RESEARCH

Analyzing customer relationship management through cash recycling machine of Islami Bank Bangladesh PLC using TAM

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A prosperous organization is characterized by its adoption to new technologies and novelty in services and products because business rivalry requires inventiveness. Customer Relationship Management (CRM) is a method/process that improves communication allying the organization as well as clients/purchasers. CRM information is used to develop ideal products as well as attaining functional customer information in order that customer requirement and demands can be met easily. Besides To support the success of Islami Bank Bangladesh PLC, this research will inspect a CRM system using cash recycling machine (crm) to be applied to IBB PLC through merging it into the Technology Acceptance Model (TAM). TAM is a type of replica that is capable of spelled out as well as realized for the purpose of influencing customers in the use of technology as an information system by using informational system variables. In this research the author showed that crm act as a strong tool of maintaining operational CRM of Islami Bank Bangladesh PLC.

Keywords: customer relationship management (CRM), technology acceptance model (TAM), cash recycling machine (crm), IBB PLC, customer, bank

Introduction

Today numerous companies and trading institutes apply information technology as well as technical revolution considering a new system in order to enhance their businesses. In this technological development era modern technology used to ameliorate marketing strategy of each business. It is very common to obtain maximum customer satisfaction for any organization. Now customer satisfaction is a prime concern for every steps operated by a commercial organizations. Customer Relationship Management (CRM) is a set of strategies and methods used in sales and marketing department of each business. By the methods of CRM it enables to observe customer satisfaction levels. To explain further CRM used by a business can act as a bond between service provider and consumer.

Islami Bank Bangladesh PLC (IBB PLC) is a big and renowned bank that utilized modern information technology. This bank company (Islami Bank Bangladesh PLC) emphasized on automotive industry and the sale of banking service/products. IBB PLC has accepted approval according to the protocol from the Bangladeshi government as the public limited company in the sale of banking products/service in Bangladesh since 1983.

In order to intensify customer benefits and customer gratification the Islami Bank Bangladesh PLC is providing highest number of banking service very smoothly. This bank is very large in terms of selling of banking products and services. With the advent of vicious competition in the banking industry Islami Bank Bangladesh PLC needs to enhance products and the standard of services made available to the clients. For the purpose of achieving the maximum customer satisfaction this bank try to meet up the demand of customers in a shortest possible time by the use of cash recycling machine (crm). The research showed that the use of crm satisfied the customers by saving time and prompt service. The crm meet up the needs of the customers by providing service according to their demands.

This article discusses about the acceptance of crm by the customers of IBB PLC using the Technology Acceptance

Model (TAM) approach. In this research the author also focuses on CRM system to produce current dimensions of CRM like trust, loyalty, safety and empowerment. These dimensions help to obtain information about the want and demands of customers; which assists to build and design products based on the demands and wants in order to uplift customer loyalty and helps the bank to be more trusted and acceptable by all.

The objective of this research is to estimate the performance of crm as part of CRM functions of IBB PLC. Additionally this article assesses different factors for instances of subjective norms (SNs) and output quality (OQ) of crm to identify the factors that influence customers satisfaction. The article also focuses on any future demands of the customers.

The main motivation of the research is to identify a new strategy of maintaining CRM of a bank through crms.

This bank faced problems regarding crm products. The problem is lack of customer demand towards crm. Consequently a TAM: for crm is executed so that it can recognize the wants and demands of the customers.

The main contribution of the research is to established crm as a strong method/strategy of CRM of bank business in Bangladesh.

In this article the author organize different section like literature review, data collection, data analysis, test of hypothesis, validity test, goodness of fit test, and further discussion subsequently in order to establish the objectives of the research.

The research was conducted from year 2021 to year 2024, When Islami Bank Bangladesh PLC started to operate crm in their ATM booths.

Broad objective of the research

The fundamental objective of the research is to discuss how crms can upgrade bank competence and performance by satisfying its consumers. This paper also discuss the function of crms and its features and how it works to perform banking services more smoothly. The research also focuses on how crm can help Islami Bank Bangladesh PLC to execute CRM in a better way.

Specific objective of the research

1. To evaluate the role of crm in CRM in Bangladesh.

2. To inspect the associated risk factors that reduce the use of crms in Bangladesh,

3. To identify the factors which affect the attitude of customers towards crm in Bangladesh.

Literature review

CRM is an approach that avails technology, practices, and strategies to investigate and regulate customer information and interactions. The objective of CRM is to upgrade customer service, expand trading, as well as assists to retain customers.

Here are some prime features of CRM:

- **Lead management:** CRM systems assist businesses route, prospective clients as well as their pursuit.

- **Data sharing:** Modern CRM systems aid companies to simply service tasks for the customers.

- **Customer interactions:** CRM systems assist companies personalize and assemble every customer correspondence purposeful.

- **Sales management:** CRM systems keep up sales management as well as convey functional understanding.

- **Social media integration:** CRM systems merge/unite with social media.

- **Team communication:** CRM systems speed up team communication.

There are some key steps in the CRM process of an organization, such as initiating brand awareness, obtaining and be allowing leads, turning leads into customers, delivering customer service and retaining customers, and up selling and cross-selling.

Organizational background

In Bangladesh the number one and top banking company is IBB PLC. This bank has started its journey on 30 March 1983. This bank has highest number of own ATM Booths with a country-wide shared ATM network. IBB PLC is operating the widest private banking network in Bangladesh.

IBB PLC offers the following services through the following operations:

- General Banking Services

- Investment Services

- Foreign Exchange Business Services

- Foreign Remittance Services

- ATM Services

- Online Banking Services

- Internet Banking Services.

- SMS Services

- SWIFT Services

This bank has an online customer care service or call center in order to provide banking information to its clients 24/7. Through this call center IBB PLC operated CRM with its customers. This call center technology solution that provides employees with access to account information and history instantly. The call center technology allows IBB PLC to help customers with up-to-date and relevant information during support.

The crm is one of the greatest technological innovations used by Bank. The crm is now used instead of ATM machine. crm is going to replace the work of ATMs. The crm is a self-service terminal that allows a customer to make both cash deposit and withdrawals.

A teller cash recycler (TCR) is a machine that authenticates incoming bank notes and securely stores the cash in an internal vault, and then provides the capability to process automated cash transactions for the tellers from the cash inventory, including deposits and withdrawals.

