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THE INFLUENCE OF CUSTOMER AWARENESS AND UTILIZATION OF GREEN BANKING SERVICES ON E-BANKING ADOPTION

Sowmya M. [1], Prabakaran G. [2]

[1] Assistant Professor, Global Institute of Business Studies, Bengaluru, India
[2] Associate Professor, Department of Business Administration, Government Arts College, Dharmapuri, India

Corresponding Author
Sowmya M,
sowmyasenthil2901@gmail.com

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ABSTRACT

The adoption of e-banking has become increasingly important in today's digital era, and green banking plays a significant role in shaping this adoption. Green banking encompasses environmentally sustainable practices within the banking sector, promoting eco-friendly initiatives and reducing carbon footprints. Recognizing the importance of green banking for the adoption of e-banking is crucial in understanding the larger impact of these practices on both customers and the banking industry. The study aims to determine the major drivers of e-banking adoption by analyzing factors such as customer awareness, utilization, perceived quality, efficiency, and cost of green banking services. Surveys were conducted to gain insights into customers' perceptions and opinions regarding green banking services in e-banking operations. The research design employed was descriptive, utilizing a purposive sampling method with a sample size of 201 customers. The primary data was collected through structured questionnaires, while secondary data was gathered from magazines and websites. The study recommends that the banking sector should educate and motivate customers about the benefits of green banking, including time-saving, trust-building, convenience, timely account statements, and enhanced security. Statistical techniques such as chi-square tests, regression analysis, correlation analysis (Karl Pearson's), and one-way ANOVA were employed. This research provides valuable insights for the banking sector to understand customers' effective utilization of green banking services and their interest in e-banking adoption. Furthermore, the research endeavors to highlight how sustainable initiatives can have a transformative impact on the future of the banking industry.

Keywords: E-Banking Adoption, Green Banking Services, Customer Awareness, Utilization, Sustainable Banking

1. INTRODUCTION

In the banking sector, the concept of green banking has emerged as a proactive approach to address social and environmental concerns while providing financial services. Green banking, also known as ethical banking or sustainable banking, involves incorporating environmentally friendly practices to protect the environment and conserve natural resources. With the advent of technology, green banking has become intertwined with the adoption of electronic banking (e-banking) services, creating new opportunities to promote sustainability in the financial sector. E-banking, characterized by digital transactions, online banking platforms, and electronic payment systems, offers numerous benefits such as convenience, accessibility, and efficiency.

Green banking services on e-banking adoption include paperless statements and electronic transactions, online bill payment and fund transfers, mobile banking applications for convenient access, virtual wallets for digital payments, renewable energy financing and investment options, sustainable investment portfolios, green loan applications and

approvals online, carbon footprint tracking and reduction tools, eco-friendly credit card options, and online resources and education on sustainable banking practices. Encouraging customers to opt for paperless banking reduces the use of paper, saves trees, and minimizes the carbon footprint associated with printing and mailing paper statements. Introducing eco-friendly credit cards that offset carbon emissions, contribute to reforestation projects, or donate a percentage of purchases to environmental causes can encourage sustainable spending habits.

As customers become increasingly aware of the environmental impact of traditional banking practices, their demand for sustainable alternatives grows. This awareness prompts them to explore and utilize green banking services, which, in turn, influence their adoption of e-banking platforms. By conducting an in-depth analysis of customer perceptions, preferences, and behaviors, this research seeks to shed light on the interplay between sustainability, banking services, and technology adoption.

2. REVIEW OF LITERATURE

Parasuraman and Sathiya (2020) analyzed SBI's green banking system in Dharmapuri district, highlighting the bank's initiatives and assessing customer and employee awareness. They found that while the banks actively participated, customers preferred traditional banking due to lack of awareness, technical knowledge, security concerns, and limited understanding among older age groups.

Ellahi, Jillani and Zahid (2021) examines the progress of green banking practices in Pakistan's economy, exploring individuals' perceptions and responses. Findings indicate customers are receptive to banks' green initiatives and willing to adopt them. Education has a significant positive impact on green banking awareness, and factors such as age, gender, occupation, and traits of sustainable banking practices influence awareness levels.

