



**AN EMPIRICAL ANALYSIS OF PERCEPTION OF THE BHUTANESE
BANKING CUSTOMERS TOWARDS THE ADOPTION OF DIGITAL BANKING**

Purnendu Basu¹ Indra Prasad Tirwa²

¹Lecturer of Commerce, Gedu College of Business Studies (Royal University of Bhutan),

²Senior Lecturer of Economics, Gedu College of Business Studies (Royal University of Bhutan)

Corresponding Author- Purnendu Basu

Email:p.basu.ind@gmail.com

Abstract

Digital banking is the digitization of all the traditional banking activities and programs services that were historically available to customers by visiting the bank branch. The present study aims to extract and measure the factors associated with the perception of digital banking services by using exploratory factor analysis techniques. The purposive sampling technique is used for data collection. The data is collected from 354 Bhutanese respondents holding bank account. Based on the scree-test result three factors are extracted. The extracted factors are labeled as “Perception of banking customers towards mobile banking,” “Perception of banking customers towards internet banking,” and “Perception of banking customers towards use of Debit and credit cards”. The findings reveal that customers have a positive perception towards mobile banking followed by internet banking.

Keywords: *Digital Banking, Exploratory Factor Analysis, Mobile Banking, and Online/Internet banking.*

Introduction:

Digital banking is the digitization of all the traditional banking activities and programs services that were historically available to customers by visiting the bank branch. Digital banking started replacing mainstream banking only in 1999 because of the reduction of internet charges. It was only after the internet growth and reduction in the data costs banks can serve a broader basket of financial products through digital mode. Banks started offering tailor-made digital financial products for their customers. Digital banking aims to provide banking facilities through virtual mode. Digital banking is the cluster of products and services provided to the client and businesses through ATM, Internet, mobile banking, and SMS banking. Through digital banking, it is possible to deliver tailor-made products and services exclusively tailored for individual customers. The important step on the digital banking journey is to focus on adding to the existing offering using new, technology-enabled services to increase the convenience and value for customers. Growth in digital banking has been facilitated by the development of technology. It has become essential for the banks to retain the existing clientele group and enlarge the same. This is possible through the adoption of digital banking. Digital banking combines the benefits of two different segments: One part of the segment is the customer experience and the other part is the

bank-operating model. From outside a customer experience seamless and convenient services and in inside bank develop efficient, effective operating model—both sides are enabled by digitization and supported by technologies, processes, and structures. Perception towards the adoption of digital banking services varies among customers. Some customers perceive that digital banking is an efficient and effective mode to avail banking services. Whereas, some other groups of customers perceive that availing of banking facilities through digital mode would expose them to a higher level of risk.

Against this backdrop, it is imperative to explore the main factors associated with digital banking services. The present study aims to extract and measure the factors associated with digital banking services by using exploratory factor analysis techniques. Until now, no constructive study is done in Bhutan to identify the factors concerning digital banking services and this creates a knowledge gap. The study is significant because the extraction of the important factors would help to formulate strategy by the banks and the Government agencies for the advancement of digital banking services.

Literature Review:

In the present section, an attempt has been made to review some key works of literature associated with the perception towards adoption of digital banking:

The recent innovations and development in the telecom sector have led to the advancement of digital banking. Customers are now able to access their bank account with the help of their mobile phone. The digital revolution has changed the banking business completely (Scornavacca & Barnes, 2004). Similarly, Omar and Abdullah (2011); Agustin et al (2015) conducted a study to judge the effectiveness of the digital banking services of a bank. The researcher adopted the Quantitative research method with a descriptive design. The findings revealed that customers of digital banking services have frequent access to bank accounts. Further, customers opined that digital banking services provide accurate information, are effective, and it is very convenient to them. Briefly, customers are highly satisfied with digital banking services because of their efficiency and effectiveness.

The mobility of the banking services has helped the bank to attract more customers. Mobile banking services are a compelling channel to reach customers. Besides that, mobile banking services help in better management of the financial services (Rao et al. 2003 & Vyas 2009). Mobile banking carries several benefits like easy and frequent access to the bank account, cost-effective, reliable, and convenient. The study findings of Omar and Abdullah (2011) confirmed that the benefits associated with mobile banking are much more than the traditional banking methods. In contrast, the parallel findings advocated that customers do not prefer mobile banking because of the trust and inefficiency of the online system. Likewise, Paloni and Yasodha (2012) conducted research intending to examine the customer's perception of mobile banking services. The study focused on the acceptance level of mobile banking services by the customers and steps to improve the services. Survey data was collected from the 250 respondents. The study result divulges that various demographic factors (like age, gender, etc) play a substantial role in the usage of mobile banking services. Further, the findings revealed that customer's skill up-gradation would lead to better use of the mobile banking services. Akturan and Tezcan (2012) studied the adoption of mobile banking among consumers. The researcher employed the technology acceptance model (TAM) for the study purpose. The survey was conducted among 435 respondents. The findings revealed that major determinants of mobile banking adoption are the intention to use mobile banking services. Besides that, other factors like perceived risk, perceived benefits,

and social risks are the factors that too affect the adoption of mobile banking.

