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The Influence of the COVID-19 Pandemic on the Uptake of Technology-Enabled Banking in Bangladesh

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ABSTRACT

Purpose: This empirical study is conducted to analyze the impact of Covid-19 on the adoption of customer tech-driven banking services in Bangladesh.

Methodology: The positivism paradigm was followed, and a deductive approach was considered to develop the measurement instruments for this study. A total of 186 samples were collected from the different divisional areas in Bangladesh following convenience sampling techniques. TBM SPSS version 22 was used to analyze the collected data. The study applied descriptive statistics, EFA and regression analysis to investigate the research phenomenon and objectives.

Findings: The exploratory factor analysis revealed six factors or constructs (perceived usefulness, perceived ease of use, customers' trust, subjective norms, attitudes, and behavioural intentions). The study's results confirmed that the effects of perceived usefulness on customer attitude to use tech-driven banking services positively differ in pre-pandemic and post-pandemic periods, showing results of β-0.366 to β-0.532. Perceived ease of use and customer trust also reveal similar results of β-0.419 to β-0.639 and β-0.385 to β-0.535 respectively. In addition, the effect of subjective norms on customer attitudes and behavioral intentions discloses the same results of β-0.471 to β-0.668 and β-0.495 to β-0.598 respectively. Finally, the comparable effects of customer attitude on their behavioral intentions have been revealed by this study, showing results of β-0.578 to β-0.709. Therefore, all the proposed hypotheses have been accepted at different significant levels.

Practical Implications: Academics, businesses, organizations, and policymakers will get valuable insight from this study's results, which help formulate business plans, implement strategies, and conduct studies.

Originality: The relationships among key constructs remained consistent before and during the pandemic, indicating robustness unaffected by the COVID-19 crisis.

Research Limitations: The study primarily emphasized essential attributes, potentially overlooking other significant factors. It relied

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exclusively on quantitative data, which might not have provided a comprehensive understanding of the findings.

1. Introduction

The global pandemic has significantly impacted businesses and reshaped the economy, prompting changes in consumer behaviour and banking practices (He & Harris, 2020; Mathew & Sunil, 2022; Ahsan, 2020). Banks are vital in funding the economy, supporting businesses, and ensuring liquidity flow, prompting them to reevaluate their strategies in response to these challenges (Campiglio, 2016; Sawhney et al., 2006). This crisis has accelerated digital transformation in the banking sector, with a notable shift towards digital platforms and the widespread adoption of online banking tools, particularly mobile banking, offering convenient and accessible services globally (Croxson et al., 2022; Mistrean, 2021; Omar et al., 2020). Mobile banking has revolutionized daily transactions, providing an efficient and secure mode of operation (Croxson et al., 2022).

In the era of globalization, financial services must be agile and user-friendly (Kotabe & Helsen, 2020). Tech-driven banking has proven more profitable than other e-commerce applications, assisting banks in enhancing customer service, expanding information dissemination, and reducing costs (Rahi & Abd-Ghani, 2019; Shahzad et al., 2017). The growth of the internet has redefined customer engagement, with TB and mobile banking offering numerous benefits (Sitorus et al., 2017). These advancements aim to support customer activities, provide relevant markets, and offer easily accessible and understandable services (Yudha et al., 2015; Tabash et al., 2019). Such platforms reduce transaction costs and time spent, leading to an increasing preference for online financial systems (Lech, 2012; Kaleem & Ahmad, 2010).

However, in developing countries like Bangladesh, low acceptance rates of TB persist, influenced by beliefs about its benefits, security, and usability (Asni et al., 2019; Ronny, 2018). Banks are tasked with understanding customer usage patterns to create strategic objectives and improve market expansion (Fatimah & Suyanto, 2016). Despite TB's advantages, poor customer acceptance rates challenge banks, necessitating the provision of premium internet services to attract and retain customers (Rahi & Abd-Ghani, 2019; Sharma et al., 2020).

Hence, this study aims to identify the variables, factors, or service attributes of technology-enabled banking in Bangladesh and analyze their relationship with customers' intention to adopt tech-driven banking (Fatimah & Suyanto, 2016).

2. Literature Review and Theoretical Underpinning

2.1. The Technology Acceptance Model (TAM)

The primary concept driving this research is the Technology Acceptance Model (TAM). The Technology Acceptance Model (TAM) is often used to ascertain individuals' attitudes and behaviour towards technology. The information was derived from a survey conducted in Bangladesh, which showed that bank customers expressed a desire to use tech-driven banking