Sunil and Durgalashmi(2022) examines the popularity of green banking practices in India's financial sector, considering limited social and environmental awareness among the public. It investigates customers' perceptions and knowledge of green banking, analyzes adoption factors and satisfaction levels, and offers insights for enhancing green banking practices to promote environmental consciousness in the banking industry.

Pawar, Vanjare, and Katore (2023) examine the impact of green banking initiatives on customer satisfaction. Green banking, a popular trend in the banking sector, introduces digital and technology-driven services to enhance customer retention and satisfaction. By adopting electronic and paperless transactions, green banking practices offer convenience and contribute to eco-friendly operations. The study analyzes the impact of green banking initiatives and overall services provided by private sector banks on customer satisfaction, based on a sample of 377 respondents.

3. RESEARCH GAP

Based on the review of the literature, numerous studies have explored the concept of Green Banking on an international scale, while only a few have been conducted with a national perspective in India. Therefore, there is a research gap that exists in understanding the degree and dimensions of customer awareness, utilization, perceived quality, efficiency, and cost factors related to Green Banking services in the context of E-Banking Adoption. Additionally, this study aims to identify the challenges faced by customers in utilizing Green Banking services on E-Banking platforms, addressing the aforementioned research gap.

4. STATEMENT OF PROBLEM

Green banking services encompass a range of environmentally sustainable practices implemented by banks to reduce their ecological impact and promote responsible banking. These services, when integrated with e-banking platforms, have the potential to revolutionize the banking industry by offering customers convenient and eco-friendly alternatives to traditional banking methods. However, the extent to which customers are aware of these green banking services and actively utilize them through e-banking platforms remains uncertain. This knowledge gap hampers the ability of banks to effectively promote and enhance the adoption of green banking services through e-banking platforms.

5. OBJECTIVE OF THE STUDY

- To assess customer awareness of green banking services and their influence on e-banking adoption.
- To analyze the utilization of green banking services on e-banking platforms and identify factors impacting their usage.

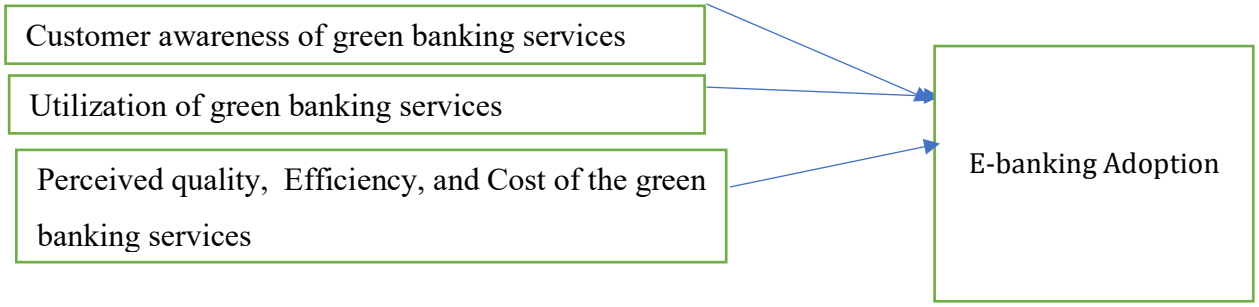
- To evaluate the influence of perceived quality, efficiency, and cost factors on customer adoption of green banking services on e-banking platforms.
- To identify and assess challenges faced by customers using green banking services on e-banking platforms

6. MATERIALS AND METHODS

RESEARCH METHODLOGY

This study employs a quantitative research approach to collect and analyze data using both theoretical information and statistical programs, such as SPSS. The quantitative approach relies on numerical data to test objective ideas and establish relationships between dependent and independent variables. Statistical procedures are employed to analyze the numerical data.

CONCEPTUAL FRAMEWORK



RESEARCH DESIGN

An online survey-questionnaire is used to collect enough information to evaluate various populations. The study aims to include a sufficient number of people in its sample size. The descriptive research technique is then used to analyse the data that has been collected. The goal of descriptive research is to describe the features of the population or phenomenon that is being studied.