A cash recycling ATM is capable of dispensing customer-deposited bills, which means the ATM's funds need to be replenished less often, saving time for bank employees and maximizing profitability for bank branches.

CRM

CRM is a set of strategies followed by each company for maintaining better relations with their customers. In order to operate *CRM, a company used various techniques for instance* phone conversation, e message, online mail, in addition to sales promotions. Stated differently CRM is the application of information technology used by the marketing department of an organization (1).

CRM is a fundamental strategy for keeping up durable development and financial gains for a business organization via expansion of client's contentment or gratification. Apart from that *CRM is a system that permits* a business organization to provide effective services to its clients.

Figure 1 displays the processes of a typical CRM system of an organization.

According to the figure, it is emphasized that every company has a specific tactical target, in order to attain this target each company follow a trade function which is a aggregation of operations to attain the goals of the company.

According to Kenneth that a business process has numerous features such as:

1. It has understandable objective.

2. It has a fixed input/feedback and return.

3. Business process utilize updated resources

4. It has an activity with a clear cut format/sequence.

5. Business process helps to influence more than one unit within an organization.

FIGURE 1 | CRM system business process [10].

6. It has the ability to generate new ideas and services towards clients, whether in house or external customers.

Based on the implementation *CRM* is perhaps split into three components:

1. Operational CRM

Operational *CRM is an implementation which is linked to satisfactory actions of a business.* Operational CRM worked in services, marketing and sales departments of a company. It is relating with clients point of contact, purchasers' mode/route as well as reception area-executive office.

2. Analytical CRM

A business organization process intelligence information regarding client opinions by the use of Analytical *CRM. It can help to* analysis and generate the information regarding trading as well as purchasers.

3. Collaborative CRM

Collaborative *CRM utilizes online mail,* social media network (2), conference conversations as well as additional tools in order to interpret information to generate decisions regarding services on the other hand consumer satisfaction.

TAM

TAM was initiated by Davis. The TAM model is an extension of TRA model of Fishbein and Ajzen. The psychological behavior of customers is analyzed by the TAM model. Customers exposure regarding implemented technology is the basis of TAM model.

TABLE 1 | Ease of use of crm system.

Statement scale (5-1)	Strongly agree	Agreed	No response	Disagree	Strongly disagree	Mean	Standard deviation
The cash recycling system make easy to deposit and withdraw money.	94	105	34	87	55	3.26	8.83
I found it easy to use crm	97	109	41	68	60	3.31	8.76
It was easy to 24/7 in a day to perform cash transaction.	120	115	37	69	34	3.58	9.28
The facilities of crm is sufficient.	121	118	32	55	49	3.55	9.30
Banking through crm is simple and convenient to use.	117	125	33	46	54	3.55	9.36

Source: Prepared, collected and calculated by author. (Strongly agree = 5, Agree = 4, No response = 3, Disagree = 2, Strongly disagree = 1) N = 375.

TABLE 2 | PU of cash recycling machine.

Statement scale (5–1)	Strongly agree	Agreed	No response	Disagree	Strongly disagree	Mean	Standard deviation
I found it useful to access the crm outside the bank to perform daily transaction.	119	124	39	43	50	3.58	9.35
The service provided by the crm helped me perform cash and other transaction in holiday and night.	123	121	44	48	39	3.64	9.36
crm provided access to a variety of useful information and banking service at a time.	125	131	41	43	35	3.71	9.70
The crm of IBB PLC are useful in save time of daily transaction.	127	124	46	48	30	3.72	9.54
The crm is useful to perform multiple service at a time in a second.	106	108	51	54	56	3.41	8.80

Source: Prepared, collected and calculated by author. N = 375.

TABLE 3 | ITU cash recycling machine.

Mindset towards crm	Strongly agree	Agreed	No response	Disagree	Strongly disagree	Mean	Standard deviation
I intend to use crm in my daily transaction.	124	117	36	46	52	3.57	9.32
I intend to engage with crm as frequently as possible.	109	102	35	54	75	3.31	8.89
I intend to use crm again in future for daily transaction.	125	131	28	56	35	3.68	9.69
I would like the crm to be part of the daily transaction I do.	107	117	38	49	64	3.41	9.03
I would encourage my friends and family to use crm to perform daily transaction.	118	125	33	51	48	3.57	9.37

Source: Prepared, collected and calculated by author. N = 375.

TABLE 4 | Attitude towards using crm.

Attitude towards crm	Strongly agree	Agreed	No response	Disagree	Strongly disagree	Mean	Standard deviation
It is a good idea to use crm.	128	124	26	48	49	3.62	9.59
crm is very interesting to use.	113	106	44	53	59	3.43	8.90
I enjoyed interacting with the crm	118	109	46	57	45	3.53	9.03
I trust it will be a wise decision to use crm for daily transaction.	126	129	32	46	42	3.67	9.62
I have a constructive point of view regarding crm	124	119	38	51	43	3.61	9.35

Source: Prepared, collected and calculated by author. N = 375.

TABLE 5 | SN of crm.

Statement scale (5–1)	Strongly agree	Agreed	No response	Disagree	Strongly disagree	Mean	Standard deviation
If I use crm, it would give me a higher respect among colleagues.	106	110	52	61	46	3.45	8.85
If I use crm, I would be more prudent among my peers than those who have not used it.	117	112	44	59	43	3.54	7.16
If I use crm, I would be considered smarter among my peers than those who have not used it.	124	118	47	56	30	3.67	9.36
The SN of bank increase the transaction through crm	116	119	45	52	43	3.57	9.18
I would be trendy if I use crm	119	126	43	54	33	3.65	9.41

Source: Prepared, collected and calculated by author. N = 375.

TABLE 6 | OQ of crm.

Statement scale (5–1)	Strongly agree	Agreed	No response	Disagree	Strongly disagree	Mean	Standard deviation
crm saves time of customers.	134	130	22	41	48	3.70	9.88
Since the deposited notes are recycled and processed for withdrawals, crm also reduce cash replenishment trips.	132	122	31	48	42	3.68	9.61
Cash handling process previously would involve the exchange of many hands, thus increasing the chance of shrinkage.	127	124	41	53	30	3.71	9.55
crm increases overall efficiency.	132	135	26	38	44	3.73	9.93
crm provides bank statement, mobile recharge service, cash by code service, fund transfer service and many others within a short time.	136	133	28	36	42	3.76	9.97

Source: Prepared, collected and calculated by author. N = 375.

