring attraction to the mind of subscribers towards the mobile operators. Considering the importance of customer-based branding for companies, it seems to be justified to explore how and with what degree SMM elements (collectively and individually) affect the dimensions of CBBE.Therefore, more attention is needed to develop intangible assets through SMM elements for the brand in order to build and increase CBBE reaching to brand loyalty stage or brand mindset. In response to such a call, this study examines the relationship between SMM elements and dimensions of CBBE and brand management.

It is also evident that loyal customers act as a marketing engine that recommend others and deliver positive word-of-mouth advertising for a particular brand. So, maintaining a loyal customer-base seems to be a meaningful strategy for service providers to succeed in the long-run. Though literature reviews provided substantial knowledge and information on SMM and CBBE, generalization of the results of these relevant studies are essentially lag behind for settling a uniform theory or model which can express the relation between SMM and CBBE in service organizations in different settings. The impact of different elements of SMM on CBBE and its dimensions for different products or services differs in nature and disposition in a different socio-economic environment been found in the literatures. It is therefore, an excellent opportunity to devote empirical research on the proposed study. Regarding research knowledge, there was no independent and comprehensive study on the proposed study was found except a few with somewhat varying items, different national and multi-national environment. Therefore, a research study on the

proposed study deserves to be done for both theoretical and empirical implications in managing brand to increase its equity.

## 2.4 Conclusion

This chapter reviewed literature related to the subject of interest. The concept of service marketing mix elements was discussed extensively with highlights on the concepts of service product attributes, pricing, distribution intensity, marketing promotion, people, service delivery process, and physical evidence or environment through literature. Similarly, review of literature discussed CBBE in detail and drawing out the dimensions or measurement sources––brand awareness, brand associations or image, perceived brand quality, and brand loyalty and finally overall CBBE or customer mind-set. The chapter also discussed relationships between service marketing mix and CBBE and its sources leading to overall CBBE or customer mind-set in the review of literature and consequently, the research gap is determined.

# Chapter Three
# Theoretical Underpinning

*This chapter emphasizes on theoretical mindset for the subject of interest to move further towards a scientific conclusion. The chapter discusses various conceptual terms, theories or models relating to service marketing mix and customer-based brand equity; finally a conceptual framework is drawn to conclude the chapter.*

## 3.1 Introduction

Theoretical framework helps a researcher to define a path on which the researcher tries to move forward and come to a meaningful conclusion of the proposed research work.[1] It provides broad areas for acquiring knowledge and finally established a conceptual framework or research model.

A service company tries to create an advantage by doing things differently from others, while striving for operational excellence and efficiency.[2] He added that competition can easily replicate a service offering and ruin the business; so, leadership is required with a different mindset of consistant innovation and consideration of customers' experience and services. In recent years, automation and technology helped to achieve standardization and efficiency in service industry. In the process, personalized service introduced to establish a relationship. To provide the best personalized services and maintaining market share, service organizations pursued various strategies like business process reengineering, standard operating procedures, outsourcing, operational efficiency programs, and service quality programs.[3] Therefore, service companies should realize the basic intangible in service offering which gives a competitive advantage.

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[1] Charles Kivunja, "Distinguishing between Theory, Theoretical Framework, and Conceptual Framework: A Systematic Review of Lessons from the Field", *International Journal of Higher Education* Vol. 7, No. 6 (2018): 48.

[2] Michael, E. Porter, *"The Competitive Advantage: Creating and Sustaining Superior Performance,"* (NY: Free Press 1985): 107-121.

[3] Ibid.

## 3.2 Service Marketing

Marketing is "meeting customer needs profitably."[4] According to the American Marketing Association (AMA), “Marketing is the activity, set of institutions and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large.”[5] A service defines as the activities, benefits and satisfactions offered for sale.[6] Service marketing is engaged with the four significant characteristics of a service; intangibility, heterogeneity or volatility, perishability, and inseparability.

## 3.3 Brand value chain

Brand value chain, as a structured approach, is useful to assess the sources and outcome of the brand equity and the way marketing activities create a brand’s value.[7] It also tracks the value creation process of a brand and provides useful information to help improve financial brand value.[8]

From the customer's perspective of brand value, the brand value creation process starts with a company’s investment in marketing mix to target actual and potential customers. In the first phase, the elements of the marketing mix influence the sources or dimensions of CBBE to the extent that customers know and feel whatever they have in their mind about the brand. In the second phase, CBBE sources measure the customer mindset or overall CBBE in the same way. Overall CBBE includes what a customer bears in the mind about a brand such as thought, feeling, experience, image, perception, belief, attitude etc. In the third step, this mindset, through a large group of customers generates the brand's performance in the market. In the fourth and final step, the investor or marketer determine market performance and other factors such as replacement cost and purchase price in acquisitions to arrive at an assessment of shareholder value and brand value.[9]

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[4] Philip Kotler et al, *Principles of marketing,* 4th ed. (New Jersy: Prentice Hall International Inc., 2005): 253-255.
[5] Ibid.
[6] Valarie A. Zeithaml, A. Parasuraman, and L. Berry, “Problems and Strategies in Service Marketing,” *Journal ofMarketing*49, no.2 (1985): 33.
[7] Kevin Lane Keller *Strategic Brand Management*, 4th ed. (Pearson publication, 2013): 228.
[8] Ibid.
[9] Ibid, 228-247.

In this study, the researcher deals with the indirect or marketing approach to measure brand equity i.e. brand equity development process and its determinants in mobile telecom industry in Banglqadesh, not the financial perspective of determining brand equity/value with direct or financial approach. So why, the researcher intended to focus on the first two phases of brand value chain process, where elements of the service marketing mix influence the sources of measuring/ dimensions of CBBE, and identify CBBE sources that typically measure CBBE or the state of customer's mindset. This inference reveals that marketing deals with 7 strategic Ps for building and maintaining brand eqity while financial perspect is concerned with estimating market performance using the brand value score like price premium, market share among others, and thereafter, the assessment of the monetary value for the shareholders using the stock price and others. In this context, a business with high positive brand equity can reap many financial and non-financial benefits. However, financial value of a brand is certainly beneficial, but it does not help the brand marketers to understand the process of brand equity development. This idea reaffirms the need for managerial focus on brand equity development.

### 3.4 Service Marketing Mix

Borden introduced the concept of marketing mix and McCarthy proposed the marketing mix model as 4Ps; product, price, promotion and place (distribution).[10]. However, the model of 4Ps was criticized by several service marketers from different perspectives. Booms and Bitner had modified the model and extended 4Ps to 7Ps as service marketing mix where the three new Ps are, 'People', 'Process', and 'Physical evidence'. Each of the 7Ps of the service marketing mix model defines as a business strategy and views as an opportunity to gain competitive advantage.[11] However, elements of SMM are discussed for conceptualization:

**Service Product**: A service product is simply an intangible item, a service marketer offers to its target market.[12] It has to match with the consumer value and what consumers expect to perform.

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[10] Jerome E. McCarthy, *Basic Marketing: A Managerial Approach,* (Homewood (Illinois): R. D. Irwin., 1960): 47.

[11] Bernard Booms, H. and Mary Jo Bitner, Marketing Strategies and Organization Structures for Service Firms, *Marketing of Services, American Marketing Association*, Chicago (1981): 47-51.

[12] Kotler and Armstrong (2010), 49.

**Price**: Price is the amount a consumer needs to exchange to get an offer.[13] Usually, a company's goal is to reduce costs by improving manufacturing and other efficiencies to offer services at minimum price. A product or service should always be considered as a good value for money.

**Place**: Place, also called as a channel, distribution or medium, ensures the service available to target consumers.[14] The service product should be convenient to the target consumers to get the offerings. Distribution point may be street, retail store, online store among others.

**Promotion:** Promotion includes the activities of service marketers to attract audiences' in favor of the offferings.[15] It includes advertising, sales promotion, personal selling, publicity in general. These tools are used to reach the organization's message to the right audiences. Now, promotion is treated as 'Integrated Marketing Communucation' strategically.

**People**: People are all human actors who are involved with the service process. They are produced and consumed at the same time. So, having the right people in providing the services is essential.

**Process**: Process includes procedures, mechanisms and activities that completes a service delivery i.e. provision of the service and operating system.[16]

**Physical evidence**: Physical evidence includes the environment as well as tangible components which facilitate the sales, delivery and performance of a service.[17] As there is no physical attribute of a service, consumers tend to rely on physical cues or evidence like signs and logos, annual reports, brochures, website among others.

The above discussed Seven Ps is still widely used due to its basic form in the marketing environment and the marketers' convenience to adapt the marketing mix in the constantly changing business landscape.

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[13] Solomon et al (2009).
[14] Kotler and Armstrong (2010).
[15] Solomon et al (2009).
[16] Ibid.
[17] Ibid.

A study Rafiq and Ahmed found 4ps as inadequate while the sample strongly endorsed and accepted the 7Ps of SMM.[18] Another study of Akroush et al. found a strong and positive correlation between the 7Ps and customer satisfaction. It also revealed a strong and positive relationship between the three extented components of SMM (People, processes and physical evidence) and customer satisfaction. The study also found, the effect of extended 3Ps on customer satisfaction is much stronger than the effect of traditional 4Ps of service marketing mix.[19]

Service product and its nature especially intangibility is a major issue to assess quality. Branding while allows visualizing and better understanding the intangibles of a service in offering a certain quality assurance to consumers.[20] Service companies can be successful in differentiating themselves from competitors by branding practices.[21]

Price plays a big role in brand equity formation, as it relates to the perceived quality straightway mostly. Generally, consumers perceive more expensive brands as higher quality and risk free.[22] Therefore, a higher price positively affects brand equity where perceived brand quality acts as a mediating factor.

Place gets more importance for the 'inseparability' nature of service. Providing service in a convenient and easily accessible place to customers is a critical factor as competition becomes stronger in attracting and retaining consumers. However, place is not limited by geographic conditions; it also includes accessibility, convenience and ambience of an organization.[23] Researchers suggest, the level of accessibility positively impact on perceived quality as well as brand loyalty.

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[18] Mohammed Rafiq and Pervaiz K. Ahmed, "Using the 7Ps As a Generic Marketing Mix: An Exploratory Survey of UK and European Marketing Academics," *Marketing Intelligence and Planning* 13, no.9 (1995): 4-15.

[19] Mamoun N. Akroush, M. Shible, and F. Khawaldeh, "The Effect of Service Marketing Mix Elements on Customers Satisfaction in the Comprehensive Motor Insurance: An Empirical Investigation of Customers Perspectives in Jordan," *Journal of Financial and Commercial Studies/ Managerial Sciences-Cairo University* 2/3, no.32 (2005): 439-472.

[20] Ibid.

[21] Leonard L. Berry, (2000): 131-134.

[22] Wagner A. Kamakura, and Gary J. Russell, "Measuring Brand Value with Scanner Data," *International Journal of Research in Marketing* 10 no.1 (1993): 9-22.

[23] Philip Kotler and Karen Fox, *Strategic Management for Educational Institution,* 2nd ed. (New Jersy: Prentice Hall, 1995), 238-240.

As one of the prime tools of promotion or IMC, advertising is used successfully to increase brand awareness. It is also used to improve the perceived quality of service, reducing the impact of service heterogeneity and increasing awareness through information flow about the service. Investing in advertising, effects positively on building brand equity. Cost of a brand advertising campaign influences consumers' expectation of service quality.[24] Therefore, advertising plays a fundamental role in developing brand image as it relates brand to consumer expectation, and provide brand with symbolic values to create brand appeal.[25]

Sales promotion or price deal generally tends to reduce brand equity, although short-term financial gain arises. Actually, there is no effect of this in the long-term brand sales. Moreover, price offers can harm the brand, as frequent price changes confuse consumers and create negative impression.[26] These activities often degrade the perceived quality of the brand, so a single price bargain can be enough to undermine the perceived quality of the brand.[27]

People personify a service brand to the customers. So, a company should communicate their brand identity to their employees, so that they engage themselves in building brand image of the services.[28] Employees need the support of the company to act in the best interests of the service brand. As the employees of the service company directly influence the service process, they ultimately influence the creation of the service.brand image.

Process or delivery process itself affects the perceived value of the service as customers experience the provisions in the way of getting services and also can increase or decrease the perceived value of the service. Elements of service delivery

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[24] David A. Aaker, and Robert Jacobson, "The Financial Information Content of Perceived Quality," *Journal of Marketing Research* 31, no. 2 (1994):191-201.

[25] Amna Kirmani, and Peter Wright, "Money Talks: Perceived Advertising Expense and Expected Product Quality," *Journal of Consumer Research* 16, no.3 (1989): 344-353.

[26] Tony Meenaghan, "The Role of Advertising in Brand Image Development," *Journal of Product and Brand Management* 4, no.4 (1995): 23-34.

[27] Priya Raghubir, and Kim Corfman, "When Do Price Promotions Affect Pretrial Brand Evaluations," *Journal of Marketing Research* 36, no. 2 (1999): 211-222.

[28] Christian Gronroos, "From Scientific Management to Service Management: A Management Perspective for the Age of Service Competition," *International Journal of Service Industry Management* 5, no.1 (1994): 5-20.

have the biggest influence in clients' ratings of the service receive. The span and time requirement of the service delivery process itself can influence consumers' perceptions towards the quality of services.[29] In addition, the provision of services affects consumer satisfaction with the service. In the process, consumers' experiences with a service delivery process directly impact a service's brand image leading to brand equity.[30]

Physical evidence or tangible physical elements/environment of a service to communicate the value to customers is so crucial due to 'intangibility' nature of service. Use of quality physical evidence relates customers to a brand in an effective way to create well-defined benchmarks for consumers. The physical environment in which the service is provided affects not only the branding of the service, but also the consumer's satisfaction with the service.[31]

The study investigated the SMM elements as perceived marketing mix, not the actual one with reasoning of not being possible to monitor the actual marketing efforts in the study, and more direct role of perceived marketing efforts on consumer psychology than the actual marketing efforts. Therefore, perceived marketing efforts have a stronger meaning and thus explain consumer behaviors more effectively than actual marketing efforts.

## 3.5 Brand Equity

Challenging business environment and dynamic consumer behavior makes it difficult to make easy profit. So, researchers believe to gain competitive advantage to boost the business performance of the company. Gaining competitive advantage through branding is one of the best strategies at the moment.[32] Consumers always consider

[29] M.M. Tseng, M. Qinhai, and C.J. Su, "Mapping Customers' Service Experience for Operations Improvement," *Business Process Management Journal* 5, no.1 (1999): 50-64,

[30] Leonard L. Berry, "Cultivating Service Brand Equity," *Journal of the Academy of Marketing Science* 28, no.1 (2000): 128-37.

[31] Mary Jo Bitner, "Evaluating Service Encounters: The Effects of Physical Surroundings and Employee Responses," *Journal of Marketing* 54, no.2 (1990): 69-82.

[32] SomayehKhosravi, Reza Shafei, and Adel Salavati, "Survey of the Effective Dimension in Improvement of Brand Equity in Iranian Insurance Companies," *Interdisciplinary Journal of Contemporary Research in Business* 3, no. 10 (2012): 672-685.

branding when making the appropriate purchasing decisions due to favorable perception towards branding.[33]

In the branding arena, brand equity is a highly academic and practical concept which can be very beneficial or influential in enabling a business to compete, improve profitability or maintain market share.[34] In theory, a successful branding strategy leads to build and increase brand equity.[35] Many scholars used the concepts of Aaker and Keller such as Kayananand[36] and Pughazhendi[37]. These two concepts have been used extensively in the literature and widely used in marketing.

Brand equity delivers high brand awareness, high brand image, high perceived brand quality and high brand loyalty as its outcome.[38] Positive brand equity helps obtain various financial and non-financial benefits for the company.[39] Therefore, focus of management turns towards building a strong brand through high brand equity to avoid competition.

## 3.6 Brand Equity Perspectives

Brand equity can be assessed from different points of view. These are as follows:

[33] Eser Zeliha, Musa Pinar, Tulay Girard, and F. BaharIsin, "Consumer--Based Brand Equity in the Television Industry: A Study of a Private TV Channel in Turkey," *Academy of Marketing Studies Journal* 16, no. 1 (2012): 67-85.

[34] Muhammad EhsanMalik, and B. A. S. H. A. R. A. T. Naeem, "Interrelationship between customer based brand equity constructs: empirical evidence from hotel industry of Pakistan," *Interdisciplinary journal of contemporary research in business* 3, no. 4 (2011): 795-804.

[36] Rüçhan Kayamanand and Huseyin Arasli, "Customer based brand equity: evidence from the hotel industry" *Managing Service Quality: An International Journal* 17, no. 1 (2007): 92-102.

[37] A. Pughazhendi and R. Thirunavukkarasu, "A Study on Consumer perceptions and Brand Equity Analysis of Men's shirts: foreign Brands Vs Domestic brands," *International Journals of Marketing and Technology* 2, no. 1 (2012): 212-225.

[38] Hao Liaogang, Gao Chongyan, and Liu Zi'an, "Customer-based brand equity and improvement strategy for mobile phone brands: Foreign versus local in the Chinese market," *International Management Review* 3, no. 3 (2007): 76.

[39] Zeliha Eser, Musa Pinar, Tulay Girard, and F. BaharIsin, (2012): 67-85.

### 3.6.1 Financial perspective (Financial-based brand equity)

Stock prices or brand substitution measure the brand equity in this perspective. So, brand equity is the increased cash flow from a branded product.[40] Therefore, determining financial brand value is certainly beneficial, but it helps nothing to marketers to understand the process of building brand equity.

### 3.6.2 Employee perspective (Employee-based Brand Equity)

Brand equity derives from the inherent brand nature.[41] Employee's perception towards work environment and culture influences brand awareness.[42] Kwon provided a 3D model with three dimensions: brand knowledge, role clarity and brand commitment[43] that helps building brand equity. Employees' judgment (subjective and emotional) towards their organization reveals brand equity.[44] In fact, this perspective serves as a foundation for creating customer-based brand equity, employees are the main driver in building brand equity.

### 3.6.3 Customer perspective (Customer-based brand equity)

There are number of significant model on CBBE available. Depending on the situations the following models are widely used by brand practitioners:

#### 3.6.3.1 Aaker's brand equity model

The model comprised of five different assets is familiar as the most effective model in the context of creating brand value.[45] These assets are discussed below:

⇒ **Brand loyalty:** According to the model, once brand loyalty is achieved, it leverages sales transactions, reduces marketing costs, and evantually generates

[40] Carol J. Simon and Mary W. Sullivan, "The measurement and determinants of brand equity: A financial approach," *Marketing science* 12, no. 1 (1993): 28-52.
[41] Youngbum Kwon, (2013). The Influence of Employee-Based Brand Equity on the Health Supportive Environment and Culture – Organizational Citizenship Behaviour Relation A dissertation of Doctor of Philosophy, University of Michigan.
[42] C. King, and D. Grace, (2009). Employee based brand equity: A third perspective. Services Marketing Quarterly, 30(2), 122-147.
[43] Youngbum Kwon, (2013); C. King, and D. Grace, (2009); David A. Aaker, (1991).
[44] Ashforth, B. E., and Mael, F. (1989). Social identity theory and the organization. Academy of Management Review, 14, 20−39.
[45] David A. Aaker, (1991): 26.

value. In addition, loyal customers are very little interested on other brands because they have little incentive from the substitutes or alternatives.[46] So, competitors are generally discouraged to invest resources for attracting loyal customers of a marketer. Therefore, the model believes to focus on building brand loyalty for managing brand equity effectively.[47]

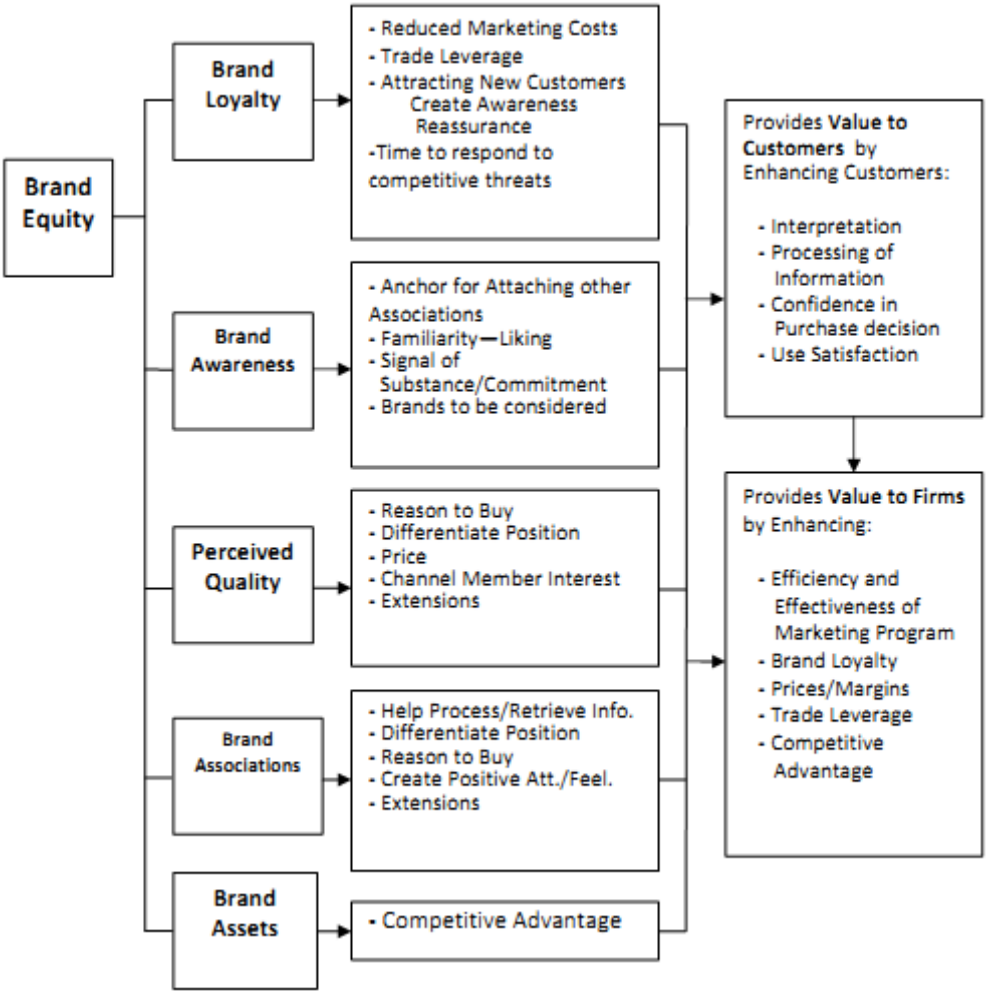


**Figure 3.1: Aaker's Customer-Based Brand Equity Framework**

**Source:** Aaker, 1991; 1996.

[46] OvidiuIoanMoisescu,"The concept of brand equity-A comparative approach," (2005): 212-220.
[47] David A. Aaker, (1991): 27.

**Brand awareness:** Brand awareness refers to the prospects' ability to recognize or recall a brand of a certain product category.[48] Recognition level of brand awareness is considered as a sense of familiarity with a brand, which acts as a substance, commitment etc further. Recall level of awareness reflects as the influencing factor in choice of a brand. Brand awareness results in a high level of purchase because consumers buy the brand which is more familiar.[49]

**Perceived Brand Quality:** Consumers' judgment in the context of the excellence or superiority results in perceived brand quality[50] Creating differentiation and supporting a higher price are the major outcome of perceived brand equity.[51]

**Brand associations:** Brand associations is a set of tangible and intangibles i.e. product attribute, customer benefit, uses, lifestyle, product category among others associated in the memory of customers relating to a brand.[52] Brand associations enhance customers to process, organize and retrieve information in memory, serve as criteria for differentiation, and create positive emotions in making purchase decisions.

**Brand assets:** Brand assets refer to patent, trademark and channel relationship, which provides a competitive advantage as thjese protects a brand and its equity.[53] All these can differentiate a brand from its competitors.

### 3.6.3.2 Keller's brand equity pyramid

The model defined brand equity from the individual consumers' perspective taking brand knowledge as a starting point and framed as an associative networking. Keller defined brand value as the differences of customers' difference towards the marketing of a brand.[54] According to the model, brand equity is all about what customers think

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[48] David A. Aaker, "The Value of Brand Equity," *Journal of Business Strategy* 13, no. 4 (2008): 27-32.
[49] Ibid.
[50] Valarie A. Zeithaml, "Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence," *Journal of marketing* 52, no. 3 (1988): 2-22.
[51] Ibid
[52] Ibid.
[53] ManojK.Agarwal and Vithala R. Rao, "An empirical comparison of consumer-based measures of brand equity," *Marketing letters* 7, no. 3 (1996): 237-247.
[54] Kevin Lane Keller and Donald R. Lehmann, "How Do Brand Create Value?," *Marketing Management*, (2003):26-31

and feel about a product or service depending on positive experiences.[55] The model consists of six elements, which are figured out in the model:

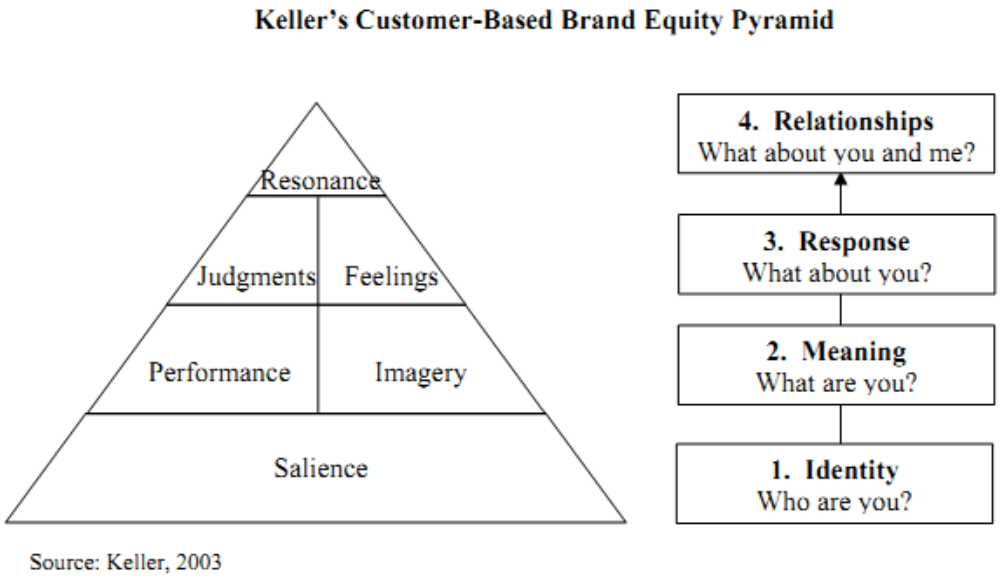


**Figure 3.2: Keller's Customer-based Brand Equity Pyramid**

**Source:** Keller, 2003.

To build a strong brand, the first step is to make sure the right brand identity with customers and brand associations using salience to the mind of customers.[56] Salience consists of two dimensions; need satisfaction and category identification. The second step is to establish brand meaning through tangible and intangible brand associations. It may be brand performance or image of the brand. Brand response which is the third step of the model, represents the opinions and ratings depending on the brand meaning developed. Brand feelings are the customers' emotional responses and reactions towards a brand includes warmth, pleasure, arousal, security, social acceptance, and self-esteem. Brand relationship, the last step in the brand pyramid, transformes brand responses' into brand loyalty. On the top of the pyramid, resonance indicates four components; behavioral loyalty, attitudinal attachment, sense of

[55] OvidiuIoanMoisescu, (2005).

[56] Kerri-Ann L. Kuhn, Frank Alpert, and Nigel K. Ll. Pope, "An application of Keller's brand equity model in a B2B context," *Qualitative Market Research: An International Journal* 11, no. 1 (2008): 40-58, http://dx.doi.org/10.1108/13522750810845540.

community and active engagement as the relationship between the customer and the brand.[57].

### 3.6.3.3 Yoo and Donthu's brand equity model

The model is based on the three factors i.e. marketing mix elements, brand equity dimensions and overall brand equity. It considered two aspects of marketing managerial efforts i.e. brand-building and brand-harming activities.[58] The model tried to develop a uniform multidimensional consumer-based brand equity approach in cross-cultural setting. In this model, brand loyalty is treated as the predisposition to be loyal to a focal brand while other researches spotlight brand loyalty from various behavioral aspects.

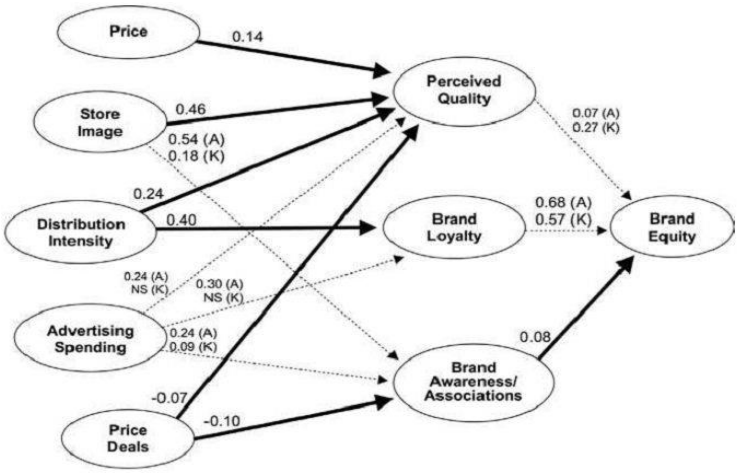


**Figure 3.3: Structural brand equity model**

**Source:** Yoo et al. 2000.

The model merged brand awareness and brand associations to a single variable and others remain at it is. Finally, through mapping the factors as the figure shows, it becomes possible to determine brand equity and blending of SMM needed for managing the brand.

[57] Kevin Lane Keller, (2013), 120-23.

[58] BoongheeYoo, Naveen Donthu and Sungho Lee, "An examination of selected marketing mix elements and brand equity," *Journal of the academy of marketing science* 28, no. 2 (2000): 195-211.

### 3.6.3.4 Luming Wang and Adam Finn customer based brand equity model

The model tried to measure and compare brands of different product categories. The model considered within-product differences as CBBE sources. To assist the comparison, a hybrid benchmarking model of CBBE is proposed that methodically incorporates the diverse dimensions of the existing CBBE and study the essential differences between major brands and their sub-brands within product categories.[59]

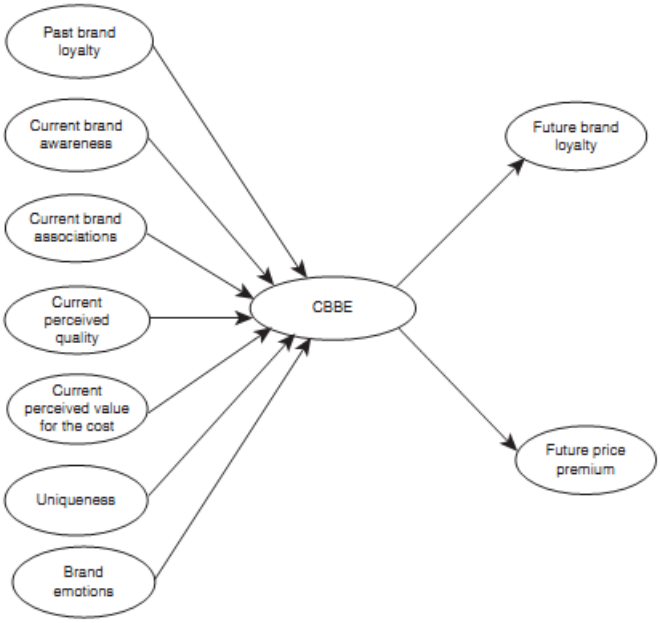


**Figure 3.4: Customer Based Brand Equity (CBBE) Model**

**Source:** Luming Wang and Adam Finn, 2013.

The model distinguishes and separates the underlying or reflexive dimensions; CBBE effects from its usual or formative dimensions; causes of CBBE, accoding to their causal relationship with the construct. They added another formative dimension named as 'brand emotion' to expand the realm of the CBBE. The model focused more on the formative dimension consists of uniqueness and perceived quality that together define the CBBE.

[59] Luming Wang and Adam Finn, "Heterogeneous sources of customer-based brand equity within a product category," *Marketing Intelligence & Planning* 31, no. 6 (2013): 674-696.

## 3.7 Sources of Brand Equity Adopted

Various theories have been developed and empirically tested in different perspectives relevant to brand equity, acted as a guide to the researcher. Researchers agreed that brand equity is a multidimensional construct and it has the ability to provide meaningful insights theoretically and marketing solutions to marketers or managers.[60] Brand equity related research mostly focused on customer perspectives rather than firm perspectives because firm-based approach provides a little usable information to brand managers, while customer-based approach provides necessary insights into the customer behavior very useful to decision makers in developing actionable branding strategies. It is evident from the literature, CBBE is the main driver of the additional financial gain (financial brand equity) for the company.[61] Very importantly, a customer-based perspective deals with the building of brand equity and gets feedback from the customers on the company's branding efforts who are the main stakeholder of a marketing system.[62] Moreover, financial approach provides financial data from market share or price for a shorter period of time, but customer approach acquire information taken from the customers about brands for a long time in a consistent manner, which is the main issue to brand practitioners.

Several researchers (Yoo and Donthu, 2001, 2002, Yoo et al 2000, Pappu et al., 2005, Buil et al., 2008) similar to Aaker (1991, 1996) and Keller (2003) used customer-based brand equity approach to measure brand equity.[63] Considering all the branding issues, the researcher used customer-based brand equity approach and concentrated on the four dimensions or measurement sources named as brand loyalty, brand awareness, perceived quality, and brand associations originated from the study of Aaker (1991) except the fifth asset; proprietory resources because this

[60] ZelihaEser, Musa Pinar, Tulay Girard, and F. BaharIsin, (2012): 67-85.

[62] Rüçhan Kayaman, and HuseyinArasli, (2007).

[63] Woo Gon Kim and Hong-Bumm Kim, "Measuring customer-based restaurant brand equity," *Cornell hotel and restaurant administration Quarterly* 45, no. 2 (2004): 115-131.

measurement is not applicable to the shopper perspective; client based brand equity measure.[64] Therefore, brand awareness, brand associations, perceived brand quality, and brand loyalty has been retained as the dimensions of customer-based brand equity.

## 3.8 Conceptual Framework

Conceptual framework is a diagram, which represents an analysis of a research issue using theory, and the interaction of variables with each other.[65] It is usually demonstrated in a graphic form or presented in a narrative form to visualize the main factors, concepts or variables to be studied.

Conceptual framework of this study developed on the basis of the theoretical and empirical literature reviewed and objectives of the research. The framework shows, key constructs and variables of SMM, CBBE dimensions, and overall CBBE to study the research gap. Moreover, it extends to brand marketing strategies as the determinants of mobile operators' strategies, their performance, and building strong brands leading to competitive advantage. Therefore, the conceptual framework is developed and shown below in a diagram:

[64] Boonghee, Yoo, and Naveen Donthu (1997), Developing and Validating a Consumer-based Overall Brand Equity Scale for Americans and Koreans: An Extension of Aaker's and Keller's Conceptualizations," Proceedings, AMA Summer Educators Conference, Chicago, 1997.

[65] Charles, Kivunja (2018) "Distinguishing between Theory, Theoretical Framework, and Conceptual Framework: A Systematic Review of Lessons from the Field", *International Journal of Higher Education* Vol. 7, No. 6: 47.

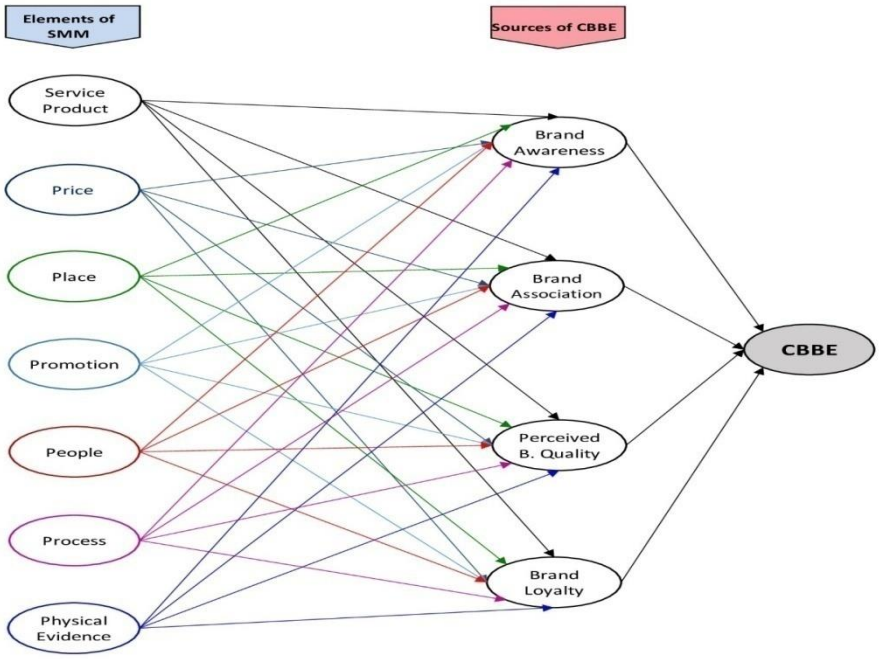


**Figure 3.5 Service Marketing Mix and Customer-based Brand Equity Model**

**Source:** Developed by the researcher through modifying "Brand equity model of Yoo and Donthu (2001, 2002); Yoo et al (2000)", originated from "Customer-Based Brand Equity Framework of Aaker (1991, 1996)."

Independent and dependent variables are operationalized below:

 **Independent variable (Service Marketing Mix):** Elements of SMM have been treated as independent variables or constructs. They are; service product, price, place, promotion, people, process, and physical evidence.

 **Dependent variable (sources of Customere-based Brand Equity):** Dimensions or sources of CBBE have been considered as dependent variables or constructs in the study. They are; brand awareness, brand image, perceived brand quality, and brand loyalty. These variables also acted as the independent variables at the time of measuring overall CBBE in the study.

 **Dependent variable (Customere-based Brand Equity):** Another dependent variable is overall CBBE, which includes number of items to be identified in the study.

### 3.8.1 Operational Definition of the Constructs/Variables

Operational definitions of independent and dependent variables used in this study are described below:

• **Service product:** It is the services mobile operators offer to the individual subscribers to satisfy them.

• **Price:** It is defined as the amount individual subscribers pay against services receive from the mobile operators.

• **Place:** It refers to the channels, distribution points, self operating system in mobile handset, space or online practices to receive services from.

• **Promotion:** It is defined as all the tools of integrated marketing communication (IMC) available to the mobile operators to communicate their message to the individual subscribers to attract them in favour of the company and brand.

• **People:** People refer to the persons or employees of mobile operators who provide telecom services and also the consumers who receive the services.

• **Process:** It is defined as the procedures, mechanisms and activities through which the service is delivered to the individual customers.

• **Physical Evidence:** It refers to the physical environment, all the tangible cues, logistics, and documents that facilitate the performance, delivery of the services and decision making of individual customers.

• **Brand awareness:** It refers to the ability of the individual subscribers to identify and recall services of a particular telecom operator.

• **Brand Associations:** it refers to the consumer's perception of the brand i.e. a set of correlated attributes in the mind of individual subscribers in favour of a mobile telecom operator.

• **Perceived Brand Quality:** It refers to the consumer's judgment on the overall excellence of a mobile operator’s services perceived by individual subscribers.

• **Brand loyalty:** It refers to the affection a customer feels with a particular brand or a bonding between a mobile operator and individual customers regarding mobile telecom services so that customers are delighted to refer others through word-of-mouth.