services, explicitly emphasizing the usage of information technologies (Davis et al., 1989). The application of TAM has been widespread across several domains, including healthcare, personal computing, the Internet, and e-commerce. Abbad (2013), Martins, Oliveira, Popovic (2014), and other researchers have used the Technology Acceptance Model (TAM) to examine individuals' attitudes towards automated teller machines (ATMs), mobile banking, and tech-driven (TB) within the context of financial technology. Bhatt's Theory of Planned Behaviour demonstrated that consumers' intentions to adopt TB were influenced by their perceived behavioural control, attitude (AT), and subjective norm. Kesharwani and Tripathy (2012) modified the Technology Acceptance Model (TAM) and discovered that self-efficacy and perceived risk exerted a significant influence on the adoption of tech-driven banking services. Varaprasad, Sridharan, and Unnithan (2013) further contributed to this topic by asserting that many crucial elements influence individuals' inclination to use TB, including perceived danger, relative gain, attention, perceived utility (PU), perceived ease of use (PEU), perceived risk, and perceived profit. Additional evidence from Kalaiarasi and Srividya's study in 2013 showed that factors such as perceived ease of use (PEU), perceived usefulness (PU), perceived risk, and social consequences significantly influenced individuals' inclination to use tech-driven banking services.

2.2.1. Perceived Usefulness (PU)

Studies conducted before the COVID-19 pandemic in Bangladesh (Kabir et al., 2017; Rahman et al., 2018) have shown that perceived usefulness was one of the primary factors driving the adoption of technology-driven banking. Customers value the convenience and time-saving aspects of online banking, making it a preferred choice for routine financial transactions (Bashir & Madhavaiah, 2014; Heryani et al., 2020; Kaur & Malik, 2019; Vukovic et al., 2019). The outbreak of COVID-19 prompted significant changes in customer behaviour and preferences (Hasan et al., 2020) during the pandemic, indicating a shift in the perceived usefulness of tech banking among customers in Bangladesh. During the pandemic, customers perceived the usefulness of the Internet as a crucial and convenient means of managing their finances during lockdowns (Chowdhury et al., 2021; Kim & Lee, 2022). This study has adopted variables from the existing empirical studies to measure perceived ease of use (Table 1). Moreover, the following hypothesis has been drawn up to investigate the level of relationship between perceived usefulness and attitude.

H_1: *Perceived usefulness has a significant influence on customer attitude toward using TB in Bangladesh.*

2.2.2 Perceived Ease of Use (PEU)

Perceived Ease of Use (PEU) significantly shapes attitudes and adoption decisions in internet and mobile banking (Haque & Rahman, 2021; Suki, 2013; Venkatesh & Davis, 2000; Pikkarainen et al., 2004). The pandemic accelerated digital banking, emphasizing simplicity, convenience, and security (Rahman & Haque, 2021; Kautish & Gupta, 2021). PEU's enduring influence suggests it will continue to drive tech-driven adoption post-pandemic (Rahman &

Haque, 2021). This study has adopted variables from the existing empirical studies to measure perceived ease of use (Table 1). Moreover, the following hypothesis has been drowned to investigate the level of relationship between PEU and attitude.

H_2: *Perceived ease of use significantly influences customer attitude toward using tech-driven banking in Bangladesh.*

2.2.3 Customer Trust

Trust is essential in tech-driven, encompassing confidence in security, reliability, and confidentiality (McKnight et al., 2002). It shapes client behaviour and decisions, fostering confidence and promoting the adoption of tech-driven banking services (Liao & Cheung, 2001). Security measures like encryption and transparent communication bolster trust (Wu & Wang, 2005). During the pandemic, concerns about online transaction safety increased (Gupta & Arora, 2020). Higher perceived security and reliability drove online banking adoption (Rahman & Islam, 2021; Ahmed et al., 2022). Trust hinges on dependable service and support systems, influencing perceptions of platform credibility (Suki, 2013). This study has adopted variables from the existing empirical studies to measure subjective norms (Table 1). Moreover, the following hypotheses have been drawn up to investigate the level of relationships between customer trust and attitude.

H_3: *Customer trust has a significant influence on customer attitude toward using TB in Bangladesh.*

2.2.4 Subjective Norms (SN)

Subjective norms, driven by social pressure, impact the adoption of tech-driven banking services (Venkatesh & Davis, 2000; Taylor & Todd, 1995; Alalwan & Al-Sadi, 2014). COVID-19 heightened reliance on digital channels, potentially shifting perceptions (Gupta et al., 2020). Studies during the pandemic in Bangladesh (Rahman & Islam, 2021; Ahmed et al., 2022) highlighted the influence of subjective norms on customer attitude and tech-driven service adoption. Positive feedback from peers and family significantly shaped attitudes toward online banking. This study has adopted variables from the existing empirical studies to measure subjective norms (Table 1). Moreover, the following hypotheses have been drawn up to investigate the level of relationships among subjective norms, attitudes, and behavioural intention.