TABLE 7 | PB of crm.

Statement scale (5–1)	Strongly agree	Agreed	No response	Disagree	Strongly disagree	Mean	Standard deviation
A crm can assist banks digitize their services and improve the overall customer satisfaction, service, and enhance customer engagement.	135	132	23	39	46	3.72	9.95
crm provides trustworthy reporting of transactions to the customers.	139	135	26	46	29	3.82	10.12
The dashboards of crm that generally display data	137	139	28	41	30	3.83	10.15
crm improves messaging with automation.	134	137	25	43	36	3.77	10.03
The dynamic service efficiency of crm enhanced the automation system of a bank.	128	131	32	46	38	3.71	9.72

Source: Prepared, collected and calculated by author. N = 375.

Mainly two variables are the core content of TAM model such as perceived usefulness (PU) and perceived ease of use (PEU) (3). TAM model has two innermost components called Behavioral Intention (BI) and Actual system Use (AU). The other two components of TAM model is customer's attitude and intention towards new technology.

CRM of a bank

In banking CRM play a very important role like other retail or businesses. Banks used CRM in order to manage customers (2). It also helps in better understanding customer needs in order to provide the correct solutions, instantly.

In modern bank e-CRM is deal with fascinating and retaining economically valuable customers as well as removing less profitable ones. Now customer satisfaction is one of the leading goals in the banking industry.

CRM software is a tailored solution that helps banks implement customer-centric strategies. Under/through one system. The general employees of a bank and bank tellers store customer data such as contact information, products used, and interactions at any possible time. The bank management schedule appointments, send personalized

TABLE 8 | Technology adoption of crm.

Statement scale (5–1)	Strongly agree	Agreed	No response	Disagree	Strongly disagree	Mean	Standard deviation
The relative advantage of crm is measured not only by profits but also factors such as ease of use, storage, speed, availability etc.	124	115	26	42	68	3.49	9.40
The compatibility of crm signifies the conformity of the innovation to societal values. The smoother the innovation fits into BD culture, which enhance faster the adoption.	114	118	29	51	63	3.45	9.21
The complexity of crm is low, it is easy to understand and use by the customers.	129	134	32	48	32	3.75	9.83
The triability of crm is very easy and easily accessible in BD.	118	121	37	41	58	3.53	9.29
The observability of crm is very clear and easily visible to the customers.	132	127	34	45	37	3.73	9.71

Source: Prepared, collected and calculated by author. N = 375.

TABLE 9 | Relationship between SN & PU.

Model	R	R Square	Adjusted R square	Std. error of the estimate
1	0.993145237	0.986337462	0.986152332	77.67

[a] Predictors: (constant), SN [b] Dependent variable: PU

TABLE 10 | Relationship between SN & PEU.

Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.969592297	0.940109222	0.939297693	77.67

[a] Predictors: (constant), SN [b] Dependent variable: PEU

TABLE 11 | Relationship between OQ & PEU.

Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.976025199	0.95262519	0.951983254	77.67

[a] Predictors: (constant), OQ [b] Dependent variable: PEU

TABLE 12 | Relationship between PB & PU.

Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.9958653	0.991747696	0.991635876	77.67

[a] Predictors: (constant), PB [b] Dependent variable: PU

TABLE 13 | Relationship between PB & PEU.

Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.980068837	0.960534926	0.960000168	77.67

[a] Predictors: (constant), PB [b] Dependent variable: PEU

emails, and respond to social media posts for better advancement of the bank business.

Now every organization install CRM technology that allows businesses both large and small to organize, automate, and synchronize every facet of customer interaction. Banks can use crm system in marketing, sales, customer service, and support departments (2).

Cash recycling machine (crm) of a bank

The cash recycler (CR) machine of a bank is a complex machine. This machine perform a couple of simple but important tasks. Mainly it can accept and dispense paper money. The cash recycling device also reserves money soundly and steadfastly, retains a correct accounting of cash on hand, and automates the cash cycle of a particular bank.

The most frequently used crm's services are:

1. Cash withdrawal
2. Cash deposit
3. Balance check
4. Fund transfer
5. Pay utility bills.

The CR of a bank is used as a safe depository. The crm has a system that automatically counts and sorts cash deposited to and then re-dispense or "recycle" that same cash for the customer use of a particular bank (1).

The cash recycler machine of a bank act as a self-service terminal that lets customer to make deposit and withdrawal transactions of cash by self. All successful transactions

TABLE 14 | Relationship between PEU & PU.

Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.961414127	0.924317123	0.923291609	77.67

[a] Predictors: (constant), PEU [b] Dependent variable: PU

TABLE 15 | Relationship between PU & ITU.

Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.97848666	0.957436143	0.956859397	77.67

[a] Predictors: (constant), PU [b] Dependent variable: ITU

TABLE 16 | Relationship between PEU & ITU.

Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.981619175	0.963576206	0.963082658	77.67

[a] Predictors: (constant), PEU [b] Dependent variable: ITU

TABLE 17 | Relationship between ITU & crm.

Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.998798443	0.99759833	0.997565787	77.67

[a] Predictors: (constant), ITU [b] Dependent variable: crm technology adoption

TABLE 18a | Relationship between PEU & cash recycling machine.

Model	Unstandardized coefficient		Standardized coefficient	t	Significance
	B	std. error	Beta	2.97	
Constant	8.17	9.48		3.12	0.000
PEU	9.45	8.19	0.979772916	3.2962	0.000

TABLE 18b | Relationship between PEU & Attitude.

Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.979772916	0.959954966	0.95941235	77.67

[a] Predictors: (constant), PEU [b] Dependent variable: attitude

TABLE 19a | Relationship between PU & Attitude.

Model	Unstandardized coefficient		Standardized coefficient	t	Significance
	B	std. error	Beta		
Constant	8.17	9.48		2.97	0.000
PU	8.01	9.67	0.991769328	2.87	0.000

TABLE 19b | Relationship between PU & Attitude.

Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.991769328	0.983605401	0.983384265	77.66

[a] Predictors: (constant), PU [b] Dependent variable: attitudes

Research methodology

The data collection is performed in this research through a questionnaire. The questionnaire used in this research contains various types of questions. The questionnaire then is distributed to 375 respondents. Here the author used 5-Liker scale questionnaires in order to collect opinion of the respondents. The researchers then collected participant's narrative reply. Respondent's answers evaluated by Likert scale.