• **Customer-based Brand Equity:** It is customer's perspective of measuring brand equity or value that provides the best insight for any organization in brand management. It refers to the overall brand equity that is developed from customers' perspective. Its sources or dimensions are: brand awareness, brand associations, perceived brand quality, and brand loyalty.

## 3.9 Research Hypotheses

From the literature review, theoretical framework and conceptual framework, the researcher developed the following null hypotheses to achieve the goal of the study:

$H_{o1}$: Service product has no statistically significant effect on brand awareness

$H_{o2}$: Price has no statistically significant effect on brand awareness

$H_{o3}$: Place has no statistically significant effect on brand awareness

$H_{o4}$: Promotion has no statistically significant effect on brand awareness

$H_{o5}$: People have no statistically significant effect on brand awareness

$H_{o6}$: Process has no statistically significant effect on brand awareness

$H_{o7}$: Physical evidence has no statistically significant effect on brand awareness

$H_{o8}$: Serviceproduct has no statistically significant effect on brand association

$H_{o9}$: Price has no statistically significant effect on brand association

$H_{o10}$: Place has no statistically significant effect on brand association

$H_{o11}$: Promotion has no statistically significant effect on brand association

$H_{o12}$: People have no statistically significant effect on brand association

$H_{o13}$: process has no statistically significant effect on brand association

$H_{o14}$: Physical evidence has no statistically significant effect on brand association

$H_{o15}$: Service product has no statistically significant effect on perceived brand quality

$H_{o16}$: price has no statistically significant effect on perceived brand quality

$H_{o17}$: Place has no statistically significant effect on perceived brand quality

$H_{o18}$: Promotion has no statistically significant effect on perceived brand quality

$H_{o19}$: People have no statistically significant effect on perceived brand quality

$H_{o20}$: process has no statistically significant effect on perceived brand quality

$H_{o21}$: Physical evidence has no statistically significant effect on perceived brand quality

$H_{o22}$: Service product has no statistically significant effect on brand loyalty

$H_{o23}$: Price has no statistically significant effect on brand loyalty

$H_{o24}$: Place has no statistically significant effect on brand loyalty

$H_{o25}$: Promotion has no statistically significant effect on brand loyalty

$H_{o26}$: people have no statistically significant effect on brand loyalty

$H_{o27}$: process has no statistically significant effect on brand loyalty

$H_{o28}$: physical evidence has no statistically significant effect on brand loyalty

$H_{o29}$: Brand awareness has no statistically significant effect on customer-based brand equity

$H_{o30}$: Brand association has no statistically significant effect on customer-based brand equity

$H_{o31}$: Perceived brand quality has no statistically significant effect on customer-based brand equity

$H_{o32}$: Brand loyalty has no statistically significant effect on customer-based brand equity

## 3.10 Conclusion

The chapter discussed various theories and models provided by the scholars relating to SMM and brand equity to identify the dependent and independent variables to use and develop a conceptual framework to achieve the study objectives with concluding remarks.

# Chapter Four
# Research Methodology

*The chapter includes various methods that have been employed in the research study and chronogically used to set a path for the study in place. It addresses research philosophy to data analysis procedures and techniques in the logical manner in the chapter.*

## 4.1 Introduction

Research methodology is a procedure for conducting research in a scientific and structured way with concrete logic at every step that includes several methodological issues in the process e.g. methods, tools and techniques as a guide to pave the way for equitable research execution.[1]

## 4.2 Research Philosophy

Two types of research philosophies namely positivist and post-positivist, researchers take into consideration. Positivist approach aims at studying hard facts, and tries to establish scientific laws between the facts.[2] So, positivists study social issues like other natural things because they use these laws same as the reality in action. Post-positivism approach describes reality as dynamic; so why, it relies on the people concerned in the research in a time. Beliefs, culture, gender among others play as the most significant factors in determining the research philosophy to recognize the complex relationships in the study relating to social and cultural issues, individual behavior, structures, and external attitudes,.[3] However, Positivist approach employs quantitative tools in investigation, while post-posivist use qualitative techniques to explore in-depth of a research issue.

## 4.3 Nature of Research

Robson expresses that the primary focus of the research is exploratory, explanatory, and descriptive.[4] However, social science research is classified as exploratory,

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[1] Mark Saunders, Philip Lewis, and Adrian Thornhill, *"Research methods for business students,* 5, (painos," *Harlow: Prentice Hall* 2009): 12.
[2] Mark J. Smith, *Social science in question: towards a postdisciplinary framework,* (Sage, 1998).
[3] Michael E. Porter, (2006): 153.
[4] Colin Robson, *Real world research: A resource for social scientists and practitioner-researchers* 2, (Oxford: Blackwell, 2002): 231-234.

descriptive and explanatory.[5] Exploratory research gets into the depth of a research issue where knowledge is little; a primary study requires justifying whether an in-depth study needed.[6] It spotlights the current situation to search for ideas, seek for answers and evaluate the issue in a new light."[7] Actually, it expresses a situation, a problem or a phenomenon syatematically depending on the facts or tracking attitudes of people towards a research issue.[8] In an exploratory research, researcher can present the research work either in qualitative or quantitative form or both.[9] Explanatory research seeks to find causes and effects by establishing relationships between variables.[10] Explanatory research seeks to determine and clarify relations between two or more aspects with spotlights on how and why of a situation.[11] It actually uses independent and dependent variables being manipulated and measures them to infer the causality of the relations.[12]

The study is very similar to the descriptive nature where research design begins with defining the problem, followed by the choice of research method, sampling method, conduct a survey of the samples who are recipients of mobile phone services for data collection, data analysis, and finally conclusion. Therefore, the study adopted a descriptive research design to achieve the objectives of the research study.

## 4.4 Research Approach

Many researchers recognize quantitative and qualitative research approaches to be widely used in business and management research.[13] Another method named as 'mixed method' with a combination of qualitative and quantitative approaches in conducting research survey. Quantitative research approach is a structured survey in

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[5] Mark Saunders, Philip Lewis, and Adrian Thornhill, (2009): 198-199.
[6] Ranjit Kumar, *Research methodology: A step-by-step guide for beginners,* (New York: Sage Publications Ltd., 2011): 302-309.
[7] Colin Robson, (2002).
[8] Ranjit Kumar, (2011).
[9] R. E. Babbie, *The Practice of Social Research*, 10th ed. (Belmont, CA: Wadsworth Thomson Learning, 2004): 66-68.
[10] David F. Birks and Naresh K. Malhotra, *Marketing Research: an applied approach*, (England: Pearson Education UK, 2006): 398.
[11] Ranjit Kumar, (2011).
[12] David F. Birks and Naresh K. Malhotra, (2006).
[13] Chakravanti Rajagopalachari Kothari, *Research methodology: Methods and techniques*, (New Delhi: New Age International, 2004); Ranjit Kumar, *Research methodology: A step-by-step guide for beginners*, (New York: Sage Publications Ltd., 2011).

which research objectives and survey questions are confirmed prior to survey.[14] Qualitative research approach explores the nature and existing situation of a research issue or phenomenon in a qualitative manner[15] Saunders et al. identifies quantitative as deductive and qualitative as inductive research approach.[16]

The study seeks to establish relationships between variables developed in the hypotheses, is similar to the quantitative or deductive approach. From the above discussion, this study adopted a quantitative approach as it is more appropriate to achieve the stated goals.

## 4.5 Research Strategy

Although some strategies belong to the inductive or deductive approach, each strategy can be considered for all types of researches.[17] However, the major research strategies are discussed below:

### 4.5.1 Case study

Case study is a research strategy which investigates a research issue empirically in the real context with sufficient evidence."[18] It deals with a single or more cases.[19]

### 4.5.2 Experiment

Experiment strategy tries to find out the relationships between independent and dependent variables when certain variables are manipulated or controlled.[20] Experiments are more laboratory-based rather than field; so why, it is more expensive also to conduct.[21]

### 4.5.3 Survey

When the study population is large enough to observe directly, usually survey is used.[22] It allows the collected quantitative data to be permitted for descriptive and

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[14] Ranjit Kumar, (2011).
[15] S. Pamela Schindler and Donald R. Cooper. *Marketing research*. (New Delhi: Tata McGraw-Hill Education, 2006): 79-82.
[16] Mark Saunders, Philip Lewis, and Adrian Thornhill, (2009).
[17] Robert K. Yin, *Case study research: Design and methods*, 3rd ed. (Thousand Oaks, CA: Sage Publications, 2003).
[18] Colin Robson, (2002).
[19] Mark Saunders, (2009).
[20] Catherine Hakim, *Research design: Successful designs for social and economic research*, (Hove: Psychology Press, 2000): 35-38.
[21] Mark Saunders, Philip Lewis, and Adrian Thornhill, (2009).

inferential statistical analysis. Survey strategy basically depends on a questionnaire to conduct data collection from the concerned persons in a methodical way[23]; while interviews and structured observation are also permissable.[24]

The present study seeks for direct responses from different groups of mobile subscribers where the study population is very large to observe or reach out. Moreover, the study needs to analyze its quantitative data using both descriptive and inferencial statistical tools and techniques. Therefore, the study insisted to use survey strategy.

## 4.6 Research Design Adopted

Research design, called as a general plan, dictates the way a researcher responds to research objectives.[25] Research design is a general framework that serves as a guide of the processes in order to acquire information needed to conclude a research problem.[26] However, research design sets the foundation for implementing any research study.

From the overall discussion, the study adopted a positivist approach, used a well-structured methodology to collect data on a quantitative basis, and statistically analyzed.[27] Literature review, theoretical framework and conceptual framework identified a platform for formulating research hypotheses to test. The study is descriptive in nature that aims to understand the perception of individual recipients and test the relationships between the different latent variables and their relevance in the perception of SMM and CBBE in the mobile telecom industry. A survey strategy consists of a structured questionnaire was adopted as the research tool to acquire data from the individual recipients on SMM and CBBE. A cross-sectional time-horizon adopted as the study used the survey for a certain period of time.

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[22] David F. Birks and Naresh K. Malhotra, (2006).
[23] Anol Bhattacherjee, *Social Science Research: Principles, Methods, and Practices*, Textbooks Collection 3, (Florida: University of South Florida, 2012): 35-41.
[24] David F. Birks and Naresh K. Malhotra, (2006).
[25] Mark Saunders, Philip Lewis, and Adrian Thornhill, (2009).
[26] David F. Birks and Naresh K. Malhotra, (2006).
[27] John Gill and Phil Johnson, *Research methods for managers*, (London: Chapman, 1997): 152-153.

## 4.7 Data Sources

Primary and secondary data are treated as the sources of data collection. Observation, questionnaires, in-depth interviews, focus groups among others is prime sources of acquiring primary data.[28] Census, publications, journal articles, conference proceedings, newspapers, websites among others treated as major sources of secondary data.[29]

Therefore, this study adopted primary sources as the key with the supplement of secondary sources to cross-check and draw a meaningful conclusion. Primary source is selected as prime because the field data is considered as the best to obtain direct responses from respondents.

## 4.8 Target Population

The group of cases from which the sample is drawn to use in a study is called a population.[30] Kumar stresses about a clear identification of the study population in selecting appropriate respondents to provide the required information.[31] Thus, identifying study population clearly provides reliable data for making judgments of a study.

From the above considerations, the researcher identified individual subscribers of mobile telecom service operators in Bangladesh as target population of the study. Existing subscribers' experience on mobile operators' services can provide the best perception and information than others is the rationale behind the choice.

## 4.9 Sampling Process

### 4.9.1 Selection of Study Area

In fact, mobile telecom has become one of the most vibrant service sectors in Bangladesh with its boosting network coverage. This service has spread over the urban, semi-urban, and rural areas across Bangladesh. So, all areas have been considered to be drawn as the study area. Rajshahi district has been selected for the

[28] Ranjit Kumar, (2011).
[29] Chakravanti Rajagopalachari Kothari, (2004).
[30] Mark Saunders, Philip Lewis, and Adrian Thornhill, (2009).
[31] Ranjit Kumar, (2011).

study purposively because the district covers urban, semi-urban, and rural areas similar to other districts in Bangladesh. Again, usage characteristics of mobile telecom services are more or less similar across the districts (urban to urban, semi-urban to semi-urban, and rural to rural) in Bangladesh. Moreover, it will cover metropolitan area and become convenient for the researcher to collect data in terms of familiarity, time and money comparing to other districts in Bangladesh. It will also help researcher to be in close contact with supervisors and IBS (Institute of Bangladesh Studies) and use library facilities of IBS and central library of Rajshahi University.

For selecting sampling areas, Rajshahi district was divided into three major categories of areas namely urban, semi-urban and rural. For urban, city corporation is the ultimate choice. There are 30 wards under this. Of them, ward no. 12 and 22 has been selected. There are 14 paurasabha in semi-urban area. Of them, Godagari paurasabha has been selected. Again, ward no. 1 and 9 has been selected out of total 9 wards under Godagari paurasabha. There are 8 upazila in rural areas where there is no paurasabha. Of them, Mohanpur upazila has been selected. There are 6 unions under Mohanpur upazila. Among them, Jahanabad union has been selected. Again, ward no. 3 and 7 has been selected out of total 9 wards under Jahanabad union. In all the phases, simple random sampling (lottery method) technique has been used.

### 4.9.2 Sampling Frame

A sampling frame is a listing of items on which samples are drawn.[32] Mass people are not permitted to acquire mobile phone number of subscribers of any area from mobile operators or BRTA. Again, there is no organization or agency or arrangement in Bangladesh from where the list of the mobile phone number of mass people can be obtained as a sampling frame. Recently, mobile phone Subscriber Identity Module (SIM) registration has been completed for the existing subscribers under the mobile operators with the collaboration of National Election Commission. Only National Identity (NID) holders could make Biometric registration or equity verification of SIM(s). Thus, to reach to the subscribers, researcher used voter list of the people of the study area as sampling frame to substitute mobile no. of subscribers, and collect

[32] Krishnaswami and M. Ranganatham, *Methodology of research in social sciences*, (Mumbai: Himalaya Publishing House, 2006): 290-293.

data from the individual mobile phone service subscribers among the voters of the study area. Comparing to voter list, absolute study population is 15% less in Godagari Paurashava, 13% less in Jahanabad Union and 5% less in Rajshahi City Corporation than voters in the study area respectively because these percentages of voters do not use mobile phone (non-users, and stay outside the study area) in the study area as per the pre-sampling survey made by the researcher. Thus, the study population has been settled to 20326 in number in terms of individual subscribers.

### 4.9.3 Sampling Unit

Sampling unit constitutes individual level subscribers of the mobile operators at Rajshahi district in Bangladesh.

### 4.9.4 Sampling technique

Of the two sampling techniques used by the researchers, probability sampling technique uses survey and experimental strategies while case studies are used in non-probability sampling technique.[33] Probability sampling techniques allow each sample to be drawn without personal preferences of the researcher.[34] Probability sampling technique includes five sampling techniques in general; namely simple random sampling, systematic random sampling, stratified random sampling, cluster sampling, and multi-stage sampling in practice.[35] Though the technique relies on the subjective judgments, generalization can be made on it.[36] In comparison, non-probability sampling techniques include quota sampling, judgement sampling, snowball sampling, purposive sampling, and convenience sampling technique, which does not consider all the items under the target population to have equal change to be drawn as a sample[37]

Probability sampling is free to use all descriptive and inferential statistical tools and techniques, but non-probability sampling is restricted to descriptive statistics

[33] David F. Birks and Naresh K. Malhotra, (2006).
[34] Ranjit Kumar, (2011).
[35] Mark Saunders, Philip Lewis, and Adrian Thornhill, (2009).
[36] David F. Birks and Naresh K. Malhotra, (2006).
[37] Ibid.

in use.[38] Since the study used Structural Equation Model (SEM), probability sampling method is the ultimate choice. Again, as the subscribers are overall homogeneous in nature in terms of services received; simple random sampling has been used for drawing samples of individual subscribers.

### 4.9.5 Sample Size

According to scholars, sample size for quantitative research should be as large as possible.[39] A sample size of 100 and above considers being enough for any quantitative research study.[40] Again, larger sample size lowers the probability error of generalizing the population of interest.[41] Therefore, the researcher detrmined the sample size for the study in the following process:

#### 4.9.5.1 Determination of Sample Size

Researcher is intended to use the widely used formula for the known population of Kothari to determine the sample size.[42]

$$n = \frac{z^2.N.p.q}{e^2(N-1)+z^2.p.q} = \frac{(1.96)^2\times 20326\times .5\times .5}{.05^2(20326-1)+(1.96)^2\times .5\times .5} = \frac{19521.0904}{51.7729} = 377.05 \text{ i.e., } 378$$

Where, n = sample size

N= Study Population size

z = 1.96 (at 95% confidence level)

p = estimated population proportion (0.5, this maximizes the sample size)

q = (1- p)

e = error limit of 5% (0.05)

Total number of samples has been distributed among the sampling areas using proportional method. The following table shows the distribution:

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[38] Nha Nguyen and Gaston LeBlanc, "The mediating role of corporate image on customers' retention decisions: an investigation in financial services," *International journal of bank marketing* 16, no. 2 (1998): 52-65.

[39] Joseph F. Hair,., William C. Black, Barry J. Babin, Rolph E. Anderson, and Ronald Tatham, *Multivariate Data Analysis,* (Upper Saddle River, NJ: Printice Hall, 2009): 302-306.

[40] Ibid.

[41] Mark Saunders, Philip Lewis, and Adrian Thornhill, (2009).

[42] Chakravanti Rajagopalachari Kothari, (2004):179.

**Table 4.1: Sample Distribution**

| District | Area | Sample Area | Voter of the Sample Area | Study Population | Sample Size |
|---|---|---|---|---|---|
| Rajshahi | Rajshahi City Corporation (Urban) | Ward 12 | 6790 | $N_1$= 6451 | $n_1$= 120 |
| | | Ward 22 | 6095 | $N_2$= 5791 | $n_2$= 107 |
| | GodagariPaurashava (Semi-urban) | Ward 1 | 1939 | $N_3$= 1648 | $n_3$= 31 |
| | | Ward 9 | 3998 | $N_4$= 3398 | $n_4$= 62 |
| | Jahanabad Union (Rural) | Ward 3 | 2057 | $N_5$= 1790 | $n_5$= 34 |
| | | Ward 7 | 1434 | $N_6$= 1248 | $n_6$= 24 |
| **Total** | | | **22313** | **N= 20326** | **n= 378** |

**Source:** Determined by the researcher

Study population is 15% less in GodagariPaurashava, 13% less in Jahanabad Union and 5% less in Rajshahi City Corporation than voters in the study area respectively because these percentages of voters do not use mobile phone (non-users, and stay outside the study area) in the study area as per the pre-sampling survey made by the researcher in the study area. Thus the study population has been settled to 20326 in number.

Sample size for each ward ($n_i$) has been calculated by using the following formula:

$$n_i = \frac{N_i}{N} \times n$$

Here, $n_i$ = Size of sample of ward *i*.

$N_i$ = Study population of ward *i.*

N = Total number of study population.

n = Sample size

**Reserve Sample**

According to the pre-survey (way to improve response rate) conducted in the study area, it is found that 13% of voters who would come as samples are not available at residence due to temporary migration, occupational engagement and other demographic reasons. In addition, some selected samples may not be available during the field survey for different reasons. Actual missing or non-response rate is difficult to predict. Therefore, considering all these along with non-users of mobile who are

voters in the study area (Godagari Paurashava 15% and Jahanabad Union 13%), 30% additional samples will be reserved for these study areas and 20% additional samples will be reserved for Rajshahi City Corporation in the proposed study.[43] The reserve sample for the proposed study will be 94.

Reserve sample has been distributed among sampling areas using proportional method. The following table shows the distribution:

**Table 4.2: Reserve Sample Distribution**

| Sample Ward | Sample Size | Distribution | Reserve Sample |
|---|---|---|---|
| Ward 12 | 119 | 120×.20 | 24 |
| Ward 22 | 107 | 107×.20 | 22 |
| Ward 1 | 31 | 31×.30 | 10 |
| Ward 9 | 62 | 62×.30 | 19 |
| Ward 3 | 34 | 34×.30 | 11 |
| Ward 7 | 24 | 24×.30 | 8 |
| **Total** | | | **94** |

**Source:** Determined by the researcher

### Absolute Sample Size

Sample size of 50 to 1000 seems to be satisfactory to estimate the indicators required for SEM which makes a good model fit.[44] To minimize the biasness and increase the applicability of SEM model, 100 samples with three or more indicators for each factor is satisfactory for convergence, and 150 samples is generally sufficient for a convergent and proper conclusion of the study.[45] Therefore, the sample size used in the study of 378 cases seems to be appropriate to initiate SEM for proper conclusion of the study.

[43] Leyla Mohadjer, Tom Krenzke, and Wendy Van de Kerckhove,"Survey of Adult Skills Technical Report" 25, Chap 14.

[44] Liam Hatcher, *A Step-by-Step Approach to Using the SAS System for FactorAnalysis and Structural Equation Modelling,* (Cary: SAS Institute Inc. 1994): 77-82.

[45] David W. Gerbing, and James C. Anderson, "The effects of sampling error and model characteristics on parameter estimation for maximum likelihood confirmatory factor analysis." *Multivariate behavioral research* 20, no. 3 (1985): 255-271.

## 4.10 Questionnaire Design and Administration

Questionnaire uses to conduct a research survey is developed based on the guideline e.g. who gave the direction; how to develop survey questionnaire, critically considering research questions and objectives.[46] Following the guideline, researcher developed a draft of the questionnaire. It was then pre-tested in the study area comprised of twenty one (21) respondents. Fink recommends a base of ten (10) individuals for pre-testing questionnaire is satisfactory.[47] Pre-test is completed with attention on the content, wording, constructs, and complexity of questions to avoid any uncertainty. After the last amendment and supervisors' input, the questionnaire was finalized.

Questionnaire was comprised of two parts. The first part included demographic and other information of the respondents. The second part of the questionnaire included three (3) sections with three (3) categories; SMM, sources for measuring CBBE and overall CBBE. In regards to the constructs in the conceptual framework, SMM elements were adopted from Booms and Bitner, dimensions of CBBE from David A. Aaker, and CBBE also from the same source. Overall, a total of 108 items used in the questionnaire to achieve the study objectives. Each item of the questionnaire was measured using a 5-point Likert scale with '1' being 'strongly disagree' and '5' being 'strongly agree'.[48]

## 4.11 Data Collection Techniques

### 4.11.1 Primary Data

#### 4.11.1.1 Survey with Questionnaire

Survey strategy was employed with a pre-tested structured questionnaire to collect data that from the individual users of mobile telecom services. The use of questionnaire has been found to be more convenient as the study used a large sample size.[49] The questionnaire development is necessary because each respondent is

[46] Mark Saunders, Philip Lewis, and Adrian Thornhill, (2009).
[47] Arlene Fink, *How to Ask Survey Questions,* 2nd ed. (Thousand Oaks, CA: Sage, 2003).: 52-56.
[48] David F. Birks and Naresh K. Malhotra, (2006).
[49] Mark Saunders, Philip Lewis, and Adrian Thornhill, (2009).

provided with the same set of questions.[50] Accordingly, in this study, data was collected from the study area using the pre-tested structured questionnaire by reaching out to the individual subscribers who consume mobile phone services. The researcher himself and two well-trained enumerators conducted the questionnaire survey.

### 4.11.2 Reserve Samples Used

**Table 4.3: Reserve Samples Used in data collection**

| Sample Ward | Sample Size | Distribution | Reserve Sample |
|---|---|---|---|
| Ward 12 | 119 | 24 | 20 |
| Ward 22 | 107 | 22 | 17 |
| Ward 1 | 31 | 10 | 7 |
| Ward 9 | 62 | 19 | 18 |
| Ward 3 | 34 | 11 | 9 |
| Ward 7 | 24 | 8 | 7 |
| **Total** | | **94** | **78** |

**Source:** Determined by the researcher

A total of 78 reserve samples have been used during the data collection to complete the survey of 378 individual subscribers of mobile telecom operators.

### 4.11.3 Time Horizon

Field data collection is a lengthy process to avoid fieldwork errors and it also depends on the respondents' convenience. Considering all these, data collection took eight (8) months to be completed; between April 10, 2019 and December 9, 2019.

### 4.11.4 Secondary Data

Data acquired from reaching to the library resources of Institute of Bangladesh Studies (IBS) and Begum Rokeya University, Rangpur (BRUR), asking from mobile operators, internet browsing from IBS; searching for prominent journals and book publications through the websites registered under University of Rajshahi, Rajshahi.

## 4.12 Instrumentation and Methods of Data Analysis

Data analysis was comprised of several stages; data preparation, data analysis and finally reporting. Both descriptive and inferential statistics devoted for analyzing

[50] Ibid.

quantitative data using IBM SPSS 22, and AMOS 21. Responses collected through the survey questionnaire from the field and analyzed through Structural Equation Modelling (SEM) and reported dully.

### 4.12.1 Analytical Concepts

In this sub-section, key terms are defined in the context of data analysis:

**Factor Analysis**

It is a multivariate method that attempts to identify the fundamental factors responsible for the variance between the set of independent variables of interest.[51] The purpose of factor analysis is to reduce the number of variables to retain the few variables that still represent the relationship. Observed variables are modeled as linear combinations of potential factors, and 'error' terms.

**Exploratory Factor Analysis (EFA)**

EFA attempts to uncover the nature of the structures that affect a set of responses, the purpose is to define the basic dimensional structure of a set of measures.

**Confirmatory Factor Analysis (CFA)**

It is a theory-based technique in which the researcher uses the assumed model to estimate the population covariance matrix that is compared to the observed covariance matrix.[52] It tests whether the set of specific structures affects responses in a predictable way.[53] The goal is to test if the pre-dimensional architecture is compatible with the structure obtained in a given set of scales.

**Structural Equations Modelling (SEM)**

It is a multivariate theory testing technique, and has been described as a combination of CFA and multiple regressions.[54] This means that this technique allows the researcher to

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[51] Jamie, D. and DeCoster, J., Overview *of Factor Analysis*, 1998, Retrieved on January 2015: 117-119.

[52] Barbara G. Tabachnick, and Linda S. Fidell, *UsingMultivariate Statistics* 7th edn. (Boston: Pearson, 2006): 103-104.

[53] Jamie, D. and DeCoster, J., Overview *of Factor Analysis*, 1998, Retrieved on January 2015 at http://www.stat-help.com/notes.html.

[54] ULLMAN, Jodie B. "a Gregoris MENTZAS," Structural Equation Modeling: Reviewing the Basics and Moving Forward," *Journal of Personality Assessment*, 2006, 87(1): 35-50.

simultaneously examine a series of interrelationships between measured variables and latent combinations, as well as between many underlying combinations.[55] SEM analysis conducts both factor analysis and regression analysis at a time where the relationships between the underlying/latent concepts and their corresponding indicators are analyzed together using confirmatory factor analysis, and the relationships between the underlying concepts are analyzed using regression analysis.[56] To continue SEM, a common method of estimating model parameters is maximum likelihood estimation (MLE) which produces reliable and efficient estimates**.**[57]

## 4.13 Data Analysis Process

This study adopted SEM analysis. At first, relevant preliminary descriptive analysis namely percentage, mean, standard deviation, skewness and kurtosis determined using SPSS 22 to know whether the data are normally distributed and meet the assumption of linearity. A number of validity measures have been taken so far. Face validity obtained by pre-testing the research tool by twenty-one (21) individual participants in the study area. Researcher's supervisors, who are academics of University of Rajshahi, Bangladesh, verified the suitability and ability of the instrument to achieve the research objective. Content validity obtained through the procedures used to develop the research tool, which includes a useful review of theoretical and empirical work on SMM, CBBE dimensions/sources, and CBBE, on which operational definition for each variable settles, and confirms multiple elements in each variable to capture all of its attributes inside; and a pre-test before starting to collect data. Cronbach's Alpha used on the basis of standardized elements to verify the content validity of the constructs/variables and the internal consistency of the elements that measure the constructs. CFA used to assess the construct viability e.g. to test SMM, CBBE sources, CBBE, and how well items adapt to a particular factor or construct.

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[55] Edward, Groenland, and Joost, Stalpers, "Structural Equation Modelling: A Verbal Approach,"*Nyenrode Research Paper*, 2012, 12 (02), Nyenrode Business University.

[56] Ibid.

[57] Joseph F. Hair, William C. Black, Barry J. Babin, Rolph E. Anderson, and Ronald Tatham. "Multivariate data analysis. Uppersaddle River." (2006): 312-313.

Factor analysis was used to identify the underlying factors which are responsible for the co-variance between variables. The goal was to identify a small number of variables containing the same information as that of the original data. The data was checked for suitability for factor analysis, and Bartlett's test of sphericity (BTS) was used to determine whether the correlation matrix is an identity matrix (it consists of all diagonal values with 0, and off-diagonals with 1). Examining the values of the anti-image matrix is also required. Low correlation values in this matrix give large numbers; if the non-diagonal values of this matrix are close to zero, factorization is judged appropriate. Next, sample size adequacy using Kaiser-Meyer-Olkin was done in which value less than 0.5 is not acceptable. KMO compares the observed correlation matrix with partial coefficients; small values indicate the sample size to be insufficient. For factor analysis to be applicable, the data must be at the interval level and normally distributed.

Then, factor extraction was performed using principal component analysis to identify the underlying factors that determine the linear combination of the variables which represent the largest variance. After this process, the factors were rotated to make the relationships between the variables easier, meaningful, and parsomonious to infer. The most popular method of rotation, varimax was employed which uses orthogonal rotation to produce uncorrelated components. Finally, the most loaded variables for the same factor were grouped together and the linear factor equations for the main components were presented and explained. The principal component is the group representing the greatest variance, followed by the second component representing the next largest variance, and is not correlated to the first component. Eigenvalues were used to examine the factors that explain the large portion of the data. As per rule, factors with an eigenvalue greater than 1 are taken and rests were dropped. Thereafter, the rotated component matrix developed.

For SEM analysis, measurement models were developed with the rotated component matrix using AMOS 21. SEM model combines the aspects of CFA with multiple regressions. CFA method is preferred because it is recommended that itis a

more rigorous unidimensional test derived from SEM.[58] It uses to describe the complex relationships between the measurement constructs and the linear relationship between the latent constructs. Therefore, the CFA has been used to confirm or improve the unidimensionality of the measurements resulting from the EFA. The SEM process separately analyzes the measurement models and then combines the measurement models to present the structural model. SEM used both the absolute and incremental fit indices to provide better results. Absolute goodness-of-fit indicators measure the overall fit of a model and demonstrate how well the researcher-defined model reproduces observed data. Significant absolute indices are namely Chi-square (P 0.05); Goodness-of-Fit index (GFI 0.90); Adjusted Goodness-of-Fit Index (AGFI 0.80); Normed fit index (NFI 0.90); Non-Normed Fit Index (NNFI 0.90); Comparative Fit Index (CFI ≥ 0.90); Standardised root mean-square residual (SRMR 0.08); and Root Mean Square Error of Approximation (RMSEA <0.10). Factor loading is the correlation of variables with a factor, the weighted set of variables that best explain the variance in which values greater than 0.40 place the variables in the factor.[59] Maximum likelihood as the estimate fit function used for the SEM method[60] finally to get the findings from the data analysis.

## 4.14 Ethical Consideration

Ethical standards have evolved to accommodate a dynamic culture, values, needs and expectations. On the basis of this principle, the agreement of all respondents successively received with the aim and objective of the study presented to them. Ethical considerations privileged as participants were encouraged to participate voluntarily in the study.[61] Confidentiality emphasized more as the respondents' personal information is not disclosed in the study.

[58] Garver, M. and Mentzer, J. 1999. Logistics Research Methods: Employing Structural Equation Modelling to Test for Construct Validity', *Journal of Business Logistics,* 20(1): 33- 47.
[59] Multivariate Data Analysis', Fifth Edition, Upper Saddle River, N J, PrenticeHall, 106.
[60] R. E. Schumacker and R. G. Lomax, "A beginner's guide to structural equation modeling. Lawrence Erlbaum Associates," *Mahwah, NJ* (2004): 332-337.
[61] Ranjit Kumar, (2011).

## 4.15 Conclusion

This chapter described the various methods employed in conducting the research. It discussed the process in which the study was carried out in order to arrive at conclusions for the research based on the set objectives. Diverse methodological issues ranging from the philosophy underpinning the study, research approach and strategy, to data collection and analysis techniques used were discussed.

# Chapter Five
# Assessment of Mobile Telecom Industry in Bangladesh

*This chapter provides an overall study and assessment of mobile telecom industry in Bangladesh to determine the drivers of the industry. The chapter begins with the emergence of the industry towards competitiveness and continues to assess the role of regulatory organizations, scenario of the industry in terms of competitiveness, network technology, mobile phone eco-system, value added services, therefore, drawing a chapter conclusion to close the chapter.*

## 5.1 Introduction:

In recent years, mobile telecom industry contributes to the economy of Bangladesh through various services other than telecommunications namely money transfer, education, colaboration in internet banking, social welfare services etc. Besides these, it is now one of the foremost taxpayers in Bangladesh.[1] Moreover, it attracted the highest amount of Foreign Direct Investment (FDI) to Bangladesh and created significant direct and indirect employment.[2]

## 5.2 Development of Mobile Telecom Industry in Bangladesh

Mobile telecom industry in Bangladesh started with a first step in 1989 with the issuance of a license to a private operator Citycell to provide cell phone services, to compete with the former monopoly provider of services; Bangladesh Telegraph and Telephone Board (BTTB)). Significant changes took place in the number of fixed and mobile services deployed in Bangladesh in the late 1990s, and the number of mobile operators thereafter has increased dramatically over the past five years.[3] Government and public sector incentives have helped the industry to develop and become one of the largest sectors in Bangladesh. As a densely populated country, its huge subscribers

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1 N. Alam, M., and Hossain, M., A., (2012), *"Analytical Hierarchy Process (AHP) Approach on Consumers' Preferences for Selecting Telecom Operators in Bangladesh", Information and Knowledge Management*, 2 (4): 7-19.

2 GSMA Intelligence report for Asia pacific region, GSMA, 2020, www.gsma.com.

3 http://www.btrc.gov.bd/about-us

have attracted many foreign investors to invest in this sector. Therefore, the industry moves forward with its high potential till now.

Bangladesh is the first country in South Asia to adopt cellular technology in 1993 with the introduction of the Advanced Mobile Phone System (AMPS).[4] In 1996, given the monopoly environment prevailing in the sector, the government granted GSM licenses to three mobile operators namely Garmeenphone, Sheba Telecom and AKTEL with the aim of removing monopoly and making cellular technology accessible to the general public. Later in 2004, Teletalk as the fifth and in 2007, Warid Telecom as the sixth mobile telecom company entered into the industry in Bangladesh.[5] Bangladesh Telecommunications Regulatory Commission (BTRC), with the approval of the government, issued 3G licenses to Grameenphone Ltd, Banglalink Digital Communications Ltd, Robi Axiata Ltd. and Airtel Bangladesh Ltd in 2013 while Teletalk got the license in 2012.[6] Currently, four operators in Bangladesh work with the corporate brands namely GP, Banglalink, Robi (Robi and Airtel merged together) and Teletalk.[7]

## 5.3 Mobile Technologies

### 2G cellular mobile service

According to the National Frequency Allocation Plan (NFAP), the 900 MHz and 1800 MHz bands are allocated to second generation mobile services. It is reported that the 15.60 MHz spectrum was dumped from the 1800 MHz GSM band after the rearrangement.[8] This spectrum could now be allocated in favor of a new operator and thus the government could earn a significant amount of revenue.

### 3G / 4G / LTE mobile phone service

According to the ITU and NFAP Radio Regulations, the frequency bands 698-806MHz, 2500-2690MHz and 1920-1980 / 2110-2170MHz are reserved for 3G / 4G / LTE services. In order to realize the dream of ‘Digital Bangladesh’ and implement the

[4] Ibid.
[5] Ibid.
[6] Ibid.
[7] Ibid.
[8] http://www.btrc.gov.bd/national-frequency-allocation-plan.

'Vision 2021', it is necessary to have voice and data services at the doorstep of the general public while 3G / 4G / LTE technologies are the means of providing services to the distant people of Bangladesh.

## 5.4 Governance Structure

Mobile telecom sector of Bangladesh is governed by the concerned ministry, the regulatory commission and the mobile operators' association. A brief overview has been given below:

### 5.4.1 The Ministry

The Post and Telecommunication Division of the Ministry of Post, telecommunication and Information Technology of the Government of the People's Republic of Bangladesh, is responsible for the telecommunications sector in Bangladesh. This division is concerned of the policies to be taken for the provision of telecommunications services all through the Bangladesh.[9]

### 5.4.2 Regulatory commission

The Bangladesh Telecommunication Regulatory Commission (BTRC) was established on January 31, 2002 under the Bangladesh Teleommunication Act, 2001 as an independent regulatory body. The BTRC is established to provide reliable telecommunication services in the country. In the Act, BTRC has been given with the responsibilities of establishing, regulating, operating, and maintaining telecommunication companies or operators to enlarge and enrich telecom services in Bangladesh. In addition to this, it guarantees services to subscribers and monitors the social and economic practices or behavior of the telecom operators.[10]

### 5.4.3 Telecom operators' association

Association of Mobile Telecom Operators of Bangladesh (AMTOB) is the national body that represents all the telecom operators in Bangladesh, was established in 2001. It has become the official voice of the operators to interact with relevant regulatory bodies, government agencies, technical bodies, financial institutions, civil society and

[9] http://www.btrc.gov.bd/regulation
[10] Ibid.

so on. It provides a platform for discussion and exchange of ideas among stakeholders and operators for the development of the sector in Bangladesh. All the mobile operators in Bangladesh namely Banglalink, Grameenphone, Robi (Robi and Airtel) and Teletalk are members of AMTOB.[11]

### 5.5 Act, Rules and Regulations

Bangladesh, then the territory of British India, received very limited access to telecommunication. The Telegraph Act, 1885 was the most important legislation of this cutting-edge technological service. It was further strengthened by the Wireless Telegraphy Act, 1933.The Bangladesh Telegraph and Telephone Board Ordinance, 1979 established the constitutional body with the view to set efficient administration, worthy operation, and development of telegram and telephone services in Bangladesh. The BTTB Act, 1979 was further revised in 1995 to remain BTTB as the sole provider of basic telecommunication services.[12]

The Bangladesh Telecommunication Act, 2001 is the result of the booming development in technology and service standards in the last decade.[13] This era of convergence have set the platform of mobile, PSTN, internet, messaging, media, entertainment, photography, banking, advertising etc.

The amendment of the telecom act, 2001 in 2010 added the provision of government approval in providing telecommunication services, direct international calls, import telecommunication equipment, and transfer equity of such equipment. Any violation to this is punishable by an administrative fine upto Tk. 300 crore or 10 years imprisonment, or both; while a fine of Tk. 100 crore and a maximum imprisonment of 5 years individuals for the same violation. According to the act, if the operator continues to infringe even after being fined of Tk. 300 crore, the said operator shall also be fined with Tk. 1 crore per day. The act also reveals the requirement of prior government approval in issuance of any telecom license, transfer

[11] Ibid.
[12] Ibid.
[13] Ibid.

equity in order to revoke any license, different tariffs, call and other charges that were set by the BTRC earlier to this. After the application, the government will issue a decision within 60 days.[14]

## 5.6 Profile Review of Mobile Telecom Operators

A telecom operator also known as a mobile network operator (MNO) is a provider of wireless communication services such as mobile telephony and mobile broadband internet. Telecom operators generally own or control all of the network elements necessary to provide services to the end user namely radio spectrum allocation, wireless and fixed network infrastructure, sales and marketing, billing, network repair and maintenance, customer service etc. There are four mobile telecom operators in Bangladesh named as Grameenphone Limited, Robi Axiata Limited (Airtel Bangladesh merged with Robi Axiata Limited), Teletalk Bangladesh Limited and Banglalink Digital Communications Limited. Here is a review of the different mobile operators in Bangladesh:

### 5.6.1 Grameenphone

Grameenphone Limited, the leading telecom operator in Bangladesh, is a part of the Telenor group with a presence in 13 markets in Europe and Asia. Prior to the existence of Grameenphone in Bangladesh, the telephone was intended for a small group of urban areas and the cell phone was a real luxury for the elite while the masses could not have thought of using it. Grameenphone began its journey with Village Phone, a pioneering initiative for the empowerment of rural women in Bangladesh. Grameenphone started their operation on March 26, 1997, and became the first operator to introduce GSM technology in Bangladesh. They were also the first operator to introduce prepaid service in Bangladesh in September 1999. It also established the first 24 hour call center, value added services such as VMS, SMS, data services and fax, international roaming, WAP, EDGE, SMS-based push and pull services, customized ring tones, and many other services.