H_4: *Subjective norm has a significant influence on customer attitude toward using TB in Bangladesh.*

H_5: *Subjective norm has a significant influence on customer behavioural intention for using TB in Bangladesh.*

2.2.5 Customer Attitude

Positive attitudes toward tech-driven banking services, driven by convenience and security, strongly influence adoption intentions (Fishbein & Ajzen, 1975; Cheng & Lu, 2012). Within

the Technology Acceptance Model (TAM), attitude mediates perceived usefulness and ease of use to use (Davis, 1989). Studies confirm the significant impact of positive attitudes on the adoption of tech-driven banking services (Venkatesh & Bala, 2008; Davis, 1989; Chiou & Shen, 2012). During COVID-19, safety concerns boosted favourable attitudes toward online banking due to the demand for convenient and contactless options (Gupta et al., 2020). Recent research in the pandemic highlighted the strong correlation between convenience and positive attitudes toward the adoption of tech-driven banking services (Rahman & Islam, 2021; Ahmed et al., 2022). This study has adopted variables from the existing empirical studies to measure customer attitude (Table 1). Moreover, the following hypothesis has been drawn up to investigate the level of relationships between attitude and behavioural intention.

H_6: *Attitude significantly influences customers' behavioural intention to use TB in Bangladesh.*

Table 1: Variables Extracted and Adopted from the Existing Literature for this Study.

Perception about Internet Banking (TB)		Supported by Existing Literature
Perceived Usefulness (PU)	The use of TB improves the functions of my banking activity.	Bashir & Madhavaiah, 2014; Heryani et al., 2020; Kaur & Malik, 2019; Vukovic et al., 2019
	TB enables me to manage my banking activity more efficiently.	Bashir & Madhavaiah, 2014; Heryani et al., 2020; Kaur & Malik, 2019; Vukovic et al., 2019
	TB enables me to do my banking activity comfortably.	Bashir & Madhavaiah, 2014; Heryani et al., 2020; Kaur & Malik, 2019; Vukovic et al., 2019
	TB enables me to do my banking activity quickly.	Bashir & Madhavaiah, 2014; Heryani et al., 2020; Kaur & Malik, 2019; Vukovic et al., 2019
Perceived Ease of Use (PEU)	It is very easy to use TB	Baber, 2019; Davis et,al., 1989; Giovanis et al., 2012; Kaur & Malik, 2019; Vukovic et al., 2019
	Learning to use TB is easy.	Baber, 2019; Davis et,al., 1989; Giovanis et al., 2012; Kaur & Malik, 2019; Vukovic et al., 2019
	The instructions provided on the TB website are clear and understandable.	Baber, 2019; Davis et,al., 1989; Giovanis et al., 2012; Kaur & Malik, 2019; Vukovic et al., 2019
	I feel that it is easy to remember how to use TB.	Baber, 2019; Davis et,al., 1989; Giovanis et al., 2012; Kaur & Malik, 2019; Vukovic et al., 2019
Trust (TR)	I believe that it is always safe to transfer money using TB.	Aldás-Manzano et al., 2009; Bashir & Madhavaiah, 2014; Gefen et al., 2015; Kesharwani & Tripathy, 2012; Morgan & Hunt, 1994; Usman, 2015; Yuan et al., 2016
	I believe I can count on transferring money using TB.	Aldás-Manzano et al., 2009; Bashir & Madhavaiah, 2014; Gefen et al., 2015,
	My bank immediately notifies me if there are problems with my transaction.	Kesharwani & Tripathy, 2012; Morgan & Hunt, 1994; Usman, 2015; Yuan et al., 2016
	I believe that my transactions through TB will always be transparent.	Aldás-Manzano et al., 2009; Bashir & Madhavaiah, 2014; Gefen et al., 2015
Subjective Norm (SN)	Most of the people who are important to me would think that I should use TB.	Chan 2001; Fishbein & Ajzen, 1975; Liao et al. 2007
	People who influenced me would think that I should use TB.	Chan 2001; Fishbein & Ajzen, 1975; Liao et al. 2007
	People whose opinions I value would think I should use TB.	Chan 2001; Fishbein & Ajzen, 1975; Liao et al. 2007

Perception about Internet Banking (TB)		Supported by Existing Literature
Attitude (AT)	Using TB service is a good decision.	Chiou & Shen 2012; Davis 1989; Fishbein & Ajzen, 1975; Kaur & Malik, 2019
	Using TB service is a wise decision.	Chiou & Shen 2012; Davis 1989; Fishbein & Ajzen, 1975; Kaur & Malik, 2019
	Using TB service is a positive move.	Chiou & Shen 2012; Davis 1989; Fishbein & Ajzen, 1975; Kaur & Malik, 2019
	I like to use the TB service.	Chiou & Shen 2012; Davis 1989; Fishbein & Ajzen, 1975; Kaur & Malik, 2019
Intention to Adopt TB (IATB)	I intend to enhance the use of my TB service in the future.	Chiou & Shen 2012; Davis 1989; Fishbein & Ajzen, 1975; Kaur & Malik, 2019
	I hope my transaction through TB will be enhanced in the future.	Chiou & Shen 2012; Davis 1989; Fishbein & Ajzen, 1975; Kaur & Malik, 2019
	I will encourage my friends and family to use the TB service.	Chiou & Shen 2012; Davis 1989; Fishbein & Ajzen, 1975; Kaur & Malik, 2019
	I would highly recommend others to use TB.	Chiou & Shen 2012; Davis 1989; Fishbein & Ajzen, 1975; Kaur & Malik, 2019