There are 375 respondents (both customers & bankers) of Islami Bank Bangladesh PLC used as a population in this research.

The author used Simple Random Sampling technique to select samples.

Here the author used TAM model for analyzing customers perception regarding crm of IBB PLC constructed on these variables:

1. SN:

SN refers to perceived social/organizational pressure which can it can carry out or not execute towards conduct.

performed by the customers including cash debit, cash credit, fund transfer, paying utility bills are instantly credited or debited in real time and customers will be issued an acknowledgment slip confirming the transaction, this slip used as a document of transaction.

A bank installs a CR machine in order to eradicate the risk of human errors. crm has a automation technology that counted notes and coins automatically and accurately [1]. Bank's staff are more accountable, and banks gain better visibility and control of its business operations.

A cash recycling ATM is capable of dispensing customer-deposited bills, which means the ATM's funds need to be replenished less often, saving time for bank employees and maximizing profitability for our branch.

The crm of a bank has a self-service terminal that permits a customer to make both cash deposit and withdrawals at a time. In a CR machine of a bank the banknotes are placed into a feeder first when a person is depositing cash.

TABLE 20a | Relationship between Attitude & Intention.

Model	Unstandardized coefficient		Standardized coefficient	t	Significance
	B	**std. error**	**Beta**		
Constant	8.16	9.48		2.97	0.000
ITU	8.47	9.14	0.993731084	3.12	0.000

TABLE 20b | Relationship between Attitude & Intention.

Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.993731084	0.987501468	0.987332111	77.67

[a] Predictors: (constant), ITU [b] Dependent variable: attitude

IBB PLC declared a client can't withdraw less than fifty thousand BDT in cash counter. Customers are encouraged to use the crm and ATM booth to withdraw money. Again IBB PLC announced small amount of deposit such as various monthly pension scheme are not accepted in cash counter, these small amounts of money must deposited in crm.

Peoples BI are mostly influenced by the SNs of a society or an organization. It is a prime determinant of customers intention towards a new technology and refer to the way perceptions of relevant groups or individuals such as family members, friends, and peers may affect one's performance of the behavior (4). There are remarkable variation in SNs influenced by friends, as against family.

2. OQ:

OQ of a product or service is the required growth to achieve more advanced standard/caliber (4). In order to calculate the statistical output along the correct standard/grade considering every commodity/service supplied/distributed as well as the utility of this commodity/service.

3. Perceived Benefit (PB):

PB refers to how much the technology deliver satisfaction/benefits to its users. The users feelings of benefited or not decide acceptance or rejection of a new technology (4). User's productivity is influenced by the user's feelings of benefited or not. If the purchasers perceives satisfied they will keep going to utilize the technology.

4. PU:

PU refers to the insights regarding application of a technology. PU is formed on how an individual can realize that the functionality of a new innovation/mechanism can be upgraded owing to an effort administration (4).

5. PEU:

PEU refers to a scale that a user realizes that a specific technology can be relieved of the attempt/endeavor.

6. Intention to Use (ITU):

The users tendency to use a new technology is called ITU.

7. Technology Adoption:

Technology Adoption is defined as a sociological model that describes the adoption or acceptance of a new product or innovation (5). The adopter group is influenced by the demographic and psychological characteristics of the participants.

Based on the TAM models the following hypotheses are generated:

H1: There is no significant influence of SN on PU.

H2: There is no significant influence of SN on PEU.

H3: There is no significant influence of OQ on PEU.

H4: There is no significant influence of PB on PU.

H5: There is no significant influence of PB on PEU.

H6: There is no significant influence of PEU on PU.

H7: There is no significant influence of PU on the ITU.

H8: There is no significant influence of PEU on the ITU.

H9: There is no significant influence of ITU on CRM Technology Adoption.

H10: There is no remarkable association exists between PEU and attitude of customers with respect to using crm.

H11: There is no remarkable association exists between PU and attitude of Customers with respect to using crm.

H12: There is no remarkable association exists between customer's attitudes with respect to using the crm and their ITU it.

H13: There is no remarkable association exists between Age and customer's ITU crm transaction.

H14: There is no remarkable association exists between the level of education and customer's ITU crm.

H15: There is no remarkable association between gender and their attitude towards the benefit of crm.

H16: There is no remarkable association between profession and customer attitude towards the crm.

H17: There is no significant relationship exists between gender and technology adoption of crm.

TABLE 21a | One-way ANOVA test between the age of the respondents and their ITU crm.

Model	Sum of squares	Df	Mean square	F-statistic	Sig
Between groups sum of squares	40.456	4	10.114	0.086250011	0.814
Within groups sum of squares	43387.5886	370	117.263753		
Total	43428.0446	374	127.377753		

TABLE 21b | Age group of respondents.

Age group	N	Mean	Std. deviation
Below 20	27	4.40	22.43
20–30	115	2.38	28.36
30–40	126	3.38	39.79
40–50	88	4.08	43.62
Above 50	19	8.69	40.89
Total	375	22.93	175.09

Source: Prepared, collected and calculated by author.

TABLE 22a | One-way ANOVA test between the Level of education and customer's ITU crm.

Model	Sum of squares	Df	Mean square	F-statistic	Sig
Between groups sum of squares	1.33748	4	0.33437	0.000431962	0.251
Within groups sum of squares	28640.661	370	77.40719189		
Total	28641.99848	374	77.88446348		

TABLE 22b | Education level of respondents.

Level of education	N	Mean	Std. deviation
No education	22	5.47	1.96
Below secondary	104	5.38	12.47
Below higher secondary	98	5.48	11.49
Graduate	110	5.43	14.35
Masters	41	6.73	2.97
Total	375	28.49	43.24

Source: Prepared, collected and calculated by author.

SEM data analysis

In accordance with the research model narrated formerly, the tool for data analysis implementing simple linear regression. Here the author used one way ANOVA application. At the beginning stage of research here the author generates a path diagram serving as research framework (5). Here the author used ANOVA model for design presentation on the flowcharts. Here the ANOVA method gives accurate result.

The research Flowchart (**Figure 3**) is displayed below.