[14] Ibid.

### 5.6.2 Banglalink

Banglalink Digital Communications Limited then the Sheba Telecom (Pvt.) Ltd. was granted license in 1989 to operate in the rural areas of 199 upazilas. Later it obtained nationwide GSM license in November 1996 to extend its business to cellular mobile, radio telephone services. It launched operation in the last quarter of 1997 as a Bangladesh-Malaysia joint venture. In September 2004, Orascom Telecom Holdings acquired Sheba Telecom (Pvt.) Limited and it became changed its name as Orascom Telecom Bangladesh Limited in March 2008. Following the equity restructuring in 2011, the company name changed to Banglalink Digital Communications Ltd. in July 2013.[15] Immediately after the launch of Banglalink, impact was huge in the industry in the context of the competition and services.

### 5.6.3 Robi

Robi Axiata Limited started its operation in 1997 under the Telekom Malaysia International (Bangladesh) with the brand name 'Aktel'. In 2010, the brand name became 'Robi' following the change of the company to Robi Axiata Limited. It is a joint venture company between Axiata Group Berhad of Malaysia and NTT DoCoMo Inc. of Japan. Robi relies on the international expertise of Axiata and NTT DoCoMo Inc. and its GSM services are based on a robust network infrastructure and state-of-the-art technology. The company has the widest roaming coverage in Bangladesh, connecting 600 operators in more than 200 countries. The merger of Robi and Airtel in 2017, created a new competitive arena in the industry. The new Robi-Airtel (Robi) is owned by Axiata (68.7%), Bharti Airtel (25.0%) and the Japanese NTT DOCOMO (6.3%).[16]

### 5.6.4 Airtel

Airtel Bangladesh Limited was the sixth mobile telecom company to enter into Bangladesh market under Warid Telecom with the brand name 'Warid' on May 10, 2007. In 2010, Warid Telecom has sold its 70% stake to Indian Bharti Airtel Limited who took the administrative control and renamed the services under its own brand

[15] https://www.banglalink.net/en.
[16] https://www.robi.com.bd/en/corporate.

'Airtel' as of December 20, 2010. Airtel Bangladesh Limited is one of the fastest growing mobile service providers in Bangladesh and the favorite brand of young people. In 2017, Robi and Airtel merged together and are now operated under Robi Axiata Limited with the brand name 'Robi'. Airtel's operational activities are gradually being compiled by Robi.[17]

### 5.6.5 Teletalk

Teletalk Bangladesh Limited, with its brand name 'Teletalk' is the only state-run mobile operator in Bangladesh which started its operations in 2004. Teletalk continues to expand its network to reach remote areas of Bangladesh where its motto is to reach the masses with mobile telecom services.[18]

## 5.7 Competitive Setting

### Consumer-base

Subscriber-base has a descent pace in the past years; in 2016, it was 131.376 million in terms of penetration and it reaches to 161.295 million in June, 2020.[19]

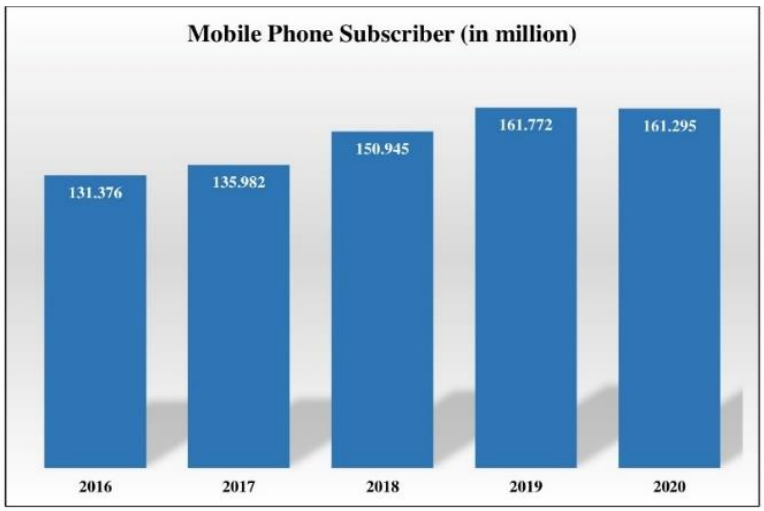


**Figure 5.1:Mobile Phone Subscriber (in million)**

### Market Share

[17] https://www.bd.airtel.com/en.
[18] https://www.teletalk.com.bd/en/.
[19] Subscribers in million, BTRC news, BTRC, June, 2020.

In terms of market share, GP is well ahead of 46%, followed by Robi with 30% and Banglalink is 21% as per June, 2020.[20]

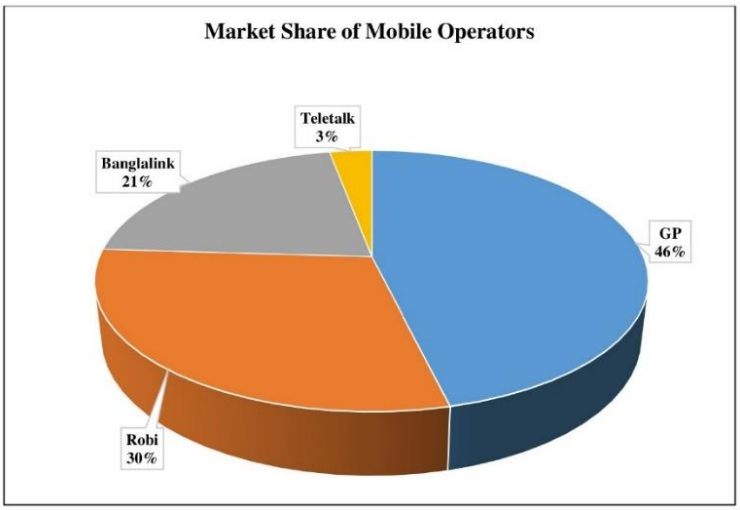


**Figure 5.2: Market Share of Mobile Operator**

## Mobile Internet Subscribers

As per BTRC, mobile subscriber reaches to 91905 million from 59658 million in 2016 with a good growth in percentage.[21]

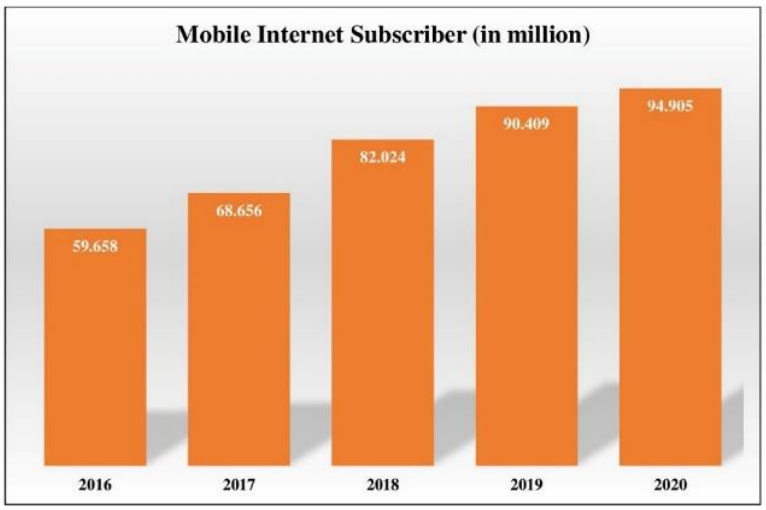


**Figure 5.3: Mobile Internet Subscriber (in million)**

## Mobile Handset Share

[20] Ibid
[21] Ibid

As very crucial for using cellphone services, mobile handset is the key. In Bangladesh, Samsung leads the way with 35% market share followed by Xiaomi with 20%. Symphony was the leader in 2019.[22]

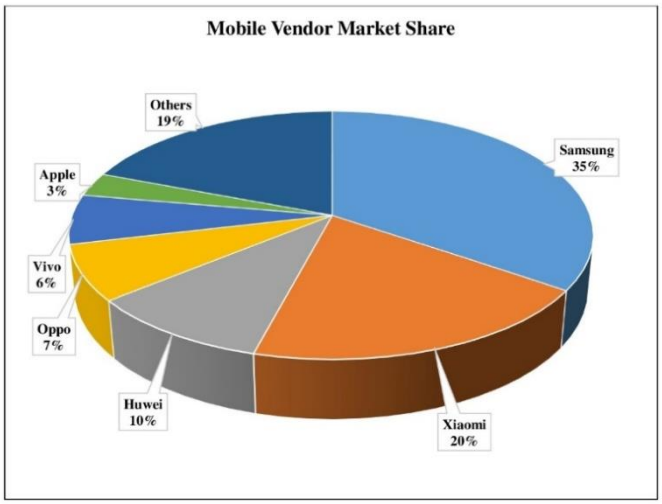


**Figure 5.4: Mobile Vendor Market Share**

## Social Media Users

Mobile internet users basically use Facebook and messenger constitutes to more than 70%; well ahead of youtube and other apps.[23]

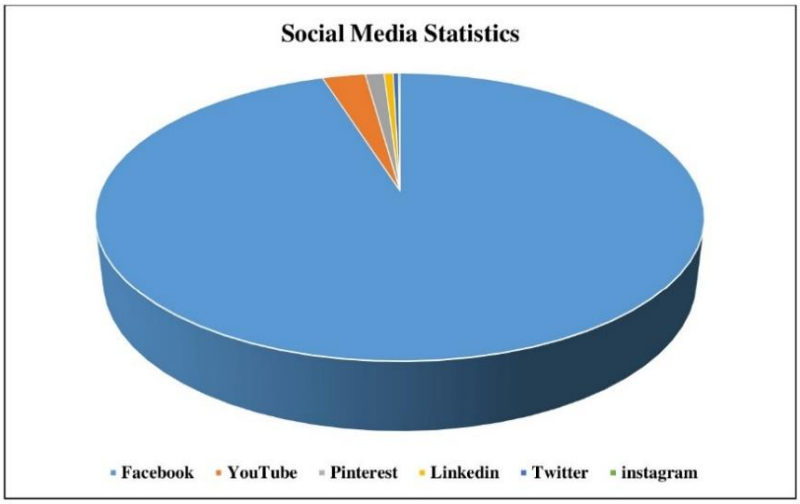


**Figure 5.5: Social Media Statistics**

## Unique subscribers

[22] GSMA Intelligence report for Asia pacific region, GSMA, 2020, www.gsma.com.
[23] Ibid.

Unique mobile subscriber reaches to 55% of the total penetration while mobile internet users become 30% of the mobile service users in Bangladesh which is in the lower basket in Asia pacific region.[24]

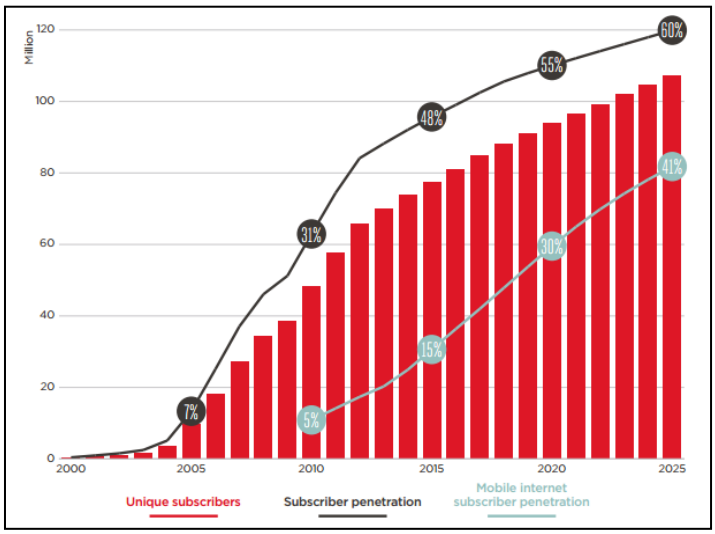


**Figure 5.6: Unique subscribers**

### Average Revenue Per User (ARPU)

Bangladesh is the lowest in earning ARPU amounted to $2.9 which is well below the average ARPU of $10.8 in Asia pacific region.[25] The report added, in the context of mobile internet penetration, Bangladesh is much behind than average of the region.

[24] Ibid.
[25] Ibid.

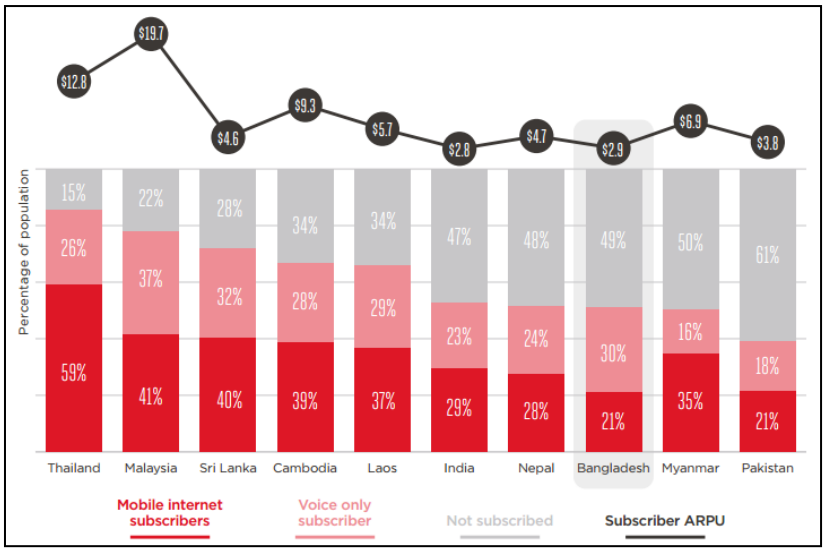


**Figure 5.7: Average Revenue Per User (ARPU)**

## Mobile Network Technology

Bangladesh is the very last country in the region to commence 4G on February 2018, may hinder the 'Vision 2021' of the country.[26]

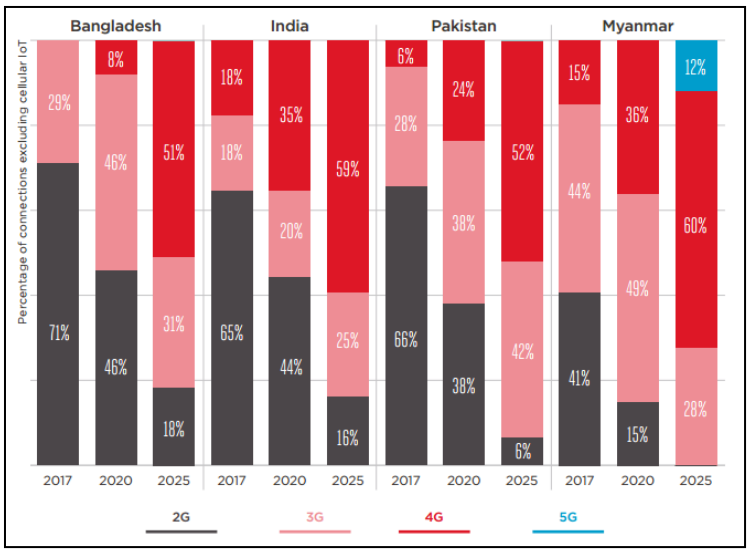


**Figure 5.8: Mobile Network Technology**

4G technology will penetrate much faster than 3G. It is expected that 46% will be dominated by 4G in 2025. Its process till June, 2020 is optimistic.

[26] Ibid.

**Length of adoption of 3G/4G**

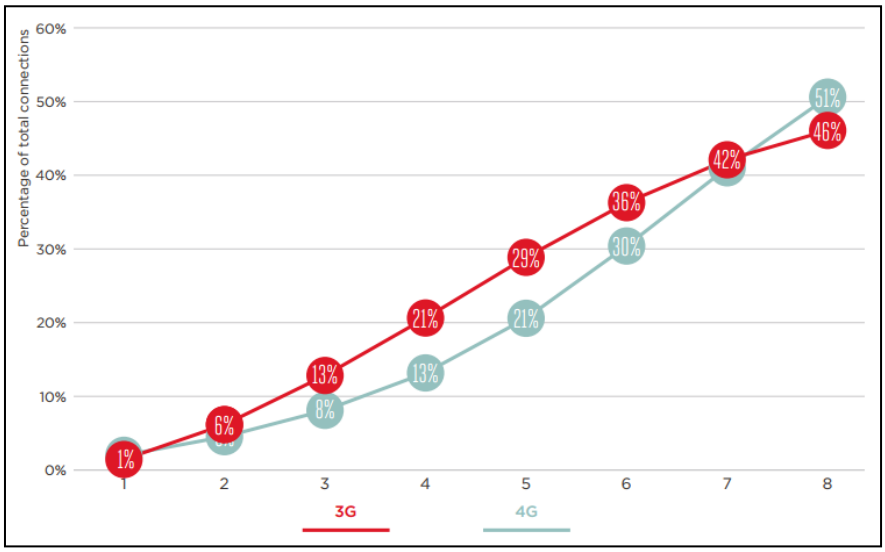


**Figure 5.9: Length of adoption of 3G/4G**

## 5.8 Industry Scenario

The majority of subscribers in Bangladesh mainly use their mobile phones for basic voice and SMS services and occasional Value Added Services (VAS) to some extent. Due to this low level of engagement, the industry generates one of the lowest ARPU in the world which is far away from global average of $ 14.6.[27] This limits the capacity of operators to generate the necessary transition to mobile broadband technologies.

However, the slow transition to mobile broadband technologies such as 3G and 4G in Bangladesh is the result of a delay to introduce such technologies. The 3G and 4G spectrum auctions were too late; taking place in September 2013 and February 2018 respectively, ultimately placed Bangladesh as the last country in South Asia to grant licenses for these technologies.[28] But, a combination of better accessibility through low-priced smartphone, increased network coverage, and technological advancements through the launch of 4G services might enable Bangladesh to accelerate the transition to mobile broadband technologies in 2025 as expected.[29] 3G

[27] Ibid.
[28] Ibid.
[29] Ibid.

connections have already surpassed 88% of 2G in June 2020. Though 4G is initially lagged behind 3G in the initial stage, it will accelerate until 2025, when 4G is expected to represent half of all connections.[30]

According to the GSMA[31], at the end of June 2020, around 56% of people in Bangladesh use cell phones, of which 27% had internet connection. They estimated that the number of unique users will reach at least 59% and at least 38% will be internet users by 2025. They said that Bangladesh will have 25 million new internet users in the next five years. By 2025, out of the total number of internet users in Bangladesh, only 6% will use the 5G network, while 4G will dominate the market which comprises at least 46% of the total data users as per expectation. However, at the end of June 2020, only 12% of internet users have 4G connections, 60% of 3G users, and rest of mobile phone users use cellphone only for communication purposes.

Smartphone penetration in Bangladesh is currently only 52% as of June 2020 and expected to reach to 69% after five years. The mobile penetration in Bangladesh has already reached 100% in 2019. In this context, Bangladesh is 78% ahead of India and 76% of Pakistan and expected to remain ahead of them even in 2025 while countries namely Indonesia, Australia, Japan, Malaysia, Singapore and South Korea is well ahead now with few of these countries have a penetration rate of 150 percent. The last five countries mentioned have formed a new platform named as, APAC 5G Forum which would dominate 5G services in this region in 2025 as expected.[32]

BTRC formed a committee in 2019 to prepare a draft for 5G service guidelines and tentatively planned to launch 5G service by 2022.[33] However, all preparations are postponed for several months in the case of Covid -19 situation. Regarding the situation in Bangladesh, GSMA said, a big slice of opportunity exists for 4G which will remain the most dominant mobile technology in Asia-Pacific for years while 5G opportunity is for long-term.[34]

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[30] Ibid.
[31] Muhammad Zahidul Islam, Bangladesh lags behind Asia Pacific peers in telecom services: GSMA report, 2020.
[32] Ibid.
[33] Annual report, 2019-20, BTRC, www.btrc.com.
[34] Muhammad Zahidul Islam, GSMA report, 2020.

According to the GSMA prediction, around 663 million new people in the region will start using mobile internet by 2025, and most of them will come from China with 261 million, India 190 million, Pakistan 46 million, Indonesia 44 million and Bangladesh 25 million. The research report also states that 6.3 billion new Internet of Things (IoT) connections will be in the Asia-Pacific region over the next five years, which is half of the new global additions. There are currently 5.2 billion IoT connections in this region. The consumption of mobile data traffic reached 9.2 GB per subscriber per month, which would be more than triple to 28.9 GB in 2025. However, according to the private telecom operators of Bangladesh, average internet consumption per user is about 2 GB of data per month in the country which is far away from the region.

## 5.9 Technological Advancement and Mobile Broadband Trend

The demand and supply of Internet connectivity in various ICT devices are increasing day by day in Bangladesh. [35] For various influences, most Bangladeshi people's first experience is mobile internet rather than broadband. Currently, the four service providers provide 3G services in 64 districts of Bangladesh, while Gp and Robi have covered 4G/LTE services across the country leaving Banglalink and Teletalk behind.[36]

Since mobile internet customers are not yet satisfied with the service, they often complain about the speed and the sudden drop.[37] Obviously, heavy Internet users who do more than just surfing around are often unhappy with the service. Their expectations do not match the fact of internet connectivity and speed in Bangladesh. However, operators are trying to expand and improve the coverage and quality of the internet connection. Therefore, there is a large scope for improvement to telecom service providers in Bangladesh.

[35] BTRC news, http://www.btrc.gov.bd/.
[36] Ibid.
[37] Ibid.

### 5.9.1 Applications of 4G Technology

#### 5.9.1.1 Performance of 3G, 4G/LTE and Internet

Bangladesh is trying to enter the world of globalization even though this country has just gained its independence in 1971; therefore, its growth is tremendous.[38] But, comparing to the growth of mobile phone technology, it could not provide the desired internet service even though conditions have changed rapidly over the last decade. With 3G across the country, the availability of 4G in Bangladesh ranges from 60% to 80% coverage. But it is not fair to compete with rapidly growing other countries in terms of internet adoption and Internet connectivity. Bangladesh is one of at least 42 countries with slow internet speed of 4,176.25 Kbps and also much slower than neighboring countries.[39]

- **Ranking:** Bangladesh ranked 131st for Internet speed among other countries in the world. They say it's slow. To stay up-to-date with the modern world improvements in the ICT sector, and internet connectivity is a must for Bangladesh in a shorter period of time.[40]
- **Latency:** Latency of the internet connection in Bangladesh is 42ms, which slows down the speed of the internet connection. The average internet speed in Bangladesh is 9.06 Mbps comparing to global average of 25.08 Mbps, is an alarming sign. Mobile network operators blamed NTTN for this below average service.[41] They also raised the issue of transmission and urged the authority to remove barriers to ensure high quality internet service to customers. But the matter is not yet settled; instead, they blamed each other for the slow speed of internet.
- **Video experience:** The video streaming experience is fair enough in the context of Bangladesh; 50 to 60 points out of 100 by users. Buffering time, sudden drop in video quality hinders video viewing experience.[42]

[38] Ibid.
[39] GSMA news, 2020, www.gsma.com.
[40] GSMA report, 2018, www.gsma.com.
[41] Ibid.
[42] Ibid.

• **Voice app experience:** In Bangladesh, the best voice app experience is provided by Banglalink. Other competitors also offer fair quality; average rating is 60 to 70. Due to the financial benefits of internet calling, most people are now only interested in making Internet calls. In this connection, various voice apps like Whatsapp, Viber and IMO are now very popular in Bangladesh.[43]

• **Download experience:** In Bangladesh, average of internet download speed is 10-8MB/s; means that downloading a one GB file takes more than a minute.[44] Therefore, it needs to improve for keeping a pace with the digital world.

• **Upload experience:** The average upload speed in Bangladesh is only 5-3 Mbps. Due to the slow speed, downloading a 1 GB file in Bangladesh may take over an hour depending on the type of file (text, picture, audio,video) and technology (3G or 4G/LTE). Overall, 4G / LTE performance in Bangladesh is decent, but need to work on speed.[45]

According to (AMTOB), mobile operators have already invested around $1 billion to start fourth generation (4G/LTE) technology. 4G compatible handset is a major challenge as there are less than 15% of phones with 4G.[46] AMTOB proposed the concerned authority for reducing tax on 4G/LTE compatible handset for at least several years to ensure the success of 4G/LTE in the country. According to GSMA, the Global Mobile Operators Association,[47] out of Tk. 100 spends per user in Bangladesh; Tk. 51 goes directly to the national treasury. Again, according to the head of the GSMA Asia-Pacific, Bangladesh is one of the smallest mobile phone market in terms of consumers in number around the world, but the price of spectrum is one of the highest among the countries. Moreover, together with Pakistan, the country has the lowest mobile internet penetration rate in the Asia-

[43] Ibid.
[44] Ibid.
[45] Ibid.
[46] Mobile Phone Operators Invested $1 billion for 4G, HomeBusinessTelecom, Star Online Report, The Daily Star, April 22, 2018.
[47] GSMA Intelligence is the definitive source of global mobile operator data, analysis and forecasts, and publisher of authoritative industry reports and research. Data covers every operator group, and network in every country worldwide.

Pacific region with 21% unique users despite having 3G coverage nationwide; even countries like Nepal and Myanmar, which have lower GDP per capita than Bangladesh, have higher mobile internet penetration rate of 28% and 35% respectively.[48] Due to this low level of participation, the industry generates one of the lowest levels of ARPU. So, an operator is left with less money to grow their network, run their business smoothly, and limiting the ability of operators to make the required transition to mobile broadband technologies.

#### 5.9.1.2 Potential 5G Magic in Bangladesh

5G, the next generation network will transform the entire flow of information through a paradigm shift. It will enable lightning-fast downloads and internet browsing. It will open a new field of sustainable development opportunities for both operators and Bangladesh by transforming organizations with services in an ease that is beyond the imagination before.[49] The full implementation of 5G will ultimately make possible of smart cities based on the powerful IoT ecosystem. The initial data transfer speed after the launch of the 5G network will be 20 times faster than the 4G speed of 1.4 Gbps. Wireless chipmaker Qualcomm said it boasted download speed upto 4.5 Gbps. Bangladesh is expected to exceed the speed of 1 gigabit after the launch of 5G, as shown by the Robi-Huawei 5G test in 2018.[50] However, it is not clear yet to get maximum speed in Bangladesh comparing to developed countries.

BTRC hopes to make Bangladesh as one of the first countries to deploy 5G alongside developing countries. The concerned ministry has issued a public statement indicating the plan to introduce 5G service in the country by 2021, and assumes that Teletalk, the public telecom company, will be the first to introduce 5G. But it looks to be impossible as the COVID-19 pandemic slowed down the process drastically. However, 5G is launched in several countries in the second quarter of 2019.[51]

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[48] GSMA Country Overview: Bangladesh, Mobile industry driving growth and enabling digital inclusion, GSMA Intelligence, GSM Association, 2018.
[49] Saqib Sarker, 5G is magic, Dhaka Tribune, April 15th, 2019.
[50] Ibid.
[51] Ibid.

## 5.10 Smartphone Ecosystem

The spread of the Internet in many developing and underdeveloped countries is strongly influenced by the use and dependence of smartphones for daily work, social media platforms, businesses, entertainment and others through various software features embedded in the operating system (OS) that increase productivity. The indispensable role of the smartphone has made it a very lucrative investment area around the world. In addition, a whole ecosystem focused on smartphones has developed with emerging companies offering products and services related to smartphones.

Around the world, people spend an average of 3.25 hours on their phones per day, and the top 20% of smartphone users spend more than 4.5 hours per day.[52] The biggest consumers of smartphones are in the Asia-Pacific region, with more than 732 million units purchased in 2018. China, the largest contributor to the global smartphone market covers 60% of the region's total market value and 54% of the market size. India is the second largest market in the Asia-Pacific region with over 161 million smartphones sold worth over $ 28.5 billion in 2018. In Bangladesh, smartphones are increasingly accepted nationwide and represent the fifth largest smartphone market in the Asia Pacific region.[53] With the growing popularity of smartphones, many companies are interested to be involved in the smartphone ecosystem to drive business growth in Bangladesh.

The smartphone ecosystem includes the hardware and software platforms for smartphones. The ecosystem is mainly regulated by device manufacturers, service providers, and apps and content service providers in Bangladesh. A brief discussion on them is as follows:

### 5.10.1 Manufacturers

Manufacturers like Apple, Samsung, Sony, Microsoft, LG, Huawei, Xiaomi, Walton, and Symphony have become major players in Bangladesh. Along with major manufacturers, locally made devices started entering into the ecosystem in the last

[52] Cellphone screen time habits. – The Guardian, 21 August, 2019.
[53] GSMA Country overview: Bangladesh – GSM Association.

quarter of 2018, creating a new momentum in the market. Consumers, who look for an affordable price and efficient delivery of value, have started buying local cell phones. In the first quarter of 2019, the smartphone market in Bangladesh grew 45% year-on-year due to the emergence of locally manufactured devices.[54] The volume of locally manufactured devices accounts for 41% of the smartphone market in Bangladesh.[55] The prices of locally assembled devices are lower than the prices of imported devices. The defects of the latest locally manufactured devices have also decreased significantly compared to the previous ones. The government is also making efforts to stimulate local manufacturing of smartphones. Domestic manufacturers can now benefit more comparing to others as tax rate on imported phones, locally assembled phones, and locally made phones is 34%, 17%, and 1% respectively.[56] However, domestic brands face competition from affordable Chinese brands and high-value brands. One of the common challenges in local manufacturing or assembling is the lack of a vigorous backward linkage. However, recently many foreign brands such as Oppo, Vivo, Samsung, and few others planned to manufacture smartphones in Bangladesh.

### 5.10.2 Service Providers

Manufacturers of smartphone initiated partnerships with the service operators due to increasing demand of online apps that derive demand for 4G-enabled handset in Bangladesh. In addition, Telecommunications as a channel also doubled their shipments in 2018[57] as 4G started that year. However, affordability becomes a major challenge. Therefore, several co-branded smartphone with attractive offers become available in the operators' distribution and customer points to make people user of the latest technology and VAS. This serves the mutual interest of mobile operators, mobile handset manufacturers, and cussumers.

[54] Smartphone Market in Bangladesh Grew 45% YoY in Q1 2019. – Counterpoint Research.
[55] Bangladesh smartphone shipments down 15% in 2018, vendors bet on Android Go for future growth. – IDC India, 2018.
[56] Bangladesh smartphone shipments down 15% in 2018, vendors bet on Android Go for future growth. – IDC India, 2018.
[57] Mobile Vendor Market Share in Bangladesh – StatCounter Global Stats, November, 2019.

### 5.10.3 Apps **and Content Providers**

With the cumulative increasing demand for digital media viewership, service operators now focus on the availability of content streaming services to the consumers in Bangladesh. Private Service providers have their own content services like Bioscope of Grameenphone, Banglaflix of Banglalink and Robi TV of Robi along with outsourced contents from the professional content service providers. Moreover, other independent companies namely Bongo, 3rdBell etc. provide on-demand services to subscribers in Bangladesh. All these services are accessible through website, mobile app, and other partnership platforms. Along with these apps, ridesharing services (Uber, Pathao, Shohoz etc.), financial inclusion services (utility services, money transfer) and other major ecosystem apps have made smartphone equity a necessity for a comfortable, fast and affordable lifestyle.[58] Therefore, other businesses are connecting from outside the ecosystem like food delivery apps like Foodpanda, HungryNaki, UberEats, etc. are connectiong in the ecosystem for rising working class population and deteriorating traffic conditions.

## 5.11 Prospects of Smartphone

The mobile phone industry in Bangladesh is growing rapidly and there is an increase in cheaper and more affordable phones. There is huge potential for new companies to offer products in this category, as these are the types of phones that consumers are looking for the most. According to Light Castle Analytics Wing,[59] buying phones is now easier than ever due to the massive expansion of retail outlets, purchase options through EMI (Equal Monthly Installments) and online platforms. Therefore, manufacturers should consider product delivery channels and shopping experience as well as products and service features.

The business environment is increasingly become conducive to the growth of new entrants in Bangladesh as policymakers as well as the government attempt to

[58] BTRC news, http://www.btrc.gov.bd/.

[59] LightCastle Analytics Wing is the research division of LightCastle Partners. It is tasked with producing periodic reports on the different sectors of the economy, analyzing trends in markets and making methodical, thorough and intelligent analysis to improve strategy and drive business growth.

increase more association with brands around the world through events such as 'Digital Bangladesh Mela 2020' among others. According to Light Castle Analytics Wing,[60] This could make Bangladesh a technological hub in future and reduce its dependence on imports from other countries.

The progress of the smartphone is very likely to be affected by the introduction of wearable or implant technologies, virtual reality (VR) and augmented reality (AR) among others. Therefore, businesspeople should integrate this experience alongside 3G and 4G/LTE, and upcoming 5G to uplift the mobile industry in Bangladesh on the fast track of digitalization. According to Light Castle Analytics Wing,[61]

## 5.12 Mobile network Tower (BTS)

In 2019, 62 lakh new mobile SIM became active; of them, 57 lakh engaged in using mobile data, and around 2 crore subscribers switched to the 4G network connection while only two new mobile towers have been established across the country.[62] This exposes subscribers to drop calls, poor internet speed, congested network, and disappearance of signal bars all around Bangladesh.

To ensure adequate service, operators require at least 3,000 newly built, upgraded or completely replaced mobile towers. Operators argue, they are not entitled to do the development themselves as BTRC introduced a new licensing system for towers whereby third parties are responsible for cell phone towers and carriers only can rent towers from them. BTRC issed licenses to four cell tower companies for in 2018 and expected to start building mobile towers within the six months of obtaining the license.[63] But unfortunately, they did not build any tower as the dispute between BTRC, operators, and tower companies regarding rent fee yet to be dissolved.

The carriers now share the towers passively for an amount of 41,000 taka per month for a roof-top tower and 55,000 taka for a ground-based tower while BTRC set the amount of 65,000 and 85,000 taka respectively in the draft joint agreement.

[60] Ibid.
[61] Ibid.
[62] Muhammad Zahidul Islam, Mobile Tower shortage: Users denied quality service–Only 2 towers set up in last one year despite growing number of users, The Daily Star, December 23, 2020.
[63] Ibid.

Carriers argue, for what, they will pay more as they are sharing tower passively at much lower price. So, they urge for 'active sharing' instead of 'passive sharing' of mobile towers rather than involvement of third parties in building network towers.[64] Meanwhile, BTRC wants to separate the responsibility of network towers from the servive operators to provide equal opportunity to operators and equal outcome of network to recipients. BTRC also hope, operators will be much more committed to services if network becomes no headache to them. Still tower companies could not make any deal regarding order or demand from the operators for the unresolved dispute.

## 5.13 Value Added Services (VAS)

VAS refer to all services other than standard voice calls, which add value to the standard service offering to encourage subscribers to use those and allow operators to increase their ARPU. Value-added services are provided either by the mobile operator itself or by third-party; also known as a content provider or value-added service provider (VASP). [65]

### 5.13.1 Classification of Mobile VAS by Nature[66]

**Entertainment VAS**

VAS Entertainment is designed for collective appeal and heavy use. These provide entertainment for free time use. Jokes, songs, ringtones, games among others fall in this category.These services are currently very popular and generate revenue to help increase ARPU.

**Information VAS**

These are the services that provide useful information to the subscribers. It includes contents with personal components like movie tickets, news, and bank account among others. It also includes productivity services such as missed call information that

[64] Ibid.
[65] Tofazzal Hossain, (2008), "Opportunity and Outlook Analysis for Mobile Value Added Service in Bangladesh", Master's thesis, University of Engineering & Technology, 10-24.
[66] Ibid.

brings back lost business opportunities for operators. It also includes user request for information on other product categories like real estate, education, yellow pages etc.

**M-Commerce**

M-Commerce is a transaction service that allows a user to complete a transaction using a mobile phone. These services set a new horizon in the economy.

**Customer Value and Mobile VAS**[67]

The revenue generation and popularity of the above mentioned mobile value-added services revolve around two aspects of customer value:

***Perceived Value:*** Perceived value of VAS is based on perceptrion rather than actual benefits to the end user. When the direct or visible benefit is not evident to the subscribers, the value derives from the service depends on extensive marketing and individual efforts. Value or emotional benefit is measured more in intangible form derived from the service.

***Practical value:*** Practical value is based entirely on the tangible benefits obtained from the service. The envisaged benefits may be based on convenience, saving time and money.

### 5.13.2 Drivers of VAS[68]

To operators, the success of VAS is the prime factor for getting growth. So, operators are very keen to focus on marketing and a somewhat a limited focus on content development. All operators are now trying to innovate VAS to create a clear differentiation.

**Entertainment Factors**

***Movies and Music***

Bangladesh is passionate about cinema and music. Most of the rich content available to end users revolves around these two, with ringtones of popular songs, wallpapers

[67] Ibid.
[68] Ibid

and games developed around movie themes. As young people represent a large user segment and also dominate the prepaid category, the emphasis on entertainment has led to a strong link with the development of VAS. So, operators and content aggregators have focused heavily on VAS development.

***Contest***

Television is another cultural constant embedded in the life of average people in Bangladesh. Following the global trend of TV channels, local channels of Bangladesh began to focus more on making programs interactive like music shows, contests, where viewers get the option to participate via SMS.

***FM radio***

FM radio began to play a unique revolutionary role in communication and SMS has become an integral part of FM radio. Most current 'ON AIR' FM radio programs are SMS-based. Some programs are direct and listeners can participate through SMS to share their opinions, request favorite songs, request poems among others.

**Environmental factors**[69]

Booming economy, increased comfort level with basic mobility services, customized digital world and digital devices amon others influence subscribers to use more VAS to boost-up ARPU for the operators in Bangladesh.