SAMPLING METHOD

For this study, customers from various cities were carefully chosen as respondents using the purposive sampling method. Data was collected through a questionnaire specifically tailored to those who have utilized green banking services. The acceptable sample size for this research ranges between 201 participants.

SOURCE OF DATA

The data for this study was obtained through a primary method, focusing on the dependent and independent variables discussed in the paper.

DATA COLLECTION METHODS

This research conducts a descriptive study on the adoption of e-banking services in the context of green banking. The data is gathered through a questionnaire that includes both open-ended and close-ended questions, tailored to the respondents' preferences. The close-ended questions aim to gain insights into the demographic composition of the sample, while the open-ended questions seek to understand customers' perspectives on e-banking adoption in green banking services.

STATISTICAL ANALYSIS

The statistical analysis in this study is conducted using the SPSS package. Specifically, a variable testing for independence is inputted, and the resulting outcome is determined. The SPAA (Statistical Package for the Analysis of Association) employs a range of tests, including chi-square analysis,correlation, regression, and ANOVA, to examine the data.

- Chi-square analysis is a statistical method used to determine the association between categorical variables.
- Correlation analysis is a statistical tool used to measure the strength and direction of the relationship between variables.
- Regression analysis is a statistical tool that quantifies the relationship between a dependent variable and a set of other independent variables.

- One-way ANOVA is a statistical test used to determine if there are significant differences between the means of three or more groups.

HYPOTHESIS:

H1 = There is no association between the E-banking Adoption makes respondents more comfortable on demographic variables.

H2 = There is no significant relationship between E-banking Adoption and Customer awareness of green banking services

H3 = There is no significant relationship between E-banking Adoption and Utilization of green banking services.

H4 = There is no significant relationship between E-banking Adoption and Perceived quality, Efficiency, and Cost of the green banking services

7. RESULTS

DATA ANALYSIS

CHI-SQUARE TEST

OPINION REGARDING E-BANKING ADOPTION MAKES RESPONDENTS MORE COMFORTABLE ON DEMOGRAPHIC VARIABLES

H_0: There is no association between the E-banking Adoption makes respondents more comfortable on demographic variables.

H_1: There is an association between the E-banking Adoption makes respondents more comfortable on demographic variables

Table 1.1

Opinion towards E-banking Adoption makes respondents more comfortable on demographic variables- Observed frequency Table

Demographic variables		E-banking Adoption makes respondents more comfortable				Total
		Yes		No		
		N	%	N	%	
Gender	Male	80	**59.25**	33	50	113
	Female	55	40.74	33	50	88
Age	20-25 yrs	87	**64.44**	29	43.9	116
	26-30 yrs	29	21.48	28	42.5	57
	31-40 yrs	15	11.11	9	13.6	24
	41-60 yrs	4	2.96	0	0	4
Educational qualification	High school	2	1.48	0	0	2
	Graduate	78	**57.77**	38	57.6	116
	Post Graduate	55	40.74	28	42.4	83
Monthly income (in Rs)	Less than 15,000	43	31.85	9	13.6	52
	15,000-30,000	47	**34.81**	15	22.8	62
	More than 30000	45	33.33	42	63.6	87
Marital Status	Married	43	31.85	13	19.6	56
	Unmarried	92	**68.14**	53	80.4	145
Total		135	67.16	66	32.83	201

Hence majority of the respondents stated as yes, towards E-banking Adoption makes respondents more comfortable. Further in order to find the significance of association between the demographic variables and their opinion towards E-banking Adoption makes respondents more comfortable the chi-square test was used and result of the test is shown in table.1.1a

Table 1.1a – Chi square Test- E-banking Adoption makes respondents more comfortable on demographic variables

Profile of the respondent	Chi square	Table Vlaue	Df	p	Sig.
Gender	1.544	3.841	1	0.214	*Not significant*

Age	12.278	7.815	3	0.006	*Highly significant*
Educational qualification	1.009	5.991	2	0.001	*Not significant*
Monthly income	17.189	5.991	2	0.001	*Highly significant*
Marital status	3.259	3.841	1	0.071	*Not significant*

It is noted from the table 1.1a that the p value is less than 0.05 for Age, monthly income the results are significant at 5%. From the analysis it is concluded that there is highly significant association was found between the demographic variables of Age, monthly income and opinion towards E-banking Adoption makes respondents more comfortable.