Data analysis

The population used in this study are people with a sample 375 respondents (including banker & customer), of which 233 are male respondents and 142 are female respondents scattered across all over Bangladesh. Samples were selected by intentional random sampling using a 1–5 Likert scale questionnaire. Research data analysis is performed by using Simple Linear Regression Analysis, One way ANOVA Test, F-Statistic, Chi-Square test, Goodness of Fit test and Validity Test.

TABLE 23 | Gender vs Attitude.

Gender	Customer attitude towards the benefit of crm		Total
	Positive	Negative	
Male	169	64	233
Female	81	61	142
Total	250	125	375

Source: Prepared, collected and calculated by author.

TABLE 24 | Profession vs Mindset.

Profession	Mindset towards the crm:			Total
	Positive	Neutral	Negative	
Banker	55	13	20	88
Customer	95	27	47	169
Non banker	76	22	20	118
Total	226	62	87	375

The range of interpreting the Likert scale mean score is as follows: 1.0–2.4 (negative attitude), 2.5–3.4 (neutral attitude), and 3.5–5.0 (positive attitude).

Here the author got mean for the last three statements is 3.5 which indicate positive attitude on PEU of crm.

A low standard deviation means there was a lot of agreement about the answers. High SD means there was a wide range of answers, indicating disagreement. Here the author gets high standard deviation indicate high disagreement among the answers.

Test of hypotheses

The author used simple regression analysis and one way ANOVA test.

H1: There is no significant influence of SN on PU.

Here the author used regression test.

The relationship between two variables is generally considered strong when their r value is larger than 0.7. Here the result of **Table 9** represent that SN has a great influence on PU.

The R^2 value proved that SN and PU are closely correlated.

H2: There is no significant influence of SN on PEU.

The relationship between two variables is generally considered strong when their r value is larger than 0.7. So the outcome of **Table 10** showed that, the r value (77.67) represent that SN has a great influence on Perceived Ease of Use.

TABLE 25 | Gender vs Technology adoption.

Gender	Technology adoption of crm		Total
	Comfortable and easy to use crm	The complexity of crm is high	
Male	164	69	233
Female	92	50	142
Total	256	119	375

TABLE 26 | Significance of cash recycling machine on customer relationship management.

Perceptions	Answers
crm is not necessary for operating CRM of a bank.	69
crm is useful but not essential for CRM of a bank.	110
crm is essential for CRM of a bank.	196
Total	375

Source: Prepared, collected and calculated by author.

TABLE 27 | Time vs Frequency.

Saved time by crm		Frequent use of crm	
No time saved	41	Monthly users	33
Low time saved	102	Quarterly users	66
Average time saved	86	Weekly users	113
Maximum time saved	115	Daily users	122
Highest time saved	31	Continuous users	41
Total	375	Total	375

Prepared, collected and calculated by author.

TABLE 28 | Power of reasoning vs Mindset.

Customer powers of reasoning		Mindset of customer towards crm	
Visual Spatial	13	Positive mindset	101
Verbal Linguistic	74	Lazy mindset	65
Logical Mathematical	119	Mindful mindset	77
Interpersonal	102	Challenge mindset	74
Naturalistic	67	Growth mindset	58
Total	375	Total	375

Source: Prepared, collected and calculated by author.

H3: There is no significant influence of OQ on PEU.

The relationship between two variables is generally considered strong when their r value is larger than 0.7. So the result of **Table 11** represent that OQ has a great influence on Perceived Ease of Use.

H4: There is no significant influence of PB on PU.

The relationship between two variables is generally considered strong when their r value is larger than 0.7. So the outcome of **Table 12** showed that PB has a great influence on Perceived Usefulness.

H5: There is no significant influence of PB on PEU.

The relationship between two variables is generally considered strong when their r value is larger than 0.7. So the result of **Table 13** represent that PB has a great influence on Perceived Ease of use.

H6: There is no significant influence of PEU on PU.

The relationship between two variables is generally considered strong when their r value is larger than 0.7. So the result of **Table 14** represent that Perceived ease of Use has a great influence on Perceived Usefulness.

H7: There is no significant influence of PU on the ITU.

The relationship between two variables is generally considered strong when their r value is larger than 0.7. So the result of **Table 15** showed that Perceived usefulness has a great influence on Intention to Use.

H8: There is no significant influence of PEU on the ITU.

The relationship between two variables is generally considered strong when their r value is larger than 0.7. So the result of **Table 16** showed that Perceived Ease of Use has a great influence on Intention to Use.

H9: There is no significant influence of ITU on crm technology adoption.

The relationship between two variables is generally considered strong when their r value is larger than 0.7. So the result of **Table 17** represent that Intention to use has a great influence on Technology Adoption.

H10: There is no remarkable association between PEU and attitude of customers towards using crm.

Table: Simple Linear Regression analysis of the Relationship between PEU and attitude of customers towards using crm transaction.
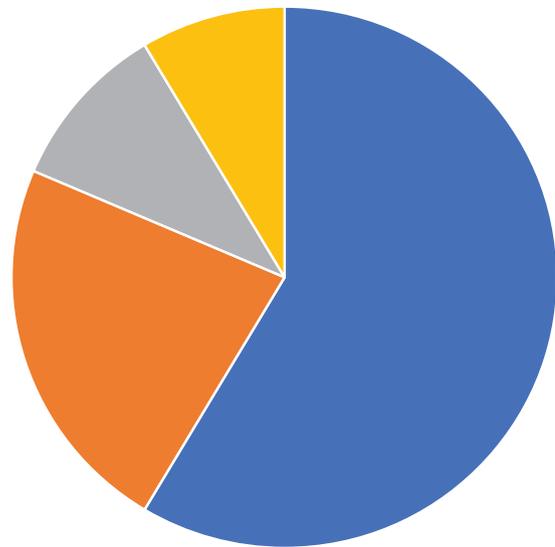
The results of **Table 18(a)** indicate a strong evidence against the null hypothesis, "There is no remarkable association between perceived ease of use and attitude of customers towards using CRM system", because "t" value is positive and greater than one.

Results in **Table 18(b)** show that there is a remarkable association between PEU and attitude of customer's regarding the use of crm in banking. So the null hypothesis is rejected.

H11: There is no remarkable association between PU and attitude of Customers towards using crm.

Sales

■ 1st Qtr   ■ 2nd Qtr   ■ 3rd Qtr   ■ 4th Qtr

FIGURE 6 | Pie chart of gender & technology adoption of CRM, male & comfortable-blue, female & comfortable-brown, male & complex-ash, and female & complex-yellow.