## 5.14 Problems of mobile telecom Industry in Bangladesh

Researcher observed several issues from both demand and supply side in the mobile telecom industry in Bangladesh. Researcher identified problems from the demand side through the survey of the recipients while supply side problems been identified at the time of assessing the industry. They are as follows:

### 5.14.1 Demand Side

Researcher identified several problems that subscribers are faced with during the consumption period. They are-- low affordability, high price, network outage, more

[69] Ibid

frequent and confusing offers, below average internet service, aggressive SMS, and high priced android handset to be mentioned as major among others.[70]

### 5.14.2 Supply Side

Researcher identified number of problems mobile operators face during the marketing process. They are-- bandwidth limitation, higher spectrum price, higher taxes for being specific industry, higher license fees, higher revenue sharing, dispute on tower, aggressive response from competitors, consumption of data Below average internet and twice the average income per user relative to capital expenditure and operating expenses, and frequent changes from guidelines issued by BTRC which lead to unstable situation in operation to be mentioned as major among others.[71]

## 5.15 Prospects of the Industry

Total cost of mobile equity (TCMO) of a low consumption basket in Bangladesh is 500 MB of data which constitutes 4.9% of the bottom 20% monthly income group. According to UN Broadband Commission (UNBC), this data is just under the affordability threshold of 5% as suggested. Total number of internet subscribers is around 94.905 million of the total mobile subscribers with an internet density of 61.07% as of June 2020. But the numbers are growing at an exponential rate. In addition, 96% of people in Bangladesh use the Internet through their mobile device.[72] As it is the most convenient device in Bangladesh, internet users will benefit more from the improved connectivity in Bangladesh. But the service providers' goal is to double the numbers by 2025.[73] Therefore, it is a ongoing dilemma for the industry players. The Bangladesh government and BTRC also pay attention to this issue. BTRC always encourages and supports updated technologies and the use of the Internet in various fields to anticipate future projects. They also introduced intense monitoring on spectrum issues, mobile tower issues and the development towards

[70] Field Survey, 2019
[71] Ibid
[72] UN Broadband Commission https://www.broadbandcommission.org/.
[73] Ibid

digitalization across the country. In this connection, 5G magic is expected to kick off in 2022 in Bangladesh as predicted by BTRC.[74]

Overall, the mobile telecom industry in Bangladesh is extremely promising in the coming years. Still growth opportunities in subscription and a large market of mobile internet are there in Bangladesh. So why, massive revenue streaming opportunities exist in terms of non-voice services like Mobile apps or content, video streaming, entertainment, mobile TV, growing ICT sector, government movement towards 'Digital Bangladesh', m-agriculture, m-health, m-education, mobile financial inclusion, mobile internet marketing, SME business among others.[75] So, improving and expanding connectivity has the potential to provide significant social and economic benefits in Bangladesh. Therefore, the government and mobile operators with their coordinated decision might help the process of digitalization and get connected around the world.

## 5.16 Conclusion

This chapter tried to assess the mobile telecom infrastructure, its technology and internet, Value added services, supporting mobile handset eco-system, demand and supply, competition, growth and drivers of the industry, opinion from demand and supply side, and prospects to fulfill the expectation of objective one (1) of this study.

[74] BTRC news, http://www.btrc.gov.bd/.
[75] Ibid.

# Chapter Six
# Customer Behavior towards Mobile telecom Services in Bangladesh: A Survey Approach

*This chapter includes the customer behavior in terms of usage characteristics and services offered by the mobile operators in Bangladesh. It starts with samples demographic profile and followed by usage pattern and perception towards the services marketing mix (7Ps) they receive and customer-based brand equity. Finally it reaches to a conclusion about customer behavior towards the industry.*

## 6.1 Introduction

When studying consumer behavior, marketers can understand what influences consumers' buying decisions. By understanding how consumers make a decision about a product/service, they can bridge the gap in the marketplace and determine what services customers need. It is the study of how people make purchasing decisions in relation to a product, service, or organization. Studying consumer behavior will allow marketers to answer several questions. Client behavior can be influenced by three types of factors: personal, psychological and social.

## 6.2 Customer Behavior towards Mobile Telecom Services

Consumer behavior acts as the behavior of an individual at the time of making purchasing decisions, usage and disposal of the product.[1] In the context of mobile telecom market, the researcher aimed at understanding the customers' behaviour towards the mobile services experienced through a survey of individual consumers on this issue. Through statistical analysis and indicators from the survey, the reality of customers' behavior was judged for the effective application of marketing strategies.

Mobile telecommunications services in Bangladesh exceeded the penetration rate of 100%, although the number of unique subscribers lags far behind. Therefore, a lot of growth awaits the future. In addition, a large portion of unique subscribers use

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[1] Philip Kotler, and Gary Armstrong (2010), *Principles of Marketing*, Ninth Edition, Prentice-Hall, 103.

more than one SIM card. In this scenario, it is essential to become fully familiar with consumer behavior in order to move forward. The researcher conducted a questionnaire for individual end users to study their behavior in the context of the use and perception of services provided by mobile operators in Bangladesh.

### 6.2.1 Demographic Profile of Respondents/Consumers

**Table 6.1: Age Distribution of the Respondents**

| Age | Percent |
|---|---|
| 18-28 | 46.7 |
| 29-39 | 36.8 |
| 40-50 | 15.6 |
| 51+ | .9 |
| Total | 100.0 |

**Source:** Analysis on Field Survey Data

In the age distribution table, respondents are categorized into four ranges; from 18 years to 28 years, from 29 years to 39 years, from 40 years to 50 years and above 51 years. It is seen that 46.7 percent of the total respondents have age range from 18-28 years which indicates the highest number of respondents are young. Moreover, 36.8 percent, 15.6 percent and rest .9 percent are from age range of 29-39 years, 40-50 years and above 51 years respectively. So, the persons whose age are 51 years and above are reluctant to use cell phone and 18 to 28 years uses the most.

**Table 6.2: Income Distribution of the Respondents**

| Income | Percent |
|---|---|
| No Income | 42.4 |
| <5000 | 1.6 |
| 5000-20000 | 25.3 |
| 21000-36000 | 22.2 |
| 37000-52000 | 7.4 |
| 53000+ | 1.0 |
| Total | 100.0 |

**Source:** Analysis on Field Survey Data

In the income distribution table which is shown up, six classes of income are considered. 42.4 percent of total respondents do not have any income level that indicates majority of the respondents' are dependable on others. Besides, 1.6 percent has less than tk 5000, 25.3 percent has income range from tk 5000 to tk 20000, 22.2 percent has income range from Tk 37000 to Tk 52000. 7.4 percent have income falls between Tk

37000 and Tk 52000. The rest 1 percent of the total respondents have income of above tk53000. Therefore, few users in this study have good economic condition i.e.

**Table 6.3: Gender of the Respondents**

| Gender | Percent |
|---|---|
| Male | 70.8 |
| Female | 29.2 |
| Total | 100.0 |

**Source:** Analysis on Field Survey Data

From the table, it is clear that male that is 70.8 percent of the total used cell phone which is more than two third of female user.

**Table 6.4: Educational Qualification**

| Education | Percent |
|---|---|
| Below primary | 1.3 |
| Primary | 3.7 |
| SSC | 11.0 |
| HSC | 38.5 |
| Graduate | 32.3 |
| Post graduate | 13.1 |
| Total | 100.0 |

**Source:** Analysis on Field Survey Data

The level of education table shows that 38.5 percent of the respondents had a HSC degree, followed by graduate degree of 32.3 percent, 13.1 percent of post graduate, 11 percent of SSC, 3.7 percent of primary and the remain 1.3 percent is below primary level all the respondents.

**Table 6.5: Variation of Occupation**

| Occupation | Percent |
|---|---|
| Business | 22.4 |
| Govt. job | 3.04 |
| Housewife | 14.3 |
| Private job | 17.4 |
| Self-employed | 3.7 |
| Student | 26.8 |
| Unemployed | 6.7 |
| Others | 5.4 |
| Total | 100.0 |

**Source:** Analysis on Field Survey Data

Table shows, 22.4% is businessman, 14.3% is housewives, 26.8% is students with 17.4% is private job holders in the study area.

### 6.2.2 Usage Characteristics of Respondents

From the survey, the following findings have been acquired. Statements, its findings and interpretation are discussed below:

**No. of SIM(s) Use**

In case of using number of SIM cards, 62.5 percent that is more than half of the users have 2 SIMs. In addition, single SIM used by 19.2 percent, 3 SIM used by 13.4 percent, 4 SIM used by 4.2 percent and 5 SIM used by the rest .7 percent of the all users.

**Use of mobile operator of SIM**

With regard to mobile operator, Grameenphone has the highest number of customer i.e. 55.8 percent who are the respondents in this study. Robi and Banglalink have almost equal number of user in the current study i.e. 20.2 and 20.5 percent respectively. The last 1 percent users use the SIM card of Teletalk company.

**Average no. of Call(s) per Day**

Study indicates, 36 percent user make 10 calls a day and 13.5 percent 15 calls a day in the study area.

**Average Duration per Call (in minutes)**

The study found 36.5 percent users make a call for 5 minutes and 17.4% 4 minutes per call spend.

**Average Time Spend in a day for Voice-Call (in minutes)**

Study shows, 78% people spend 1 to 2 hours a day and 13.5% spend 2.5 hours a day for mobile calls in the study area.

**Time of Voice-call for Long Duration**

From the study, analysis of the session of voice call for long duration depicts that, user talk much at night that is 37.8 percent followed by 26.5 percent talk at afternoon,

25.6 percent talk evening, 8.3 percent talk at noon and very few that is 1.8 percent of all users talk at morning. It is very clear that, the respondents are likely to talk at night than at morning.

**Average expenditure per month for voice-call (in taka)**

Study shows, 52.5% users spend 250 to 300 taka for voice calls in a month and 6.45% spend 500 to 600 taka at the same time.

**Influencing Person(s) in Choice of SIM**

The analysis of influencing persons in choice of SIM shows, 47.9 percent users buy SIM by their own choice. 34.7 percent user buy SIM by getting suggestions from family, 14.4 percent user purchase SIM by the suggestions from friends and 1.9 percent user purchase SIM by the influence of both family, friend and neighbor. .3 percent user influenced by only neighbor and the rest .7 percent user motivated by others to select their SIM.

**Source(s) of influence in choice of SIM**

Accoding to the survey, 78.6% users get information about operators from electronic and personal sources.

**Most influencing Source in choice of SIM**

The analysis table regarding most influencing source in choice of SIM points out that, both electronic advertising and personal source influence the user to select SIM which constitute of 44.8 and 41.7 percent respectively among all the users. The rest two sources; printed advertising (6.7 percent) and outdoor advertising (6.8 percent) influence the users in case of choosing SIM. Thus, both electronic and personal source of advertising have a great impact on selecting SIM by users.

**Choice factor(s) for using the SIM**

The study dictates, 39% users is most influenced by network facilities and lower call rate.

**Reasons for Choice of SIM**

The choice of SIM is affected by five preferred factors in this study. This analysis reveals that network plays crucial role in the choice of SIM which proved by half of the respondents that is 50 percent. The second influencing factor is call rate (35.9 percent) that means more than one third of the user considers the cost of talking from one place to another via cellular phone. The other three factors preferred by 6.8 percent of quality, 5.7 percent of customer service and 1.6 percent of value added service among the respondents.

**Most Preferred Value Added Service(s)**

The study shows, 30.5% users like to drive on entertainment VAS and 12.5% use call waiting as major VAS use.

**Use of Smartphone**

From the statistics, there is no doubt to say more than three forth of the respondents have smartphone comparing with 22.5 percent of non-smartphone users. Specifically, there is found tendency in the young people of using smartphone in Bangladesh.

**Average time spends per day for mobile internet browsing (in minutes)**

Study tells, 46.4% of the users spent one to two hours, 25% of users spent two and half hours.

**Preference of time of a Day to Browse Internet for long duration**

With regard to particular browsing session of the day, users prefer to browse at night that is 55.8 percent. The least preferred time is afternoon, evening and night which is .3 percent that means they are busy with other activities in these times. User browses net at other times such as evening, afternoon, morning and noon that constituted of 10.1, 6.4, 2.8 and 1.9 percent respectively.

**Average internet data use per day (in MB)**

Study shows, 66.9% users use 30-50 mb of data in a day e.g. in a month 900 mb to 1500 mb which is according to the operators expectation but a large portion do not use mobile internet to spur ARPU for the operators.

**Average expenditure per month for internet browsing (in taka)**

The study shows, 76.8% users spend for data in a month ranges from 200 to 300 taka.

**Internet search engine(s) add value in life**

In the light of searching internet engine, more than half users do not satisfy in terms of internet search engine as they opined that 34.4 percent disagree and 29.6 percent strongly disagree while 10 percent user reluctant to give their opinion. Very few user agree and strongly agree with respect to these issue that composed of 1.6 and 1.3 percent respectively. So, it is evident that, internet search engine do not add value in their life.

**Social networks add value in life**

Study indicatews, most people do not believe also in adding value to their life by social network. It has been reflected by 44 percent disagree, 21.1 percent strongly disagree, 1.8 percent agree and 1.5 percent strongly agree. It is also mentionable that, near one tenth of the respondents do not perceive the importance of social network that is 8.3 percent. However, the results are very much similar to the studies of Atilgan et al., 2005 and many researchers.[2]

### 6.2.3 Services Offered to Customers

Marketing manager analyze consumer behavior as an important domain because it gives insight into the factors that are uncontrolled to a company. Marketing mix gives marketer the opportunity to better scan the target market based on their behavior towards the services offered to the market.[3] From the survey, the following findings have been acquired. Statements, its findings and interpretation are as follows:

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[2] Eda Atilgan et al. (2005), "Determinants of the brand equity: A verification approach in the beverage industry in Turkey," *Marketing Intelligence & Planning* 23(3): 242.

[3] Shahram Gilaninia et al (2013), Marketing Mix and Consumer Behavior, *Kuwait Chapter of Arabian Journal of Business and Management Review,* Vol. 2, No.12: 53.

### 6.2.3.1 Service Product

**Diversified service product features**

From the study, the researcher found 45.1% of the respondent given average positive feedback about diversified service on product features, 19.9% highly believed on that, and 6.3% disagree on their opinion and 2.7% of the respondents fully denied about the diversified service on product features.

**Quality internet service**

The study representes, 31.4% from total respondents believed in quality of internet service, 17.3% does have strong positive feedback, 17.7% having in neutral position, 22.2% of the respondents disagree and 11.5% does not have any thrust in the service on the quality of internet.

**Distinctive after sales service**

The study investigated that 37.1% from respondent agree on distinctive services after sales, 31.3% of them in neutral position, 13.5% of the selected population does have strong position in that service, 13.2% not agree about the distinctive service and the strongly disagree percentage is about 4.9%. The researcher found the maximum percentage (37.1%) in this study agrees about the distinctive service after sales.

**Sufficient duration of talk-time, internet and SMS package**

The study reveals that 26.9% of the respondents disagree about the sufficient duration of talk-time, internet and SMS package, 23.1% of the total respondent does not any positive response regarding factors, 21.1% of them simply agree about that issues, and 12.1%do have strong believe in enough duration of talk-time, internet and SMS package.

**Various second(s) pulse offer is attractive**

Study shows that 33% of the respondent in neutral situation that means they do not any suggestion about the second(s) pulse offer in attractive, 28.3% given answer in agree but 11.5 % of the respondent opined strong and positive feedback, 17.7% of the respondent disagree as well as 9.5% from the whole population fully opposition on pulse service.

**Attractive Value Added Service**

The study states that 34.2% of the respondent given priority by clicking agrees and 13.1% mentioned highly agree about the attractive the value added service, 58.9% remaining neutral which does not have any opinion, 15.6% of whole explored disagree and remaining 8.2% highly disagree about the attractive value added service mentioned.

**Provide excellent utility services**

The study explores that about 39.7% of the respondent sated agree on the issue of providing excellence utility services, 31.8% remaining in neutral position on that matter, 12.6% does have the strong believe in excellence services in utility, 11.2% respondent feels disagree and 4.5% of entiredo not believe at all in the service of excellent utility.

**Variety of economy talk-time packages available**

The study focuses that 34.5% of the respondent felt agree in concerned of economy talk-time package availability, 18.9% disagree about the talk-time package, 17.9 percent of the respondent does have no comment regarding economy talk-time package, 17.4% of it feel strong trust on the package and 11.3% of the total respondents do not have any positive thinking about the talk-time which gives the priority in economy services.

**Variety of economy internet packages available**

On the issue of economy internet package the researcher found that 29.9% of the respondent given tick mark in agree, 21.7% feels negativity(disagree), 17.6 percent hold in neutral on that matter, 16.8% does have any believe in economy package of internet package and 14 percent highly agree about the stated issue.

**Variety of economy SMS packages available**

The researcher found that 35% of the whole respondents given priority on agree mark, 19.9% of it do have heavy believe in SMS package, 15.9% feel only disagree, 24.4 percent do not have any position or no comment at all and 4.8% felt highly in opposition against the sated variable.

**Facility of talking in conference call is attractive**

The researcher identifies that about 41.7% of the respondents agreed the facility of talking in conference call that is attractive, 24.7% of it does not have no position, 24.4% of the respondents strongly agreed, 9.2 percent of the whole respondent feel the negative feeling about the facility of talking in the conference call.

**Frequent offer of excellent handset by mobile operator**

The study explores that about 40.2% of the respondent given agreed on the issue of excellence handset, 30% remained in neutral position that means they do not have any comment about that variable, 13% do have the feedback on strong agree and 15.9% feel the negative aspect about it.

**Talk-time balance sharing and emergency balance facility is useful**

The study identifies that 38.7% agreed on the talk-time balance sharing and emergency balance facility that is useful, 35.8% remained in neutral comment that means the respondents do not have any opinion in that issue, 17.7% of the respondent strongly agreed on emergency balance facility, 17.8 percent disagreed in talk-time balance sharing and emergency balance facility.

**Minor connection formalities**

The study reveals that about 43% of the respondents agreed about the minor connection formalities, 30.8% of it strongly agreed in stated variable, 7.7% disagreed on minor connection formalities and remained 18.5 percent provided marked in neutral position.

**Frequent free apps offer is attractive**

The study identifies that about 28.4% of the respondents agreed the attractiveness offering free apps, 11% strongly agreed in offering free apps, 29.9% felt disagreed on offering free apps and 28.4 percent of the respondent does not have no comment about the noted sentence.

### 6.2.3.2 Price

**Reasonable price of SIM**

The study reveals that about 42.8% of the respondents agreed in the comment of reasonable SIM price, 34.8% strongly agreed about the reasonable price of SIM, 8.3% felt disagreed opinion in the price of SIM, and 14.4% of the respondent remained constant to provide in suggestion of it.

**Reasonable call rate**

The study identifies that about 27.1% of the respondent agreed in case of reasonable call rate, 14.8% strongly agreed, 16.5% strongly disagreed, 22.7% simply disagreed and the remained 18.9 percent from the total respondents and they do not have any opinion about that issue.

**Reasonable SMS and MMS rate**

The study explores that the researcher got about 29.2% of the respondents agreed in the rate of price of MMS and SMS, 15.6% respondent strongly agreed about the reasonable rate, 21.9% given disagreed marked, 6.8% of it strongly disagreed and remained 26.5% of the respondent does not have any comment in case of reasonable price to buy SMS and MMS.

**Reasonable talk-time and SMS package rate**

The study reveals that about 28.9% of the respondents opined agreed and 13.2% strongly agreed in the issue of reasonable talk-time and SMS package, 22.3% disagreed and 14.3% strongly disagreed in terms of package for buying SMS and talk-time package, and 21.3% from whole respondents remained constant in providing ticked mark.

**Reasonable internet package rate**

The study reveals that (above table) about 21.1% agreed and neutral position of both in the issue of reasonable internet package, 10.6% strongly agreed in case of internet package, 22% and 25.1% disagreed and strongly disagreed respectively about the matter of package in internet rate.

**Reasonable Value Added Service rate**

The study explores that about 22.2% agreed in the reasonable value added service rate. It has been reflected that 7% strongly agreed, 23.7% simply disagreed, and 19.5% strongly disagreed and remained 22.2% constant that meant they have been denied to make a comment about that.

**Talk-time and internet package selection at ease is attractive**

The study states that the talk-time and internet package selection is more attractive in where noted that 37.2% agreed, 12.9% strongly agreed, 12.9% disagreed, 6.8% strongly disagreed and remained 30.1% in neutrally.

**Accurate billing, call rate and internet data use charge**

The study explores that about 34.4% of the respondents agreed and 15.5% are strongly agreed in case of accurate billing, call arte and data internet package used properly. It has been noted that 16.5% disagreed and 7.6% given priority in the opinion strongly disagreed, and remained 26% placed in constant position.

**Special talk-time package(s) and SMS bundle price is attractive**

The study reveals that about 27.4% agreed and 12.6% strongly agreed in terms of special talk-time package and SMS bundle price that is favorable to them, 24% and 6% felt disagreed and strongly disagreed particularly and having 30.1% remained in neutral condition to provide the opinion about in special talk-time package and SMS bundle prices.

**Price is competitive**

The study reveals that 30.4% of the respondents given agreed tick marked and 11% of it given strongly agreed marks on the issues of price which bears in competitiveness to make the social network. It observed that 17.9% population disagreed and 8.2% strongly disagreed at in their position, and remained 32.5% silence position to make the exact network.

### 6.2.3.3 Place

**Network available in sufficient locations**

The researcher identifies from the study that about 33.8% of the respondents taken in agreed position in the main issue of network available in sufficient locations. It being noted that 33.6% strongly agreed and 11.2% disagreed, 15% remained neutral or speechless as well as 6.4% strongly disagreed to make the social network in case of network in sufficient locations.

**Available recharge, service and SIM purchase point in nearby areas**

The study reveals that about 39.3% of the respondents agreed in the availability of recharge, service and SIM purchase point in nearby areas that making the positive image to build up the social network. It is being mentionable that 41.7% strongly agreed, 5.1% population being disagreed and 3.1% got strongly disagreed, and remaining 10.9% in neutral situation.

**Helpline is useful and informative**

The study reveals that about 37.1% (maximum) agreed in the helpline that is very much helpful to make the social relation through the networking facilities. It has also being stated that 18.2% of the respondent took place in strong agreed position, 10.6% in disagreed; only 4% strongly disagreed and constant percent observed is 30.2%.

**Access from anywhere using mobile handset to take most of the services**

The study states that about 38.4% of the respondents agreed in terms of using mobile handset from anywhere to take most of services which ensures the best services of social network media. It has been observed that 19.3% taken strongly agreed, 9.7% disagreed, 7.3% strongly disagree, and remaining 25.3 percent of the population took in neutral position.

**Most preferred service taking place**

The study reveals that the most preferred service is customer care 34.4% maximum through which the customers getting more facility to built the social network. It is being noted that the facility of recharge point 28% less valuable than customer care.

Other things are retail 23.4%, franchise 6.1%, customer care & recharge point .3% and others 7.7%.

**Sufficient parking facility in service point**

The study explores that the subscribers facility like sufficient parking facility in the service point agreed 26.3% maximum. It pointed that strongly agreed 13.2%, disagreed 21.6%, strongly disagreed 13.01% and 25.6% remained in neutral to provide the answer.

**Nice entertainment at the time of waiting for service**

The study states that about 21% of the respondents agreed in case of nice entertainment at time of waiting for service and 10.1% given strongly agreed opinion about that issue. Being observed that 26.2% disagreed, 12.1% strongly disagreed and 30.7% do not have any opinion about that identified area.

**Convenient waiting facility**

The study reveals that about the convenient waiting facility regarding social networking about 32.6% agreed maximum, 32% neutral, 16.7% strongly agreed, 12.8% simply disagreed and 6% strongly disagreed.

**Reliable and safe location**

The study explores that about 48.7% maximum of the respondents agreed in terms of the location of service point which is more reliable and safety. Others 20.1% strongly agreed, 6% simply disagreed, 2.4% strongly disagreed and remained 22.9% not given any more answer about the safe location at customer care.

**Available transportation to go to customer care**

The study reveals that about 44.8% maximum from the total respondent agreed in the transportation facility to go to the customer care. It has been noted that 25.7% strongly agreed, 6.1% disagreed, 2.7% strongly disagreed and 20.7% in neutral position.

### 6.2.3.4 Promotion

**Point-of-purchase display influence purchase**

The study shows that the maximum respondents (~59%) agreed to a purchase influencing the point-purchase display.

**Advertising campaigns are creative**

The study states that approximately 68.1% of the respondents believe that the advertising campaigns are creative and unique.

**Provide distinctive sales promotion(discount and others) offers regularly**

The study exhibits that the highest number of the respondents (65%) observed that the companies offer following distinctive sales promotion regularly such asvarious discount packages.

**SMS from operator are useful**

The study reveals that the different opinions are showing in case of suitability of the SMS provided by the mobile operator. About 47.6% of the respondents opined that the SMS of the companies are effective and helpful.

**Distinctive offers for special category subscribers**

The study explores that the highest number of the respondents (about 47.5%) observed that the operator offers the sales for special categorical customers' services.

**Advertising are clear, understandable and fun**

The study reveals that about 74% (maximum number) of the participants believed that the offering advertisements are clear, perceptible and amusing.

**Can remember most of the advertisements**

The study shows 74% of the respondents (agree and strongly agree) opined positivelyin case of the remembering many advertisements they watch in the media.

**Use massive advertisement**

The study exhibits 66.7% (highest number) of the respondents believed (agree and strongly agree) that the mobile operator company uses massive media of advertisements as a part of marketing.

**Provide adequate information to compare with other operators**

The study reveals that 48.2% of the participants agreed that the information provided by the operators is adequate comparing with other operators.

**SIM offer with discount or free is attractive**

The study exhibits that majority or 60.6% of the customers confirm that SIM offering with lower price or free of cost is attractive.

**Performs corporate social responsibility with keen interest**

The study states that 52.6% of the respondents (majority) believed that the operators perform CSR activities with keen interest.

**Promotional activities including advertisement are attractive**

The study shows that maximum number (agree and strongly agree: 64%) of the respondents notice that the advertising operations which are attractive in case of promotional activities of the operator.

**Animation, jingles and celebrity in advertising is attractive**

The study reveals that 58.4% of the respondents (maximum number; agree and strongly agree) watch that the different tools such as animation, jingles and celebrity used in advertising activities that are attractive and persuasive.

**Attractive talk-time, SMS and internet data bonus offer**

The study states that 63.6% of the respondents believe (agree and strongly agree) that the packages offered for the subscribers including talk-time, SMS and internet data bonus are attractive.

**Quiz, contest, gift, games, opinion polls etc. is attractive**

The study explores that the majority of the respondents (agree and strongly agree; 60.6%) opined positively in terms of the various quizzes, contest, gift, games included in the packages are attractive offered.

**Advertising media(s) you have seen advertisement**

The study shows, the different media through which the mobile operators deliver their packages to the customers. The above table states that most of the respondents (~ 21.7%) have viewed the advertisements via electronic media, and about 11.8% of the participants voted in case of online and via SMS.

**Most preferred media of advertising**

The study explains that electronic (55.2%) is one of the most preferred media among advertisements. The other preferred media of the advertising is online and SMS (17.3%). Very low regarding preferred media of promotional activities is electronic, printed & online and SMS (4%) towards marketing of the operators' product and service.

**Most preferred outdoor advertising**

The study explores that billboard (68.8%) is the most preferred outdoor advertising media through which subscribers are well known. The walling media (1.8%) is the lowest option the operators use in the advertisement.

**Bonus offer(s) you prefer and use**

The study explains that the majority (41.2%) of the users want to use mobile at free minutes among the various bonus offerings and 18.6% of the respondents interested to get free internet data packages.

**Most preferred bonus offer**

The study explores that the majority (41.2%) of the subscribers interested to get free minutes at the most preferred bonus packages the company offer and 41.5% of the respondents interested to get free internet data packages. Therefore, it is showed that

majority of the respondents interested to use internet data that seems to increase the number of the users.

#### 6.2.3.5 People

**Efficient and great service attitude**

The study shows that 58.9% of the respondents (maximum number) have faith in case of efficient and great service behavior of people of the companyprovided.

**Treat as a special and valued customer**

In the question regarding the treating a customer as a special and valued one, it is found that the majority (60%) of the participants have given positive response (agree and strongly agree). The researcher observes that especially, the customers are considered as a valuable subscriber.

**Provide service in time**

The survey shows that about 65% of the respondents believe that the company provides service in time. Thus, the study found that majority of the customers trust on the timely service the operator provides.

**Well-behaved and systematic in approach**

The study states that the highestnumber of the respondents (44.2% and 19.3% respectively agree and strongly agree) does have the positive opinion regarding fair behaved and methodical approach of the mobile in managing customer service.

**Qualified and well trained**

The survey shows that the majority (57.5%) of the respondents (42.9% and 14.6%) observed that employees of the operator company is qualified and well trained. The study found that the existing people of the company for the customer service have performed well related to the customers.

**Friendly in approach**

The survey states that 65.9% of the participants (highest number) agreed in terms of cordial behavior towards the people served by the company. The survey found that highest numbers of the customers' have confidence in the behavior of the employees.

**Dependable and trusted**

The study focuses that majority i.e., 60.9% (maximum number) of the respondents does have rely and put faith in the service of the company's employees.

**Attentive in providing service**

The survey explores that the 65.5% of the subscribers (agree and strongly agree) observed that the staff of the operating company is alert in providing service to the customers.

### 6.2.3.6 Process

**Good enough network quality**

The study explains that about 65% of the customers do have positive feedback regarding good enough network quality provider.

**Quality 3G facility and high internet speed**

It is found from the survey resultthat 47.7% of the respondents have given statement towards quality 3G facilities and high speed server of the operators.

**Convenient and satisfied with service delivery process**

The survey result indicates that about 60.6% of the respondents (agree and strongly agree) have given opinion towards the convenient and satisfaction with service delivery process of the mobile operators.

**Provide service according to need**

The study identifies that the majority (55.5%) of the participants positively gave feedback in terms of providing service according to customers' need and demand.

**Rarely feel problem with service**

The study explores that about 54.7% highest of the respondents agreed with the rare feeling problem with service through which the social network will be built in smart way. And also noted that 15.6% lower opined in disagreed in case of rarely feel problem with service, and remained 29.6% in neutral situation.

**Negligible call drop problem at the time of conversation**

The study states that about 63% highest of the population agreed in the issue of call drop problem at the time of conversation. And be noted that 17% lower got position against the call drop problem, and remained 20.1% in neutral situation or no comment.

### 6.2.3.7 Physical Evidence

**Appearance of neat and smart employees**

The study explores that about 68.6% highest from the total respondent given agreed in appearance of neat and smart employees and 6.5% lower not believe in that issue. And found 24.9% remained in neutral or speechless.

**Well decorated customer care/service point**

The study represents that from the table about 61.7% highest of the respondents agreed in the matter of well decoration in the place of customer service. And be noted that 11.4% lower felt disagreed about the decorated place of service and remained 26.8% constant position.

**Convenient and comfortable physical environment in customer care/service point**

The study focuses that about 58.1% highest from the total respondents agreed about the service with convenient and comfortable physical environment in the point of customer service. And be noted that 15.5% lower given disagreed opinion about the service of the customer, and remained 26.2% speechless.

**Uniform color and logo**

The study explores that about 74% highest from the whole respondents agreed in the uniform color and logo in that service organization. And mentioned that 5.7% lower given marked in the point of disagreed, remained 20.1% were speechless.

**Well-defined and attractive slogan**

The study explores that about 77.1% highest of the respondents agreed on the well defined and attraction slogan and to be noted that the researcher got 4.7% lower disagreed in the well defined slogan and having 18.2% in neutral or constant.

**Visual and attractive brochure, handbill, poster, flowchart**

The study focuses that about 57.2% highest of the respondents agreed in proving smart visual and attractive brochure, handbill, poster, flowchart and 11.3% lower of the respondent felt disagreed as well as 31.5% does not have speech about the attractive brochure, handbill, poster and flowchart.

**Comfortable furniture and effective equipment for service in customer care/service point**

The study reveals that about 54.7% highest among the respondents agreed on the comfort furniture and effective equipment for service provided. It has also been observed that 8.4% lower given disagreed suggestion for the best service in the decorated area and remained 36.9% opined as satisfactory.

**Well-organized website of operator**

The study explores that about 66.1% highest of the respondent agreed on the well-organized website in creating social network and 8.7% given disagreed opinion, remained 25.3% in an constant point that means they have no comment in regarding issue. However, these finding are supported by the studies of Leitch and Richardson, 2003 and many researchers.[4]

[4] Shirley Leitch, and Neil Richardson (2003), "Corporate branding in the new economy," *EuropeanJournal of Marketing* 37(8): 1066.

### 6.2.4 Consumers' behavior towards Customer-based Brand Equity Sources

The actual mission of the marketing is to understand the needs and demands of the customers and introducing marketing strategies to produce results that delight the customers and ensure the sustainability of the company through long-term goals fulfillment. With access to such information from customers' become crucial to be used in branding decisions.[5] Followings are the findings acquired through the survey of consumers about the perception towards the sources of CBBE. Statements and their corresponding findings and interpretations are provided below:

⇒ **Brand Awareness**

**The brand comes to the mind first**

Respondents of 67.9 percent opined, in terms of mobile telecom services, the brand they use comes to their mind first. Of them, 32.6 percent strongly agreed to this, while 21.6 percent opined as strongly disagree, disagree, and neutral to the statement.

**More familiar comparing to others**

Respondents of 71.9 percent opined, the brand they use is more familiar than others. Of them, 30.2 percent strongly agreed to this, while 28.0 percent opined as strongly disagree, disagree, and neutral to the statement.

**Have enough information and knowledge about operator**

Respondents of 58.5 percent opined, they have sufficient information and knowledge about the brand they use and other operators is more familiar than others. Of them, 18.2 percent strongly agreed to this, while 41.5 percent opined as strongly disagree, disagree, and neutral to the statement.

**When hear the brand, easy to remember and recognize its logo**

Respondents of 76.6 percent opined, when they hear the brand they use it is easy to remember and recognize the brand's logo. Of them, 33.2 percent strongly agreed to this, while 23.4 percent opined as strongly disagree, disagree, and neutral to the statement.

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[5] Ibid, 57.

**Aware about sources of sales and service**

Respondents of 59.4 percent opined, they are aware about the sources of sales and service. Of them, 40.6 percent strongly agreed to this, while 16.5 percent opined as strongly disagree, disagree, and neutral to the statement.

**Aware about various offers**

Respondents of 52.7 percent opined, they are aware about various offers. Of them, 15.5 percent strongly agreed to this, while 47.3 percent opined as strongly disagree, disagree, and neutral to the statement.

**Aware about conditions applied for taking services**

Respondents of 48.2 percent opined, they have sufficient information and knowledge about the brand they use and other operators is more familiar than others. Of them, 12.9 percent strongly agreed to this, while 51.8 percent opined as strongly disagree, disagree, and neutral to the statement.

**Most of the features come to the mind quickly**

Respondents of 50.4 percent opined, most of the features come to their mind quickly. Of them, 15.3 percent strongly agreed to this, while 49.6 percent opined as strongly disagree, disagree, and neutral to the statement.

**Slogan is easily remembered and recalled**

Respondents of 70.8 percent opined, they can easily remember and recall the slogan. Of them, 31.8 percent strongly agreed to this, while 29.2 percent opined as strongly disagree, disagree, and neutral to the statement.

**Most convenient source for awareness**

Respondents of 58 percent opined, the most convenient source of awareness is electronic medium; followed by word-of-mouth with 18.3, sales personnel with14.7, printed medium with 5.2 percent.

⇒ **Brand Associations**

**Has strong personality**

Respondents of 68.2 percent opined, their preferred brand has strong personality. Of them, 28.6 percent strongly agreed to this, while 31.8 percent opined as strongly disagree, disagree, and neutral to the statement.

**Has strong reputation among customers**

Respondents of 69.0 percent opined, their favorite brand has strong reputation among customers. Of them, 26.0 percent strongly agreed to this, while 31.0 percent opined as strongly disagree, disagree, and neutral to the statement.

**Intangible attributes are good enough to continue it**

Respondents of 43.7 percent opined, intangible attributes are good enough to continue their brand of choice. Of them, 13.5 percent strongly agreed to this, while 56.3 percent opined as strongly disagree, disagree, and neutral to the statement.

**Has ability to serve interests as promised**

Respondents of 49.7 percent opined, the brand they use has the ability to serve interests as promised. Of them, 11.6 percent strongly agreed to this, while 50.3 percent opined as strongly disagree, disagree, and neutral to the statement.

**Maintain service offers with good image**

Respondents of 51.0 percent opined, they have the brand maintain service offers with good image. Of them, 14.4 percent strongly agreed to this, while 49.0 percent opined as strongly disagree, disagree, and neutral to the statement.

**Has strong brand name**

Respondents of 72.0 percent opined, it has strong brand name. Of them, 27.2 percent strongly agreed to this, while 28.0 percent opined as strongly disagree, disagree, and neutral to the statement.

**Compatible with need and status**

Respondents of 64.6 percent opined, the brand is compatible to need and status. Of them, 20.1 percent strongly agreed to this, while 35.4 percent opined as strongly disagree, disagree, and neutral to the statement.

**Customer service increases brand image day by day**

Respondents of 69.2 percent opined, as customer service increases the brand image also increases. Of them, 24.0 percent strongly agreed to this, while 31.8 percent opined as strongly disagree, disagree, and neutral to the statement.

⇒ **Perceived Brand Quality**

**Consistently performs better than others**

Respondents of 66.5 percent opined, their preferred brand consistently performs better than others. Of them, 25.0 percent strongly agreed to this, while 33.5 percent opined as strongly disagree, disagree, and neutral to the statement.

**Offer services with excellent and unique features**

Respondents of 49.3 percent opined, the brand offers services with excellent and unique features. Of them, 12.6 percent strongly agreed to this, while 50.7 percent opined as strongly disagree, disagree, and neutral to the statement.

**Follow continuous improvement in quality**

Respondents of 49.7 percent opined, the brand follow continuous improvement in quality. Of them, 16.7 percent strongly agreed to this, while 50.3 percent opined as strongly disagree, disagree, and neutral to the statement.

**Convenient and friendly in use**

Respondents of 74.1 percent opined, the brand is convenient and friendly in use than others. Of them, 26.3 percent strongly agreed to this, while 25.9 percent opined as strongly disagree, disagree, and neutral to the statement.

**Most reliable in service providing**

Respondents of 61.6 percent opined, the brand they use is the most reliable in service providing than others. Of them, 19.8 percent strongly agreed to this, while 38.4 percent opined as strongly disagree, disagree, and neutral to the statement.

**Better than others in overall quality**

Respondents of 57.1 percent opined, the brand is better than others. Of them, 17.9 percent strongly agreed to this, while 42.9 percent opined as strongly disagree, disagree, and neutral to the statement.

**Creates something new to add value consistently**

Respondents of 48.7 percent opined, the brand creates something new to add value consistently. Of them, 14.4 percent strongly agreed to this, while 51.3 percent opined as strongly disagree, disagree, and neutral to the statement.

⇒ **Brand Loyalty**

**Provide high brand value against money**

Respondents of 47.3 percent opined, the brand provide high brand value against money. Of them, 19.0 percent strongly agreed to this, while 52.7 percent opined as strongly disagree, disagree, and neutral to the statement.

**Stay even service changes**

Respondents of 48.7 percent opined, they will stay with the brand even service changes. Of them, 14.4 percent strongly agreed to this, while 51.3 percent opined as strongly disagree, disagree, and neutral to the statement.

**Stay even price increases; others' price decreases**

Respondents of 39.1 percent opined, they will stay with the brand even price increases; others' price decreases. Of them, 12.5 percent strongly agreed to this, while 60.9 percent opined as strongly disagree, disagree, and neutral to the statement.

**Stay even withdrawal of advertising support**

Respondents of 47.8 percent opined, they will stay with the brand even withdrawal of advertising support. Of them, 13.7 percent strongly agreed to this, while 52.2 percent opined as strongly disagree, disagree, and neutral to the statement.

**No doubt it is the first choice and straight forward to use**

Respondents of 48.0 percent opined, they think that it is the first choice and straight forward to use. Of them, 18.0 percent strongly agreed to this, while 42.0 percent opined as strongly disagree, disagree, and neutral to the statement.

**Proud and delighted to use the brand**

Respondents of 52.1 percent opined, they feel proud and delighted to use the brand. Of them, 14.9 percent strongly agreed to this, while 47.9 percent opined as strongly disagree, disagree, and neutral to the statement.