8. MULTIPLE LINER REGRESSION ANALYSIS

Multiple linear regression analysis is a statistical technique used to explore the relationship between a dependent variable and multiple independent variables.

H_0 : There is no significant relationship between a linear combination of variables (Customer awareness, Utilization, Perceived quality, Efficiency, and Cost of the green banking services) and E-banking adoption among respondents
H_1 : There is significant relationship between a linear combination of variables (Customer awareness, Utilization, Perceived quality, Efficiency, and Cost of the Green Banking services,) and E-banking adoption among respondents
Dependent variable:

- E-banking adoption

Independent variable:

- Customer awareness,
- Utilization,
- Perceived quality, Efficiency, and Cost of the green banking services,

Table 1.2.
MEASURE THE RELATIONSHIP BETWEEN GREEN BANKING SERVICES AND E-BANKING ADOPTION

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.815[a]	.664	.659	.280

a. Predictors: (Constant), Customer awareness, Utilization, Perceived quality, Efficiency, and Cost of the green banking services

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30.553	3	10.184	129.892	.000[a]
	Residual	15.446	197	.078		
	Total	45.999	200			

a. Predictors: (Constant), Customer awareness, Utilization, Perceived quality, Efficiency, and Cost of the green banking services

b. Dependent Variable: E-banking adoption

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.135	.087		1.542	.125
	Customer awareness	.144	.051	.151	2.797	.006
	Utilization	.471	.058	.495	8.135	.000
	Perceived quality, Efficiency, and Cost of the green banking services	.273	.064	.267	4.297	.000

a. Dependent Variable: E-banking adoption

Based on the above regression analysis the following conclusions can be drawn:
Model reveals that R value (multiple correlation coefficient) is 0.815. It measures the degree of relationship between the E-banking adoption and Customer awareness, Utilization, Perceived quality, Efficiency, and Cost of the green banking services. R square (coefficient of determination) value is 0.664. It means that about 66.4% of the variation in E-banking adoption is explained by the variation in the independent variable (Customer awareness, Utilization, Perceived quality, Efficiency, and Cost of the green banking services). Adjusted R-squared value is 0.659, F value is 129.892 and p value is significant at 5 % level. The highly significance value of the F statistic is less than 0.05, which means that the variation explained by the model is not due to chance. There is a strong relation between dependent and independent variables.

9. KARL PEARSON'S COEFFICIENT OF CORRELATION

H0: There is no significant relationship between Customer awareness, Utilization, Perceived quality, Efficiency, and Cost of the green banking services and E-banking adoption.
H1: There is significant relationship between Customer awareness, Utilization, Perceived quality, Efficiency, and Cost of the green banking services and E-banking adoption

Table 1.3.

Correlations					
		Customer awareness	Utilization	Perceived quality, Efficiency, and Cost of the green banking services	E-banking adoption
Customer awareness	Pearson Correlation	1	.586**	.608**	.604**
Utilization	Pearson Correlation		1	.709**	.773**
Perceived quality, Efficiency, and Cost of the green banking services	Pearson Correlation			1	.710**
E-banking adoption	Pearson Correlation				1
	Sig. (2-tailed)	.000	.000	.000	.000
	N	201	201	201	201
**. Correlation is significant at the 0.01 level (2-tailed).					