2.2.6 Customer Behavioural Intention

Customer behavioural intention includes a person's preparedness and desire to utilize online banking services. Theories like the Theory of Planned Behaviour and the Technology Acceptance Model show their preference for digital banking transactions (Ajzen, 1991). Internet banking signifies a customer's plan and willingness to use online banking services for their financial transactions (Davis, 1989; Chiou & Shen, 2012; Kaur & Malik, 2019). This study has adopted variables from the existing empirical studies to measure customers' behavioural intention to adopt and use tech-driven banking services (Table 1).

2.3. Development of Conceptual Framework for the Study

After reviewing existing literature, the study proposed hypotheses to examine the links among the constructs and factors. Based on the proposed hypotheses and TAM, this study has developed the conceptual framework (Fig.1) below.

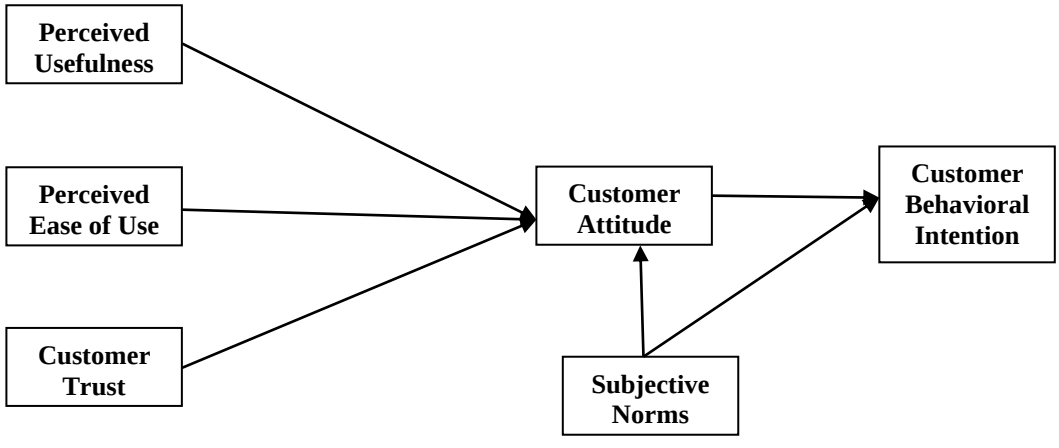

Fig. 1: Proposed Conceptual Framework of This Study

3. Methodology of Research

3.1. Research Paradigm

This study followed the positivism paradigm, directly related to the design of objectivity rather than subjectivity for a research idea (Cooper & Schindler, 2013). Positivist researchers believe a research idea can be observed and objectively measured (Hessler, 1992). The philosophy in the positivism paradigm is determined by cause-and-effect analysis (Creswell, 2014). Besides, Phillips and Burbules (2000) claimed that positivists believe in the objectivity of research knowledge, which will be free from the stem of researchers' values and beliefs.

3.2 Research Approach

The study follows a deductive approach, analyzing qualitative data using pre-existing categories and theories (Elo & Kyngäs, 2008; Hsieh & Shannon, 2005; Mayring, 2014; Armat et al., 2018). This method forms deductive arguments based on hypotheses and previous findings, aiding in identifying design patterns in fieldwork data (Gregory & Muntermann, 2011; Schadewitz & Jachna, 2007).

3. 3 Measurement of Survey Questionnaire

Predominantly structured questionnaires were utilized, occasionally unstructured. Employing a five-point Likert Scale (5 = very strongly agree, 1 = very strongly disagree) to gauge respondent agreement. Socio-demographic data was gathered using nominal and ordinal scales for identification purposes.

3.4 Presetting of the Questionnaire

Prior to the final survey, a questionnaire pretest was conducted using 15 MBA students from Pabna University of Science and Technology, Bangladesh. These students were experienced in TB banking services, ensuring clarity, reliability, and comprehensiveness of the questionnaire. Adjustments were made based on recommendations to enhance the questionnaire's wording and structure.

3.5 Sampling Design

The study gathers data nationwide in Bangladesh, focusing on divisional areas. Data collection occurred from November 19th to December 22nd, 2022, using convenience sampling for the survey respondents.

3.4 Data Collection, Analytical Tools, and Techniques

The study uses convenience sampling for data collection to focus on various locations in Bangladesh, primarily the divisional areas. Trained research assistants oversee the distribution of 200 questionnaires, with 186 used for analysis due to some having missing data. To achieve study objectives, TBM SPSS 22.00 is employed for data analysis, including descriptive statistics, Exploratory Factor Analysis (EFA), and regression analysis. Tables, charts, and figures are utilized to present comprehensive study findings.