**Share good experience and recommend to others**

Respondents of 46.4 percent opined, they like to share good experience and recommend to others about the brand they use. Of them, 14.9 percent strongly agreed to this, while 53.6 percent opined as strongly disagree, disagree, and neutral to the statement.

### 6.2.5 Customer-based Brand Equity

**Highly trusted brand**

Respondents of 54.5 percent opined, their preferred brand is highly trusted. Of them, 10.4 percent strongly agreed to this, while 45.5 percent opined as strongly disagree, disagree, and neutral to the statement.

**Capable to provide the best service in the market**

Respondents of 60.7 percent opined, the brand is capable enough to provide the best service in the market. Of them, 9.1 percent strongly agreed to this, while 39.3 percent opined as disagree and neutral to the statement.

**Much more than a service**

Respondents of 43.7 percent opined, the brand they use is much more than a service. Of them, 8.2 percent strongly agreed to this, while 56.3 percent opined as strongly disagree, disagree, and neutral to the statement. However, these findings are homogeneous to the studies of Khan et al., 2012 and many scholars.[6]

### 6.2.6 Consumers' Inconvenience in experiencing Mobile Telecom Services

In the survey, researcher acquired the data consumers' experienced in continuing mobile telecom services of a particular brand. During the usage of mobile services, they feel various types of inconvenience or problems. According to their response, the following table has been prepared:

**Table 6.6: Consumers' Inconvenience in using the operator's service**

| Particulars | Percent |
|---|---|
| SIM | 6.0 |
| Network | 27.7 |
| Price | 28.9 |
| Internet | 14.7 |
| Value added services | 5.7 |
| Predispositions | 0.6 |
| Network and Price | 1.8 |
| Price and Internet | 2.8 |
| SIM and Network | 0.4 |
| Price and Value added services | 1.3 |
| Network, Internet and value added services | 1.5 |
| Network and Internet | 1.6 |
| Network, price and Internet | 1.2 |
| Network, price and Value added services | 0.6 |
| SIM, Call rate and Value added services | 0.4 |
| Call rate, Internet and Value added services | 1.2 |
| Network and value added services | 0.7 |
| SIM and Internet | 0.7 |
| Network and Predispositions | 0.7 |
| SIM, Network, Price and Internet | 0.6 |
| SIM and Predispositions | 0.1 |
| Others | 0.6 |
| Total | 100.0 |

**Source:** Analysis on Field Survey Data

[6] Imran Khan, et al. (2012), "Impact of brand related attributes on purchase intention of customers: a study about the customers of Punjab, Pakistan," *Interdisciplinary Journal of Contemporary Research in Business* 4(3): 194-196.

The table above shows, respondents of 28.9 percent opined, high price regarding voice and non-voice services both are beyond the affordability, becomes the most inconvenience to consumers; followed by network problems with 27.7 percent respondents, internet problem with 14.7 percent respondents, and VAS usage problems with 5.7 percent respondents opined, are the prime usage inconvenience or problems to consumers. In some cases, consumers face joint-inconveniences including Network & Internet; Network, price & Internet; Network, price & Value added service; Call rate, Internet & Value added service opined by 16.5 percent of respondents. Therefore, attracting customers towards a particular brand is subject to the improvement of issues like price, network, internet, VAS, and few joint-inconveniences in mobile telecom industry in Bangladesh.

**Table 6.7: Topmost Inconvenience Faced in Using the Operators' Services**

| Particulars | Percent |
|---|---|
| SIM | 5.4 |
| Network | 28.8 |
| Price | 36.7 |
| Internet | 19.9 |
| Value added service | 7.6 |
| Predispositions | .9 |
| Others | .6 |
| Total | 100.0 |

**Source:** Analysis on Field Survey Data

From the table, the researcher got that the topmost problem faced by the consumers is high price with 36.6% and the network with 28.7% opined by the respondents. It mentioned that the internet browsing 19.2% and the other including value added service 15.5% less valuable in the facility of making social networking.

From the discussion, researcher found a clear concept about consumer behavior of the recipients about their usage pattern, affordability, preference, demand of services, price sensitivity, convenience of using the services, awareness level and its sources, attitudes towards VAS, customer service and its employees, delivery process of services and the environment they love to enjoy, all were gathered for getting knowledge and learning their overall behavior towards mobile operators in Bangladesh.

### 6.2.7 Conclusion

The chapter discussed about the consumers' demographics, perception towards consumers' usage characteristics of services, perception towards 7Ps offered to consumers, and perception towards the sources of CBBE. Along with these, consumers' inconvenience in using mobile telecom services also included in the chapter and finished the chapter with a concluding remark.

# Chapter Seven
# Service Marketing Mix and Customer-based Brand Equity with Its Sources

*The chapter deals with findings and infers relation between the service marketing mix, the sources of brand equity, and the overall brand equity. To fulfill the third and fourth objectives, the chapter discusses the output of collected data and presents the empirical results. The early sections of this chapter deals with the demographic profiles of the respondents based on age, gender, educational level and others regarding mobile telecom industry in Bangladesh. It also discusses the results of reliability of scales for the variables and their descriptive statistics. Through the multivariate data analysis, the chapter presents, findings of the relationship between the dependent and independent variables of the study.*

## 7.1 Introduction

Following the data analysis process, the relation between the marketing mix elements of services and the sources of brand equity, and overall brand equity with its dimensions were showed through the test of hypotheses developed and interpreted accordingly. Data analysis involved presenting, analyzing, and discussing quantitative data to draw meaningful conclusions that led to the achievement of the study objectives. Data collected for the study were carefully checked for validity, completeness, accuracy, clarity and consistency. The data from the questionnaires were processed and analyzed and all necessary measurements were taken to represent the required relationship with the intended objectives of the study.

Data analysis continued with a number of steps. The analysis was done with the structural equation modelling to achieve the third and fourth objectives of the study. At the beginning, descriptive statistics were used, factor loading was performed, and therefore, structural equation modelling was used i.e. confirmatory factor analysis, and the structural model development.

## 7.2 Exploratory Factor Analysis (EFA)

Exploratory Factor Analysis was used to summarize the data and identify key factors to move forward with the important variables at hand. It starts with the following analytical tools:

### 7.2.1 Reliability Analysis

Reliability test was executed to verify the scale that reveals the variables it desired to measure. Crobach's alpha (α) was used to test the content validity of variables, and internal reliability of items. In the study, α value ranges from 0.785 to 0.882 for constructs which indicates, the constructs are good measures. Moreover, items of the constructs/variables were also tested for checking their internal consistency.

**Table 7.1: Construct Validity**

| Constructs | Cronbach's Alpha | Cronbach's Alpha of Standardized Items | Total Items |
|---|---|---|---|
| Service Product | 0.819 | 0.816 | 16 |
| Price | 0.854 | 0.850 | 11 |
| Place | 0.789 | 0.792 | 9 |
| Promotion | 0.848 | 0.850 | 15 |
| People | 0.882 | 0.882 | 8 |
| Process | 0.804 | 0.811 | 7 |
| Physical Evidence | 0.819 | 0.819 | 8 |
| Brand Awareness | 0.827 | 0.828 | 9 |
| Brand Associations | 0.849 | 0.849 | 8 |
| Perceived Brand Quality | 0.840 | 0.840 | 7 |
| Brand Loyalty | 0.832 | 0.848 | 7 |
| Brand Equity | 0.784 | 0.785 | 3 |
| Overall | 0.831 | 0.839 | 108 |

**Source:** Analysis on Field Survey Data

From the table, Data shows that the construct validity has been achieved to move further for other analysis. Appendices show the internal consistancy of all the items under different constructs achieved.

### 7.2.2 Data Normality Analysis

Many scholars have suggested for running descriptive analysis prior to any additional analysis if human participants involved in studies.[1] Therefore, this study used descriptive analysis of the data at first. As factor analysis and structural equation modelling require a normal distribution of data, the required descriptive statistics have been done dully.

**Table 7.2: Mean, Standard deviation, Skewness, Kurtosis**

| Constructs | N | Mean | Std. Deviation | Skewness | Kurtosis |
|---|---|---|---|---|---|
| Brand awareness | 672 | 3.4209 | .69879 | -.460 | .092 |
| Brand image | 672 | 3.5928 | .69907 | -.456 | .388 |
| Perceived brand quality | 672 | 3.9566 | .95871 | .040 | .836 |
| Brand loyalty | 672 | 3.3301 | .86285 | -.148 | -.552 |
| Service product | 672 | 3.3881 | .69498 | -.042 | -.568 |
| Price | 671 | 3.2444 | .73504 | .070 | -.380 |
| Place | 672 | 3.4839 | .69060 | -.251 | .621 |
| Promotion | 670 | 3.0531 | .72646 | .587 | -.073 |
| People | 672 | 3.6261 | .77354 | -.634 | .769 |
| Physical evidence | 672 | 3.4340 | .85419 | -.461 | -.093 |
| Process | 672 | 3.8157 | .63000 | -.372 | .520 |
| Brand equity | 672 | 3.3215 | .69560 | -.265 | .578 |

**Source:** Analysis on Field Survey Data

In the table, analysis of the constructs for normality test shows, data are normally distributed. The mean value shows marginal difference, which indicates, an insignificant affect of extreme values on data set. The value of standard error was 0.188 which is close to zero indicates, the samples are representative. Table shows, standard deviation of all the constructs are small which represents; there is a least spread of data around the mean. In the normality test, absolute value of the skewness and kurtosis should be around 2 and 7 respectively.[2] Skewness value with greater than +1 or lower than –1indicates, a largely skewed distribution and kurtosis value with

[1] Naresh, K. Malhotra, and David F. Birks, *Marketing research: An applied approach,* 3rd ed., (Spain: Pearson Educational Limited. (2007).

[2] Kline, R. B. (2005), *Principles and Practice of Structural Equation Modelling*, 2nd ed. New York, The Guilford Press, 126. Nguyen, T. N. Q. (2010). Knowledge Management Capability and Competitive Advantage: An Empirical Study of Vietnamese Enterprises, PhD dissertation, Graduate College of Management, Southern Cross.

greater than +1 indicates, the distribution is too peaked. Results in the table above shows, both the skewness and kurtosis satisfied the statistically accepted value.

### 7.2.3 Requirements of EFA for Service Marketing Mix variables

#### 7.2.3.1 Kaiser-Meyer-Olkin Measure (KMO) of Sampling Adequacy

In analysis, KMO was used to assess the suitability of the samples for factor analysis.

**Table 7.3: Kaiser-Meyer-Olkin Measure (KMO) of Sampling Adequacy**

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | 0.813 |
| Bartlett's Test of Sphericity | df | 1225 |
| | sig. | 0.000 |

**Source:** Analysis on Field Survey Data

The table shows, KMO value is 0.813, which indicates, the sample is adequate for factor analysis as KMO value greater than 0.5 is acceptable.[3]

#### 7.2.3.2 Factor Extraction

Factor extraction was done using a rule of Eigen values greater than 1 to be retained[4]; because these values represent the variance indicated by a variable. A total of 36 variables were extracted under the 7 components decided by the model earlier.

**Table 7.4: Total Variance Explained**

| Component | Initial Eigen values | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | Variance% | Cumulative % | Total | Variance% | Cumulative % |
| 1 | 10.605 | 27.907 | 27.907 | 5.874 | 18.195 | 18.195 |
| 2 | 4.586 | 12.069 | 39.976 | 5.508 | 14.233 | 32.428 |
| 3 | 2.706 | 7.541 | 47.517 | 3.664 | 10.327 | 42.755 |
| 4 | 2.158 | 5.890 | 53.407 | 3.043 | 6.954 | 49.709 |
| 5 | 1.829 | 5.025 | 58.432 | 2.676 | 6.519 | 56.228 |
| 6 | 1.803 | 4.956 | 63.388 | 2.497 | 5.783 | 62.011 |
| 7 | 1.242 | 3.049 | 66.437 | 1.667 | 4.426 | 66.393 |
| Extraction Method: Principal Component Analysis | | | | | | |

**Source:** Analysis on Survey Data

[3] Ibid.
[4] A. Field, *Discovering Statistics Using SPSS*, 2nd Edition, (Sage Publication, (2005): 162.

The table shows, total variance accounted for 66.393. The total variance explained by the principal components associated with each factor is also shown in the table above.

### 7.2.3.3 Rotated Component Matrix

Rotated component matrix was used to transform the original component matrix in order to infer simply through reaching a simple pattern structure. Items values with more than 0.5 were retained for the further analysis. The following table represents the rotated component matrix for the variables of service marketing mix.

**Table 7.5: Rotated Component Matrix[a]**

| | Component | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Price** | **People** | **Process** | **Physical Evidence** | **Place** | **Service Product** | **Promotion** |
| Pr 1 | .799 | | | | | | |
| Pr 2 | .789 | | | | | | |
| Pr 3 | .843 | | | | | | |
| Pr 4 | .833 | | | | | | |
| Pr5 | .756 | | | | | | |
| Pr6 | .743 | | | | | | |
| Pr7 | .724 | | | | | | |
| Pr 8 | .743 | | | | | | |
| Pe 1 | | .832 | | | | | |
| Pe 2 | | .783 | | | | | |
| Pe 3 | | .698 | | | | | |
| Pe 4 | | .571 | | | | | |
| Pe 5 | | .843 | | | | | |
| Pe 6 | | .712 | | | | | |
| Pe 7 | | .681 | | | | | |
| Pe 8 | | .784 | | | | | |
| Pe 9 | | .762 | | | | | |
| Prc 1 | | | .829 | | | | |
| Prc 2 | | | .738 | | | | |
| Prc 3 | | | .825 | | | | |
| Prc 4 | | | .812 | | | | |
| Phy 1 | | | | .725 | | | |
| Phy 2 | | | | .712 | | | |
| Phy 3 | | | | .826 | | | |
| Phy 4 | | | | .742 | | | |
| Plc 1 | | | | | .817 | | |
| Plc 2 | | | | | .829 | | |
| Plc 3 | | | | | .771 | | |
| Prd 1 | | | | | | .813 | |

| | Component | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Price** | **People** | **Process** | **Physical Evidence** | **Place** | **Service Product** | **Promotion** |
| Prd 2 | | | | | | .772 | |
| Prd 3 | | | | | | .742 | |
| Prd 4 | | | | | | .823 | |
| Pro 1 | | | | | | | .793 |
| Pro 2 | | | | | | | .842 |
| Pro 3 | | | | | | | .783 |
| Pro 4 | | | | | | | .719 |
| Extraction Method: Principal Component Analysis.<br>Rotation Method: Varimax with Kaiser Normalization.[a] | | | | | | | |

**Source:** Analysis on Field Survey Data

### 7.2.4 Requirements of EFA for the Dimensions of Customer-based Brand Equity

#### 7.2.4.1 KMO and Bartlett Test

The following table shows the KMO value of 0.941 for the given data, which suggests, the samples are adequate for factor analysis.

**Table 7.6: KMO and Bartlett's Test**

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .941 |
| Bartlett's Test of Sphericity | df | 300 |
| | Sig. | .000 |

**Source:** Analysis on Field Survey Data

#### 7.2.4.2 Factor Extraction

A total of 18 variables were extracted under the 4 components restricted earlier in the proposed model. Total variance accounts for 65.320% as shown in the table. The total variance explained by the principal components associated with each factor is also shown in the table.

**Table 7.7: Total Variance Explained**

| | Initial Eigenvalues | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| **Component** | **Total** | **Variance %** | **Cumulative %** | **Total** | **% of Variance** | **Cumulative %** |
| 1 | 6.477 | 38.709 | 38.709 | 4.716 | 27.334 | 27.334 |
| 2 | 2.278 | 16.024 | 54.733 | 3.565 | 20.256 | 47.590 |
| 3 | 1.325 | 6.321 | 61.054 | 1.856 | 11.148 | 58.738 |
| 4 | 1.091 | 4.266 | 65..320 | 1.034 | 6.582 | 65.320 |
| Extraction Method: Principal Component Analysis. | | | | | | |

**Source:** Analysis on Field Survey Data

### 7.2.4.3 Rotated Component Matrix

The following table shows the rotated component matrix for the dimensions/sources of customer-based brand equity variables.

**Table 7.8: Rotated Component Matrix[a]**

| | Component | | | |
|---|---|---|---|---|
| | **Brand Loyalty** | **Brand Associations** | **Brand Awareness** | **Perceived Brand Quality** |
| BLo 1 | .843 | | | |
| BLo 2 | .779 | | | |
| BLo 3 | .721 | | | |
| BLo 4 | .764 | | | |
| BLo 5 | .814 | | | |
| BAs 1 | | .772 | | |
| BAs 2 | | .824 | | |
| BAs 3 | | .714 | | |
| BAs 4 | | .753 | | |
| BAs 5 | | .732 | | |
| BAs 6 | | .716 | | |
| PBq 1 | | | .786 | |
| PBq 2 | | | .739 | |
| PBq 3 | | | .833 | |
| PBq 4 | | | .792 | |
| BAw 1 | | | | .835 |
| BAw 2 | | | | .819 |
| BAw 3 | | | | .774 |
| Extraction Method: Principal Component Analysis.<br>Rotation Method: Varimax with Kaiser Normalization.[a] | | | | |
| Rotation converged in 8 iterations. | | | | |

**Source:** Analysis on Field Survey Data

## 7.2.5 Requirements of EFA for Customer-based Brand Equity

### 7.2.5.1 KMO and Bartlett's Test

Table shows that the KMO value is 0.826, which suggests that the sample is adequate for factor analysis.

**Table 7.9: KMO and Bartlett's Test**

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .826 |
| Bartlett's Test of Sphericity | df | 3 |
| | Sig. | .000 |

**Source:** Analysis on Field Survey Data

### 7.2.5.2 Factor Extraction

Total of 3 variables extracted for the model were restricted to 1 component, accounting for 64.393% of total variation as shown in the table. The total variance explained by the component associated with each factor is shown in the table.

**Table 7.10: Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | Variance% | Cumulative % | Total | Variance % | Cumulative % |
| CBBE | 1.962 | 64.393 | 64.393 | 1.962 | 64.393 | 64.393 |
| Extraction Method: Principal Component Analysis. | | | | | | |

**Source:** Analysis on Field Survey Data

### 7.2.5.3 Rotated Component Matrix

The following table shows the rotated component matrix for customer-based brand equity variable.

**Table 7.11: Rotated Component Matrix[a]**

| | Component 1 |
|---|---|
| CBBE 1 | .826 |
| CBBE 2 | .815 |
| CBBE 3 | .798 |
| Extraction Method: Principal Component Analysis.<br>Rotation Method: Varimax with Kaiser Normalization.[a] | |
| a. Rotation converged in1iteration. | |

**Source:** Analysis on Field Survey Data

## 7.3 Multiple Regression Analysis

Multiple regression analysis has been used to examine whether demographics have effect on the dimensions of CBBE and overall CBBE, service marketing mix elements on the dimensions of CBBE, and CBBE dimensions on overall CBBE in mobile telecommunication industry in Bangladesh or not.

### 7.3.1 Demographics on Customer-based Brand Equity and Its Dimensions:

**Effect of Demographics on Brand Awareness:**

Equation for brand awareness is expressed as:

$$Y_{BA} = \beta_0 + B_1F_1 + B_2F_2 + B_3F_3 + B_4F_4$$

where, $Y_{BA}$ = Brand Awareness, $\beta_0$ = constant (coefficient of intercept), $F_1$ = Age, $F_2$ = Income, $F_3$ = Gender, $F_4$ = Occupation.

**Table 7.12: Model Summary for Brand Awareness**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .094[a] | .009 | .003 | .99609 |
| a. Predictors: (Constant), Occupation, Gender, Age, Income<br>b. Dependent Variable: Brand Awareness | | | | |

**Source**: Analysis on Field Survey Data

Table indicates, the R value for the brand awareness is 0.094, R square is .009 which means that there is 0.5% of correlation exists between the predictors with the adjusted R square value of 0.003.

**Table 7.13: ANOVA for Brand Awareness**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 5.920 | 4 | 1.480 | 1.492 | .203[a] |
| | Residual | 661.800 | 667 | .992 | | |
| | Total | 667.720 | 671 | | | |
| a. Predictors: (Constant), Occupation, Gender, Age, Monthly Income<br>b. Dependent Variable: Brand Awareness | | | | | | |

**Source:** Analysis on Field Survey Data

Table shows, the F ratio is 1.492, which is insignificant as the p value is shown as 0.203 which is higher than 0.05. It indicates the model as an insignificant fit to the overall data.

**Table 7.14: Coefficients for Brand Awareness**

| Factors | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| | (Constant) | 3.687 | .308 | | 11.966 | .000 |
| | Age (in year) | .005 | .007 | .043 | .781 | .435 |
| | Monthly Income | -7.195E-6 | .000 | -.109 | -1.941 | .053 |
| | Gender | .033 | .093 | .015 | .360 | .719 |
| | Occupation | -.012 | .009 | -.069 | -1.332 | .183 |
| a. Dependent Variable: Brand Awareness | | | | | | |

**Source:** Analysis on Field Survey Data

Table shows, $Y_{BA}$ = 0.000 + (0.043) + (-0.109) + 0.015 + (-0.069) = 0.12 interprets, for every increase of one unit in any independent variable, brand awareness

would increase by 0.12. Beta coefficients, t-values, and p-values explain that independent variables have no significant importance in contributing to the variance of brand awareness. So, age, income, gender and occupation have no statistically significant effect on brand awareness in mobile telecom industry in Bangladesh.

**Effect of Demographics on Brand Association:**

Equation for brand association is expressed as:

$$Y_{BAs} = \beta_0 + B_1G_1 + B_2G_2 + B_3G_3 + B_4G_4$$

where, $Y_{BAs}$ = Brand Association, $\beta_0$ = constant (coefficient of intercept), $G_1$ = Age, $G_2$ = Income, $G_3$ = Gender, $G_4$ = Occupation.

**Table 7.15: Model Summary for Brand Association**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .148[a] | .022 | .016 | .72740 |
| a. Predictors: (Constant), Occupation, Gender, Age, Income<br>b. Dependent Variable: Brand Association | | | | |

**Source:** Analysis on Field Survey Data

Table indicates, the R value for the brand associations is 0 .148, R square is .022 which means that there is 0.5% of correlation exists between the predictors with the adjusted R square value of 0.016.

**Table 7.16: ANOVA for Brand Association**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 7.892 | 4 | 1.973 | 3.729 | .005[a] |
| | Residual | 352.388 | 666 | .529 | | |
| | Total | 360.281 | 670 | | | |
| a.Predictors: (Constant), Occupation, Gender, Age, Income<br>b.Dependent Variable: Brand Association | | | | | | |

**Source:** Analysis on Field Survey Data

Table shows, the F ratio is 3.729, which is insignificant as the p value is shown as 0.005 which is lower than 0.05. It indicates the model as a significant fit to the overall data.

**Table 7.17: Coefficients for Brand Association**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 3.593 | .225 | | 15.968 | .000 |
| | Age | .003 | .005 | .035 | .641 | .522 |
| | Income | -8.872E-6 | .000 | -.183 | -3.276 | .051 |
| | Gender | .022 | .068 | .014 | .325 | .745 |
| | Occupation | -.013 | .007 | -.097 | -1.886 | .060 |
| a. Dependent Variable: Brand Association | | | | | | |

**Source:** Analysis on Field Survey Data

Table shows, $Y_{BAs}$ = 0.000 + 0.035 + (-.183) + .014 + (-.097) = -0.231 interprets, for every increase of one unit in any independent variable, brand associations would decrease by 0.231. Beta coefficients, t-values, and p-values indicate that independent variables have no significant importance in contributing to the variance of brand association. Therefore, age, income, gender and occupation have no statistically significant effect on brand association in mobile telecom industry in Bangladesh.

**Effect of Demographics on Perceived Brand Quality:**

Equation for for Perceived Brand Quality is expressed as:

$$Y_{PBQ} = \beta_0 + B_1H_1 + B_2H_2 + B_3H_3 + B_4H_4$$

where, $Y_{PBQ}$ = Perceived Brand Quality, $\beta_0$ = constant (coefficient of intercept), $H_1$ = Age, $H_2$ = Income, $H_3$ = Gender, $H_4$ = Occupation.

**Table 7.18: Model Summary for Perceived Brand Quality**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .082[a] | .007 | .001 | .97704 |
| a.Predictors: (Constant), Occupation, Gender, Age, Income<br>b.Dependent Variable: Perceived Brand Quality | | | | |

**Source:** Analysis on Field Survey Data

Table indicates, the R value for the perceived brand quality is 0.082, R square is .007 which means that there is 0.7% of correlation exists between the predictors with the adjusted R square value of 0.001.

**Table 7.19: ANOVA for Perceived Brand Quality**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 4.296 | 4 | 1.074 | 1.125 | .344[a] |
| | Residual | 635.767 | 666 | .955 | | |
| | Total | 640.063 | 670 | | | |
| a. Predictors: (Constant), Occupation, Gender, Age, Income<br>b. Dependent Variable: Perceived Brand Quality | | | | | | |

**Source:** Analysis on Field Survey Data

Table shows, the F ratio is 1.125, which is insignificant as the p value is shown as 0.344 which is higher than 0.05. It indicates the model as an insignificant fit to the overall data.

**Table 7.20: Coefficients for Perceived Brand Quality**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 1.829 | .302 | | 6.048 | .000 |
| | Age | -.003 | .007 | -.026 | -.475 | .635 |
| | Income | 4.536E-6 | .000 | .070 | 1.247 | .213 |
| | Gender | .013 | .091 | .006 | .142 | .887 |
| | Occupation | .015 | .009 | .088 | 1.693 | .091 |
| a. Dependent Variable: Perceived Brand Quality | | | | | | |

**Source:** Analysis on Field Survey Data

Table shows, $Y_{PBQ}$ = 0.000 + (-.026) + .070 + .006 + .088 = 0.138 interprets, for every increase of one unit in any independent variable, perceived brand quality would increase by 0.138. Beta coefficients, t-values, and p-values explain that independent variables have no significant importance in contributing to the variance of perceived brand quality. So, age, income, gender and occupation have no statistically significant effect on perceived brand quality in mobile telecom industry in Bangladesh.

**Effect of Demographics on Brand Loyalty:**

Equation for brand loyalty is expressed as:

$$Y_{BL} = \beta_0 + B_1L_1 + B_2L_2 + B_3L_3 + B_4L_4$$

where, $Y_{BL}$ = Brand Loyalty, $\beta_0$ = constant (coefficient of intercept), $L_1$ = Age, $L_2$ = Income, $L_3$ = Gender, $L_4$ = Occupation.

**Table 7.21: Model Summary for Brand Loyalty**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .178[a] | .032 | .026 | 3.00885 |
| a.Predictors: (Constant), Occupation, Gender, Age, Income<br>b.Dependent Variable: Brand Loyalty | | | | |

**Source:** Analysis on Field Survey Data

Table indicates, the R value for the brand loyalty is 0.178, R square is .032 which means that there is 3.2% of correlation exists between the predictors with the adjusted R square value of 0.026.

**Table 7.22: ANOVA for Brand Loyalty**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 197.810 | 4 | 49.452 | 5.462 | .000[a] |
| | Residual | 6038.458 | 667 | 9.053 | | |
| | Total | 6236.267 | 671 | | | |
| a.Predictors: (Constant), Occupation, Gender, Age, Income<br>b.Dependent Variable: Brand Loyalty | | | | | | |

**Source:** Analysis on Field Survey Data

Table shows, the F ratio is 5.462, which is insignificant as the p value is shown as 0.000 which is lower than 0.05. It indicates the model as a significant fit to the overall data.

**Table 7.23: Coefficients for Brand Loyalty**

| | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| | (Constant) | 6.357 | .931 | | 6.830 | .000 |
| | Age | -.020 | .021 | -.051 | -.943 | .346 |
| | Income | -2.981E-5 | .000 | -.148 | -2.663 | .118 |
| | Gender | -.946 | .280 | -.141 | -3.383 | .311 |
| | Occupation | -.015 | .028 | -.027 | -.523 | .601 |
| a.Dependent Variable: Brand Loyalty | | | | | | |

**Source:** Analysis on Field Survey Data

Table shows, $Y_{BL}$ = 0.000 + (-.051) + (-.148) + (-.141) + (-.027) = 0.367 interprets, for every increase of one unit in any independent variable, brand loyalty would increase by 0.367. Beta coefficients, t-values, and p-values explain that independent variables have no significant importance in contributing to the variance

of brand loyalty. So, age, income, gender and occupation have no statistically significant effect on brand loyalty in mobile telecom industry in Bangladesh.

**Effect of Demographics on Customer-based Brand Equity:**

Equation for customer-based brand equity is expressed as:

$$Y_{CBBE} = \beta_0 + B_1M_1 + B_2M_2 + B_3M_3 + B_4M_4$$

where, $Y_{CBBE}$ = Customer-based Brand Equity, $\beta_0$ = constant (coefficient of intercept), $F_1$ = Age, $F_2$ = Income, $F_3$ = Gender, $F_4$ = Occupation.

**Table 7.24: Model Summary for Customer-based Brand Equity**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .090[a] | .008 | .002 | 1.41352 |
| a.Predictors: (Constant), Occupation, Gender, Age, Income<br>b.Dependent Variable: Customer-based Brand Equity | | | | |

**Source:** Analysis on Field Survey Data

Table indicates, the R value for the customer-based brand equity is 0.090, R square is .008 which means that there is 0.8% of correlation exists between the predictors with the adjusted R square value of 0.002.

**Table 7.25: ANOVA for Customer-based Brand Equity**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| | Regression | 10.750 | 4 | 2.688 | 1.345 | .252[a] |
| | Residual | 1330.687 | 666 | 1.998 | | |
| | Total | 1341.437 | 670 | | | |
| a.Predictors: (Constant), Occupation, Gender, Age, Income<br>b.Dependent Variable: Customer-based Brand Equity | | | | | | |

**Source:** Analysis on Field Survey Data

Table shows, the F ratio is 1.345, which is insignificant as the p value is shown as 0.252 which is higher than 0.05. It indicates the model as an insignificant fit to the overall data.

**Table 7.26: Coefficients for Customer-based Brand Equity**

| Factors | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| | (Constant) | 2.825 | .437 | | 6.461 | .000 |
| | Age | .008 | .010 | .045 | .821 | .412 |
| | Income | -1.048E-5 | .000 | -.112 | -1.993 | .047 |
| | Gender | -.132 | .131 | -.042 | -1.001 | .317 |
| | Occupation | -.020 | .013 | -.078 | -1.510 | .132 |
| a. Dependent Variable: Customer-based Brand Equity | | | | | | |

**Source:** Analysis on Field Survey Data

Table shows, $Y_{CBBA} = 0.000 + .045 + (-.112) + (-.042) + (-.078) = -0.187$ interprets, for every increase of one unit in any independent variable, customer-based brand equity would increase by -0.187. Beta coefficients, t-values, and p-values explain that independent variables have no significant importance in contributing to the variance of customer-based brand equity. So, age, income, gender and occupation have no statistically significant effect on customer-based brand equity in mobile telecom industry in Bangladesh.

### 7.3.2 Elements of Service Marketing Mix on the Dimensions of CBBE:

#### Elements of Service Marketing Mix on Brand Awareness

The equation for brand awareness is expressed as:

$$Y_{BA} = \beta_0 + B_1N_1 + B_2N_2 + B_3N_3 + B_4N_4 + B_5N_5 + B_6N_6 + B_7N_7$$

Where, $Y_{BA}$ = Brand Awareness (BA) of the Mobile Phone Telecom Industry in Bangladesh, $\beta_0$ = constant (coefficient of intercept), $N_1$ = Price, $N_2$ = People, $N_3$ = Process, $N_4$ = Physical Evidence, $N_5$ = Place, $N_6$ = Service Product, $N_7$ = Promotion, $B_1$, …, $B_7$ = regression coefficient of factor 1 to factor 7.

**Table 7.27: Model Summary for Brand Awareness**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .854[a] | .708 | .705 | .44242 |
| a. Predictors: (Constant), promotion, place, price, service product, Physical evidence, process, people.<br>b. Dependent Variable: brand awareness | | | | |

**Source:** Analysis on Field Survey Data

Table shows, the multiple correlation coefficients (R) of independent variables (seven components, $N_1$ to $N_7$) on the dependent variable ($Y_{BA}$) are 0.854, which means that there is 85.4% correlation between the predictors or independent variables. This meets the assumption of non-zero variance based on the predictor values, which is not equal to zero in this case. The adjusted R square value of 0.705 is ideal to generalize the model well because this value is close to R square value of 0.708 i.e. a small difference of 0.003 (0.708-0.705). It indicates, if the model was applied, it would have accounted for 0.3% less variance in outcome.

**Table 7.28: ANOVA Table for Brand Awareness**

| Model | df | Mean Square | F | Sig. |
|---|---|---|---|---|
| Regression | 7 | 45.425 | 229.166 | .000[a] |
| Residual | 662 | .198 | | |
| Total | 669 | | | |

a. Predictors: (Constant), promotion, place, price, service product, Physical evidence, process, people.
b. Dependent Variable: brand awareness

**Source:** Analysis on Field Survey Data

According to the table, F ratio is 229.166 and p value is shown as 0.000 which is less than 0.05 indicating the model has a significant fit to the overall data. In other words, at least one of the seven components is important in contributing to brand awareness.

**Table 7.29: Coefficientsfor Brand Awareness**

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | | |
| (Constant) | 3.402 | .018 | | 192.318 | .000 |
| Price | .398 | .018 | .492 | 23.186 | .000 |
| People | .362 | .018 | .481 | 21.867 | .000 |
| Process | .343 | .018 | .438 | 16.542 | .000 |
| Physical Evidence | .121 | .018 | .148 | 5.258 | .001 |
| Place | .258 | .018 | .314 | 11.457 | .000 |
| Service Product | .324 | .018 | .392 | 14.892 | .000 |
| Promotion | .224 | .018 | .279 | 9.873 | .000 |

a. Dependent Variable: Brand Awareness

**Source:** Analysis on Field Survey Data

Table demonstrate the multiple regression model equation; $Y_{BA}$ = 0.000 + 0.492 + 0.481+ 0.438 + 0.148 + 0.314 + 0.392 + 0.279=2.544, which interprets, for every increase of one unit in service marketing mix, brand awareness in the mobile telecom industry in Bangladesh would increase by 2.544. Scale of the t value evaluates the total contribution to the model. This study results show: Component 1: (Price; t=23.186, Sig.=0.000), Component 2: (People; t=21.867, Sig.=0.000), Component 3: (Process; t=16.542, Sig.=0.000), Component 4: (Physical Evidence; t=5.258, Sig.=0.001), Component 5: (Place; t=11.457, Sig.=0.000), Component 6: (Product; t=14.892, Sig.=0.000), and Component 7: (Promotion; t=9.873, Sig.=0.000). As far as the importance, each element of SMM is statistically significantt to brand awareness in the mobile telecom industry of in Bangladesh.

**Elements of Service Marketing Mix on Brand Association**

The equation for brand association is expressed in the following equation:

$$Y_{BAs} = \beta_0 + B_1Z_1 + B_2Z_2 + B_3Z_3 + B_4Z_4 + B_5Z_5 + B_6Z_6 + B_7Z_7$$

where, $Y_{BAs}$ = Brand Association (BAs) of the Mobile Phone Telecom Industry in Bangladesh, $\beta_0$ = constant (coefficient of intercept), $Z_1$ = Price, $Z_2$ = People, $Z_3$ = Process, $Z_4$ = Physical Evidence, $Z_5$ = Place, $Z_6$ = Service Product, $Z_7$ = Promotion, $B_1$,…, $B_7$ = regression coefficient of factor 1 to factor 7.

**Table 7.30: Model Summary for Brand Association**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .835[a] | .696 | .695 | .36347 |
| c. Predictors: (Constant), promotion, place, price, service product, Physical evidence, process, people. | | | | |
| d. Dependent Variable: brand association | | | | |

**Source:** Analysis on Field Survey Data

The table above shows, the multiple correlation coefficients R value is 83.5% which means, there is 83.5% correlation between the independent variables. Adjusted R square value 0.695 is ideal as the value is close to R square value of 0.696. This indicates, if the model were applied to the population, it would have been accounted for 0.1% less variance in result.

**Table 7.31: ANOVA for Brand Association**

| Model | df | Mean Square | F | Sig. |
|---|---|---|---|---|
| Regression | 7 | 42.425 | 226.166 | .000[a] |
| Residual | 661 | .189 | | |
| Total | 668 | | | |

a. Predictors: (Constant), promotion, place, price, service product, Physical evidence, process, people.
b. Dependent Variable: brand association

**Source:** Analysis on Field Survey Data

Table exhibits, the F ratio is 226.166 and the p value is 0.000 which is less than 0.05 indicates the regression model achieved a satisfactory level of goodness-of-fit in predicting the variance of brand association in relation to the seven SMM components. However, at least one of the seven components is important in contributing to brand association.

**Table 7.32: Coefficients for Brand Association**

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | | |
| (Constant) | 3.272 | .022 | | 176.327 | .000 |
| Price | .518 | .022 | .596 | 35.274 | .000 |
| People | .461 | .022 | .541 | 29.463 | .000 |
| Process | .384 | .022 | .464 | 21.236 | .000 |
| Physical Evidence | .247 | .022 | .306 | 6.471 | .000 |
| Place | .213 | .022 | .269 | 2.962 | .003 |
| Service Product | .347 | .022 | .417 | 16.542 | .000 |
| Promotion | .264 | .022 | .328 | 8.744 | .000 |
| a. Dependent Variable: Brand Association | | | | | |

**Source:** Analysis on Field Survey Data

Table illustrates the multiple regression model equation, $Y_{BAs}$ = 0.000 + 0.596 + 0.541 + 0.464 + 0.306 + 0.269 + 0.417 + 0.328=2.921. It infers, for every increase of one unit in service marketing mix, brand association would increase by 2.921. The study results show, component 1: (Price; t=35.274, Sig.=0.000), Component 2: (People; t=29.463, Sig.=0.000), Component 3: (Process; t=21.236, Sig.=0.000), Component 4: (Physical Evidence; t=6.471, Sig.=0.000), Component 5: ( Place;

t=2.962, Sig.=0.001), Component 6: (Product; t=16.542, Sig.=0.003), and Component 7: (Promotion; t=8.744, Sig.=0.000). Result indicates, all the SMM elements are significant to brand association in the mobile telecom industry of in Bangladesh.

**Elements of Service Marketing Mix on Perceived Brand Quality**

Perceived brand quality is expressed in the following equation:

$$Y_{PBq} = \beta_0 + B_1P_1 + B_2P_2 + B_3P_3 + B_4P_4 + B_5P_5 + B_6P_6 + B_7P_7$$

Where, $Y_{PBq}$ = Perceived Brand Quality (PBq) of the Mobile Phone Telecom Industry in Bangladesh, $\beta_0$ = constant (coefficient of intercept), $P_1$ = Price, $P_2$ = People, $P_3$ = Process, $P_4$ = Physical Evidence, $P_5$ = Place, $P_6$ = Service Product, $P_7$ = Promotion, $B_1$,…, $B_7$ = regression coefficient of factor 1 to factor 7.

**Table 7.33: Model Summaryfor perceived Brand Quality**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .788[a] | .626 | .624 | .37677 |

e. Predictors: (Constant), promotion, place, price, service product, Physical evidence, process, people.
f. Dependent Variable: brand quality

**Source:** Analysis on Field Survey Data

Table results show, the value of R is 0.788, which means 78.8% correlation exists between the predictors or independent variables. So, the adjusted R square value 0.624 is ideal to generalize the model as this value has a small difference of 0.002 (0.626-0.624) with R square value. This means, if the model were applied to the population, it would have accounted for 0.2% less variance in outcome.