To check the hypothesis, correlation coefficient have been calculated which is shown in above table 1.3, The value of the Pearson's correlation coefficient between Customer awareness and E-banking adoption is 0.604, Customer awareness and Utilization is 0.586, Customer awareness and Perceived quality, Efficiency, and Cost of the green banking services is 0.608, Utilization and E-banking adoption is 0.773, Utilization and Perceived quality, Efficiency, and Cost of the green banking services is 0.709, Perceived quality, Efficiency, and Cost of the green banking services and E-banking adoption is 0.710, which shows that the significant p-value is 0.000 which is less than the significant level of 0.01, ($p<0.01$). The analysis shows that Person correlation (r-value) 0.586, 0.608, 0.604 is which indicates that the independent variable Customer awareness, Utilization, Perceived quality, Efficiency, and Cost of the green banking services is able to create changes in the dependent variable (E-banking adoption) up to an extent of 58.6%, 60.8% and 60.4% respectively. It represents that when Customer awareness of green banking, Utilization of green banking, Perceived quality, Efficiency, and Cost of the green banking services effectiveness increases it will influence E-banking adoption of the banks positively. Thus, the relationship between the variable Customer awareness, Utilization, Perceived quality, Efficiency, and Cost of the green banking services and E-banking adoption is strong. Therefore the null hypothesis is rejected and hence depicting a positive relationship between the variables.

10. ANOVA TEST MEASURE THE ASSOCIATION BETWEEN PREFERRED BANKING AND FACTORS INFLUENCE THE ADOPTION OF GREEN BANKING SERVICES IN E-BANKING

H_0 : There is no significant difference between preferred banking and Factors influence the adoption of green banking services in e-banking

H_1 : There is significant difference between preferred banking and Factors influence the adoption of green banking services in e-banking

Table No. 1.4

Preferred Banking and Factors influence the adoption of green banking services in e-banking.

Descriptive Table

Factors	Preferred Banking			
	Green Banking		Traditional Banking	
	Mean	SD	Mean	SD
Customer awareness of green banking services	2.01	0.521	1.96	0.503
Utilization of green banking services	1.98	0.535	1.74	0.486
Perceived quality, Efficiency, and Cost of the green banking services	1.84	0.479	1.69	0.462
E-banking adoption	1.87	0.597	1.70	0.439

ANOVA table

From the results of the one-way ANOVA test, it is found that with regard to Utilization, E-banking adoption, the p value is less than 0.05. So the null hypothesis is rejected at 5% level of significance. Hence, for the above mentioned green banking factors, There is significant difference between preferred banking and Utilization of green banking services, E-banking adoption. For all other green banking factors such as Customer awareness, Perceived quality, Efficiency, and Cost of the green banking services, null hypothesis is accepted i.e. There is no significant difference preferred banking and Customer awareness, Perceived quality, Efficiency, and Cost of the green banking services.

ANOVA							
		Sum of Squares	df	Mean Square	F	Sig.	Results
Customer awareness	Between Groups	.100	1	.100	.390	.533	Not associated P >0.05
	Within Groups	51.034	199	.256			
	Total	51.134	200				
Utilization	Between Groups	1.836	1	1.836	7.456	.007	Associated P < 0.05
	Within Groups	49.012	199	.246			
	Total	50.849	200				
Perceived quality, Efficiency, and Cost of the green banking services	Between Groups	.693	1	.693	3.195	.075	Not associated P >0.05
	Within Groups	43.168	199	.217			
	Total	43.861	200				
E-banking adoption	Between Groups	.938	1	.938	4.142	.043	Associated P < 0.05
	Within Groups	45.061	199	.226			
	Total	45.999	200				

11. FINDINGS

The findings of the study suggest that e-banking adoption is associated with increased comfort levels among respondents. Age and monthly income were significantly associated with respondents' comfort levels in adopting e-banking.

The multiple regression analysis revealed a strong relationship between E-banking adoption and the independent variables (Customer awareness, Utilization, Perceived quality, Efficiency, and Cost of green banking services), with significant explanatory power (R-square = 0.664) and a highly significant model (F-value = 129.892, $p < 0.05$).

Correlation analysis showed significant positive correlations between Customer awareness, Utilization, Perceived quality, Efficiency, and Cost of green banking services, and E-banking adoption, indicating a strong relationship between these variables.