Singh (2014) survey the opinions of 200 bank customers from Delhi. The study aims to examine the impact and adoption of mobile banking among bank customers. The study findings revealed that despite the growing popularity of mobile banking still customers prefer to use ATM services for doing transactions. Further, the study concluded that ATM services are much more popular among the study population. Similarly, Vanaja and Panjami (2013) acknowledged that ATM services are highly popular in the study area of Coimbatore city and people preferred to use them for withdrawing money. Singhal and Padhmanabhan (2008) found in their research that 50% of the internet banking users agreed that online banking is convenient and flexible whereas, other 50% of the respondents opined that online banking suffers from some serious limitations that include trust issues, technological glitches, and online transactions risks. A similar result was found in the study of Omar and Abdullah (2011). The researcher found that online banking was preferred by the majority of the respondents because of its reliability, convenience, speed, safety and security, cost-effectiveness, user-friendly, and error-free system. Online banking has shifted from 'nice to have' to 'need to have' service. The researchers established that online banking is highly appreciated by bank customers because of its convenience, easy accessibility, and reliability (Akilandeswari & Head, 2014). Madan (2020) acknowledged that digital financial services have immense potential and prospects for future growth.

Research Objectives (RO):

1. To explore the factors or variables associated with the adoption of digital banking services.
2. To measure and interpret the factors those are obtained from the research objective one.

Research Methodology

The research was based on an exploratory research design

Survey Instrument Description:

A 5-point Likert scale questionnaire was circulated among the target respondents. The questionnaire was having two main sections. The first sections deal with the demographic profile of the respondents and the second section covers items relating to the perception of the banking customers towards the adoption of digital banking. Altogether 354 respondents' responses were collected and analyzed. A couple of questionnaires were not completely filled so it

was discarded during the data cleaning process. Those respondents who are having a bank account are selected for the purpose of the study.

Sampling method and sample size:

The sampling method adopted for the study is purposive sampling. The sample size was calculated by applying the Cochran sample size determination formula (1977). Study area: The survey data was collected from three districts of Bhutan. The districts covered under study are Thimphu, Chukha, and Gasa. The reasons for selecting these three districts under study are that they have a different level of financial inclusion. As per the National Financial Inclusion report of Bhutan (2019), Thimphu is having the highest financial inclusion followed by Chukha. The least financially included district is Gasa.

Analysis and Findings:

Demographic Profile of the respondents:

The table below highlights the demographic characteristics of the respondents from the three different Dzongkhags. The survey was conducted at Thimphu, Chukha, and Gasa district of Bhutan. The survey result revealed that 56% of the respondents are male from Thimphu, 17% of respondents are male from Chukha and 71% of respondents are male from Gasa. The majority of the respondents are in the age bracket of 15 to 30 years. Further, the survey result indicates that the majority of the respondents have collegiate-level education. Around 75% of the Thimphu respondents are married and approximately 74% of the Chukha Respondents are married.

Table 1: Demographic Characteristics

Demographic Characteristics	Item	Thimphu (District)		Chukha(District)		Gasa(District)	
		Frequency	Percentage(%)	Frequency	Percentage(%)	Frequency	Percentage(%)
Gender	Male	130	56	20	17	5	71
	Female	102	44	95	83	2	29
	Total	232	100	115	100	7	100
Age	15-20	69	29.7	51	62.6	1	14.3
	21-30	141	60.8	31	27.8	5	71.4
	31-40	17	7.3	10	9.6	1	14.3
	41-50	5	2.2	23	0.0	0	0.0
	50 and above	0	0.0	0	0.0	0	0.0
	Total	232	100.0	115	100.0	7	100.0
Marital Status	Single	58	25.0	29	25.2	5	71.4
	Married	174	75.0	86	74.8	2	28.6
	Separated	0	0.0	0	0.0	0	0.0
	Total	232	100.0	115	100.0	7	100.0
Educational status	No formal Education	16	7.0	6	5.2	0	0.0
	Primary Education	17	7.4	7	6.1	0	0.0
	10th	40	17.5	32	0.0	0	0.0
	12 th	15	6.6	14	7.0	1	14.3
	Collegiate Education	122	53.3	53	80.0	5	71.4
PG	19	8.3	2	1.7	1	14.3	
Above PG	0	0.0	0	0.0	0	0.0	
Total	229	100.0	115	100.0	7	100.0	