4. Results and Discussion

4.1 Demographic Profile of the Respondents

The qualitative study analyzed 186 samples, revealing distinct demographic characteristics among respondents. Notably, over one-third fell within the 21-30 age group (39.2%), closely followed by 31-40-year-olds (31.2%). Additionally, 21.5% were younger than 20, while only 3.2% were above 50. Regarding education, a majority (57%) completed honors and master's degrees, with 34.9% at the HSC level, and the remaining respondents had education levels below SSC. Gender distribution leaned toward males, constituting 66.1% of the total sample, while the remaining 33.9% were females. Marital status indicated 48.9% of single respondents and 51.1% married. Profession-wise, the largest portion (48.9%) comprised students, followed by 22.6% employed in service sectors. Geographically, most respondents (39.2%) hailed from the Rajshahi division, followed by Rangpur (17.7%), Dhaka (10.2%), and Chittagong (9.1%) divisions, respectively (Table 2).

Table 2: Demographic Profile of the Respondents

Demographic Characteristics		Freq.	Percent (%)	Demographic Characteristics		Freq.	Percent %)
Age	LESS THAN 20 YEARS	40	21.5	ATM USES	NEVER	34	18.3
	21-30 YEARS	73	39.2		ONCE PER MONYH	72	38.7
	31-40 YEARS	58	31.2		ONCE WITHIN 2 WEEKS	23	12.4
	41-50 YEARS	9	4.8		WEEKLY	46	24.7
	MORE THAN 50 YEARS	6	3.2		MORE THAN ONCE IN A WEEK	11	5.9
	Total	186	100		Total	186	100
Profession	STUDENT	91	48.9	Division of Living	DHAKA	19	10.2
	GOVT. EMPLOYEE	18	9.7		CHITTAGONG	17	9.1
	PRIVATE EMPLOYEE	18	9.7		RAJSHAHI	73	39.2
	SERVICE	42	22.6		KHULNA	14	7.5
	HOUSEWIFE	4	2.2		BARISAL	12	6.5
	TEACHER	4	2.2		SYLHET	7	3.8
	BUSINESS	9	4.8		RANGPUR	33	17.7
	Total	186	100		MYMANSHING	11	5.9
Level of Education	Below SSC	5	2.7		Total	186	100
	SSC Level	10	5.4	Gender	Male	123	66.1
	HSC Level	65	34.9		Female	63	33.9
	Honors Level	64	34.4		Total	186	100
	Masters Level	42	22.6	Marital Status	Single	91	48.9
	Total	186	100		Married	95	51.1

Demographic Characteristics		Freq.	Percent (%)	Demographic Characteristics		Freq.	Percent %)
banking services	Checking account balance	59	31.7		Total	186	100
	Transaction history	24	12.9	Accounts in the Bank	STANDARD CHARTERED	11	5.9
	Utility payments	42	22.6		ISLAMI BANK	14	7.5
	Making bank transfers	21	11.3		DUTCH BANGLA	57	30.6
	Obtaining loans online	15	8.1		BRACK BANK	10	5.4
	Online shopping	19	10.2		CITY BANK	11	5.9
	Payment of installments due on loans held	4	2.2		NATIONAL BANK	5	2.7
	Information on banking products and services	1	.5		UCB BANK	17	9.1
	Banking financial consulting	1	.5		SONALI BANK	11	5.9
	Total	186	100		JANATA BANK	4	2.2
Kind of Operations	Cash withdrawal	77	41.4		AGRANI BANK	1	.5
	Cash deposit	30	16.1		PUBALI BANK	9	4.8
	Payment for utilities	57	30.6		NRBC BANK	3	1.6
	Bank transfer	18	9.7		RUPALI BANK	7	3.8
	Foreign exchange	4	2.2		MERCHANT	4	2.2
Monthly Income	Total	186	100		IFIC	8	4.3
	LESS THAN 20000	44	23.7		TRUST	2	1.1
	20001 TK- 30000 TK	62	33.3		ASIA	2	1.1
	30001-40000 TK	46	24.7		MAS	6	3.2
	40001-50000 TK	19	10.2		SOCIAL COMMERCIAL BANK	2	1.1
	50001-60000 TK	7	3.8		Exim	2	1.1
	60001- 70000 TK	4	2.2		Total	186	100
	70001- 80000 TK	3	1.6				
	MORE THAN 80000TK	1	.5				
	Total	186	100				

4.2 Scale Reliability Test

Cronbach's Alpha values are essential for assessing the trustworthiness of measuring tools. They function as indicators of internal consistency dependability, measuring the degree to which a group of items within a scale are strongly interconnected. Cronbach's Alpha ratings vary between 0 and 1, where higher values indicate greater internal consistency. The study found that the Cronbach's Alpha value of 0.928 during the pre-pandemic period indicates a strong level of internal consistency among the items on the scale. The Cronbach's Alpha coefficient of 0.885 for the construct of the post-pandemic era demonstrates a strong level of internal consistency among the items on the scale (Table 3).