Furthermore, the ANOVA analysis indicated significant differences between preferred banking and Utilization of green banking services, as well as E-banking adoption, while no significant differences were observed for Customer awareness, Perceived quality, Efficiency, and Cost of green banking services.

IMPLICATIONS

THEORETICAL IMPLICATIONS

- Green banking services play a crucial role in driving e-banking adoption and positively influencing customers' decision-making process and comfort levels.
- Incorporating sustainable and environmentally friendly practices like green banking within the banking industry is emphasized, enabling banks to align strategies with customers' preferences, promote sustainability, and drive e-banking adoption.
- Enhancing customer awareness through education and awareness campaigns is key to driving adoption of green banking services and fostering a sustainable e-banking sector.

MANAGERIAL IMPLICATIONS

- Promoting green banking services is crucial for banks and financial institutions to encourage e-banking adoption and cater to sustainability-conscious customers, emphasizing benefits like enhanced efficiency and reduced environmental impact.
- Investing in customer awareness and education is crucial for driving e-banking adoption, with a focus on addressing concerns and providing transparent information to build trust and confidence among customers in the features, functionalities, and security of e-banking services.
- Continuous improvement of green banking services is vital for banks, with a focus on enhancing customer experiences, streamlining processes, and delivering personalized and convenient services, ultimately increasing customer satisfaction and strengthening the value proposition of e-banking.

12. CONCLUSION

Green banking is an essential aspect of sustainable finance and environmental conservation. Banks have introduced various green products and services as part of their Go Green policies. Banks, as major funders of industries, have the power to shape environmental outcomes. This study has highlighted the awareness, utilization, quality, efficiency, cost, and challenges associated with green banking services in e-banking adoption. However, not all green banking services are widely available, especially in rural areas, due to infrastructure limitations, connectivity issues, and lack of customer knowledge. Additionally, service charges have hindered the awareness and utilization of green banking services.To ensure the success of green banking services on e-banking adoption, it is crucial to have a comprehensive range of services, active customer participation, and collaboration across sectors. It is essential that we prioritize green banking initiatives and work together to create a greener and more sustainable future for generations to come.

13. SUGGESTIONS

Here are some suggestions to enhance customers' awareness and utilization of green banking services in e-banking adoption:

1. Banks should actively promote and publicize their existing green services to create more awareness among customers.
2. It is important for banks to ensure that all green banking services are available at every branch, regardless of the location, be it rural or urban areas.
3. Customer education and motivation should be a priority, emphasizing the benefits of green banking products and services, such as time-saving, trust-building, convenience, access to account statements, and enhanced security.

4. Banks should engage in socializing with customers to encourage increased usage of green banking products and services. This can be achieved through proper advertising campaigns that educate customers about e-products and services, including their technical aspects and the measures taken to prevent online fraud.
5. Leveraging digital and social media platforms for advertisement can effectively educate customers about various green banking services.
6. Additionally, it is important to reach out to rural customers directly, considering their educational background and age, in order to share knowledge and promote the benefits of green banking.
7. Lastly, banks should actively address any customer problems or challenges they may face while utilizing green banking services, ensuring a seamless and satisfactory experience for customers.

   By implementing these suggestions, banks can encourage greater awareness, utilization, and e-banking adoption of green banking services, fostering a more sustainable and environmentally responsible banking industry.

14. LIMITATIONS OF THE STUDY

- Reliance on self-reported information from respondents may introduce potential bias or incomplete data.
- Limited sample size may restrict the generalizability of findings to a larger population or specific subgroups.
- Respondents' social desirability bias may impact data accuracy and affect the conclusions drawn from the study.

15. SCOPE FOR FURTHER RESEARCH

- Conducting qualitative studies to gain deeper insights into customers' motivations and behaviors in adopting and utilizing green banking services on e-banking platforms.
- Assessing the impact of green banking services on customers' overall satisfaction and loyalty towards their banking institution.
- Conducting comparative studies to analyze the adoption and effectiveness of green banking services across different banking institutions.
- Exploring the potential barriers and challenges faced by customers in adopting and utilizing green banking services in the context of e-banking.

CONFLICT OF INTERESTS

None.

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