**Table 7.34: ANOVAfor perceived Brand Quality**

| Model | df | Mean Square | F | Sig. |
|---|---|---|---|---|
| Regression | 7 | 38.492 | 186.166 | .000[a] |
| Residual | 662 | .769 | | |
| Total | 669 | | | |

c. Predictors: (Constant), promotion, place, price, service product, Physical evidence, process, people.
d. Dependent Variable: Perceived brand quality

**Source:** Analysis on Field Survey Data

The table above shows, the F ratio is 185.166, which is highly significant with the p value of 0.000 which is less than 0.05. It indicates, the model has a significant level of goodness-of-fit in predicting the variance of perceived brand quality. Therefore, at least one of the seven components is important in contributing to perceived brand quality.

**Table 7.35: Coefficients for perceived Brand Quality**

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | | |
| (Constant) | 3.062 | .016 | | 156,242 | .000 |
| Price | .514 | .016 | .569 | 32.436 | .000 |
| People | .325 | .016 | .378 | 12.653 | .000 |
| Process | .367 | .016 | .418 | 16.869 | .000 |
| Physical Evidence | .185 | .016 | .239 | 2.706 | .008 |
| Place | .246 | .016 | .296 | 5.326 | .001 |
| Service Product | .416 | .016 | .471 | 24.289 | .000 |
| Promotion | .224 | .016 | .276 | 2.833 | .003 |
| a. Dependent Variable: Perceived brand quality | | | | | |

**Source:** Analysis on Field Survey Data

According to the result, multiple regression model equation, $Y_{PBq}$ = 0.000 + 0.569 + 0.378 + 0.418 + 0.239 + 0.296 + 0.471 + 0.276=2.647. This interprets this model as, for every increase of one unit in service marketing mix, perceived brand quality would increase by 2.647. Analysis of this study shows, Component 1: (Price; t=32.436, Sig.=0.000), Component 2: (People; t=12.653, Sig.=0.000), Component 3: (Process; t=16.869, Sig.=0.000), Component 4: (Physical Evidence; t=2.706, Sig.=0.008), Component 5: (Place; t=5.326, Sig.=0.001), Component 6: (Product; t=24.289, Sig.=0.000), and Component 7: (Promotion; t=2.833, Sig.=0.003). It means, all the SMM elements are important to brand awareness in the mobile telecom industry of in Bangladesh.

**Elements of Service Marketing Mix on Brand Loyalty**

Brand loyalty equation is expressed as on:

$$Y_{BLo} = \beta_0 + B_1Q_1 + B_2Q_2 + B_3Q_3 + B_4Q_4 + B_5Q_5 + B_6Q_6 + B_7Q_7$$

Where, $Y_{BLo}$ = Brand Loyalty (BLo) of the Mobile Phone Telecom Industry in Bangladesh, $\beta_0$ = constant (coefficient of intercept), $Q_1$ = Price, $Q_2$ = People, $Q_3$ = Process, $Q_4$ = Physical Evidence, $Q_5$ = Place, $Q_6$ = Service Product, $Q_7$ = Promotion, $B_1$,…, $B_7$ = regression coefficient of factor 1 to factor 7.

**Table 7.36: Model Summaryfor Brand Loyalty**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .745[a] | .625 | .622 | .37686 |

g. Predictors: (Constant), promotion, place, price, service product, Physical evidence, process, people.
h. Dependent Variable: Brand loyalty

**Source:** Analysis on Field Survey Data

As per the table above, the multiple correlation coefficients of the independent variables on the dependent variable ($Y_{BLo}$) is 0.745. It shows, 74.5% of correlation between the predictors. This meets the assumption of non-zero variance based on the fact that predictor values. The result also shows, adjusted R square value of 0.622 is ideal to generalize the model well because this value is close to R square value of 0.625. This clearly indicates, if the model was applied, it would have been accounted for 0.3% less variance in the ultimate result.

**Table 7.37: ANOVA for Brand Loyalty**

| Model | df | Mean Square | F | Sig. |
|---|---|---|---|---|
| Regression | 7 | 28.425 | 178.43 | .000[a] |
| Residual | 668 | .179 | | |
| Total | 661 | | | |

e. Predictors: (Constant), promotion, place, price, service product, Physical evidence, process, people.
f. Dependent Variable: Brand loyalty

**Source:** Analysis on Field Survey Data

Result shows, the F ratio is 178.43 and the p value is 0.000 which is less than 0.05 indicating the model has a significant goodness-of-fit in predicting the variance of brand loyalty. Therefore, it concludes, at least one of the seven components is important in contributing to brand loyalty.

**Table 7.38: Coefficients for Brand Loyalty**

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | | |
| (Constant) | 3.153 | .018 | | 186.274 | .000 |
| Price | .434 | .018 | .539 | 36.532 | .000 |
| People | .271 | .018 | .376 | 21.748 | .000 |
| Process | .294 | .018 | .398 | 24.448 | .000 |
| Physical Evidence | .328 | .018 | .425 | 27.706 | .000 |
| Place | .221 | .018 | .327 | 16.927 | .000 |
| Service Product | .364 | .018 | .469 | 27.289 | .000 |
| Promotion | .127 | .018 | .231 | 12.753 | .000 |
| a. Dependent Variable: Brand loyalty | | | | | |

**Source:** Analysis on Field Survey Data

The application of the B-values in the multiple regression model equation, $Y_{BLo}$ = 0.0000 + 0.539+ 0.376 + 0.398 + 0.425 + 0.327 + 0.469 + 0.231= 2.76. It infers the model as, for every increase of one unit in service marketing mix, brand loyalty would increase by 2.76. Results show, Component 1: (Price; t=36.532, Sig.=0.00), Component 2: (People; t=21.748, Sig.=0.000), Component 3: (Process; t=24.448, Sig.=0.000), Component 4: (Physical Evidence; t=27.706, Sig.=0.000), Component 5: (Place; t=16.927, Sig.=0.000), Component 6: (Product; t=27.289, Sig.=0.000), and Component 7: (Promotion; t=12.753, Sig.=0.000). Thus, it is concluded, all SMM elements are important to brand loyalty in the mobile telecom industry in Bangladesh.

### 7.3.3 Dimensions of Customer-based Brand Equity on Customer-based Brand Equity

Customer-based brand equity is expressed in the following equation:

$$Y_{CBBE} = \beta_0 + B_1R_1 + B_2R_2 + B_3R_3 + B_4R_4$$

Where, $Y_{CBBE}$ = Customer-based Brand Equity (CBBE) of the Mobile Phone Telecom Industry in Bangladesh, $\beta_0$ = constant (coefficient of intercept), $R_1$ = Brand awareness, $R_2$ = Brand Association, $R_3$ =Perceived Brand Quality, $R_4$ = Brand Loyalty, $B_1$,…, $B_7$ = regression coefficient of factor 1 to factor 7.

**Table 7.39: Model Summary for Customer-based brand equity**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .851[a] | .718 | .717 | .44013 |

i. Predictors: (Constant), promotion, place, price, service product, physical evidence, process, people.
j. Dependent Variable: Customer-based brand equity

**Source:** Analysis on Field Survey Data

As per the table above, multiple correlation coefficients (R) of independent variables is 0.851, which shows 85.1% correlation exists between the predictors. Result also indicates, the adjusted R square value of 0.717 is ideal to generalize the model as this value is close to R square value of 0.718 with a small difference of 0.001 (0.718 - 0.717). It means, if the model were applied to the population, it would have been accounted for 0.1% less variance in outcome.

**Table 7.40: ANOVA for Customer-based brand equity**

| Model | df | Mean Square | F | Sig. |
|---|---|---|---|---|
| Regression | 7 | 41.224 | 234.236 | .000[a] |
| Residual | 662 | .198 | | |
| Total | 661 | | | |

g. Predictors: (Constant), promotion, place, price, service product, Physical evidence, process, people.
h. Dependent Variable: Customer-based brand equity

**Source:** Analysis on Field Survey Data

According to the result, the F ratio is 234.236 and the p value is shown as 0.000 which is less than 0.05 indicating the model has a significant fit to the overall data. This result indicates, at least one of the four components is significant in contributing to CBBE.

**Table 7.41: Coefficients for Customer-based brand equity**

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | | |
| (Constant) | 3.195 | .018 | | 177.803 | .000 |
| Brand Awareness | .314 | .018 | .425 | 18.934 | .000 |
| Brand Association | .417 | .018 | .538 | 31.437 | .000 |
| Perceived Brand Quality | .436 | .018 | .553 | 34.573 | .000 |
| Brand Loyalty | .471 | .018 | .598 | 38.678 | .000 |

a. Dependent Variable: Customer-based brand equity

**Source:** Analysis on Field Survey Data

Table exhibits, the multiple regression model equation, $Y= \beta_0 + B_1R_1 + B_2R_2 + B_3R_3 + B_4R_4 = 0.000 + 0.425 + 0.538 + 0.553 + 0.598=2.114$, which interprets this model as, for every increase of one unit in any of the independent variable,, CBBE would increase by 2.114 in the mobile telecom industry in Bangladesh. According to the results, Component 1: (Loyalty; t=18.934, Sig.=0.000), Component 2: (association; t=31.437, Sig.=0.000), Component 3: (Perceived Quality; t=34.573, Sig.=0.000), and Component 4: (Loyalty; t=38.678, Sig.=0.000). So far its importance, SMM elements are significant to CBBE in the mobile telecom industry of in Bangladesh.

### 7.3.4 Elements of Service Marketing Mix on Customer-based Brand Equity:

The equation for customer-based brand equity is:

$$Y_{CBBA} = \beta_0 + B_1E_1 + B_2E_2 + B_3E_3 + B_4E_4 + B_5E_5 + B_6E_6 + B_7E_7$$

Here, $Y_{CBBE}$ = Customer-based brand equity (CBBA) of the Mobile Phone Telecom Industry in Bangladesh, $\beta_0$ = constant (coefficient of intercept), $E_1$ = Price, $E_2$ = People, $E_3$ = Process, $E_4$ = Physical Evidence, $E_5$ = Place, $E_6$ = Service Product, $E_7$ = Promotion, $B_1$, …, $B_7$ = regression coefficient of factor 1 to factor 7.

**Table 7.42: Model Summary for Customer-based Brand Equity**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .070[a] | .005 | -.006 | 1.41871 |
| a. Predictors: (Constant), service product, price, place, promotion, people, process, physical evidence | | | | |

**Source:** Analysis on Field Survey Data

Table indicates, the multiple correlation coefficients (R) of independent variables (seven components, $E_1$ to $E_7$) on the dependent variable ($Y_{CBBA}$) is 0.070, multiple correlation coefficients (R square) is 0.005 which means that there is 0.5% correlation between the predictors or independent variables, and the adjusted R square value is -0.006.

**Table 7.43: ANOVA for Customer-based Brand Equity**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 6.624 | 7 | .946 | .470 | .856[a] |
| | Residual | 1330.428 | 661 | 2.013 | | |
| | Total | 1337.052 | 668 | | | |
| a. Predictors: (Constant), service product, price, place, promotion, people, process, physical evidence<br>b. Dependent Variable: customer-based brand equity | | | | | | |

**Source:** Analysis on Field Survey Data

Table shows, the F ratio is 0.470, which is insignificant as the p value is shown as 0.856 which is higher than 0.05. It indicates the model as an insignificant fit to the overall data. Therefore, none of the seven components of service marketing mix is important in contributing to customer-based brand equity.

**Table 7.44: Coefficients for Customer-based Brand Equity**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 2.479 | .444 | | 5.579 | .000 |
| | Service product | .000 | .070 | .000 | .006 | .995 |
| | Price | -.151 | .106 | -.077 | -1.421 | .156 |
| | Place | .043 | .091 | .024 | .475 | .635 |
| | Promotion | -.003 | .102 | -.002 | -.034 | .973 |
| | People | -.006 | .108 | -.002 | -.052 | .959 |
| | Process | .012 | .089 | .006 | .133 | .894 |
| | Physical evidence | .111 | .098 | .053 | 1.136 | .256 |
| a. Dependent Variable: customer-based brand equity | | | | | | |

**Source:** Analysis on Field Survey Data

Table exhibits, $Y_{CBBA}$ = 0.000 + (-.077) + 0.024 + (-0.002) + (-0.002) + 0.006 + 0.053=0.002 interprets, for every increase of one unit in any element of service marketing mix; customer-based brand equity would increase by 0.002. Beta coefficients, t-values, and p-values explain that seven components of service marketing mix have no significant importance in contributing to the variance of customer-based brand equity. It indicates, service marketing mix elements have no statistically significant effect on customer-based brand equity in mobile telecom industry in Bangladesh.

The result above concludes, CBBE dimensions act as mediating factors or sources in building or increasing CBBE because SMM elements directly cannot do it. Therefore, SMM elements are the determinants of CBBE dimensions and these dimensions are the determinants of overall CBBE in mobile telecom industry in Bangladesh.

## 7.4 Structural Equation Model (SEM) Analysis

In order to conduct SEM analysis, each construct was analyzed based on absolute fit indices and relative or incremental fit indices. Chi-square ($\chi 2$) statistic, the Goodness-of-Fit Index (GFI), the Root Mean Square Residual (RMSR) and the Root Mean Square Error of Approximation (RMSEA) were used under the absolute fit indices. The indicators are predicted by the latent variables. As measurement of indicators may be exaggerated by inaccuracies in measurement, it refers as the error terms.[5] Correlation coefficients values between the latent constructs and the indicators may be positive or negative signs indicate the relations in the same way.

### 7.4.1 Confirmatory Factor Analysis (CFA)

The table below gives a summary of the Confirmatory Factor Analysis (CFA) conducted as a part of SEM to test the multidimensionality of the variables. As of the CFA condition of 0.50 threshold level, all factor loadings maintained the thresholds.[6] In conducting CFA, $R^2$ must All the t-values of the constructs were within the satisfactory level and their corresponding regression value of $R^2$ also were within the limit of not less than 0.20 as the indication of high level of error.[7]

**Table 7.45: Composite Reliability and Average Variance Extract**

| Variable Code | Name of Variable/Construct | Composite Reliability (CR) | Average Variance Extract (AVE) |
|---|---|---|---|
| Pr (1-8) | Price | 0.89 | 0.63 |
| Pe (1-9) | People | 0.87 | 0.62 |
| prc(1-4) | Process | 0.84 | 0.61 |

[5] B. J. Ullman, (2006). Structural Equation Modeling: Reviewing the Basics and Moving Forward. *Journal of Personality Assessment.* 87(1):35-50.

[6] F., J. Hair, Black, W. C., Barbin, B. J., & Anderson, R. E. (2009), *Multivariate Data Analysis,*Upper Saddle River, NJ: Printice Hall.

[7] D. Hooper, Coughlan, J. and Mullen, M. R. (2008), Structural Equation Modelling: Guidelines for Determining Model Fit, *The Electronic Journal of Business Research Methods,* 6: 53 – 60.

| Variable Code | Name of Variable/Construct | Composite Reliability (CR) | Average Variance Extract (AVE) |
|---|---|---|---|
| phy(1-4) | Physical Evidence | 0.87 | 0.61 |
| plc(1-3) | Place | 0.86 | 0.59 |
| prd(1-4) | Service Product | 0.84 | 0.57 |
| pro(1-4) | Promotion | 0.89 | 0.63 |

**Source:** Analysis on Field Survey Data

Construct reliability (CR), also known as composite reliability or internal consistency; is a measurement of the constructs unidimensaionality. As a rule, coefficient for Cronbach's alpha ranges between 0 and 1 with more closer to 1 means greater the internal consistency of the scale items.[8] In the table, values of CR are all within the acceptable range and indicate a very strong internal consistency of variables as the values are close to1in all cases.

### Measurement Fit Indices of the Proposed Model

Measurement model analyze the causal interactions between variables in a structural model. Initially, data analysis specifies the causal relationships between the dependent and independent variables to determine the reliability of the unidimensionality of the composite and latent variables. It confirms, the items used empirically determined a single dimension. The measurement fit indicesare presented in the following table:

**Table 7.46: Measurement Fit Indices for the Proposed Model**

| Goodness-of-fit Indices | Benchmark | Study Value |
|---|---|---|
| **Absolute goodness of fit measure** | | |
| Chi-square (CMIN) | $P \geq 0.05$ | 0.001 |
| Chi-square /degree of freedom | $\leq 2$ | 1.7 |
| **Absolute badness of fit measure** | | |
| Root mean Square Error of Approximation (RMSEA) | $\leq 0.08$ | 0.06 |
| **Incremental fit measure** | | |
| Normed Fit Index (NFI) | $\geq 0.90$ | 0.91 |
| Comparative Fit Index (CFI) | $\geq 0.90$ | 0.94 |
| Tucker Lewis Index (TLI) | $\geq 0.90$ | 0.93 |
| **Parsimony fit measure** | | |
| Parsimony Comparative of Fit index (PCFI) | $\geq 0.50$ | 0.81 |
| Parsimony Normed of Fit index (PNFI) | $\geq 0.50$ | 0.77 |

**Source:** Analysis on Field Survey Data

[8] Joseph A. Gliem, and Rosemary R. Gliem, "Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales," Midwest Research-to-Practice Conference in Adult, Continuing, and Community Education, 2003.

Table shows the measuremen fit indices for the proposed model of the study. For the fitness of the model to use in structural equation modelling, three fit indices namely absolute, incremental, and parsimonious measures has been recommended as crucial.[9] The table indicates that the various fit indices resulted within benchmark value to satisfy model fit accordingly.

The first absolute fit measure reported is Chi-square with the value of 0.001, which indicates it as statistically significant at P≥ 0.05. The second measure used was Root Mean Square Error of Approximation (RMSEA) with the value of 0.06 which falls under the acceptable range of 0.80 or less, means validating the fitness of the model.[10]

The first incremental measure reported on the table is Normed Fit Index (NFI) with a value of 0.91, then Comparative Fit Index (CFI) with the value of 0.94. and Tucker-Lewis Index (TLI) with the value of 0.93. All the indicators of the incremental fit measurement verified the model as fit because they fall within the acceptable range of 0.90 or greater.

Finally, Parsimonious fit indices determined to test the level of fitness the model achieved for each estimated coefficients. Hair et al. indicates that in this measure the closer Parsimony Normed of Fit Index (PNFI) and Parsimony Comparative of Fit Index (PCFI) were determined with the values of 0.81 and 0.77 respectively indicates the model to be fit as acceptance value for both the measures is 0.50 or more with more closer to 1, the better the fitness of the model.[11] Table also shows, the corresponding values of Average Variance Extracted (AVE) are greater than the values of the squared correlations of the individual constructs, indicate its carry for discriminatory validity as the values of AVEs which are greater than any of the squared correlation of the constructs (table 7.45) recommend discriminant validity has been achieved.[12]

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[9] Philip Holmes-Smith, *School socio-economic density and its effect on school performance*. Mceetya, 2006.

[10] Albert H. Segars, "Assessing the unidimensionality of measurement: A paradigm and illustration within the context of information systems research," *Omega* 25, no. 1 (1997): 107-121.

[11] Ibid.

[12] Ibid.

### 7.4.1.1 Correlation of Constructs

Correlation matrix between constructsis was used to check whether the variables are not highly correlated with each other, and to compare the values of AVEs and its corresponding square correlations.

**Table 7.47: Correlations between Constructs**

| Statistic | | Pr | Pe | Prc | Phy | Plc | Prd | Pro | Blo | Bas | Pbq | Baw | CBBE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pr | Pearson Correlation | 1 | | | | | | | | | | | |
| Pe | Pearson Correlation | .345** | 1 | | | | | | | | | | |
| Prc | Pearson Correlation | .309** | .529** | 1 | | | | | | | | | |
| Phy | Pearson Correlation | .322** | .501** | .480** | 1 | | | | | | | | |
| Plc | Pearson Correlation | .220** | .484** | .304** | .322** | 1 | | | | | | | |
| Prd | Pearson Correlation | .271** | .448** | .446** | .344** | .245** | 1 | | | | | | |
| Pro | Pearson Correlation | .345** | .427** | .396** | .453** | .277** | .361** | 1 | | | | | |
| Blo | Pearson Correlation | .196** | .423** | .333** | .351** | .325** | .307** | .300** | 1 | | | | |
| Bas | Pearson Correlation | .274** | .434** | .368** | .301** | .312** | .327** | .329** | .369** | 1 | | | |
| Pbq | Pearson Correlation | .270** | .064** | .054** | .072** | .025** | .009** | .012** | .028** | .027** | 1 | | |
| Baw | Pearson Correlation | .022** | .105** | .049** | .015** | .059** | .091** | .054** | .070** | .068** | .100** | 1 | |
| CBBE | Pearson Correlation | .210** | .126 | .056 | .052 | .085 | .019 | .112 | .120 | .037 | .090 | .142** | 1 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | | | | | | | | | | | |
| **Note:** Average Variances extracted (AVE) for each construct is much greater than the corresponding construct square correlations, thereby supporting discriminant validity. | | | | | | | | | | | | | |

**Source:** Analysis on Field Survey Data

## 7.4.2 Structural Model

Structural model assess the hypothesized relationships between the latent variables that enable the hypotheses of the study to be tested statistically. Results of the second stage of the Structural Equation Modelling are presented in the table below:

**Table 7.48: Hypothesized paths, Beta value, t- statistic, p value for Testing Hypothesis**

| Hypotheses Paths | *β* | *p* value | *t*-statistic | Results of Ho |
|---|---|---|---|---|
| Brand Awareness ← Price | 0.492 | 23.186 | .000 | Rejected |

| | | | | |
|---|---|---|---|---|
| Brand Awareness ← People | 0.481 | 21.867 | .000 | Rejected |
| Brand Awareness ← Process | 0.438 | 16.542 | .000 | Rejected |
| Brand Awareness ← Physical Evidence | 0.148 | 5.258 | .001 | Rejected |
| Brand Awareness ← Place | 0.314 | 11.457 | .000 | Rejected |
| Brand Awareness ← Service Product | 0.392 | 14.892 | .000 | Rejected |
| Brand Awareness ← Promotion | 0.279 | 9.873 | .000 | Rejected |
| Brand Association ← Price | 0.596 | 35.274 | .000 | Rejected |
| Brand Association ← People | 0.541 | 29.463 | .000 | Rejected |
| Brand Association ← Process | 0.464 | 21.236 | .000 | Rejected |
| Brand Association ← Physical Evidence | 0.306 | 6.471 | .001 | Rejected |
| Brand Association ← Place | 0.269 | 2.962 | .002 | Rejected |
| Brand Association ← Service Product | 0.417 | 16.542 | .000 | Rejected |
| Brand Association ← Promotion | 0.328 | 8.744 | .000 | Rejected |
| Perceived Brand Quality ← Price | 0.569 | 32.436 | .000 | Rejected |
| Perceived Brand Quality ← People | 0.378 | 12.653 | .000 | Rejected |
| Perceived Brand Quality ← Process | 0.418 | 16.869 | .000 | Rejected |
| Perceived Brand Quality ← Perceived Physical Evidence | 0.239 | 2.706 | .003 | Rejected |
| Perceived Brand Quality ← Place | 0.296 | 5.326 | .001 | Rejected |
| Perceived Brand Quality ← Service Product | 0.471 | 24.289 | .000 | Rejected |
| Brand Quality ← Promotion | 0.276 | 2.833 | .003 | Rejected |
| Brand Loyalty ← Price | 0.539 | 36.532 | 0.00 | Rejected |
| Brand Loyalty ← People | 0.376 | 21.748 | 0.00 | Rejected |
| Brand Loyalty ← Process | 0.398 | 24.448 | 0.00 | Rejected |
| Brand Loyalty ← Physical Evidence | 0.425 | 27.706 | 0.00 | Rejected |
| Brand Loyalty ← Place | 0.327 | 16.927 | 0.00 | Rejected |
| Brand Loyalty ← Service Product | 0.469 | 27.289 | 0.00 | Rejected |
| Brand Loyalty ← Promotion | 0.231 | 12.753 | 0.00 | Rejected |
| Customer-based Brand Equity ← Brand Awareness | 0.425 | 18.934 | 0.00 | Rejected |
| Customer-based Brand Equity ← Brand Associations | 0.538 | 31.437 | 0.00 | Rejected |
| Customer-based Brand Equity ← Perceived Brand Quality | 0.553 | 34.573 | 0.00 | Rejected |
| Customer-based Brand Equity ← Brand Loyalty | 0.598 | 38.678 | 0.00 | Rejected |

**Source:** Analysis on Field Survey Data

The study examined the degree of effect service marketing mix elements have on the sources of CBBE; and the degree of effect CBBE sources have on the overall CBBE. Findings presented on the table above are interpreted below:

**Analysis of Hypothesized Relationship between Service Marketing Mix and the Sources of Customer-based Brand Equity**

- Result shows, all the null hypotheses ($Ho_1$ to $Ho_{28}$) have been rejected i.e. all the alternative hypotheses were accepted. Therefore, it was concluded that all the elements of service marketing mix have significant positive effect on customer-based brand equity dimensions with different degrees.
- According to the result, price is the most influencing factor for brand awareness followed by people, process, service product, place, promotion, and physical evidence.
- Further, price is the most influencing factor for brand association followed by people, process, service product, promotion, physical evidence, and place.
- Again, price is the most influencing factor for perceived brand quality followed by service product, process, people, place, promotion, and physical evidence.
- Finally, price is the most influencing factor for brand loyalty followed by service product, physical evidence, process, people, place, and promotion.
- According to the degree of effect, price has the highest effect on brand association followed by perceived brand equity, brand loyalty and brand awareness with β value of 0.596, 0.569, 0.539, and 0.492 respectively.
- According to the degree of effect, people has the highest effect on brand association followed by brand awareness, perceived brand equity and brand loyalty with β value of 0.541, 0.481, 0.378 and 0.376 respectively.
- According to the degree of effect, process has the highest effect on brand association followed by brand awareness, perceived brand equity and brand loyalty with β value of 0.464, 0.438, 0.418 and 0.398 respectively.
- According to the degree of effect, physical evidence has the highest effect on brand awareness followed by brand association, perceived brand equity and brand loyalty with β value of 0.425, 0.306, 0.239 and 0.148 respectively.
- According to the degree of effect, place has the highest effect on brand loyalty followed by brand awareness, brand association and perceived brand equity with β value of 0.327, 0.314, 0.269 and 0.296 respectively.
- According to the degree of effect, service product has the highest effect on perceived brand equity followed by brand loyalty, brand association and brand awareness with β value of 0.471, 0.469, 0.417, and 0.392 respectively.

- According to the degree of effect, promotion has the highest effect on brand association followed by brand awareness, perceived brand equity, brand loyalty and with β value of 0.328, 0.279, 0.276, and 0.231 respectively.

**Analysis of Hypothesized Relationships between CBBE sources and overall CBBE**

The sources of CBBE were each hypothesized with overall CBBE to test the effects of each individual source. As seen in the table above, all the null hypothesis rejected at 0.01 level of significance i.e. all the alternative hypotheses were accepted, thereby all the sources of CBBE have a positive and significant effect on measuring CBBE. Brand loyalty has the high degree ($\beta = 0.598$; $p = 0.000$); of relationship with CBBE followed by Perceived brand quality ($\beta = 0.553$; $p = 0.00$), brand association ($\beta = 0.538$; $p = 0.00$), and brand awareness ($\beta = 0.425$; $p = 0.000$) respectively.

From the data analysis using SEM, structural models i.e. SMM and its elements; CBBE and its sources; and SMM, CBBE, and its sources are presented into three different figures to show the relationships required:

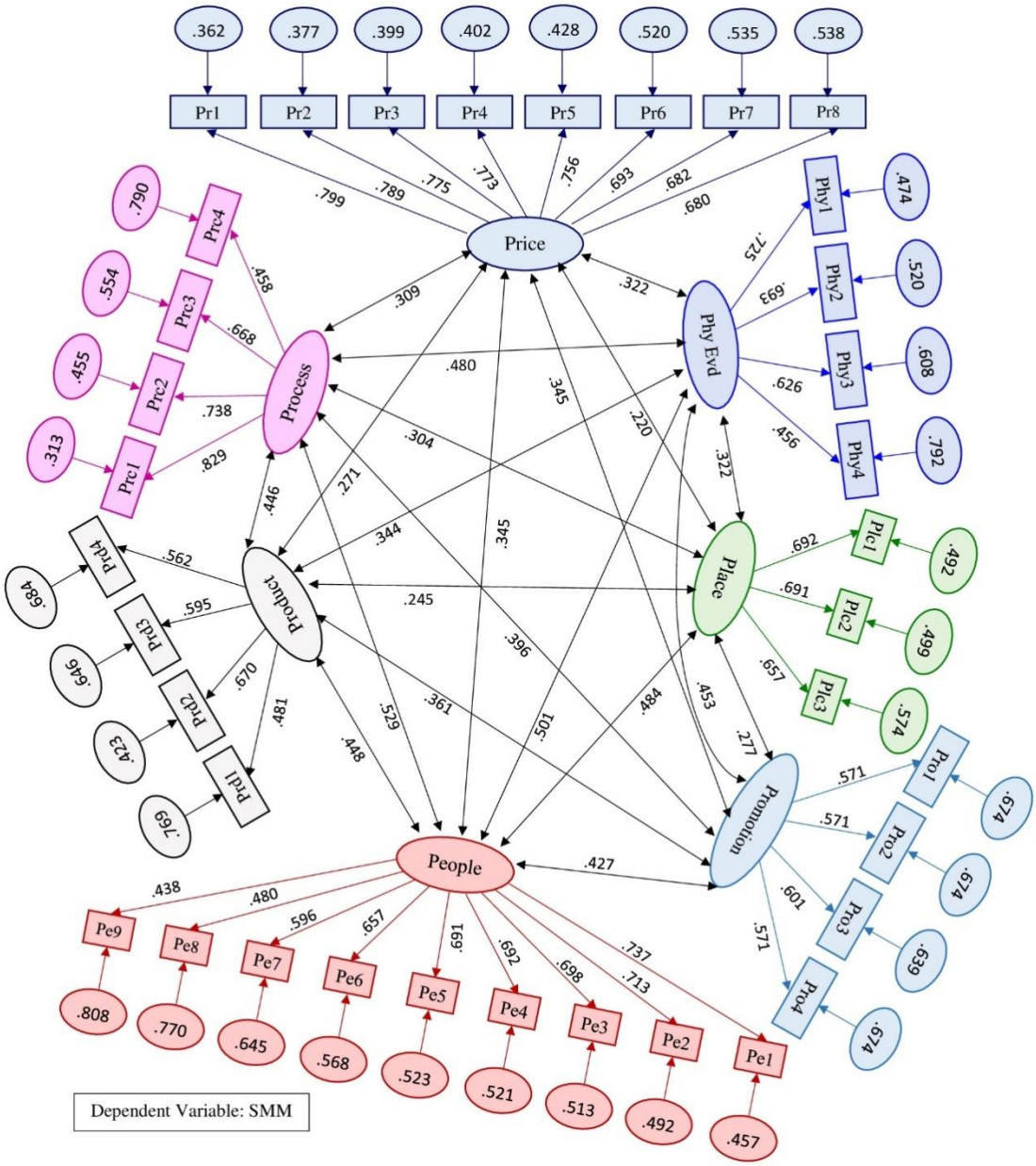


**Figure 7.1: Structural Model of Service Marketing Mix (SMM) and its Elements.**

**Source:** Developed on Analysis of Field Survey Data

Figure shows; correlation among the 7P constructs, relation between each construct and its items through extracted values of the items; also error values are shown corresponding to each item.

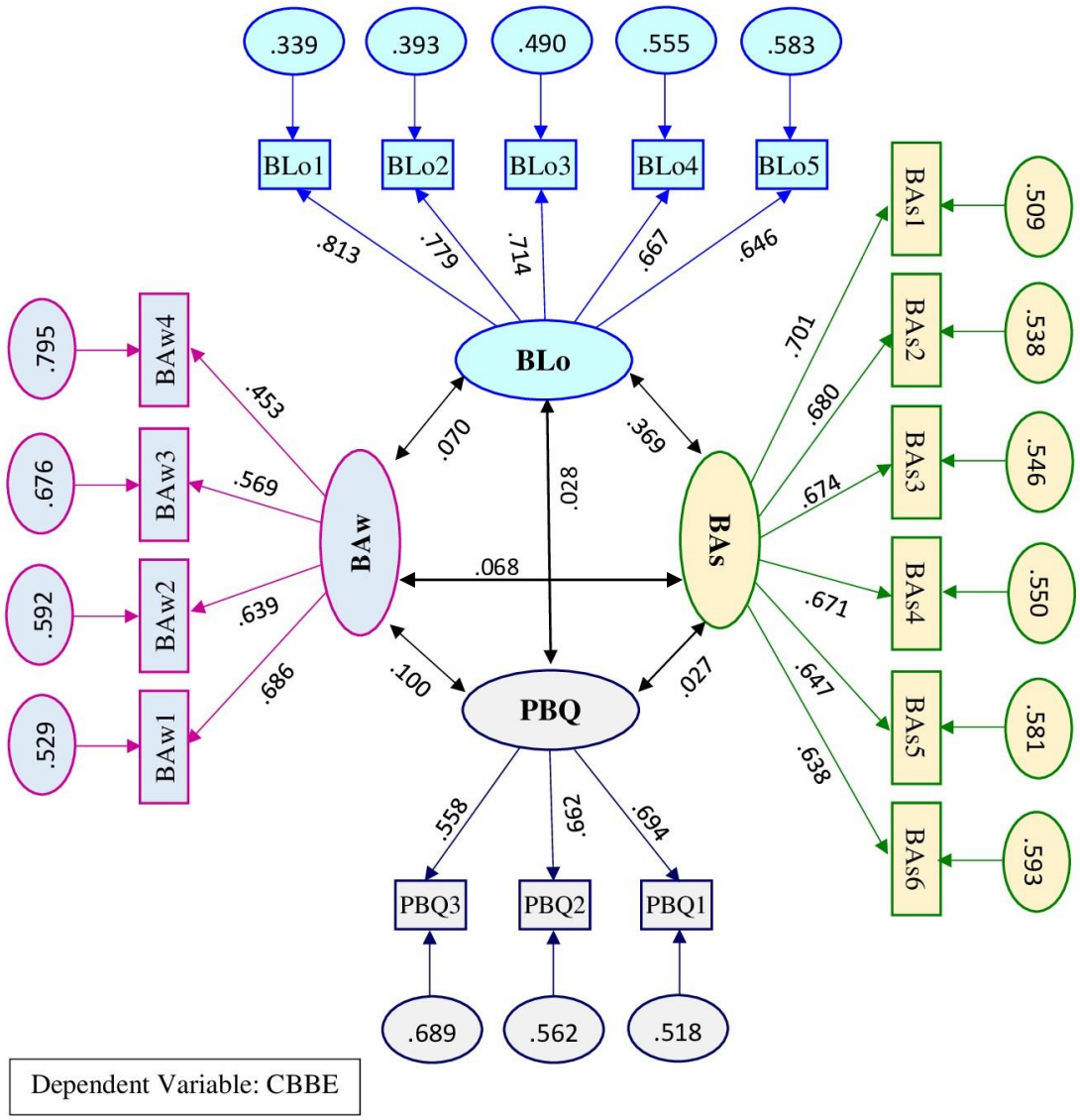


**Figure 7.2: Relationship between Customer-based Brand Equity (CBBE) and its Sources**
**Source:** Developed on Analysis of Field Survey Data

Figure shows; correlation among the sources of CBBE constructs, relation between each construct and its items through extracted values of the items; also error values are shown corresponding to each item.

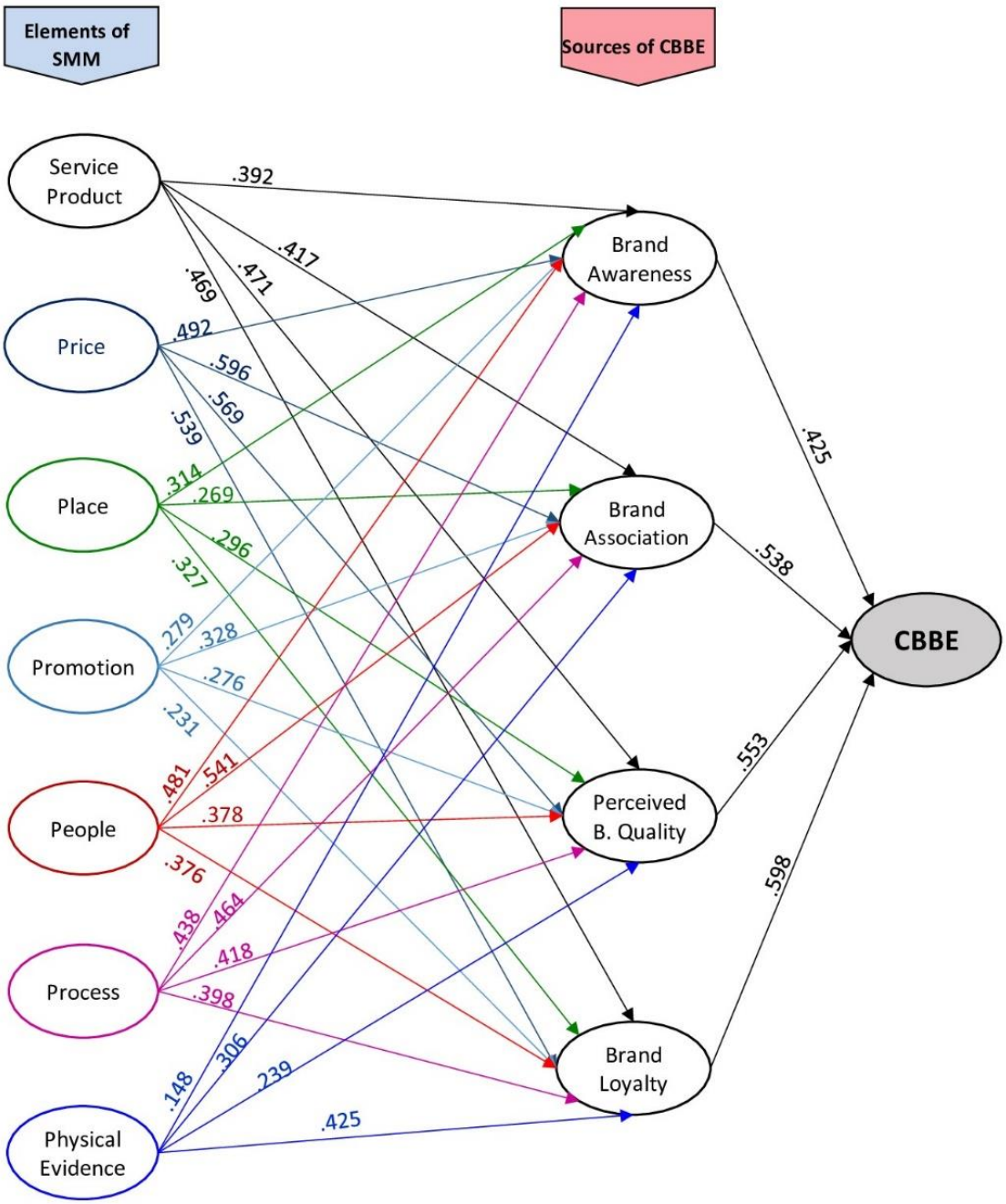


**Figure 7.3: Relationship between SMM elements, CBBE Sources, and overall CBBE**

**Source:** Developed on Analysis of Field Survey Data

Figure shows; beta (β) values represents the relation between elements of service marketing mix (independent) and sources of CBBE (dependent) in the first phase and the relation between the sources of CBBE (independent) and customer mindset or overall CBBE.