The results of **Table 19(a)** indicate a strong evidence against the null hypothesis, because "t" value is positive and greater than one.

Results in **Table 19(b)** show that there is a significant relationship between PU and attitude of customers towards the use of crm. So the null hypothesis is rejected.

H12: There is no remarkable association between customer's attitudes towards using the crm and their ITU it.

The results of **Table 20(a)** indicate a strong evidence against the null hypothesis, because "t" value is positive and greater than one.

The results presented in **Table 20(b)** show that there is a significant relationship between attitude and the ITU crm. So the null hypothesis is rejected.

H13: There is no significant relationship between Age and customer's ITU crm transaction.

The outcomes in **Tables 21(a)** and **(b)** disclose that there is no significant relationship between Age of respondents and their ITU crm system. Since the P value of 0.814 is bigger than the level of significance (P = 0.814 > 0.05). For this reason, we are anticipated to accept the null hypothesis and reject the alternative hypothesis. The Age group (Above 50) has the top most mean of 8.69 at the moment that the age group of (20–30) has the smallest mean of 2.38.
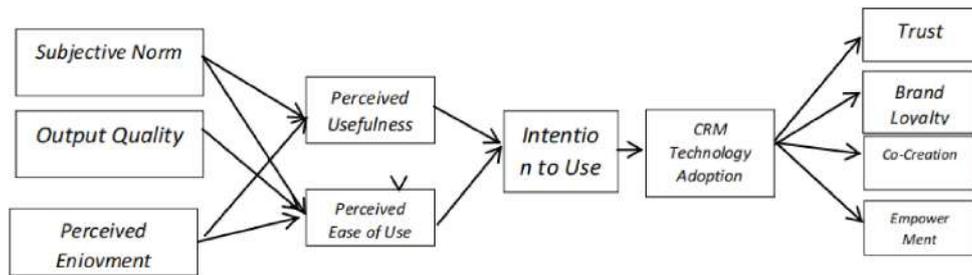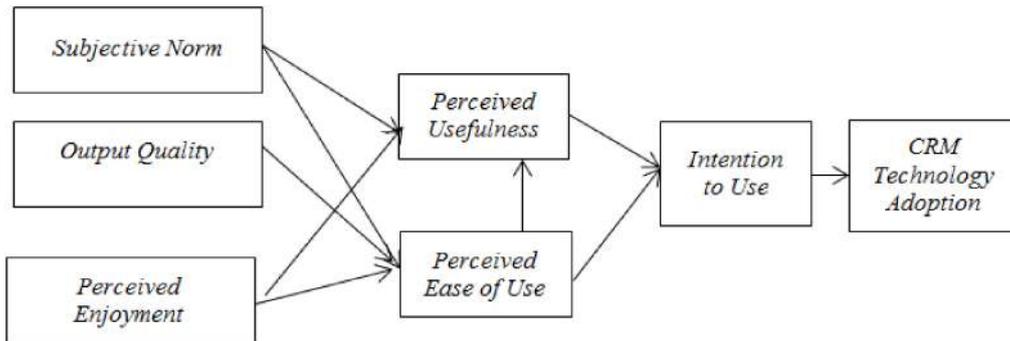
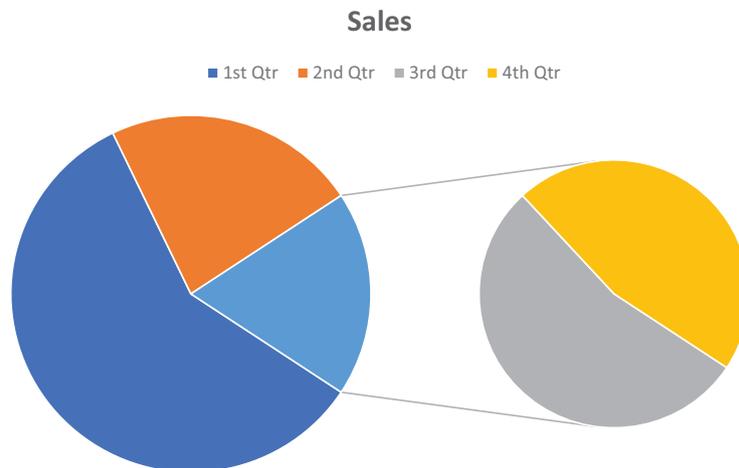**FIGURE 2 |** TAM 2 as a study model.

FIGURE 3 | Flowchart.

FIGURE 4 | Pie chart of gender and attitude, male-blue, female-brown, positive-ash, negative-yellow.

H14: There is no significant relationship between the level of education and customer's ITU crm.

The outcomes in **Tables 22(a)** and **(b)** disclose that there is no significant relationship between level of education and their ITU crm considering that the P value of 0.252 is bigger than the level of significance of 0.05.(P = 0.252>0.05). For this reason, we reject the null hypothesis and we accept the alternative hypothesis. The participants in the master's level of education formed the top most mean of 6.73 at the moment that the participants with below secondary formed the smallest mean of 5.38.

Goodness of fit-test

H15: There is no remarkable association exists between gender and their attitude towards the benefit of crm.

Here the author used chi-square test,
The calculated chi-square value is = 9.5310.
Degrees of freedom = (2–1)*(2–1) = 1.
At 0.05 level of significance and 1 degrees of freedom, the table value of chi-square value is = 3.841.
So chi-square cal > chi-square table.
So the null hypothesis, there is no significant relationship exists between gender and their attitude towards the benefit