Table 3: Scale Reliability Analysis Results at Pre-COVID and Post-COVID Time		
Items	**Pre-pandemic**	**Post-pandemic**
The use of TB improves the functions of my banking activity.	.925	.879
TB enables me to manage my banking activity more efficiently.	.925	.873
TB enables me to do my banking activity comfortably.	.925	.875
TB enables me to do my banking activity quickly.	.925	.874
It is very easy to use TB.	.925	.877
Learning to use TB is easy.	.925	.874
The instructions provided on the TB website are clear and understandable.	.925	.876
I feel that it is easy to remember how to use TB.	.923	.871
I believe that it is always safe to transfer money using TB.	.925	.885
I believe I can count on transferring money using TB.	.925	.885
My bank immediately notified me if there were problems with my transaction.	.926	.880
I believe that my transactions through TB will always be transparent.	.926	.874
Most of the people who are important to me would think that I should use TB.	.925	.875
People who influenced me would think that I should use TB.	.924	.880
People whose opinions I value would think I should use TB.	.925	.885
Using TB service is a good decision.	.924	.877
Using TB service is a wise decision.	.924	.875
Using TB service is a positive move.	.923	.877
I like to use the TB service.	.923	.872
I intend to enhance the use of my TB service in the future.	.924	.875
I hope my transactions through TB will be enhanced in the future.	.925	.879
I will encourage my friends and family to use the TB service.	.924	.879
I would highly recommend that others to use TB.	.926	.880
Composite Cronbach's Alpha coefficient	***.928***	***.885***

4.3. Average Opinions of the Customer toward Tech-driven Banking Services in Bangladesh

The perceptions of customers about tech-driven banking services in Bangladesh are shown below. Most variables have revealed positive opinions, but significant differences exist in the pre-COVID and post-COVID periods (Table 4).

Table 4: Average Perceptions of the Respondents at Pre-and Post-COVID Time		
Measurement Variables	**Mean pre-COVID**	**Mean post-COVID**
The use of TB improves the functions of my banking activity.	3.7097	4.3548
TB enables me to manage my banking activity more efficiently.	3.6989	4.2742
TB enables me to do my banking activity comfortably.	3.8441	4.3387
TB enables me to do my banking activity quickly.	3.9194	4.4462
It is very easy to use TB.	3.8548	4.3280
Learning to use TB is easy.	3.7312	4.3065
The instructions provided on the TB website are clear and understandable.	3.6774	4.0753
I feel that it is easy to remember how to use TB.	3.6720	4.2097
I believe that it is always safe to transfer money using TB.	3.6237	4.1290
I believe I can count on transferring money using TB.	3.7849	4.2419
My bank immediately notified me if there were problems with my transaction.	3.7151	4.1613
I believe that my transactions through TB will always be transparent.	3.9086	4.2796
Most of the people who are important to me would think that I should use TB.	3.7742	4.1882
People who influenced me would think that I should use TB.	3.8065	4.1398
People whose opinions I value would think I should use TB.	3.5269	3.9409
Using TB service is a good decision.	3.8548	4.4839
Using TB service is a wise decision.	3.8011	4.1989
Using TB service is a positive move.	3.8548	4.4301
I like to use the TB service.	3.8226	4.2419
I intend to enhance the use of my TB service in the future.	3.9140	4.2312
I hope my transactions through TB will be enhanced in the future.	3.8548	4.1720
I will encourage my friends and family to use the TB service.	3.6290	4.1559
I would highly recommend that others to use TB.	3.6022	4.3065

4.4 Exploratory Factor Analysis

EFA was used to condense items and establish a factor structure without predetermined specifications. The Bartlett test of Sphericity ($\chi^2 = 616.060$, $p = 0.000$) showed significant correlations between variables, indicating suitability for factor analysis. The KMO measure yielded a value of 0.892, meeting the acceptable threshold (Hair et al., 1998), confirming the dataset's suitability for exploratory factor analysis.