Perception of banking customers towards adoption of Digital Banking

Factor analysis is a technique through which a large amount of data is reduced to smaller subsets with the objective to further analysis. The factor analysis simplifies the bulky data into

a smaller subset of inter-correlated variables. In this study exploratory factor analysis (EFA) technique was employed with the objective to achieve the following goals:

1. To condense the bulky data into a smaller sub-set.

2. To understand the relationship between the variables
3. To identify and measure the main factor associated with the perception of digital banking services.

An exploratory factor analysis was conducted using Principal Component analysis. Initially, there were 20 items in the questionnaire. Before analyzing the data the adequacy of the correlation matrix was assessed and findings revealed that the determinant was .003 suggesting that the problem of multicollinearity was not present. The Bartlett test of Sphericity

was found to be significant (2010.759, Df = 120, $P < 0.01$), and the KMO value was found to be .858 indicating that the correlation matrix is adequate for factor analysis. The variables with a factor loading of 0.45 are chosen for the study. Tabachnick and Fidell (2001) stated that a variable with a factor loading of 0.45 is considered average. The scree- test suggested retaining three components and thus three components were extracted. The extracted component was subsequently rotated using the varimax method.

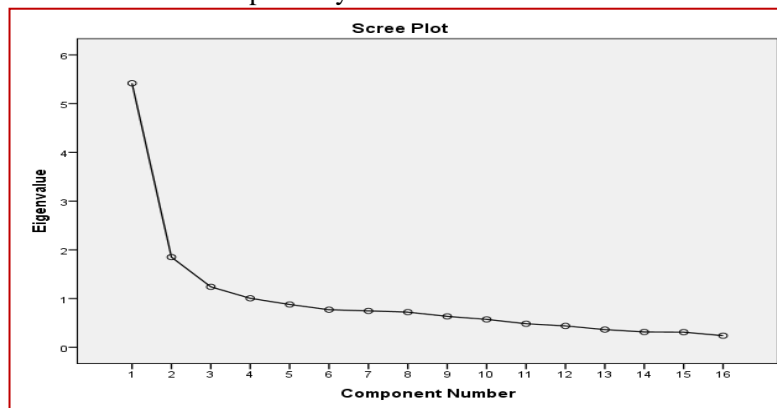


Figure 1

The table below highlights the total variance explained by the three factors relating to the perception of digital banking. Three fixed factors were extracted because it is supporting the domain knowledge. When three factors were

extracted, then 53.202 percent of the variance are explained. The four items are dropped out from the analysis because of the issue of cross-loading.

Table 2: Total Variance Explained (Extract)

Total Variance Explained									
Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.419	33.871	33.871	5.419	33.871	33.871	3.665	22.907	22.907
2	1.851	11.572	45.443	1.851	11.572	45.443	3.055	19.096	42.003
3	1.241	7.759	53.202	1.241	7.759	53.202	1.792	11.199	53.202

The rotated component matrix using varimax rotation is presented below in Table:3

Table 3: Rotated Component Matrix

	Component		
	1	2	3
Phone banking helps to check account balance easily	.812		
Phone banking saves time	.806		
I am using phone banking for money transfer	.786		
I am using phone banking services for shopping	.705		

It is easy to avail all banking services through phone banking	.604		
ATM services helps in easy withdrawal of money	.549		
Phone banking is cost effective compared to branch banking.	.524		
Internet banking has all features of branch banking		.754	
Remembering password in internet banking is easy		.753	
Internet banking has largely replaced physical cash transactions .		.710	
Internet banking is cost effective		.688	
Personal data is secure in internet banking		.654	
ATM services helps to transfer money to other bank accounts			.614
I am aware of the features of Debit and Credit card			.571
The ATM services are fully secured			.555
Phone banking has a security issue			.547
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.			
a. Rotation converged in 6 iterations.			