Chart Title
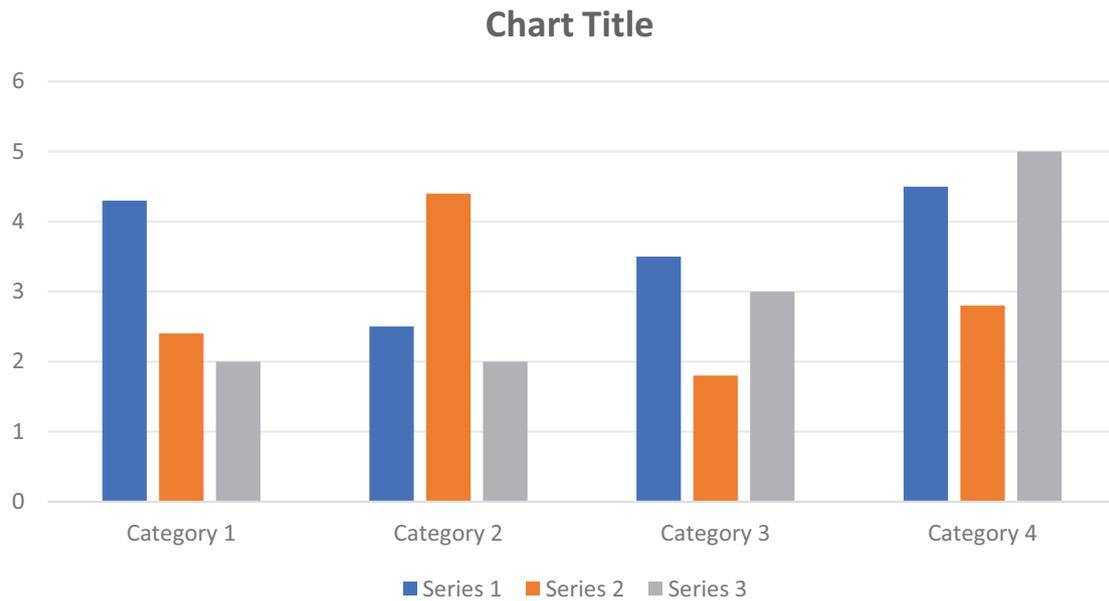
FIGURE 5 | BAR chart of mindset towards the crm, blue-customer, yellow-banker, and ash-non banker.

of crm is rejected or not true. So there is a remarkable relationship exists between gender and their attitude towards the benefit of crm.

Graphical presentation of gender and attitude

Sales indicate transaction via cash recycling machine.

H16: There is no remarkable association between profession and customer attitude towards the crm.

Here the author used chi-square test,
The calculated chi-square value is = 4.99.
Degrees of freedom = (3–1)*(3–1) = 4.
At 0.05 level of significance and 4 degrees of freedom the table value of chi-square value is = 9.488.
So chi-square cal < chi-square table.
So the null hypothesis, there is no significant relationship between profession and customer attitude towards the crm is accepted.

Graphical presentation of mindset towards the crm

H17: There is no significant relationship exists between gender and technology adoption of crm.

Here the author used Chi Square test,
The calculated chi-square value is = 1.28.
Degrees of freedom = (2–1)*(2–1) = 1.
At 0.05 level of significance and 1 degrees of freedom the table value of chi-square value is = 3.841.

So chi-square cal < chi-square table, our null hypothesis, there is no significant relationship exists between gender and technology adoption of crm is accepted or true.

Sales indicate frequency of transaction via cash recycling machine.

Graphical presentation of gender & technology adoption of crm

Validity test

Content validity
For content validity test purpose, the author gives questionnaire to customers,

$$CVR = (Ne - N/2)/(N/2),$$

where Ne = number of experts voting essential
N = total number of recruited experts.
Now, content validity rate = 0.04533.
This formula yields values which range from +1 to −1; positive values indicate that at least half the respondents rated the item as essential. So half of the respondents agree that crm is essential for maintaining CRM of the bank.

Convergent validity

To measure convergent validity the author used two related scale such as time saved by crm and frequent use of crm.
Here the author used Pearson r test, calculated r = 0.819912424 = 81.99%.

Convergent validity is generally considered adequate if >75% of hypotheses are correct, or if a correlation with an instrument measuring the same construct is >0.50. So, in this research the convergent validity test is adequate.

Discriminant validity

For testing discriminant validity, the author respondents to fill in a second questionnaire measuring powers of reasoning in order to test the discriminant validity of his questionnaire. Here the author try to construct a relationship between customer's powers of reasoning and mind set of customer's towards crm.

Here the author used Pearson r test, calculated r = −0.529748316.

The author get r value is negative, it also seems to match his/her expectation about the relationship of the constructs, which is good.

Limitation

1. It is not possible to study the whole population.

2. The use of crm is very limited in Bangladesh.

3. The use of crm in Bangladesh has started few years ago. So the research year is only for 3 years.

4. Sometimes the respondents could not clearly express their attitude towards crm because of their ignorance.

Analysis

The result of the **Table 1** showed that PEU crm of Islami Bank Bangladesh PLC is very appreciable. Again, the outcome of **Table 2** express that PU of crm is very effective. The consequences of **Table 3** showed that intention of customers towards crm is very much positive.

The result of **Table 4** showed that attitude of customers towards crm is very much positive in BD. The outcomes of **Table 5** explain that SN of crm is very effective in the CRM of bank in BD.

The consequence of **Table 7** showed that PBs of crm is very positive in BD. Again the outcomes of **Table 8** showed that technology adoption of crm is very optimistic.

SN for PU

The outcome of the research proves that SN of crm has a notable impact on PU (**Table 9**). Customer's acceptance process of a product or service is called SN. The research show that SN of crm has positively influenced the PU of crm.

SN for PEU

In this research the author disclose that SN of crm has positively influenced the PEU of crm of IBB PLC (**Table 10**). Variables of SN of crm has affected the effortlessness as well advantageous of clients in availing the crm.

OQ for PEU

The outcome of the hypothesis test prove that OQ of crm has a remarkable impact on PEU of crm (**Table 11**). OQ of crm evaluate the customer satisfaction with the CRM of IBB PLC. The research shows that OQ of crm enhance the intensity of customer use of the crm.

PB for PU

In this research the researcher prove that PB of crm has a remarkable impact on PU of crm (**Table 12**).

PB for PEU

In this paper the researcher disclose that PB of crm has a remarkable influence on PEU of crm of IBB PLC (**Table 13**). The research showed that the more customers prefer the crm the more often the application of crm is used.

PEU for PU

The research discloses that PEU of crm has positively influenced the PU of crm (**Table 14**).

PU for ITU

In this paper the researcher showed that PU has a remarkable impact on the ITU crm of IBB PLC (**Table 15**).

PEU for ITU

In this research the author discloses that PEU of crm has a notable impact the ITU crm of IBB PLC (**Table 16**). The research showed that the service of crm is very acceptable to the customers and which can attract more customers to use it.

ITU for CRM technology adoption

The research disclosed that the ITU of crm has a remarkable impact on crm technology adoption (**Table 17**).

In this research the author analysis the contribution of TAM on crm of IBB PLC. The researcher disclose that TAM has been effectively intruded into CRM through crm at Islami Bank Bangladesh PLC. Here the author also discusses the other factors of CRM linked with crm for example—Trust, Brand Loyalty, Co-creation, Empowerment, etc.

1. Trust:

Trust of a product or service refers to the consumer's intention after attaining contentment from the product or service of a company/organization. In this research the prime factor of TAM is the usefulness of crm of IBB PLC. The usefulness of crm of IBB PLC always obtained trust from the customers. By crm customers can get service in holiday, at mid night, in any political disturbance time.

2. Brand Loyalty:

The brand loyalty refers to the consumer's easement in the opportunities supplied by a company. The customers of IBB PLC have the intention to market the brand of crm verbally as well as through other written communication channels.

3. Co-Creation:

Co-creation arise if the consumer is very comfortable and agreeable with the use of the of the product/service provided by a company. It can be encouraged a company to invest in new products. Co-creation brings joy to both the customer and the producer. In this paper, the co-creation of customers towards crm motivate IBB PLC to designing new mode of service that are desired from customers. By crm people can deposit their money in the vault of bank without going to the bank premises at any time.

4. Empowerment

Empowerment deliver conveniences towards purchasers to believe, utter as well as move, via public network as well as another means of communication.

Analysis of goodness of fit test & validity test result

In this research the author showed that, there is a significant relationship exists between gender and their attitude towards the benefit of crm (**Table 23**). The research found that male have more positive attitude towards the crm than female.

The author also proved that, there is no significant relationship exists between profession and customer attitude towards the crm (**Table 24**).

The research showed that there is no significant relationship exists between gender and technology adoption of crm (**Table 25**). So, the technology adoption of crm of IBB PLC is applied evenly by both male and female.

The research found that half of the respondents agree that crm is essential for operating CRM of IBB PLC (**Table 26**). The convergent validity test result is adequate (**Table 27**). The discriminant validity result is good for the research (**Table 28**).

At last, we can say that crm service of IBB PLC play an important role to perform CRM smoothly. The operating CRM process of IBB PLC can be executed very efficiently by crm service.

In this research the **Figure 1** express that the CRM system of business process.

The **Figure 2** showed the factors of TAM model. The **Figure 3** showed the flowchart of TAM model.

The **Figure 4** showed the relationship of gender and attitude of customer towards crm.

Figure 5 showed the relationship between mindset of customers towards crm and profession of respondents.

Figure 6 showed that the relationship between gender and technology adoption of respondents.

Conclusion

In this research the author used regression and ANOVA test for data analysis purpose. The research is based on TAM. On the basis of the result of the discussion section the author draws some conclusions:

1. The research showed that SN has a remarkable impact on PU. In this research the P value is 0.00 which indicate that SN of crm positively influenced the technology adoption of crm.

2. The paper discloses that SN has a notable influence on PEU of crm of IBB PLC. In this research the P value is 0.000, which indicate that SN has a strong impact on technology adoption of crm.

3. The research showed that OQ has positively influenced the PEU of crm. In this paper the P value is 0.00, which refers to OQ has a strong impact on technology adoption of crm.

4. In this paper the author discloses that PB has a remarkable impact on PU of crm. Considering the P value is 0.00, which indicate that PB positively influenced the technology adoption of crm.

5. In the research the author also showed PB of crm has a remarkable impact on PEU. Considering the P value is 0.000, which also indicate that PB of crm positively influenced technology adoption.

6. The researcher showed that PEU of crm has a remarkable impact on PU. Here the P value is 0.00, which indicate that PEU of crm has a remarkable impact on technology adoption of crm.

7. The paper proved that PU of crm has positively influenced the ITU of crm. Considering P value is 0.00, which indicate that PU of crm has a remarkable impact on technology adoption of crm.

8. The paper found that PEU of crm has a favorable influence on ITU crm. In this research the P value is 0.00, which indicate that PEU has an impact on technology adoption of crm.

9. The author express that ITU of crm has a favorable impact on CRM of IBB PLC. In this research the P value is 0.00, which indicate that ITU of crm is positively influenced the technology adoption of crm.

10. The author found that there is no remarkable association ship exists between PEU and attitude of customers towards using crm is not true in this regards. So PEU and attitude of customers of IBB PLC are directly co related.

11. The research showed that there is no remarkable association ship exists between customer's attitudes towards using the crm and their ITU it, is not true, there is a notable association exists between customer's attitude towards using the crm and their ITU it.

12. In this paper the author showed that there is no remarkable association exists between customer's attitudes towards using the crm and their ITU it, is not true. So there is a positive connection exists between customer's attitude and their ITU crm.

13. The research showed that there is no remarkable association ship exists between age and customer's ITU crm, is true. So customer of different age can easily access crm system of IBB PLC.

14. The research disclose that there is no remarkable association ship exists between the level of education and customer's ITU crm is not true. So there is a notable relationship exists between the level of education of customer and their ITU crm system. People of no education can't able to use crm because some English language knowledge is mandatory to operate crm system of IBB PLC.

In this paper the author formulated fourteen hypotheses. Based on the data analysis it can be finalized that among the 14 hypotheses 13 of them are accepted and one hypothesis is rejected. Consequently The TAM has been effectively manipulated to the CRM model through crm of IBB PLC. The research established that the vital factors of TAM the usefulness and ease of use linked with the new components CRM such as trust, brand loyalty, co creation, empowerment etc. Hence IBB PLC applies the new form of CRM through crm to uplift consumer's contentment. Consequently, this bank can attract new customers who are used to try service from IBB PLC.

So, through crm the Islami Bank Bangladesh PLC has effectively performed customer service for smoothly operating their CRM. The CRM process of this bank can be efficiently operated by crm.

Implication & future study

Deriving out of the results of the analysis part of the research, the author has recommended the following recommendations from this research:

1. For companies:

The author expect that this research can be applied like an instance or a reference for the purpose of construct a bond/link between customers and bank. This relationship benefits the banks and other organizations.

2. For the Academic field:

Any new researcher or student who want to carry out research about the impact of new technology on the CRM of a company and, study the use of Technology Acceptance Model in the CRM of an organization.

3. For future studies:

In future the researchers should be able to conduct research on various locations of study for the purpose of research and data analysis into the impact of TAM on new service/product, analyzing the technology adoption of customers towards a new product such as Cell Fin App, M-Cash, Internet banking and many more.

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