Table 5: Exploratory Factor Analysis						
	Component					
	1	**2**	**3**	**4**	**5**	**6**
Customer Attitude: Using TB service is a positive move.	.793					
Using TB service is a wise decision.	.727					
I like to use the TB service.	.623					
Using TB service is a good decision.	.558					
Subjective Norms: People whose opinions I value would think I should use TB.		.787				
People who influenced me would think that I should use TB.		.631				
Most of the people who are important to me would think that I should use TB.		.603				
Behavioural Intention: I intend to enhance the use of my TB service after COVID-19.			.784			
I hope my transactions through TB will be enhanced in the future after COVID-19.			.757			
I like to use TB service after COVID-19.			.608			
Perceived Usefulness: The use of TB improves the functions of my banking activity.				.712		
TB enables me to manage my banking activity more efficiently.				.681		
TB enables me to do my banking activity comfortably.				.628		
TB enables me to do my banking activity quickly.				.617		
Perceived Ease of Use: It is very easy to use TB.					.674	
I feel that it is easy to remember how to use TB.					.670	
Customer Trust: I believe I can count on transferring money using TB.						.781
I believe that it is always safe to transfer money using the TB.						.709
I believe that my transactions through TB will always be transparent.						.638
Eigenvalue	**6.946**	**2.837**	**1.647**	**1.451**	**1.276**	**1.007**
Variance (%)	31.572	12.894	7.486	6.594	5.800	4.578
Cumulative variance (%)	31.572	44.466	51.951	58.545	64.345	68.923

Six factors were chosen based on criteria such as Eigenvalues > 1, the scree-plot, and variance percentage, cumulatively explaining 68.92% of the total variance (Table 5).

4.5 The Relationship among the Factors or Constructs at the Pre-pandemic Time

4.5.1 Perceived Usefulness

Perceived usefulness positively correlates with the independent variable (Attitude), with a multiple R-value of 0.366. The t-statistics for perceived usefulness are 5.333 and 3.203, indicating significance ($p < 0.05$) for both the constant and perceived usefulness coefficient.

The regression model (Model 1) is statistically significant ($p < 0.000$), explaining 13.4% of the dependent variable's variance, a statistically significant improvement. Beta, the standardized coefficient for perceived usefulness, modestly explains variability after standard deviations.

4.5.2 Perceived Ease of Use

It shows the degree and direction of the linear association between the dependent variable (perceived ease of usefulness) and all the independent variables (attitude) in the model where the multiple R is 0.419. The R-squared is 0.176. This statistic shows that this model's independent variables explain 17.6% of the dependent variable's variation. For the constant (intercept), the p-value is 0.000, less than 0.05, demonstrating statistical significance (Table 6). Perceived ease of usefulness has a positive association with the dependent variable; therefore, as perceived ease of usefulness grows, so does the estimated value of the dependent variable.

4.5.3 Customer Trust

The multiple R is 0.385. It shows the degree and direction of the linear connection between the dependent variable (trust) and all the model's independent variables (attitude). The R-squared is 0.148. Thus, this model explains 14.8% of dependent variable variability (Table 6). The corrected R-squared is 0.143. The model is statistically significant, as shown by the F Change value of 31.983 and the low significance level (likely $p < 0.000$). Trust has a statistically significant p-value of 0.000 (certainly less than 0.001).

4.5.4 Subjective Norms

The coefficient of determination is 0.471, indicating the statistical relationship between the dependent variable (attitude) and the independent variable (subjective norms). A positive association exists between subjective norms and attitude. The p-value for the constant (intercept) is 0.000, indicating statistical significance (Table 6). Moreover, the subjective norm significantly relates to customers' behavioural intention, with a beta coefficient value of .495, which is also statistically significant ($p < 0.05$).

Table 6: The Relationships among the Factor or Constructs at Pre-pandemic Time

Hypotheses	t-value	beta	p-value	Results
Perceived Usefulness → Attitude	5.333	.366	.000	Accepted
Perceived Ease of Use → Attitude	6.268	.419	.000	Accepted
Trust → Attitude	5.655	.385	.000	Accepted
Subjective Norms → Attitude	7.237	.471	.000	Accepted
Subjective Norms → Behavioral Intentions	7.721	.495	.000	Accepted
Attitude → Behavioral Intentions	9.618	.578	.000	Accepted

4.5.5 Customer Attitude

Attitude significantly influences behavioural intentions, with a one-unit increase in attitude linked to a 13.619-unit rise in behavioural intentions (Table 6). Positive attitudes strongly correlate with a higher intention to engage in a behaviour or use a product/service. Enhancing positive attitudes can boost the likelihood of individuals engaging in that behaviour.

4.6 The Relationship among the Factors or Constructs at the Post-pandemic Time

4.6.1 Perceived Usefulness

Regression highlights a significant relationship between perceived usefulness and attitude, indicated by a coefficient of 8.519 (Table 7). For each unit increase in perceived usefulness, attitude rises by approximately 8.519 units, a highly significant relationship (p-value = 0.000). Enhancing perceived usefulness in a bank's product/service could foster a more positive consumer attitude, emphasizing the notable positive association between perceived usefulness and attitude.

4.6.2 Perceived Ease of Use

A statistically significant relationship is evident between perceived ease of use and attitude, with a 1-unit increase in perceived ease of use linked to an approximate 11.265-unit rise in attitude (Table 7). This positive association signifies that enhancing a product or service's ease of use could lead to a more favourable attitude, potentially increasing its adoption or acceptance.