Examination of the table 3 reveals that the first component is having significant loading on Perception towards phone banking whereas the second component is having significant loading on the perception towards internet banking and the third component loads well with perception towards plastics money. For simplicity purpose and adding more meaning to the identified factors, the factors are relabeled as "Perception

of banking customers towards phone banking," "Perception of banking customers towards internet banking," and "Perception of banking customers towards use of Debit and credit cards" respectively. The reliability coefficient for each subscale was calculated to determine the internal consistency of the questionnaire. The table below highlights Cronbach's alpha value for each of the extracted factors:

Table 4: Cronbach's Alpha Value

	Perception of banking customers towards phone banking	Perception of banking customers towards internet banking	Perception of banking customers towards use of Debit and credit cards	Composite Cronbach's Alpha
Cronbach's Alpha value	0.844	0.821	.458	.854
Number of items	7	5	4	16

The Cronbach's Alpha value for all the 16 items is 0.854 that is considered a good score. The high value indicates 'excellent' internal consistency among the items of the factor.

Table 5: Measurement of the extracted factors

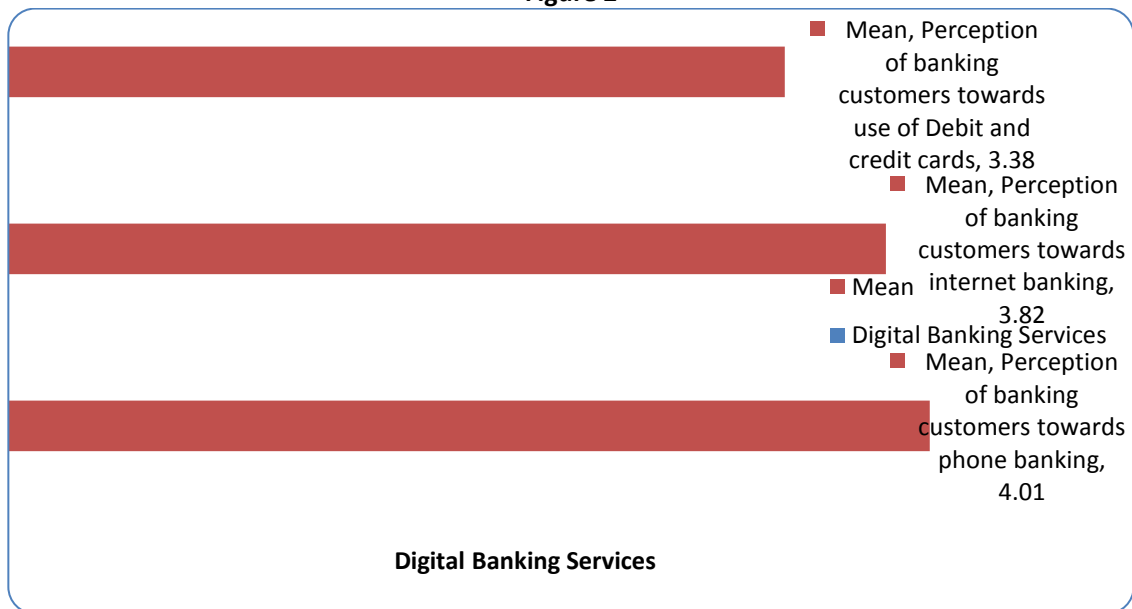
	No of items	Minimum	Maximum	Mean	Rank
Perception of banking customers towards phone banking	354	1	5	4.01	I
Perception of banking customers towards internet banking	354	1	5	3.82	II

Perception of banking customers towards use of Debit and credit cards	354	1	5	3.38	III
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The table 5 demonstrates that respondents are highly inclined towards the adoption of phone banking. The mean score of 4.01 indicates that respondents perceive that phone banking is one of the convenient and popular modes to adopt digital banking services. Next to mobile banking, the second popular medium is internet banking. The mean score of adopting internet banking is 3.82 that is close to 4. This indicates that the :

majority of the respondents perceive internet banking as one of the popular mediums to adopt digital banking services. The third rank goes to the factor dealing with the adoption of debit and credit cards. In Bhutan, the usage of debit and credit cards is not very rampant. So, this factor secured third-ranked in the table. The graphical representations of the key finding are presented in Figure 2

Figure 2



Conclusion:

The research identified three main factors that have direct implications on the perception of digital banking. The three key factors that are identified using exploratory factor analysis are the perception of the banking customers towards phone banking, perception of the bank customers towards internet banking, and perception of the bank customers towards the use of debit and credit cards. The second key finding of the research is the Bhutanese customers have a strong inclination towards the use of mobile banking. A high score of 4.01 signifies a strong inclination towards phone banking. Next to mobile banking, the factor that influences the usage of digital banking is the adoption of internet banking. The third factor that influences the adoption of digital banking services is the use of plastic money. Here, plastic money connotes the use of debit and credit cards. The study was conducted with a limited sample and fixed factors are extracted by using EFA for the analysis. Further research can be done on the

same topic by using Eigenvalues as a tool for the extraction of the variables.

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