## 7.5 Conclusion

This chapter dealt with the results of hypotheses tests and the findings about the relationship between SMM, CBBE, and its sources in mobile telecom industry in Bangladesh. Data analysis using SEM, total of thirty two (32) hypotheses have been tested to fulfill the requirement of the third and fourth objectives of the study.

# Chapter Eight
# Conclusion

## 8.1 Introduction

*The preceding chapters presented the research issues, research process for the study, and more importantly data analysis and detailed findings methodically. This chapter spotlights the objectives with their major findings and discussion and reaches to the conclusion accordingly. It also shed on the implications and further research areas relevant to this study and wrap-up the chapter and the study devising concluding remarks.*

## 8.2 Discussion and Summary

Summary provide with better understanding of the study in a concise form. Findings have been prepared through the discussions across the study using primary data of the study area and authentic secondary data. Researcher compiled the data and interpreted in presentable ways.

**Objective One**

- Bangladesh falls under the last segment in Asia pacific region in the context of internet subscribers' penetration and its usage rate, revenue from mobile internet data, ARPU for the operators, contribution of VAS in revenue generation and infrastructural development in mobile telecom industry.
- Subscribers' penetration reached to one hundred percent (100%) in terms of mobile connection but only fifty five percent (55%) is unique subscribers of it.
- Mobile internet users are fifty two percent (52%) of the total mobile penetration is encouraging, but a big portion is still to connect with mobile internet.
- Android mobile set is of high priced in terms of affordability for a major part of the market makes it difficult to have buzz marketing for VAS.
- The aim of the government to create 'Digital Bangladesh' and incorporating all the significant sectors in the way of sustainable development is a big opportunity for the mobile telecom operators in Bangladesh.

- Contribution of mobile telecom industry continues to spread in different aspects with increasing contribution in GDP and other economic and social indicators significantly. In future, it could be a big boon for GDP in Bangladesh
- Several supporting sectors emerged as complementary or supplementary to mobile telecom industry; content providers and mobile handset industry contribute to the GDP as well.
- Competition is very stiff in mobile telecommunication industry in Bangladesh.
- Network frequency becomes below standard as per BTRC guideline; call drops, poor video quality, buffering and inconsistent network due to poor radio frequency are now regular phenomenon, which creates poor impression over the industry and hinders digitalization process.
- Price of internet is relatively high to the market opined by individual subscribers with 98% (survey data) and become difficult to consume for medium and bottom basket income groups in terms of affordability.
- Mobile telecom market is expanding rapidly but the technological support is not adequate.
- Total number of base tower station (BTS) is not adequate; 26400 active towers are available out of the more than 30000 in number. In addition to this, three thousand towers needed within 2021 to provide quality service and smooth installation of 4G service.
- For limitation of the Bandwidth of the frequency, operators are not able to provide desired service to the subscribers properly.
- Regulatory environment of BTRC seems to be stiff for the mobile operators in the context of revenue sharing, spectrum price, and licensing fees, according to the operators.
- Regulatory authority and mobile operators (and AMTOB) blame each other for the bottleneck in tower sharing and substantial spectrum phenomenon causing the market with below standard quality of network which generates poor perception towards the overall industry.

Mobile telecom in Bangladesh is promising in terms of customer demand, growth opportunity in both voice and non-voice services; more interested in using

VAS to meet their demand. Though ARPU is very poor in terms of investment and digitalization process comparing to other countries in Asia pacific region and neighboring countries, it is the best opportunity for the operators to generate more revenues to balance ARPU against investment.

In terms of technology, Bangladesh is little slow in progress as they are the last country in Asia pacific reason to introduce 4G technology. This technology could provide customers with very good experience in terms of downloading, uploading, video streaming and high speed internet connectivity across the world to satisfy demand and reach Bangladesh as 'Digital Bangladesh' leading to a middle income country in 2023.

Android mobile handset is a key to access conveniently in graving the non-voice services mostly. But its price is high against the income of a large portion of people in Bangladesh. So, customers expect low-priced android handset to take the opportunity of consuming VAS and others. Number of local handset manufacturing units introduced by Symphony, Samsung, Oppo, Vivo and other prominent manufacturers to lower down the handset prices within the affordability of customers. Customers opined for more handset offers by the mobile operators launched with collaboration with local manufacturing units.

Currently users are facing troubles with network interruption, call dropping, more buffering in internet creates a poor impact on mobile operators. Operators along with AMTOB and regulatory organization (BTRC) blame each other for this poor quality of services. Spectrum allocation issues regarding 4G facilities seem to be higher to operators to utilize 4G properly. Again, Mobile towers (BTS) are restricted to install by operators as BTRC provided licenses to four individual tower installation firms to provide the same network experience to ultimate customers. Operators have to hire network facilities from them which are much higher than passive network sharing exists within the industry players. Operators urges for the active sharing of network within industry players instead of separate tower companies. For this conflict, only two new towers added in the network within January, 2018 to June, 2020 though a huge number of customers added during the same period. Tower

companies did not install any BTS as the dispute is yet to be resolved. As a result, service recipients are suffering from poor services.

Government and BTRC are trying to solve all the matters with mobile operators. BTRC extended monitoring system for spectrum phenomenon, become very strict in fulfilling promises by operators against standard and fines dully. BTRC is eager to develop the industry to get the outcome of it in the process of digitization, fulfilling the dream of 'Digital Bangladesh' and SDG targets and entering into the competition of globalization. Therefore, the future of this industry looks to be enlightened if operators consider the facts of the market, look for long-term orientation for their sustainability and contributes more in the economic, social, environmental, educational, agriculture, health, and other allied sectors in Bangladesh.

**Objective Two**

- Age of (18-38) is the largest segment in consuming cellphone services, is a big bank as people of this age range is the largest ratio far away from others.
- A large part of the market consists of both male and female are interested in non-voice services; VAS like entertainment, utility among others except very less for health advices.
- Poor income level and price sensitivity restricts a big portion of users from non-voice services as can afford a little; in turn, restrict operators to use it for massive revenue streaming.
- Users are moving towards the internet apps for contacting or calling.
- On an average, users spend more or less three hours a day with mobile services.
- On average, mobile data use by users crossed one GB a month but still striving to support a satisfactory ARPU to operators.

The objective revealed that customer behavioral study is the key to become competitive in the market. The usage characteristics of mobile services by the recipients is the major contributing factors in setting strategic marketing efforts and building/increasing brand equity for the mobile operators in Bangladesh. The habit of using cellphone services like talk-time, internet, video streaming, utility services,

service package differentiation, price sensitivity, convenience to get services, perception on service providers, sensitivity towards service delivery timing and process, appearance of the service proving packages, various apps, network, broadband facilities, customer service; overall the service offerings put the major impact in preparing value proposition for the customers and gaining value from customers in turn for the mobile operators.

## Objective Three

### Consumers' behavior towards Services Offered (7Ps) to Customers

- 45.1% of the respondents are satisfied about diversified service on service product features.
- 31.4% from total respondents believe in quality of internet service.
- 37.1% from respondents agree on distinctive services after sales,
- 26.9% of the respondents are disagreed to the sufficient duration of talk-time, internet and SMS package.
- 34.2% of the respondent gives priority to VAS and 58.9% remains neutral about the attractive value added service mentioned means there is an ample opportunity in this area.
- 39.7% of the respondents are agreed on the issue of providing excellence utility services.
- 34.5% of the respondents are agreed on economy talk-time package availability.
- 29.9% of the respondents are agreed to the economy internet package.
- 40.2% of the respondent given agreed on the issue of frequent offer of excellent handset by operators.
- 22.2% respondents are agreed to the reasonable value added service rate.
- 30.4% of the respondents think price as competitive.
- 33.8% of the respondents are agreed that network is available in sufficient locations.
- 39.3% of the respondents agreed in the availability of recharge, service and SIM purchase point in nearby areas.

- 68.1% of the respondents believe that the advertising campaigns are creative and unique.
- 65% of the respondents observed that the companies' offer distinctive sales promotion.
- 74% of the participants believe that the advertisements are clear, perceptible and amusing.
- 48.2% of the participants agreed that the information provided by the operators is adequate to compare brands.
- 52.6% of the respondents believe that the operators perform CSR activities with keen interest.
- 21.7% of the respondents have viewed the advertisements via electronic media.
- 55.2% of respondents prefer electronic media for advertisements.
- 68.8%) respondents prefer outdoor advertising media for advertising.
- 58.9% of the respondents have faith in case of efficient and great service behavior of people of the company.
- 60% of the participants have given positive response that customers are considered as a valuable subscriber.
- 65% of the respondents believe that the company provides service in time.
- 60.9% of the respondents do not rely and put faith in the service of the company's employees.
- 47.7% of the respondents have given statement towards quality 3G facilities and high speed server of the operators.
- 60.6% of the respondents have given opinion towards the convenient and satisfaction with service delivery process of the mobile operators.
- 63% of the respondents are agreed in the issue of call drop problem at the time of conversation.
- 58.1% from the total respondents are agreed about the service with convenient and comfortable physical environment in the point of customer service.
- 74% respondents think operators' color and logo is unique.
- 77.1% of the respondents are agreed on the well defined and attraction slogan.

- 66.1% highest of the respondents think that operators' have well-organized website in creating social network.

**Consumers' behavior towards Customer-based Brand Equity Sources**

- Respondents of 67.9 percent opined, in terms of mobile telecom services, the brand they use comes to their mind first.
- Respondents of 71.9 percent opined, the brand they use is more familiar than others.
- Respondents of 58.5 percent opined, they have sufficient information and knowledge about the brand they use and other operators is more familiar than others.
- Respondents of 76.6 percent opined, when they hear the brand they use it is easy to remember and recognize the brand's logo
- Respondents of 59.4 percent opined, they are aware about the sources of sales and service.
- Respondents of 52.7 percent opined, they are aware about various offers.
- Respondents of 48.2 percent opined, they have sufficient information and knowledge about the brand they use and other operators is more familiar than others.
- Respondents of 50.4 percent opined, most of the features come to their mind quickly.
- Respondents of 58 percent opined the most convenient source of awareness is electronic medium.
- Respondents of 68.2 percent opined, their preferred brand has strong personality.
- Respondents of 69.0 percent opined, their favorite brand has strong reputation among customers.
- Respondents of 43.7 percent opined, intangible attributes are good enough to continue their brand of choice.
- Respondents of 49.7 percent opined, the brand they use has the ability to serve interests as promised.
- Respondents of 51.0 percent opined, they have the brand maintain service offers with good image.

- Respondents of 72.0 percent opined, it has strong brand name.
- Respondents of 64.6 percent opined, the brand is compatible to need and status.
- Respondents of 69.2 percent opined, as customer service increases the brand image also increases.
- Respondents of 66.5 percent opined, their preferred brand consistently performs better than others.
- Respondents of 49.3 percent opined, the brand offers services with excellent and unique features.
- Respondents of 49.7 percent opined, the brand follow continuous improvement in quality.
- Respondents of 74.1 percent opined, the brand is convenient and friendly in use than others.
- Respondents of 61.6 percent opined, the brand they use is the most reliable in service providing than others.
- Respondents of 57.1 percent opined, the brand is better than others.
- Respondents of 48.7 percent opined, the brand creates something new to add value consistently.
- Respondents of 47.3 percent opined, the brand provide high brand value against money.
- Respondents of 48.7 percent opined, they will stay with the brand even service changes.
- Respondents of 39.1 percent opined, they will stay with the brand even price increases; others' price decreases.
- Respondents of 47.8 percent opined, they will stay with the brand even withdrawal of advertising support.
- Respondents of 48.0 percent opined, they think that it is the first choice and straight forward to use.
- Respondents of 52.1 percent opined they feel proud and delighted to use the brand.
- Respondents of 46.4 percent opined, they like to share good experience and recommend to others about the brand they use.
- Respondents of 54.5 percent opined, their preferred brand is highly trusted.

- Respondents of 60.7 percent opined, the brand is capable enough to provide the best service in the market.
- Respondents of 43.7 percent opined, the brand they use is much more than a service.

**Objective Four**

- Service products, price, place, promotion, people, process, and physical evidence of SMM all have a major effect on brand awareness, brand association, perceived brand quality, and brand loyalty dimensions of CBBE.
- According to the result, price is the most dominating factor influencing brand awareness followed by people, process, service product, place, promotion, and physical evidence.
- Further, price is the most influencing factor for brand association following with people, process, service product, promotion, physical evidence, and place.
- Again, price placed the top in influencing perceived brand quality followed by service product, process, people, place, promotion, and physical evidence.
- Finally, price is the most influencing factor for brand loyalty following with service product, physical evidence, process, people, place, and promotion.

The fourth objective revealed a very strong positive relationship between the elements of service marketing mix and the dimensions of customer-based brand equity. This suggests that all the elements of SMM (service product, price, place, promotion, people, process, and physical evidence) have significant effect on the sources (brand awareness, brand associations, perceived brand quality, and brand loyalty) of CBBE. Therefore, SMM elements are strong predictors or determinants of the CBBE sources in the mobile telecom industry in Bangladesh.

From the various analysis and discussions the study established that service marketing mix in generating the sources of customer-based brand equity has influence on measuring customer-based brand equity. This is essentially rational as a firm's ability to put together innovative products giving them unique attributes together with intensive distribution channels as well as creative advertisements and investment in

sponsorships of events, customer-centric employees, prominent delivery process, aesthetic physical environment and quality assurance documents can influence brand equity by battling for the minds of the customers. Therefore, it is very much clear that mobile operators invest in marketing efforts for a period of time for building customer awareness, creation of a brand associations, perception towards quality, and loyalty for a brand of a particular mobile operator.

**Objective Five**

- Brand awareness, brand association, perceived brand quality, and brand loyalty sources of CBBE have a major effect in measuring overall CBBE.
- As per the result, brand loyalty has the most effect in measuring CBBE followed by perceived brand quality, brand association, and brand awareness.

The fifth objective was concerned with the relation between CBBE and its sources. Hypotheses developed were tested and found a positive and strong relationship between dimensions of CBBE and overall CBBE in mobile industry in Bangladesh. This indicates, all the sources are prerequisite to build/increase brand equity. All the dimensions (brand awareness, brand associations, perceived brand quality, and brand loyalty) individually and combined have a big role in building/increasing CBBE in mobile telecom industry in Bangladesh. The ability to create all the dimensions of CBBE truly lies at the heart of marketing elements and its corresponding activities and results in positive brand equity through the impact of its sources leading to sustainability platform.

All the hypotheses developed for objective four and five, were tested and resulted in a very strong relationship between dimensions of CBBE and overall CBBE in mobile industry in Bangladesh. This is an indication that investment spent by operators in developing strategic and creative marketing strategies indeed creates the elements of CBBE; thereby, build overall CBBE for the mobile operators in Bangladesh which in turn set the basis for sustainable competitive advantage to work with. The ability to create all the dimensions of CBBE truly lies at the heart of

marketing elements and its corresponding activities and results in higher customer-based brand equity through its sources.

The study further established 7Ps for service marketing mix and four dimensions of customer-based brand equity that are very effective in influencing and measuring customer-based brand equity. With the competition becoming more intense and keen among mobile operators in Bangladesh as they tend to invest so much in innovation and technology, it is equally vital for the operators to critically examine their service marketing mix and the sources of brand equity if they are able to create top of the mind effects on consumers with much value for the brand. This goes on to establish the need to critically appraise service marketing mix elements with its effect on brand equity dimensions followed by their effect on overall brand equity focusing on customers in the light of intense competition, dynamic customer demand, digitalization process and overall sustainability.

In addition to this, the study also developed the following findings that may hinder the process of achieving higher brand equity:

**Inconvenience to Consumers**

- Service recipients face dissimilarity between service quality and operators' promise.
- Subscribers are currently facing network interruption, poor quality network, below-graded video streaming experience, frequent messages daylong interrupting attention to other activities, frequent offers to puzzle the mind thinking about opportunity cost and recall existing services occupied in using services.
- Moreover, a small but significant number of users are not comfortable in mobile operating especially android mobile; in terms of activation of apps, packages, dealing utility services and overall use of non-voice services though they like to use those. Another problem these users face with handling android phone properly and as a result are far away from the major experience of services.
- In rural areas and in few cases sub-urban areas broadband facilities are more or less poor and absent sometimes deprive them from the experience of internet facilities.

- Majority of the users feels uncomfortable with Id security in Facebook and other social media and unwanted calls and messages in the SIM; therefore, interrupt their regular life.

The major difficulty service recipients faced with the service quality operators promise. Subscribers are currently facing network interruption, poor quality network, below- graded video streaming experience, frequent messages daylong interrupting attention to other activities, frequent offers to puzzle the mind thinking about opportunity cost and recall existing services occupied, and more importantly, pointed at the price being very high for non-voice services to afford at ease. Moreover, a small portion but significant number of users are not comfortable in operating; activation of apps, packages, dealing utility services and overall use of non-voice services though they like to use those. Another problem these users face with handling android phone properly and as a result are far away from the major experience of services. In rural areas and in few cases sub-urban areas broadband facilities are more or less poor and absent sometimes deprive them from the experience of internet facilities. Majority of the users feels uncomfortable with Id security in Facebook and other social networks and unwanted incoming calls and messages to interrupt their regular life.

**Challenges to Mobile Operators**

The topmost challenge to the operators is lower level of ARPU. Along with it they have spent a large capital on development for the technology to utilize 4G for spurring revenue streaming from non-voice services. In the last auction for spectrum, the price was much more to continue profitability. Fees for technology neutral spectrum, license renewal fees, 5.5% revenue sharing with government, 1% revenue for social cause, SIM tax and 5% more tax as sector specific falls oper4ators into a new challenge. Moreover, non-existence of active tower sharing increases their cost. Operators also claims that new tower establishment companies should not be allowed as operator have to pay almost 45% more for hiring towers or BTS comparing to passive network sharing exists. All these challenges may fall the industry into a havoc to interrupt digitization process in Bangladesh.

## 8.3 Suggestions to Mobile Operators in Bangladesh

### 8.3.1 Significant Factors to Consider

Mobile operators may use the following variables and the degree of influence of the factors and their items that were extracted through the factor analysis. As these are the underlying reasons, mobile operators have the opportunity for strategic investment in brand management to increase the brand equity and achieve competitive advantage in a sustainable manner:

**Service Product**

Diversified service product features

Attractive Value Added Service

Provide excellent facilities for utility services

Frequent offer of excellent handset by mobile operator

**Price**

Reasonable call rate

Reasonable talk-time and SMS package rate

Reasonable internet package rate

Reasonable Value Added Service rate

Talk-time and internet package selection at ease

Accurate billing, call rate and internet data use charge

Special talk-time package(s) and SMS bundle price is attractive

Price is competitive

**Place**

Available recharge, service and SIM purchase point in nearby areas

Access from anywhere using mobile handset to take most of the services

Most preferred service taking place

**Promotion**

Advertising campaigns are creative

Provide distinctive sales promotion(discount and others) offers regularly

Advertising are clear, understandable and fun

Provide adequate information to compare with other operators

**People**

Efficient and great service attitude

Treat as a special and valued customer

Provide service in time

Well-behaved and systematic in approach

Qualified and well trained

Friendly in approach

Dependable and trusted

Attentive in providing service

Appearance of neat and smart employees

**Process**

Good enough network quality

Quality and high internet speed

Convenient service delivery process

Rarely feel problem with service

**Physical Evidence**

Convenient and comfortable physical environment in customer care/service point

Well-defined and attractive slogan

Visual and attractive brochure, handbill, poster, flowchart

Well-organized website of operator

**Brand Awareness**

- More familiar comparing to others
- Have enough information and knowledge about operator
- When hear the brand, easy to remember and recognize its logo
- Most of the features come to the mind quickly

**Brand Associations**

- Has strong personality
- Intangible attributes are good enough to continue it
- Maintain service offers with good image
- Has strong brand name
- Compatible with need and status
- Customer service increases brand image day by day

**Perceived Brand Quality**

- Consistently performs better than others
- Follow continuous improvement in quality
- Most reliable in service providing

**Brand Loyalty**

- Provide high brand value against money
- Stay even price increases; others' price decreases
- No doubt it is the first choice and straight forward to use
- Proud and delighted to use the brand
- Share good experience and recommend to others

### 8.3.2 Holistic Marketing Approach

Holistic Marketing calls for an integrated perspective to achieve the best. This concept states that buyers prefer companies with a more cohesive approach that goes beyond traditional applications of the marketing concept. The holistic marketing process takes into account the considerations of stakeholders, customers, employees, suppliers, businesses and society as a whole when creating and implementing marketing strategies. Mobile communication in Bangladesh fits with the holistic marketing due to increased competition and high saturation rate in the market, where operators can differentiate themselves and achieve sustainable competitive advantage with brand equity through a holistic marketing approach. Although implementation strategies differ from company to company, each holistic marketing approach has four

main components that include relationship marketing, integrated marketing, internal marketing, and performance marketing. The company's competitiveness derives from its ability to give the correct proportional weight to each of the four components included in the holistic marketing approach. Rrelationship marketing aims to build long-term reciprocal relationships with the main players; integrated Marketing aims to achieve harmony between marketing variables; internal marketing ensures that everyone in the organization takes the appropriate marketing direction, especially top management; and performance marketing includes regular marketing activities and programs to ensure profitability, as well as community marketing that addresses broader concerns of legal, ethical, social and environmental impacts.

**Relationship Marketing**

Several academics have expressed the view that a business is a coalition of stakeholders comprising employees, suppliers, shareholders and society, as well as customers, and that relationship marketing should therefore be broadened to include business relationships with stakeholders. The shift from customer focus to stakeholder focus takes place to improve business ROI. For the overall realization, corporate partnerships can play an important role in an industry in which learning and flexibility form the basis of competition and partnerships in the mobile communications sector are particularly suited to avail new opportunities.

**Internal Marketing**

Internal marketing aims to motivate and retain both service and customer oriented employees. The duty of internal marketing is to make employees aware of their role and help them commit to actively participate in the marketing process. Internal marketing is a tool that helps organizations to initiate integration between different functions to allow employees to work across and provide guidance to the needs and expectations of customers.

**Integrated Marketing**

Integrated marketing is concerned with the strategic issues of the marketing mix to ensure that customer needs are met. Six key elements of integrated marketing are: an

external orientation; willingness to tackle problems strategically rather than tactically; Strategic, organizational and mission integration; Active listening to the customer; Database dependency and message coordination.

**Performance marketing**

Performance marketing deals with marketing practices to ensure financial profitability, comprehensive marketing performance and market orientation that apart from its regular marketing activities and programs. It addresses the legal, ethical, social and environmental implications. The main reasons why mobile operators participate in corporate social responsibility (CSR) activities are the intense competition between companies for a strong customer base and the various new issues that arise from customer service and retention. Therefore, operators need to think about how their economic decisions affect others, the environment and society and act accordingly.

## 8.4 Implications of the Study

The study might be useful to implement in two broad categories:

### 8.4.1 Implications for Management and Practice

- This study established that mobile operators can be better positioned if they have the commitment of "customers' top of the mind" in operating brands. This infers that operators must invest wisely in marketing program to increase brand equity and influence the consumers' that might value them in a sustainable manner. With focus on the findings pertaining to SMM and CBBE, operators must put in place strategic plans and approach aimed at driving band equity and further blend marketing elements more relevant to individual subscribers so as to make feel customers a strong bonding over the years with brand showing its strength.

- By relating the study findings to brand-building strategies, mobile operators can improve the strength of their brands through spending more on social media and web ads, distributing through more touch-points and introducing sophisticated apps for convenient choice and consumption, mentoring and

training of employees to be more efficient and focused towards customer demand, regular maintenance and up-gradation of network, innovative video streaming apps, adoption of 4G quickly with a large coverage, preparation for the 5G to come in the process, following 80/20 rule in customer call service, friendly webpage, uninterrupted processing, gaining high brand equity may allow for high brand pricing but operators may run price deals as a means of rewarding customer loyalty. Therefore, mobile operators can create marketing strategies in leveraging brand equity and maintain it with holistic marketing approach to gain sustainable competitive advantage.

### 8.4.2 Theoretical Implications

- The study found to be appreciable as they improve the worth of previous literature on the study area.

- Findings, indicating with, SMM having a strong positive relationship with CBBE dimensions, and through this, understanding consumer mindset through measuring CBBE by its sources could add a little value in the ground of SMM and CBBE research.

- This study might drive to examine the research model in a wide array of services businesses to develop a ‘generic’ SMM and CBBE rather than a ‘single’ for a specific service industry as the research work contributes contextually on SMM and CBBE.

- Outcome of the study offer practical grounds to claim in the literature that SMM is highly significant in creating/increasing CBBE leading to its measure for understanding consumer mindset.

- This study also contributes to understand ‘consumer behavior’ as it (this study) reveals, consumers have considerations to repeat any service based on the value they have for them in their minds or mindset.

- The study contributes to the brand management practices as it incorporated multi-dimensional constructs with plenty of items for further research or replication in other industries to enrich branding.

## 8.5 Future Research Opportunity

From the insight of the study, necessity for further research on this ground and limitation of this study spotlights on the following opportunity for future research in this arena to the practitioners;

- This field could be carried out in individual segmentation level in mobile telecom industry. Cross-cultural research may be done in this field with several countries.
- The framework could also be applied to other industries to establish a 'generic' SMM and CBBE concept instead of a 'single' for a particular service industry so that it can be applied to all service sectors or industries.
- As the study conducted from customer-based approach further studies could try financial approach in order to test and verify the real financial effects to compare with.
- As the study was cross-sectional in nature, there is an ample opportunity for future studies to consider longitudinal approaches.
- Qualitative studies could also be considered for further studies as the study concentrated highly on quantitative study approach.
- As the study considered a single industry, a potential area of future research is to examine the research model among and/or between several service industries to examine the SMM elements and their relationship with CBBE sources and measuring CBBE to test market and business performance.
- It would be a fruitful area of future research to investigate the factors or antecedents of the SMM and CBBE with Customer Relationship Management (CRM) for profitable relationships with customers in order to implement CBBE and setting strategic SMM in service industries.

## 8.6 Concluding remarks

In last decade, Bangladesh has seen rapid changes and increased competition among the mobile operators with some key development in this arena. As consumers are more demanding towards value added service, looks for intangible benefits; price and technology war continues in the mobile telecom industry. So, it is much needed to be more efficient and unique in delivering marketing efforts to build and/or increase customer-based brand equity and gain sustainable competitive advantage. Actually, customer-based brand equity has emerged as one of the most critical factor in the areas of service marketing as it can make a clear difference among competitors. It helps marketing managers to assess the results of their efforts by getting feedback from customers to diagnose any problem through strategic service marketing mix that can appear in the provided service.

Since mobile telecom industry is a vibrant one in Bangladesh, it is of great importance for operators to ascertain the right knowledge and implement efficient and effective marketing strategies. In addition, mobile operators are required to gain competitive advantage in leaving the rivals behind in profitability and approach. By gathering useful information, building and maintaining relationships with the stakeholders, making the internal employees self-motivated to customer orientation, integrating the Ps of Marketing and the functional departments, assuring performance marketing through financial accountability and socially responsible marketing, it is possible for a mobile telecom operator to learn the perception what the market values a service and therefore, providing a value proposition created as brand equity which results in an increased chance to gain an sustainable competitive advantage against the competitors.

The study provides a clear approach which can be employed by managers for the design and implementation of branding strategies through brand management practices. This would enable managers to minimize problems that could arise from limited resources. Realizing the scenario mobile telecom operators in Bangladesh should involve properly with increasing brand equity and manage it using an integrated measure; holistic marketing approach that could provide them with sustainable competitive advantage required in the present condition of mobile telecom industry in Bangladesh.

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# Appendices

## Appendix I

**Questionnaire (in English)**

### Institute of Bangladesh Studies
### University of Rajshahi

**Research Title:** Service Marketing Mix and Customer-based Brand Equity in Mobile Telecom Industry in Bangladesh: A Study on Rajshahi District

I would like to draw your kind attention that the study aims at measuring the effect of services marketing mix on customer-based brand equity in mobile telecom service industry in Rajshahi district in Bangladesh. I promise and assure you that your opinion will be kept secret and only be used as primary source to help complete my research for PhD program. Your cooperation will make my research work successful. You are cordially requested to go through the questionnaire carefully and put your opinion using tick (√) for each question/statement.

Section 1: Demographic Information

| | |
|---|---|
| Name | : |
| Address: Voter Area: Upazilla/Thana: Ward: | |
| Age (in year) | : |
| Monthly Income (in TK) [if any] | : |
| Gender | : □ Male □ Female |
| Educational Qualification: □ Primary □ SSC □ HSC □ Graduate □ Post graduate | |
| Occupation | : |

Section 2: Usage Information

| |
|---|
| No. of SIM(s) you use : |
| Name of mobile operator of this SIM : |
| How long have you been using this SIM (in year & month): |
| Reason(s) for using mobile phone except communication: □ internet □ Camera □ value added service □ internet and camera □ camera and value added service □ internet and value added service □ all the above |
| Average no. of call(s) per day : |

| |
|---|
| Average duration per call in minute(s): |
| Average time in minute(s) spend per day for talking in mobile phone: |
| Preference of particular part of day to call for long duration :<br>□ morning □ noon □ afternoon □ evening □ night |
| Average expenditure per month in taka for talking in mobile : |
| Who influenced you for using the SIM :<br>□ family/ kith & kins □ friends □ neighbor □ self □ others |
| Source(s) influenced you to choice the operator's SIM : □ electronic advertising □ printed advertising □ outdoor advertising □ personal source □ others |
| The source influenced you most to choice the operator's SIM is: □ electronic advertising □ printed advertising □ outdoor advertising □ personal source □ others |
| Choice factor(s) for using the SIM and taking service of the mobile operator :<br>□ call rate □ network □ customer service □quality □ Value Added Service |
| Most preferred choice factor for using and taking service of the SIM :<br>□ call rate □ network □ customer service □ quality □ Value Added Service |
| Tick(✓) the Value Added Service(s) you use (if any): [ □ news □ ringtone □ songs<br>□ education □ consultation □ health service □ religious items □ travelling □ beauty tips<br>□ games □ call block □ call waiting □ call alert ] |
| Most preferred Value Added Service(s) you use: |
| Write down your problems and complaints in using the SIM of the operator: |
| Reason for switching previous operator's SIM (if any) : □ poor network □ high price □ poor customer service □ poor internet speed □ others |
| Do you use smart phone? : □ yes □ no |

**The following part is applicable for the mobile internet user:**

| |
|---|
| Average time spends per day for mobile internet browsing (in minutes/hours): |
| Preference of particular part of day to browse internet for long duration:<br>□ morning □ noon □ afternoon □ evening □ night |
| Average internet data use per day (in MB): |
| Average expenditure per month for internet browsing (in TK): |
| Internet search engine (Google and others) adds value in life, increase quality and speed of activities:<br>□ strongly agree □ agree □ neutral □ strongly disagree □ disagree |
| Social network (Facebook and others) adds value in life :<br>□ strongly agree □ agree □ neutral □ strongly disagree □ disagree |

Section 3: Service Marketintg Mix

Here, 5=Strongly Agree, 4=Agree, 3=Neutral, 2=Disagree, 1=Strongly Disagree

| | | | | | |
|---|---|---|---|---|---|
| Diversified service product features | 5 | 4 | 3 | 2 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Quality internet facility | 5 | 4 | 3 | 2 | 1 |
| Good number of FnF facility | 5 | 4 | 3 | 2 | 1 |
| Distinctive after sales service | 5 | 4 | 3 | 2 | 1 |
| Sufficient duration of talk-time, internet and SMS package | 5 | 4 | 3 | 2 | 1 |
| Various second(s) pulse offer is attractive | 5 | 4 | 3 | 2 | 1 |
| Attractive Value Added Service | 5 | 4 | 3 | 2 | 1 |
| Provide excellent utility services | 5 | 4 | 3 | 2 | 1 |
| Variety of economy talk-time packages available | 5 | 4 | 3 | 2 | 1 |
| Variety of economy internet packages available | 5 | 4 | 3 | 2 | 1 |
| Variety of economy SMS packages available | 5 | 4 | 3 | 2 | 1 |
| Facility of talking in conference call is attractive | 5 | 4 | 3 | 2 | 1 |
| Frequent offer of excellent handset by mobile operator | 5 | 4 | 3 | 2 | 1 |
| Talk-time balance sharing facility is useful | 5 | 4 | 3 | 2 | 1 |
| Minor connection formalities | 5 | 4 | 3 | 2 | 1 |
| Frequent free apps offer is attractive | 5 | 4 | 3 | 2 | 1 |
| Reasonable price of SIM | 5 | 4 | 3 | 2 | 1 |
| Reasonable call rate | 5 | 4 | 3 | 2 | 1 |
| Reasonable SMS and MMS rate | 5 | 4 | 3 | 2 | 1 |
| Reasonable talk-time and SMS package rate | 5 | 4 | 3 | 2 | 1 |
| Reasonable internet package rate | 5 | 4 | 3 | 2 | 1 |
| Reasonable FnF rate | 5 | 4 | 3 | 2 | 1 |
| Reasonable Value Added Service rate | 5 | 4 | 3 | 2 | 1 |
| Talk-time and internet package selection at ease is attractive | 5 | 4 | 3 | 2 | 1 |
| Accurate billing, call rate and internet data use charge | 5 | 4 | 3 | 2 | 1 |
| Special talk-time package(s) and SMS bundle price is attractive | 5 | 4 | 3 | 2 | 1 |
| Price is competitive | 5 | 4 | 3 | 2 | 1 |
| Network available in sufficient locations | 5 | 4 | 3 | 2 | 1 |
| Available recharge, service and SIM purchase point in nearby areas | 5 | 4 | 3 | 2 | 1 |
| Helpline is useful and informative | 5 | 4 | 3 | 2 | 1 |
| Access from anywhere using mobile handset to take most of the services | 5 | 4 | 3 | 2 | 1 |
| Most preferred service taking place:<br>□ customer care □ retail □ franchise □ recharge point □ others | | | | | |
| Sufficient parking facility in service point | 5 | 4 | 3 | 2 | 1 |
| Nice entertainment at the time of waiting for service | 5 | 4 | 3 | 2 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Convenient waiting facility | 5 | 4 | 3 | 2 | 1 |
| Reliable and safe location | 5 | 4 | 3 | 2 | 1 |
| Available transportation to go to customer care | 5 | 4 | 3 | 2 | 1 |
| Point-of-purchase display influence purchase | 5 | 4 | 3 | 2 | 1 |
| Advertising campaigns are creative | 5 | 4 | 3 | 2 | 1 |
| Provide distinctive sales promotion(discount and others) offers regularly | 5 | 4 | 3 | 2 | 1 |
| SMS from operator are useful | 5 | 4 | 3 | 2 | 1 |
| Distinctive offers for special category (star, dhonnobad and others) subscribers | 5 | 4 | 3 | 2 | 1 |
| Advertising are clear, understandable and fun | 5 | 4 | 3 | 2 | 1 |
| Can remember most of the advertisements | 5 | 4 | 3 | 2 | 1 |
| Use massive advertisement | 5 | 4 | 3 | 2 | 1 |
| Provide adequate information to compare with other operators | 5 | 4 | 3 | 2 | 1 |
| SIM offer with discount or free is attractive | 5 | 4 | 3 | 2 | 1 |
| Performs corporate social responsibility with keen interest | 5 | 4 | 3 | 2 | 1 |
| Promotional activities including advertisement are attractive | 5 | 4 | 3 | 2 | 1 |
| Animation, jingles and celebrity in advertising is attractive | 5 | 4 | 3 | 2 | 1 |
| Attractive talk-time, SMS and internet data bonus offer | 5 | 4 | 3 | 2 | 1 |
| Quiz, contest, gift, games, opinion polls etc is attractive | 5 | 4 | 3 | 2 | 1 |
| Tick( √ ) the advertising media(s) you have seen advertisement : □ electronic □ printed □ outdoor □ word-of-mouth□ online and SMS | | | | | |
| Most preferred media of advertising: □ electronic □ printed □ outdoor □ word-of-mouth □ online and SMS | | | | | |
| Most preferred outdoor advertising: □ billboard □ sign board □ bell and neon sign □ walling □ others | | | | | |
| Tick( √ ) the bonus offer(s) you prefer and use : □ free minutes □ free SMS □ free internet data □ special bonus □ others | | | | | |
| Most preferred bonus offer: □ free minutes □ free SMS □ free internet data □ special bonus □ others | | | | | |
| Efficient and great service attitude | 5 | 4 | 3 | 2 | 1 |
| Treat as a special and valued customer | 5 | 4 | 3 | 2 | 1 |
| Provide service in time | 5 | 4 | 3 | 2 | 1 |
| Well-behaved and systematic in approach | 5 | 4 | 3 | 2 | 1 |
| Qualified and well trained | 5 | 4 | 3 | 2 | 1 |
| Friendly in approach | 5 | 4 | 3 | 2 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Dependable and trusted | 5 | 4 | 3 | 2 | 1 |
| Attentive in providing service | 5 | 4 | 3 | 2 | 1 |
| ood enough network quality | 5 | 4 | 3 | 2 | 1 |
| Quality 3G facility and high internet speed | 5 | 4 | 3 | 2 | 1 |
| Convenient and satisfied with service delivery process | 5 | 4 | 3 | 2 | 1 |
| Provide service according to need | 5 | 4 | 3 | 2 | 1 |
| Rarely feel problem with service | 5 | 4 | 3 | 2 | 1 |
| Negligible call drop problem at the time of conversation | 5 | 4 | 3 | 2 | 1 |
| Convenient bill payment system (for post-paid subscriber) | 5 | 4 | 3 | 2 | 1 |
| Appearance of neat and smart employees | 5 | 4 | 3 | 2 | 1 |
| Well decorated customer care/service point | 5 | 4 | 3 | 2 | 1 |
| Convenient and comfortable physical environment in customer care/service point | 5 | 4 | 3 | 2 | 1 |
| Uniform color and logo | 5 | 4 | 3 | 2 | 1 |
| Well-defined and attractive slogan | 5 | 4 | 3 | 2 | 1 |
| Visual and attractive brochure, handbill, poster, flowchart | 5 | 4 | 3 | 2 | 1 |
| Comfortable furniture and effective equipment for service in customer care/service point | 5 | 4 | 3 | 2 | 1 |
| Well-organized website of operator | 5 | 4 | 3 | 2 | 1 |

Section 4: Sources/Dimensions of Customer-based Brand Equity

Here, 5=Strongly Agree, 4=Agree, 3=Neutral, 2=Disagree, 1=Strongly Disagree

| | | | | | |
|---|---|---|---|---|---|
| Comes to the mind first | 5 | 4 | 3 | 2 | 1 |
| More familiar comparing to others | 5 | 4 | 3 | 2 | 1 |
| Have enough information and knowledge about operator | 5 | 4 | 3 | 2 | 1 |
| When hear the brand, easy to remember its logo | 5 | 4 | 3 | 2 | 1 |
| Aware about sources of sales and service | 5 | 4 | 3 | 2 | 1 |
| Aware about distribution channel | 5 | 4 | 3 | 2 | 1 |
| Aware about various offers | 5 | 4 | 3 | 2 | 1 |
| Aware about conditions applied for taking services | 5 | 4 | 3 | 2 | 1 |
| Most of the features comes to the mind quickly | 5 | 4 | 3 | 2 | 1 |
| Can recognize and recall logo easily | 5 | 4 | 3 | 2 | 1 |
| Slogan is easily remembered and recalled | 5 | 4 | 3 | 2 | 1 |
| Most convenient source for awareness : □ electronic □ printed<br>□ word-of-mouth □ sales personnel □ others | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Has strong personality | 5 | 4 | 3 | 2 | 1 |
| Has strong reputation among customers | 5 | 4 | 3 | 2 | 1 |
| Intangible attributes are good enough to continue it | 5 | 4 | 3 | 2 | 1 |
| Has ability to serve interests as promised | 5 | 4 | 3 | 2 | 1 |
| Maintain service offers with good image | 5 | 4 | 3 | 2 | 1 |
| Has strong brand name | 5 | 4 | 3 | 2 | 1 |
| Compatible with need and status | 5 | 4 | 3 | 2 | 1 |
| Customer service increases brand image day by day | 5 | 4 | 3 | 2 | 1 |
| Consistently performs better than others | 5 | 4 | 3 | 2 | 1 |
| Offer services with excellent and unique features | 5 | 4 | 3 | 2 | 1 |
| Follow continuous improvement in quality | 5 | 4 | 3 | 2 | 1 |
| Convenient and friendly in use | 5 | 4 | 3 | 2 | 1 |
| One particular problem arise several times | 5 | 4 | 3 | 2 | 1 |
| Most reliable in service providing | 5 | 4 | 3 | 2 | 1 |
| Better than others in overall quality | 5 | 4 | 3 | 2 | 1 |
| Creates something new to add value consistently | 5 | 4 | 3 | 2 | 1 |
| Major Problem faced with:<br>□ SIM □ Network □ internet □ Value Added Service □ others | | | | | |
| Provide high brand value against money | 5 | 4 | 3 | 2 | 1 |
| Stay even service changes | 5 | 4 | 3 | 2 | 1 |
| Stay even price increases; others' price decreases | 5 | 4 | 3 | 2 | 1 |
| Stay even withdrawal of advertising support | 5 | 4 | 3 | 2 | 1 |
| No doubt it is the first choice and straight forward to use | 5 | 4 | 3 | 2 | 1 |
| Proud and delighted to use the brand | 5 | 4 | 3 | 2 | 1 |
| Deliver good experience and recommend to others | 5 | 4 | 3 | 2 | 1 |

Section 5: Overall Customer-based Brand Equity

Here, 5=Strongly Agree, 4=Agree, 3=Neutral, 2=Disagree, 1=Strongly Disagree

| | | | | | |
|---|---|---|---|---|---|
| Highly trusted brand | 5 | 4 | 3 | 2 | 1 |
| Capable to provide the best service in the market | 5 | 4 | 3 | 2 | 1 |
| Much more than a service | 5 | 4 | 3 | 2 | 1 |

Thank you for your kind co-operation!!!