4.6.3 Customer Trust

Trust also shows a statistically significant relationship with attitude. A one-unit increase in Trust is associated with an estimated increase of 8.584 units in attitude (Table 7). Trust is positively related to attitude, meaning that when people trust a brand, product, or service, they are likely to have a more positive attitude towards it. Building and maintaining trust is essential for businesses and organizations, as it can directly impact how consumers perceive their offerings.

4.6.4 Subjective Norms

There is a statistically significant relationship between subjective norms and attitude. A one-unit increase in subjective norms corresponds to an estimated increase of 12.161 units in attitude (Table 7). Subjective norms (i.e., the perceived social pressure or influence to perform or not perform a behaviour) significantly impact attitude. Understanding and managing subjective norms can help in shaping attitudes and behaviours. If people perceive that their social circle supports a particular behaviour or attitude, they are more likely to adopt it.

Subjective norms also significantly influence behavioural intentions. A one-unit increase in subjective norms is associated with an estimated increase of 10.120 units in behavioural

intentions (Table 7). Subjective norms also influence behavioural intentions, indicating that people are more likely to intend to perform a behaviour if they perceive social approval or pressure. When trying to encourage specific behaviour (e.g., purchasing a product or adopting a new technology), it's essential to consider how subjective norms can be leveraged to influence intentions positively.

4.6.5 Customer Attitude

Attitude significantly impacts behavioural intentions, with a 1-unit increase in attitude linked to a 13.619-unit rise in behavioural intentions (Table 7). Positive attitudes strongly correlate with a higher intention to engage in a behaviour or use a product/service. The statistical significance (p-value = 0.000) and positive coefficients indicate robust relationships between these variables. This insight underscores how these factors influence attitudes and intentions in the studied context, emphasizing the importance of fostering positive attitudes to drive behavioural engagement.

Table 7: The Relationships among the Factors or Constructs at Post-pandemic Time

Hypotheses	t-value	Beta	p-value	Results
Perceived Usefulness → Attitude	8.519	.532	.000	Accepted
Perceived Ease of Use → Attitude	11.265	.639	.000	Accepted
Trust → Attitude	8.584	.535	.000	Accepted
Subjective Norms → Attitude	12.161	.668	.000	Accepted
Subjective Norms → Behavioral Intentions	10.120	.598	.000	Accepted
Attitude → Behavioral Intentions	13.619	.709	.000	Accepted

5. Conclusion

The first noteworthy conclusion is the consistency of the relationships among the constructs before and during the pandemic. In both periods, Perceived Usefulness, Perceived Ease of Use, Trust, Subjective Norms, Attitude, and Behavioral Intentions all show statistically significant positive relationships. This suggests that these relationships are robust and not significantly affected by the pandemic. The strong relationship between Attitude and Behavioral Intentions in both periods is consistent with established theories, such as the Theory of Planned Behavior. It suggests that a positive change in Attitude is associated with a higher intention to perform certain behaviours, regardless of external circumstances like a pandemic. Subjective Norms continue to be influential in shaping both Attitude and Behavioral Intentions. This indicates that decision-making's social and normative aspects persist, even in the face of significant disruptions like a pandemic.

6. Practical Implications and Recommendations

The study highlights the significance of online banking in Bangladesh, offering insights for policymakers, bank operators, and academics to shape new policies and enhance banking

technology. Banks must prioritize digital strategies post-pandemic, anticipating digital transaction growth. Developing digital security and enhancing customer experience will be crucial for the success of digital banks. Improving Perceived Usefulness, Ease of Use, and Customer Trust and Leveraging Subjective Norms can shape positive attitudes and intentions toward digital banking. Communication strategies targeting improved attitudes can positively impact consumer engagement in digital banking.

7. Limitations of the Study

The study acknowledges certain limitations. Firstly, while focusing on essential attributes, the analysis could not consider other relevant factors. Secondly, the reliance on quantitative data may present an incomplete picture of the study findings. Thirdly, the study does not compare perceptions, attitudes, and behavioural intentions across socio-demographic characteristics or customer sub-groups. Lastly, with a sample size of 186, there is a need for a larger sample, ideally 383, to generalize the study findings more effectively.

8. Future Research Directions

Future research should explore the prolonged effects of external disruptions, such as the pandemic, on consumer behaviour and attitudes. Investigating cross-cultural impacts on constructs like trust and subjective norms is crucial, considering cultural influences. Studying how technological advancements impact perceived ease of use and its relation to attitude and behavioral intentions remains valuable. Combining quantitative data with qualitative insights can provide a deeper understanding of observed relationships, aiding strategy implementation. Research on effective interventions to influence these factors and consumer behaviour is essential. Additionally, larger sample sizes and Structural Equation Modeling (SEM) could enhance the generalizability of study findings.

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