# Appendix II

- **Services Marketing Mix:**

**Diversified services provided**

| Particulars | Percent |
|---|---|
| Strongly disagree | 2.7 |
| Disagree | 6.3 |
| Neutral | 26.0 |
| Agree | 45.1 |
| Strongly agree | 19.9 |
| Total | 100.0 |

**Quality internet service**

| Particulars | Percent |
|---|---|
| Strongly disagree | 11.5 |
| Disagree | 22.2 |
| Neutral | 17.7 |
| Agree | 31.4 |
| Strongly agree | 17.3 |
| Total | 100.0 |

**Distinctive after sales service**

| Particulars | Percent |
|---|---|
| Strongly disagree | 4.9 |
| Disagree | 13.2 |
| Neutral | 31.3 |
| Agree | 37.1 |
| Strongly agree | 13.5 |
| Total | 100.0 |

**Sufficient duration of talk-time, internet and SMS package**

| Particulars | Percent |
|---|---|
| Strongly disagree | 23.1 |
| Disagree | 26.9 |
| Neutral | 16.8 |
| Agree | 21.1 |
| Strongly agree | 12.1 |
| Total | 100.0 |

**Various second(s) pulse offer is attractive**

| Particulars | Percent |
|---|---|
| Strongly disagree | 9.5 |
| Disagree | 17.7 |
| Neutral | 33.0 |
| Agree | 28.3 |
| Strongly agree | 11.5 |
| Total | 100.0 |

**Attractive Value Added Service**

| Particulars | Percent |
|---|---|
| Strongly disagree | 8.2 |
| Disagree | 15.6 |
| Neutral | 28.9 |
| Agree | 34.2 |
| Strongly agree | 13.1 |

**Provide excellent utility services**

| Particulars | Percent |
|---|---|
| Strongly disagree | 4.5 |
| Disagree | 11.2 |
| Neutral | 31.8 |
| Agree | 39.9 |
| Strongly agree | 12.6 |
| Total | 100.0 |

**Variety of economy talk-time packages available**

| Particulars | Percent |
|---|---|
| Strongly disagree | 11.3 |
| Disagree | 18.9 |
| Neutral | 17.9 |
| Agree | 34.5 |
| Strongly agree | 17.4 |
| Total | 100.0 |

**Variety of economy internet packages available**

| Particulars | Percent |
|---|---|
| Strongly disagree | 16.8 |
| Disagree | 21.7 |
| Neutral | 17.6 |
| Agree | 29.9 |
| Strongly agree | 14.0 |
| Total | 100.0 |

**Variety of economy SMS packages available**

| Particulars | Percent |
|---|---|
| Strongly disagree | 4.8 |
| Disagree | 15.9 |
| Neutral | 24.4 |
| Agree | 35.0 |
| Strongly agree | 19.9 |
| Total | 100.0 |

**Facility of talking in conference call is attractive**

| Particulars | Percent |
|---|---|
| Strongly disagree | 3.1 |
| Disagree | 6.1 |
| Neutral | 24.7 |
| Agree | 41.7 |
| Strongly agree | 24.4 |
| Total | 100.0 |

**Frequent offer of excellent handset by mobile operator**

| Particulars | Percent |
|---|---|
| Strongly disagree | 4.6 |
| Disagree | 11.3 |
| Neutral | 30.0 |
| Agree | 40.2 |
| Strongly agree | 13.9 |
| Total | 100.0 |

**Talk-time balance sharing and emergency balance facility is useful**

| Particulars | Percent |
|---|---|
| Strongly disagree | 6.3 |
| Disagree | 11.5 |
| Neutral | 25.8 |
| Agree | 38.7 |
| Strongly agree | 17.7 |
| Total | 100.0 |

**: Minor connection formalities**

| Particulars | Percent |
|---|---|
| Strongly disagree | 1.3 |
| Disagree | 6.4 |
| Neutral | 18.5 |
| Agree | 43.0 |
| Strongly agree | 30.8 |
| Total | 100.0 |

**Frequent free apps offer is attractive**

| Particulars | Percent |
|---|---|
| Strongly disagree | 10.0 |
| Disagree | 19.9 |
| Neutral | 30.7 |
| Agree | 28.4 |
| Strongly agree | 11.0 |
| Total | 100.0 |

**Reasonable price of SIM**

| Particulars | Percent |
|---|---|
| Strongly disagree | 2.5 |
| Disagree | 5.8 |
| Neutral | 14.4 |
| Agree | 42.4 |
| Strongly agree | 34.8 |
| Total | 100.0 |

**: Reasonable call rate**

| Particulars | Percent |
|---|---|
| Strongly disagree | 16.5 |
| Disagree | 22.7 |
| Neutral | 18.9 |
| Agree | 27.1 |
| Strongly agree | 14.8 |
| Total | 100.0 |

**Reasonable SMS and MMS rate**

| Particulars | Percent |
|---|---|
| Strongly disagree | 6.8 |
| Disagree | 21.9 |
| Neutral | 26.5 |
| Agree | 29.2 |
| Strongly agree | 15.6 |
| Total | 100.0 |

**Reasonable talk-time and SMS package rate**

| Particulars | Percent |
|---|---|
| Strongly disagree | 14.3 |
| Disagree | 22.3 |
| Neutral | 21.3 |
| Agree | 28.9 |
| Strongly agree | 13.2 |
| Total | 100.0 |

**Reasonable internet package rate**

| Particulars | Percent |
|---|---|
| Strongly disagree | 25.1 |
| Disagree | 22.0 |
| Neutral | 21.1 |
| Agree | 21.1 |
| Strongly agree | 10.6 |

**:Reasonable Value Added Service rate**

| Particulars | Percent |
|---|---|
| Strongly disagree | 19.5 |
| Disagree | 23.7 |
| Neutral | 27.7 |
| Agree | 22.2 |
| Strongly agree | 7.0 |
| Total | 100.0 |

**Talk-time and internet package selection at ease is attractive**

| Particulars | Percent |
|---|---|
| Strongly disagree | 6.8 |
| Disagree | 12.9 |
| Neutral | 30.1 |
| Agree | 37.2 |
| Strongly agree | 12.9 |
| Total | 100.0 |

**Accurate billing, call rate and internet data use charge**

| Particulars | Percent |
|---|---|
| Strongly disagree | 7.6 |
| Disagree | 16.5 |
| Neutral | 26.0 |
| Agree | 34.4 |
| Strongly agree | 15.5 |
| Total | 100.0 |

**Special talk-time package(s) and SMS bundle price is attractive**

| Particulars | Percent |
|---|---|
| Strongly disagree | 6.0 |
| Disagree | 24.0 |
| Neutral | 30.1 |
| Agree | 27.4 |
| Strongly agree | 12.6 |
| Total | 100.0 |

**Price is competitive**

| Particulars | Percent |
|---|---|
| Strongly disagree | 8.2 |
| Disagree | 17.9 |
| Neutral | 32.5 |
| Agree | 30.4 |
| Strongly agree | 11.0 |
| Total | 100.0 |

**Network available in sufficient locations**

| Particulars | Percent |
|---|---|
| Strongly disagree | 6.4 |
| Disagree | 11.2 |
| Neutral | 15.0 |
| Agree | 33.8 |
| Strongly agree | 33.6 |
| Total | 100.0 |

**Available recharge, service and SIM purchase point in nearby areas**

| Particulars | Percent |
|---|---|
| Strongly disagree | 3.1 |
| Disagree | 5.1 |
| Neutral | 10.9 |
| Agree | 39.3 |
| Strongly agree | 41.7 |
| Total | 100.0 |

**Helpline is useful and informative**

| Particulars | Percent |
|---|---|
| Strongly disagree | 4.0 |
| Disagree | 10.6 |
| Neutral | 30.2 |
| Agree | 37.1 |
| Strongly agree | 18.2 |
| Total | 100.0 |

**Access from anywhere using mobile handset to take most of the services**

| Particulars | Percent |
|---|---|
| Strongly disagree | 7.3 |
| Disagree | 9.7 |
| Neutral | 25.3 |
| Agree | 38.4 |
| Strongly agree | 19.3 |
| Total | 100.0 |

**Most preferred service taking place**

| Particulars | Percent |
|---|---|
| Customer care | 34.4 |
| Retail | 23.4 |
| Franchise | 6.1 |
| Recharge point | 28.0 |
| Others | 7.7 |
| Customer care & Recharge point | .3 |
| Total | 100.0 |

**Sufficient parking facility in service point**

| Particulars | Percent |
|---|---|
| Strongly disagree | 13.1 |
| Disagree | 21.6 |
| Neutral | 25.7 |
| Agree | 26.3 |
| Strongly agree | 13.2 |
| Total | 100.0 |

**Nice entertainment at the time of waiting for service**

| Particulars | Percent |
|---|---|
| Strongly disagree | 12.1 |
| Disagree | 26.2 |
| Neutral | 30.7 |
| Agree | 21.0 |
| Strongly agree | 10.1 |
| Total | 100.0 |

**Convenient waiting facility**

| Particulars | Percent |
|---|---|
| Strongly disagree | 6.0 |
| Disagree | 12.8 |
| Neutral | 32.0 |
| Agree | 32.6 |
| Strongly agree | 16.7 |
| Total | 100.0 |

**Reliable and safe location**

| Particulars | Percent |
|---|---|
| Strongly disagree | 2.4 |
| Disagree | 6.0 |
| Neutral | 22.9 |
| Agree | 48.7 |
| Strongly agree | 20.1 |
| Total | 100.0 |

**Available transportation to go to customer care**

| Particulars | Percent |
|---|---|
| Strongly disagree | 2.7 |
| Disagree | 6.1 |
| Neutral | 20.7 |
| Agree | 44.8 |
| Strongly agree | 25.7 |
| Total | 100.0 |

**Point-of-purchase display influence purchase**

| Particulars | Percent |
|---|---|
| Strongly disagree | 1.9 |
| Disagree | 8.6 |
| Neutral | 30.8 |
| Agree | 40.9 |
| Strongly agree | 17.7 |
| Total | 100.0 |

**Advertising campaigns are creative**

| Particulars | Percent |
|---|---|
| Strongly disagree | 1.6 |
| Disagree | 7.2 |
| Neutral | 23.1 |
| Agree | 43.2 |
| Strongly agree | 24.9 |
| Total | 100.0 |

**Provide distinctive sales promotion(discount and others) offers regularly**

| Particulars | Percent |
|---|---|
| Strongly disagree | 2.5 |
| Disagree | 7.4 |
| Neutral | 25.0 |
| Agree | 46.0 |
| Strongly agree | 19.0 |
| Total | 100.0 |

**SMS from operator are useful**

| Particulars | Percent |
|---|---|
| Strongly disagree | 9.1 |
| Disagree | 11.6 |
| Neutral | 31.7 |
| Agree | 34.8 |
| Strongly agree | 12.8 |
| Total | 100.0 |

**Distinctive offers for special category subscribers**

| Particulars | Percent |
|---|---|
| Strongly disagree | 4.6 |
| Disagree | 14.6 |
| Neutral | 33.3 |
| Agree | 33.2 |
| Strongly agree | 14.3 |
| Total | 100.0 |

**Advertising are clear, understandable and fun**

| Particulars | Percent |
|---|---|
| Strongly disagree | 2.5 |
| Disagree | 4.8 |
| Neutral | 18.8 |
| Agree | 42.3 |
| Strongly agree | 31.7 |
| Total | 100.0 |

**Can remember most of the advertisements**

| Particulars | Percent |
|---|---|
| Strongly disagree | 1.8 |
| Disagree | 5.8 |
| Neutral | 19.8 |
| Agree | 43.5 |
| Strongly agree | 29.2 |
| Total | 100.0 |

**Use massive advertisement**

| Particulars | Percent |
|---|---|
| Strongly disagree | 1.9 |
| Disagree | 7.1 |
| Neutral | 24.3 |
| Agree | 40.8 |
| Strongly agree | 25.9 |
| Total | 100.0 |

**Provide adequate information to compare with other operators**

| Particulars | Percent |
|---|---|
| Strongly disagree | 3.4 |
| Disagree | 13.5 |
| Neutral | 34.8 |
| Agree | 33.9 |
| Strongly agree | 14.3 |
| Total | 100.0 |

**SIM offer with discount or free is attractive**

| Particulars | Percent |
|---|---|
| Strongly disagree | 6.4 |
| Disagree | 11.6 |
| Neutral | 21.4 |
| Agree | 37.8 |
| Strongly agree | 22.8 |
| Total | 100.0 |

**Performs corporate social responsibility with keen interest**

| Particulars | Percent |
|---|---|
| Strongly disagree | 4.5 |
| Disagree | 10.9 |
| Neutral | 32.0 |
| Agree | 38.5 |
| Strongly agree | 14.1 |
| Total | 100.0 |

**Promotional activities including advertisement are attractive**

| Particulars | Percent |
|---|---|
| Strongly disagree | 3.3 |
| Disagree | 7.0 |
| Neutral | 25.6 |
| Agree | 44.9 |
| Strongly agree | 19.2 |
| Total | 100.0 |

**Animation, jingles and celebrity in advertising is attractive**

| Particulars | Percent |
|---|---|
| Strongly disagree | 3.6 |
| Disagree | 10.7 |
| Neutral | 27.3 |
| Agree | 42.9 |
| Strongly agree | 15.5 |

**Attractive talk-time, SMS and internet data bonus offer**

| Particulars | Percent |
|---|---|
| Strongly disagree | 7.0 |
| Disagree | 12.6 |
| Neutral | 29.4 |
| Agree | 34.2 |
| Strongly agree | 16.7 |
| Total | 100.0 |

**Quiz, contest, gift, games, opinion polls etc. is attractive**

| Particulars | Percent |
|---|---|
| Strongly disagree | 6.4 |
| Disagree | 11.6 |
| Neutral | 21.4 |
| Agree | 37.8 |
| Strongly agree | 22.8 |
| Total | 100.0 |

**Most preferred outdoor advertising**

| Particulars | Percent |
|---|---|
| Billboard | 68.8 |
| Sign board | 14.9 |
| Bell and neon sign | 8.9 |
| Walling | 1.8 |
| Others | 4.8 |
| Billboard, Sign board & walling | .9 |
| Total | 100.0 |

**Most preferred bonus offer**

| Particulars | Percent |
|---|---|
| Free minutes | 41.2 |
| Free SMS | 5.5 |
| Free internet data | 41.5 |
| Special bonus | 7.4 |
| Others | 2.8 |
| Free minutes,freesms,free internet | 1.5 |
| Total | 100.0 |

**Efficient and great service attitude**

| Particulars | Percent |
|---|---|
| Strongly disagree | 3.3 |
| Disagree | 6.8 |
| Neutral | 31.0 |
| Agree | 41.2 |
| Strongly agree | 17.7 |
| Total | 100.0 |

**Treat as a special and valued customer**

| Particulars | Percent |
|---|---|
| Strongly disagree | 3.7 |
| Disagree | 9.7 |
| Neutral | 26.6 |
| Agree | 41.5 |
| Strongly agree | 18.5 |
| Total | 100.0 |

**Provide service in time**

| Particulars | Percent |
|---|---|
| Strongly disagree | 5.4 |
| Disagree | 10.4 |
| Neutral | 29.3 |
| Agree | 40.0 |
| Strongly agree | 14.9 |
| Total | 100.0 |

**Well-behaved and systematic in approach**

| Particulars | Percent |
|---|---|
| Strongly disagree | 3.6 |
| Disagree | 7.1 |
| Neutral | 25.7 |
| Agree | 44.2 |
| Strongly agree | 19.3 |
| Total | 100.0 |

**Qualified and well trained**

| Particulars | Percent |
|---|---|
| Strongly disagree | 2.5 |
| Disagree | 6.3 |
| Neutral | 33.8 |
| Agree | 42.9 |
| Strongly agree | 14.6 |
| Total | 100.0 |

**Friendly in approach**

| Particulars | Percent |
|---|---|
| Strongly disagree | 3.4 |
| Disagree | 9.5 |
| Neutral | 21.1 |
| Agree | 43.9 |
| Strongly agree | 22.0 |
| Total | 100.0 |

**Dependable and trusted**

| Particulars | Percent |
|---|---|
| Strongly disagree | 3.1 |
| Disagree | 7.0 |
| Neutral | 29.0 |
| Agree | 42.6 |
| Strongly agree | 18.3 |
| Total | 100.0 |

**Attentive in providing service**

| Particulars | Percent |
|---|---|
| Strongly disagree | 3.9 |
| Disagree | 8.0 |
| Neutral | 22.6 |
| Agree | 47.9 |
| Strongly agree | 17.6 |
| Total | 100.0 |

**Good enough network quality**

| Particulars | Percent |
|---|---|
| Strongly disagree | 8.0 |
| Disagree | 11.3 |
| Neutral | 15.6 |
| Agree | 34.1 |
| Strongly agree | 31.0 |
| Total | 100.0 |

**Quality 3G facility and high internet speed**

| Particulars | Percent |
|---|---|
| Strongly disagree | 19.5 |
| Disagree | 17.7 |
| Neutral | 15.2 |
| Agree | 31.0 |
| Strongly agree | 16.7 |
| Total | 100.0 |

**Convenient and satisfied with service delivery process**

| Particulars | Percent |
|---|---|
| Strongly disagree | 3.6 |
| Disagree | 7.6 |
| Neutral | 28.3 |
| Agree | 43.2 |
| Strongly agree | 17.4 |
| Total | 100.0 |

**Provide service according to need**

| Particulars | Percent |
|---|---|
| Strongly disagree | 4.9 |
| Disagree | 11.8 |
| Neutral | 27.8 |
| Agree | 40.3 |
| Strongly agree | 15.2 |
| Total | 100.0 |

**Rarely feel problem with service**

| Particulars | Percent |
|---|---|
| Strongly disagree | 6.4 |
| Disagree | 9.2 |
| Neutral | 29.6 |
| Agree | 39.1 |
| Strongly agree | 15.6 |
| Total | 100.0 |

**Negligible call drop problem at the time of conversation**

| Particulars | Percent |
|---|---|
| Strongly disagree | 7.6 |
| Disagree | 9.4 |
| Neutral | 20.1 |
| Agree | 43.8 |
| Strongly agree | 19.2 |
| Total | 100.0 |

**Appearance of neat and smart employees**

| Particulars | Percent |
|---|---|
| Strongly disagree | 2.5 |
| Disagree | 4.0 |
| Neutral | 24.9 |
| Agree | 45.2 |
| Strongly agree | 23.4 |
| Total | 100.0 |

**Well decorated customer care/service point**

| Particulars | Percent |
|---|---|
| Strongly disagree | 1.3 |
| Disagree | 10.1 |
| Neutral | 26.8 |
| Agree | 40.3 |
| Strongly agree | 21.4 |
| Total | 100.0 |

**Convenient and comfortable physical environment in customer care/service point**

| Particulars | Percent |
|---|---|
| Strongly disagree | 2.2 |
| Disagree | 13.3 |
| Neutral | 26.2 |
| Agree | 38.2 |
| Strongly agree | 19.9 |
| Total | 100.0 |

**Uniform color and logo**

| Particulars | Percent |
|---|---|
| Strongly disagree | 1.3 |
| Disagree | 4.6 |
| Neutral | 20.1 |
| Agree | 45.4 |
| Strongly agree | 28.6 |
| Total | 100.0 |

**Well-defined and attractive slogan**

| Particulars | Percent |
|---|---|
| Strongly disagree | 1.6 |
| Disagree | 3.1 |
| Neutral | 18.2 |
| Agree | 47.2 |
| Strongly agree | 29.9 |
| Total | 100.0 |

**Visual and attractive brochure, handbill, poster, flowchart**

| Particulars | Percent |
|---|---|
| Strongly disagree | 2.1 |
| Disagree | 9.2 |
| Neutral | 31.5 |
| Agree | 39.9 |
| Strongly agree | 17.3 |
| Total | 100.0 |

**Comfortable furniture and effective equipment for service in customer care/service point**

| Particulars | Percent |
|---|---|
| Strongly disagree | 1.9 |
| Disagree | 6.5 |
| Neutral | 36.9 |
| Agree | 35.9 |
| Strongly agree | 18.8 |
| Total | 100.0 |

**Well-organized website of operator**

| Particulars | Percent |
|---|---|
| Strongly disagree | 3.3 |
| Disagree | 5.4 |
| Neutral | 25.3 |
| Agree | 40.8 |
| Strongly agree | 25.3 |
| Total | 100.0 |

# Appendix III

- Customer-based Brand Equity( CBBE)

| **The brand comes to the mind first** | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 4.3 |
| | Disagree | 6.3 |
| | Neutral | 21.6 |
| | Agree | 35.3 |
| | Strongly agree | 32.6 |
| | Total | 100.0 |

| **More familiar comparing to others** | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 2.7 |
| | Disagree | 7.3 |
| | Neutral | 18.0 |
| | Agree | 41.7 |
| | Strongly agree | 30.4 |
| | Total | 100.0 |
| | | |

| **Have enough information and knowledge about operator** | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 2.8 |
| | Disagree | 7.4 |
| | Neutral | 31.3 |
| | Agree | 40.3 |
| | Strongly agree | 18.2 |
| | Total | 100.0 |

| When hear the brand, easy to remember and recognize its logo | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 1.2 |
| | Disagree | 3.3 |
| | Neutral | 18.9 |
| | Agree | 43.5 |
| | Strongly agree | 33.2 |
| | Total | 100.0 |

| Aware about sources of sales and service | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 1.6 |
| | Disagree | 8.0 |
| | Neutral | 31.0 |
| | Agree | 42.9 |
| | Strongly agree | 16.5 |
| | Total | 100.0 |

| Aware about various offers | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 2.7 |
| | Disagree | 10.6 |
| | Neutral | 34.1 |
| | Agree | 37.2 |
| | Strongly agree | 15.5 |
| | Total | 100.0 |

| Aware about conditions applied for taking services | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 3.9 |
| | Disagree | 17.7 |
| | Neutral | 30.2 |
| | Agree | 35.3 |
| | Strongly agree | 12.9 |
| | Total | 100.0 |

| Most of the features comes to the mind quickly | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 3.0 |
| | Disagree | 11.6 |
| | Neutral | 35.0 |
| | Agree | 35.1 |
| | Strongly agree | 15.3 |
| | Total | 100.0 |

| Slogan is easily remembered and recalled | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 3.3 |
| | Disagree | 5.7 |
| | Neutral | 20.2 |
| | Agree | 39.0 |
| | Strongly agree | 31.8 |
| | Total | 100.0 |

| Most convenient source for awareness | | |
|---|---|---|
| | | Percent |
| Valid | Electronic | 58.0 |
| | Printed | 5.2 |
| | Word-of-mouth | 18.3 |
| | Sales personnel | 14.7 |
| | Others | 3.7 |
| | Total | 100.0 |

| Has strong personality | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 3.4 |
| | Disagree | 5.5 |
| | Neutral | 22.9 |
| | Agree | 39.6 |
| | Strongly agree | 28.6 |
| | Total | 100.0 |

| Has strong reputation among customers | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 2.7 |
| | Disagree | 8.0 |
| | Neutral | 20.2 |
| | Agree | 43.0 |
| | Strongly agree | 26.0 |
| | Total | 100.0 |

| Intangible attributes are good enough to continue it | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 2.5 |
| | Disagree | 17.7 |
| | Neutral | 36.0 |
| | Agree | 30.2 |
| | Strongly agree | 13.5 |
| | Total | 100.0 |

| Has ability to serve interests as promised | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 4.0 |
| | Disagree | 9.4 |
| | Neutral | 36.9 |
| | Agree | 38.1 |
| | Strongly agree | 11.6 |
| | Total | 100.0 |

| Maintain service offers with good image | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 3.6 |
| | Disagree | 9.5 |
| | Neutral | 35.9 |
| | Agree | 36.6 |
| | Strongly agree | 14.4 |
| | Total | 100.0 |

| Has strong brand name | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 1.6 |
| | Disagree | 5.5 |
| | Neutral | 20.8 |
| | Agree | 44.8 |
| | Strongly agree | 27.2 |
| | Total | 100.0 |

| Compatible with need and status | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 2.5 |
| | Disagree | 7.6 |
| | Neutral | 25.3 |
| | Agree | 44.5 |
| | Strongly agree | 20.1 |
| | Total | 100.0 |

| Customer service increases brand image day by day | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 3.6 |
| | Disagree | 6.4 |
| | Neutral | 21.9 |
| | Agree | 44.2 |
| | Strongly agree | 24.0 |
| | Total | 100.0 |

| Consistently performs better than others | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 4.5 |
| | Disagree | 7.0 |
| | Neutral | 22.0 |
| | Agree | 41.5 |
| | Strongly agree | 25.0 |
| | Total | 100.0 |

| Offer services with excellent and unique features | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 3.6 |
| | Disagree | 16.1 |
| | Neutral | 31.1 |
| | Agree | 36.6 |
| | Strongly agree | 12.6 |
| | Total | 100.0 |

| Follow continuous improvement in quality | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 3.9 |
| | Disagree | 16.7 |
| | Neutral | 29.8 |
| | Agree | 33.0 |
| | Strongly agree | 16.7 |
| | Total | 100.0 |

| Convenient and friendly in use | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 3.0 |
| | Disagree | 4.2 |
| | Neutral | 18.8 |
| | Agree | 47.8 |
| | Strongly agree | 26.3 |
| | Total | 100.0 |

| Most reliable in service providing | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 2.8 |
| | Disagree | 8.8 |
| | Neutral | 26.8 |
| | Agree | 41.8 |
| | Strongly agree | 19.8 |
| | Total | 100.0 |

| Better than others in overall quality | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 3.9 |
| | Disagree | 13.4 |
| | Neutral | 25.6 |
| | Agree | 39.3 |
| | Strongly agree | 17.9 |
| | Total | 100.0 |

| Creates something new to add value consistently | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 4.9 |
| | Disagree | 17.1 |
| | Neutral | 29.3 |
| | Agree | 34.2 |
| | Strongly agree | 14.3 |
| | 6 | .1 |
| | Total | 100.0 |

| Provide high brand value against money | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 4.5 |
| | Disagree | 11.9 |
| | Neutral | 36.0 |
| | Agree | 28.3 |
| | Strongly agree | 19.0 |
| | 6 | .1 |
| | 33 | .1 |
| | Total | 100.0 |

| Stay even service changes | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 7.0 |
| | Disagree | 18.2 |
| | Neutral | 26.6 |

| | | |
|---|---|---|
| | Agree | 34.1 |
| | Strongly agree | 14.1 |
| | Total | 100.0 |

| **Stay even price increases; others' price decreases** | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 13.4 |
| | Disagree | 20.5 |
| | Neutral | 26.9 |
| | Agree | 26.6 |
| | Strongly agree | 12.5 |
| | Total | 100.0 |

| **Stay even withdrawal of advertising support** | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 4.0 |
| | Disagree | 15.5 |
| | Neutral | 32.7 |
| | Agree | 34.1 |
| | Strongly agree | 13.7 |
| | Total | 100.0 |

| **No doubt it is the first choice and straight forward to use** | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 4.6 |
| | Disagree | 8.8 |
| | Neutral | 28.6 |
| | Agree | 40.0 |
| | Strongly agree | 18.0 |
| | Total | 100.0 |

| **Proud and delighted to use the brand** | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 3.7 |
| | Disagree | 13.1 |

| | | |
|---|---|---|
| | Neutral | 31.1 |
| | Agree | 37.2 |
| | Strongly agree | 14.9 |
| | Total | 100.0 |

| **Share good experience and recommend to others** | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | 4.2 |
| | Disagree | 12.9 |
| | Neutral | 36.5 |
| | Agree | 31.5 |
| | Strongly agree | 14.9 |
| | Total | 100.0 |

| **Highly trusted brand** | | |
|---|---|---|
| | | Percent |
| Valid | Disagree | 5.4 |
| | Neutral | 40.2 |
| | Agree | 44.0 |
| | Strongly agree | 10.4 |
| | Total | 100.0 |

| **Capable to provide the best service in the market** | | |
|---|---|---|
| | | Percent |
| Valid | Disagree | 5.1 |
| | Neutral | 34.2 |
| | Agree | 51.6 |
| | Strongly agree | 9.1 |
| | Total | 100.0 |

| **Much more than a service** | | |
|---|---|---|
| | | Percent |
| Valid | Strongly disagree | .7 |
| | Disagree | 8.5 |
| | Neutral | 47.0 |

| | | |
|---|---|---|
| | Agree | 35.6 |
| | Strongly agree | 8.2 |
| | Total | 100.0 |

- **Inconvenience customers' face**

| **Problem(s) faced with using the operator's service** | | |
|---|---|---|
| | | Percent |
| Valid | SIM | 6.0 |
| | Network | 27.7 |
| | Call rate / Price | 28.9 |
| | Internet | 14.7 |
| | Value added service | 5.7 |
| | Predispositions | .6 |
| | Others | .6 |
| | Network & Call rate / Price | 1.8 |
| | Call rate / price & Internet | 2.8 |
| | Sim & Network | .4 |
| | Call rate & Value addes service | 1.3 |
| | Network, Internet & value addes service | 1.5 |
| | Network & Internet | 1.6 |
| | Network, Call rate / price & Internet | 1.2 |
| | Network, Call rate / price & Value addes service | .6 |
| | Sim, Call rate & Value addes service | .4 |
| | Call rate, Internet & Value addes service | 1.2 |
| | Networkt & value addes service | .7 |
| | Sim & Internet | .7 |
| | Networkt & Predispositions | .7 |
| | Sim, Network, Call rate / price & Internet | .6 |
| | Sim & Predispositions | .1 |
| | Total | 100.0 |

| Major Problem faced with the operator's service | | |
|---|---|---|
| | | Percent |
| Valid | SIM | 5.5 |
| | Network | 28.7 |
| | Call rate / Price | 36.6 |
| | Internet | 19.2 |
| | Value added service | 7.6 |
| | Predispositions | .9 |
| | Others | .6 |
| | call rate/price,internet | .7 |
| | Network, call rate/price | .1 |
| | Total | 100.0 |

## Appendix IV

**Effect of Service Marketing Mix elements on Customer-based Brand Equity:**

| Coefficient Correlations[a] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Model | | 7 factor | 5 factor | 1 factor | 6 factor | 4 factor | 3 factor | 2 factor |
| 1 | Correlations | 1.000 | -.046 | -.195 | -.126 | -.248 | -.085 | -.098 |
| | | -.046 | 1.000 | -.043 | .000 | -.074 | -.021 | -.328 |
| | | -.195 | -.043 | 1.000 | -.072 | .046 | -.100 | -.129 |
| | | -.126 | .000 | -.072 | 1.000 | -.044 | -.215 | -.188 |
| | | -.248 | -.074 | .046 | -.044 | 1.000 | -.226 | -.214 |
| | | -.085 | -.021 | -.100 | -.215 | -.226 | 1.000 | -.236 |
| | | -.098 | -.328 | -.129 | -.188 | -.214 | -.236 | 1.000 |
| | Covariances | .010 | .000 | -.001 | -.001 | -.002 | -.001 | -.001 |
| | | .000 | .012 | .000 | 2.277E-6 | -.001 | .000 | -.004 |
| | | -.001 | .000 | .005 | .000 | .000 | -.001 | -.001 |
| | | -.001 | 2.277E-6 | .000 | .008 | .000 | -.002 | -.002 |
| | | -.002 | -.001 | .000 | .000 | .010 | -.002 | -.002 |
| | | -.001 | .000 | -.001 | -.002 | -.002 | .008 | -.002 |
| | | -.001 | -.004 | -.001 | -.002 | -.002 | -.002 | .011 |
| a. Dependent Variable: 12 factor | | | | | | | | |

**Effect of Demographics on Brand Awareness:**

| Correlations | | | | | | |
|---|---|---|---|---|---|---|
| Factors | | Brand Awareness | Age (in year) | Monthly Income (in TK) | Gender | Occupation |
| | Brand Awareness | 1.000 | .014 | -.049 | .045 | -.033 |
| | Age (in year) | .014 | 1.000 | .632 | -.142 | -.617 |
| | Monthly Income (in TK) | -.049 | .632 | 1.000 | -.359 | -.565 |
| | Gender | .045 | -.142 | -.359 | 1.000 | .048 |
| | Occupation | -.033 | -.617 | -.565 | .048 | 1.000 |

**Effect of Demographics on Brand Associations:**

| Correlations | | | | | | |
|---|---|---|---|---|---|---|
| Factors | | Brand Associations | Age (in year) | Monthly Income (in TK) | Gender | Occupation |
| | Brand Associations | 1.000 | -.023 | -.111 | .070 | -.015 |
| | Age (in year) | -.023 | 1.000 | .631 | -.139 | -.617 |
| | Monthly Income (in TK) | -.111 | .631 | 1.000 | -.358 | -.565 |
| | Gender | .070 | -.139 | -.358 | 1.000 | .046 |
| | Occupation | -.015 | -.617 | -.565 | .046 | 1.000 |

**Effect of Demographics on Perceived Brand Quality:**

| Correlations | | | | | | |
|---|---|---|---|---|---|---|
| | | Perceived Brand Equity | Age | Income | Gender | Occupation |
| | Perceived Brand Equity | 1.000 | -.037 | .002 | -.011 | .065 |
| | Age | -.037 | 1.000 | .631 | -.144 | -.617 |
| | Income | .002 | .631 | 1.000 | -.360 | -.565 |
| | Gender | -.011 | -.144 | -.360 | 1.000 | .049 |
| | Occupation | .065 | -.617 | -.565 | .049 | 1.000 |

**Effect of Demographics on Brand Loyalty:**

| Correlations | | | | | | |
|---|---|---|---|---|---|---|
| Factors | | Brand Loyalty | Age | Income | Gender | Occupation |
| | Brand Loyalty | 1.000 | -.108 | -.114 | -.082 | .081 |
| | Age | -.108 | 1.000 | .632 | -.142 | -.617 |
| | Income | -.114 | .632 | 1.000 | -.359 | -.565 |
| | Gender | -.082 | -.142 | -.359 | 1.000 | .048 |
| | Occupation | .081 | -.617 | -.565 | .048 | 1.000 |

**Effect of Demographics on overall Brand Equity:**

| Correlations | | | | | | |
|---|---|---|---|---|---|---|
| | | Customer-based Brand Equity | Age | Income | Gender | Occupation |
| | Customer-based Brand Equity | 1.000 | .028 | -.024 | -.012 | -.045 |
| | Age | .028 | 1.000 | .631 | -.141 | -.616 |
| | Income | -.024 | .631 | 1.000 | -.359 | -.564 |
| | Gender | -.012 | -.141 | -.359 | 1.000 | .047 |
| | Occupation | -.045 | -.616 | -.564 | .047 | 1.000 |

**Correlation between Service Marketing Mix elements:**

| Correlations | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Service Product | Price | Place | Promotion | People | Physical Evidence | Process |
| Service product | Pearson Correlation | 1 | .611** | .498** | .267** | .339** | .578** | .474** |
| | Sig. (2-tailed) | | .000 | .000 | .000 | .000 | .000 | .000 |
| | N | 672 | 671 | 672 | 670 | 672 | 672 | 672 |
| Price | Pearson Correlation | .611** | 1 | .480** | .247** | .384** | .410** | .392** |
| | Sig. (2-tailed) | .000 | | .000 | .000 | .000 | .000 | .000 |
| | N | 671 | 671 | 671 | 669 | 671 | 671 | 671 |
| Place | Pearson Correlation | .498** | .480** | 1 | .307** | .464** | .604** | .532** |
| | Sig. (2-tailed) | .000 | .000 | | .000 | .000 | .000 | .000 |
| | N | 672 | 671 | 672 | 670 | 672 | 672 | 672 |
| Promotion | Pearson Correlation | .267** | .247** | .307** | 1 | .199** | .238** | .266** |
| | Sig. (2-tailed) | .000 | .000 | .000 | | .000 | .000 | .000 |
| | N | 670 | 669 | 670 | 670 | 670 | 670 | 670 |
| People | Pearson Correlation | .339** | .384** | .464** | .199** | 1 | .541** | .528** |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | | .000 | .000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | N | 672 | 671 | 672 | 670 | 672 | 672 | 672 |
| Physical Evidence | Pearson Correlation | .578** | .410** | .604** | .238** | .541** | 1 | .555** |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | | .000 |
| | N | 672 | 671 | 672 | 670 | 672 | 672 | 672 |
| Process | Pearson Correlation | .474** | .392** | .532** | .266** | .528** | .555** | 1 |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 | |
| | N | 672 | 671 | 672 | 670 | 672 | 672 | 672 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | | | | | | |

**Correlation between Customer-based Brand Equity sources:**

| Factors | | Brand Awareness | Brand Associations | Brand Perceived Quality | Brand Loyalty |
|---|---|---|---|---|---|
| Brand Awareness | Pearson Correlation | 1 | | | |
| | Sig. (2-tailed) | | | | |
| | N | 672 | | | |
| Brand Associations | Pearson Correlation | .369** | 1 | | |
| | Sig. (2-tailed) | .000 | | | |
| | N | 671 | 671 | | |
| Brand Perceived Quality | Pearson Correlation | .028 | .027 | 1 | |
| | Sig. (2-tailed) | .464 | .492 | | |
| | N | 671 | 670 | 671 | |
| Brand Loyalty | Pearson Correlation | .070 | .068 | .100** | 1 |
| | Sig. (2-tailed) | .069 | .077 | .010 | |
| | N | 672 | 671 | 671 | 672 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | | | |