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Navigating Designation-Based Challenges in Advancing Eco-Friendly Banking Practices: An Analytical Examination of the Punjab National Bank (PNB).

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Abstract

Purpose of the study:

The focus of this inquiry is to analyze the obstacles encountered by Punjab National Bank (PNB) regarding the marketing and promotion of sustainable banking offerings. Specifically, the research seeks to comprehend the barriers that obstruct the efficacious promotion and acceptance of green banking products within PNB. Furthermore, it aims to analyze how these obstacles differ among employees holding various designations, encompassing both managerial and operational tiers. Lastly, the study intends to furnish actionable recommendations to enhance marketing effectiveness and the overall acceptance of green banking products by addressing the challenges specific to different designations.

Design/ Methodology:

A structured questionnaire was used to carry out the survey. Data were gathered using both offline and online methods. Data were gathered online using Google Forms. Participants were chosen using random sampling and convenience sampling methods. A total of **30** replies from Punjab National Bank employees in Bangalore urban and rural regions were used for data analysis.

Findings:

The comprehensive study reveals with great clarity that the esteemed PNB, in its noble pursuit of advancing the principles of green banking, finds itself grappling with a myriad of formidable hurdles, which can largely be traced back to a notable lack of awareness among stakeholders, the looming spectre of potentially heightened financial burdens, the constraining shackles of regulatory limitations and the multifaceted technological barriers that stand in the way; moreover, it is important to note that a variety of discrepancies in the nature of these challenges have been observed, significantly influenced by the differing roles and designations of employees within the organization.

Limitations:

The present investigation is confined to the PNB branches within the urban and rural locales of Bangalore, thereby potentially neglecting the multifaceted challenges encountered in alternative regions. A restricted cohort of employees was surveyed, which may not adequately encapsulate the diverse viewpoints of the entire PNB workforce. The process of data collection transpired over a brief timeframe, possibly failing to capture long-term trends or seasonal fluctuations pertaining to the challenges of green banking. This research is contingent upon employee feedback, which may be subject to personal biases or reluctance to reveal specific concerns. Regulatory modifications occurring during or subsequent to the study period may influence the temporal relevance of the findings. The investigation predominantly focuses on internal employee viewpoints, with minimal consideration of the challenges faced by customers in the adoption of green banking products.

Originality Value:

This comprehensive investigation presents distinctive and valuable insights pertaining to the various challenges associated with the designation-based framework that impact the marketing strategies employed for promoting green banking initiatives at Punjab National Bank (PNB), while simultaneously offering pragmatic and actionable recommendations aimed at significantly enhancing both the adoption rates and overall effectiveness of these environmentally sustainable practices, thereby contributing positively to the broader domain of sustainable banking practices as well as formulating employee-specific strategies that are tailored to align with these objectives.

Paper Type: Research Paper

Key words: Sustainable banking, Marketing Problems, Punjab National Bank, Adoption of green banking, Designation Based Problems, eco-friendly practices, Bengaluru, etc.,

1. INTRODUCTION

In the current context of the financial services sector, especially within the banking domain, there has been a significant and notable shift towards the incorporation of sustainable and environmentally conscientious financial offerings (Maulani, 2015)(Ilhamalimy & Septika, 2023), with the notion of green banking emerging as a crucial area of emphasis and concentration (Chen et al., 2022). Green banking can be understood as the support and application of sustainable environmental practices in the banking domain (Zhang et al., 2022)(Kala, 2020), which covers the provision of various financial services and products that are deliberately structured to foster environmental conservation and assist in sustainable development strategies (Pratap, 2024)(Ekwueme et al., 2020). Punjab National Bank (PNB), celebrated for being among the largest and most influential public sector banks in India, has diligently and purposefully woven the tenets of green banking into its operational model, consequently delivering various financial products specifically aimed at facilitating eco-friendly ventures, renewable energy projects and addressing the requirements of environmentally conscious clients. Notwithstanding the increasing significance and relevance of green banking within the financial industry, the successful marketing and subsequent adoption of such innovative products encounter a multitude of challenges that can impede their proliferation (Maulani, 2015)(Nedumaran, 2020). These challenges encompass a range of issues, including but not limited to limited consumer awareness regarding the benefits and availability of green banking options, the perception of higher associated costs (Ekwueme et al., 2020)(Nath et al., 2014), the complexities inherent in regulatory frameworks and various technological barriers that may obstruct progress (M. K. Sharma et al., 2015)(Ahmed, 2012). Moreover, it is imperative to recognize that the obstacles encountered in the promotion of these green banking products do not manifest uniformly across all organizational levels (Shayana & Rai, 2017)(Ullah et al., 2024). Employees occupying different designations within PNB may experience a disparate range of difficulties that arise from the distinct nature of their roles, responsibilities and the accessibility of resources at their disposal (Amir, 2021)(M. K. Sharma et al., 2015)(Shayana & Rai, 2017). The primary objective of this research study is to conduct an in-depth exploration of the specific challenges that Punjab National Bank faces in its efforts to market its green banking products effectively, while simultaneously seeking to comprehend the ways in which these challenges vary across the spectrum of employee designations within the organization. By concentrating on the lived experiences and insights of employees situated at various hierarchical levels within the bank, this study aspires to unveil critical insights into the myriad factors that influence the efficacy of marketing strategies employed for green banking initiatives (Stauropoulou et al., 2023). The resulting findings from this research endeavor will furnish invaluable information that can be leveraged to enhance the adoption rates of green banking products, refine marketing activities and effectively address the organizational and market-related impediments that currently hinder their growth trajectory (Prabhu et al., 2021)(M. Sharma & Choubey, 2022)(Vijai, 2018).

This research initiative will serve to enrich the existing corpus of academic knowledge pertaining to green banking practices, while simultaneously offering well-founded recommendations that possess the potential to empower Punjab National Bank in fortifying its market position as a promoter of eco-friendly banking solutions, thereby facilitating alignment with broader sustainability objectives and initiatives.

2. REVIEW OF LITERATURE

2.1. Challenges Faced by Employees:

The following are the challenges faced by the bank employees, identified for the present research study;

2.1.2. Limited Awareness and Education: The absence of comprehensive and effective awareness campaigns and educational initiatives pertaining to green banking products significantly hampers the overall understanding of these offerings among both customers and employees (Herath & Herath, 2019)(Vijai, 2018), which ultimately results in a notable lack of engagement and a pronounced reluctance to embrace sustainable financial solutions that could otherwise be beneficial for the environment(Shantha, 2019).

2.1.2. Data Availability and Quality: The restricted access to accurate and reliable datasets that elucidate the environmental and financial benefits associated with green products poses a considerable challenge for financial institutions striving to devise effective marketing strategies(Ahuja, 2015)(Rai et al., 2019); this limitation complicates their efforts to substantiate the intrinsic value of these environmentally-friendly offerings in the eyes of potential consumers(Kurian, 2022).

2.1.3. Financial Viability: Persistent concerns regarding the financial viability and profitability of green banking products remain a significant barrier (M. Sharma & Choubey, 2022), as potential customers may perceive these products as being more expensive or less lucrative when compared to traditional financial products(Meesaala et al., 2023), thereby obstructing their widespread acceptance and implementation in the marketplace(Tara & Kumar, 2015).

2.1.4. Lack of Green Finance Opportunities: The limited availability of viable green investment opportunities often constrains the variety of green banking products that financial institutions are able to offer(Tara & Kumar, 2015), subsequently affecting the ability of these banks to attract a customer base that is increasingly oriented towards environmentally-conscious financial decisions and practices (Ankita Dhamija, 2021).

2.1.5. Corporate Culture and Leadership: An evident lack of robust leadership support, compounded by the absence of a corporate culture that prioritizes sustainability(Rai et al., 2019), can create substantial obstacles for banks attempting to align their green banking initiatives with broader business strategies (Debnath & Roy, 2019), ultimately resulting in a restricted capacity for the successful implementation and efficacy of these environmentally-focused efforts (S. & D. G. J. Murugan, 2017)(Vijai, 2018).

2.1.6. Reputation and Brand Image: Inconsistent communication strategies or an inability to effectively demonstrate the tangible benefits associated with green banking products can severely undermine a bank's reputation(Vijai, 2018), fostering skepticism among customers regarding the institution's genuine commitment to sustainability(Prabhu et al., 2021) and consequently diminishing trust in the financial offerings that it provides (Bouteraa et al., 2021).

2.1.7. Technological Barriers: The prevalence of outdated technological systems and an inadequate technological infrastructure can substantially obstruct the development (Bouteraa et al., 2021) and marketing of green banking products, thereby preventing the seamless integration of sustainable finance solutions into the broader digital ecosystem that banks rely upon for their operations (Rajan, 2017).

2.1.8. Perception of Higher Cost: Green banking products are frequently perceived by potential customers as being more expensive due to the higher upfront costs or service fees that they entail (Katti, 2022); this perception can deter individuals from even considering these environmentally-friendly options, despite the potential for significant long-term benefits that such products may offer(Sahoo et al., 2016).

2.1.9. Lack of Differentiation: Green banking products often encounter difficulties in distinguishing themselves within an intensely competitive market environment(Akhila & Nedumaran, 2024), particularly if they fail to present clear differentiations from traditional banking products, leading to consumer confusion and a resultant lack of interest or engagement in these sustainable alternatives (Sahoo et al., 2016).

2.1.10. Complexity of Product: The inherent complexity associated with green banking products, which encompasses a range of technical terminology(Zhang et al., 2022), environmental metrics and specific conditions that govern their use, can create significant barriers to customer comprehension and discourage meaningful engagement (Stauropoulou et al., 2023), thereby limiting the overall adoption and success of these innovative financial solutions.

2.1.11. Regulatory Constraints: Strict or ambiguously defined regulations surrounding the domain of green finance can present formidable challenges in the processes of product development, marketing and compliance(Ekwueme et al., 2020), thereby impeding a bank’s capacity to innovate and effectively offer impactful green banking solutions to its clientele(M. K. Sharma et al., 2015).

2.1.12. Risk Perception: The prevalent perception that green banking products are associated with heightened financial or environmental risks serves to discourage both potential customers and employees from engaging with these offerings(Sahoo et al., 2016), despite the numerous long-term advantages that they may provide in fostering sustainable financial practices.

2.2. Employee Designation

In the specific context of the banking sector, the various designations of employees hold considerable significance, as they serve as vital indicators for comprehending the multifaceted challenges encountered in the marketing and promotion of environmentally sustainable banking products(Chen et al., 2022), commonly referred to as green banking products(Kala, 2020). Each distinct role within the organizational hierarchy is associated with a unique set of responsibilities and degrees of customer interaction, as well as exposure to overarching organizational strategies, which consequently results in a diverse array of challenges for each respective group of employees:

2.2.1. Clerical Staff: The clerical staff primarily engage in the execution of routine operational tasks and maintain direct interactions with the customer base, which places them in a pivotal position within the banking framework. The challenges they face may encompass a constrained understanding of the range of available products, insufficient training on the specific nuances of green banking initiatives and complications in effectively addressing a myriad of customer inquiries that may arise.

2.2.2. Probationary Officers Probationary officers, who are situated at the nascent stages of their professional journeys within the banking industry, are in the process of acquiring comprehensive knowledge of various banking functions and practices. Their challenges may stem from a lack of experiential knowledge and a deficiency in self-assurance when it comes to promoting and articulating the intricacies of complex green banking products to prospective clients.

2.2.3. Assistant Managers: Assistant managers are tasked with the dual responsibilities of overseeing both operational and managerial functions, necessitating a delicate balance between these distinct yet interconnected roles. Their challenges may include the necessity of effectively managing these responsibilities while simultaneously ensuring successful promotion of green banking products and addressing the diverse concerns expressed by customers regarding the viability and benefits of green banking initiatives.

2.2.4. Managers: Managers occupy a critical position within the organizational structure, bearing the responsibility for the implementation of marketing strategies and the attainment of branch-specific targets. They may encounter significant difficulties in the process of aligning green banking initiatives with the broader business objectives of the institution, while also navigating and addressing various regulatory or financial constraints that may impede progress.

2.2.5. Senior Managers: Senior managers operate at a strategic level, concentrating on overarching organizational goals and overseeing the functioning of multiple branches or departments within the banking entity. Their challenges are often characterized by the need to drive substantial organizational change, confront and overcome technological barriers that may hinder progress and ensure that the green banking products offered are in alignment with the established sustainability vision of the bank. Through a meticulous analysis of these varied designations, the study aims to uncover the manner in which role-specific challenges exert an influence on the marketing strategies and the subsequent adoption rates of green banking products, thereby providing invaluable insights that can enhance the effectiveness of green banking initiatives across all hierarchical levels within the organization.

2.3. Marketing Effectiveness

Marketing effectiveness is best understood as the organization's capability to meet its marketing targets effectively by leveraging resources wisely(Shampa, 2017), ensuring that this approach is both efficient and supported by strategies that have a significant impact on the desired audience(Sathiyabama, 2020). In the context of eco-conscious banking, this principle centers on promoting green financial solutions through strategies that enhance consumer insight while also encouraging the uptake of these solutions, thereby supporting the broader sustainability ambitions of the financial establishment in question(Shantha, 2019). Several main factors help in evaluating how effective marketing strategies are, which consist of aspects like customer involvement rates, the pace at which products are embraced by buyers(M. Sharma & Choubey, 2022), the overall image of the brand within the industry and the profits obtained from marketing actions(Ahmed, 2012). Also, the potency of marketing plans is considerably shaped by the financial institution's skill in manoeuvrings and tackling an array of issues that could arise, including but not limited to, a shortage of customer understanding(Kala, 2020), the outlook that eco-conscious options carry increased costs and the barriers established by regulatory conditions(Ekwueme et al., 2020), while assiduously tailoring approaches to align with the varied preferences of distinct consumer segments along with the roles of workforce within the enterprise(Judith et al., 2019).

2.4. Bank Size & Market Reach

Bank Size and Market Reach denote the extensive dimensions and geographical footprint of a financial institution, which profoundly affect its operational capacities and its influence within the marketplace, thereby underscoring the critical interplay between institutional size and strategic outreach(Judith et al., 2019)(Shah et al., 2023). Bank size is determined by several aspects, which involve the total number of branches in multiple locations, the workforce figures, the institution's asset accumulation and a holistic view of its financial durability and capability (P Deepa, 2018). Institutions of considerable magnitude, such as the Punjab National Bank (PNB), possess a more substantial array of resources that can be allocated towards marketing initiatives, the development of innovative financial products and comprehensive educational programs for customers(D. S. Murugan, 2019)(Solekah, 2019), all of which collectively enhance their capacity to effectively promote environmentally sustainable banking solutions(Marwah, 2019)(Anwesha & MajumdER, 2024). Understanding Market Reach means looking at the wide array of customers a bank caters to and the geographical spectrum it covers, which includes both bustling cities and quiet rural communities (Thi et al., 2023)(Saromi & Sahayaselvi, 2023). By expanding their market reach, financial institutions are afforded the opportunity to engage with a diverse array of customer segments, thereby facilitating a greater acceptance and integration of green banking products across various demographic and geographic landscapes(Judith et al., 2019)(Anggraini et al., 2024). The combination of these linked factors has a notable effect on the ability of a financial organization to carry out and advocate for initiatives centered on green banking effectively and significantly in the wider scope of sustainable finance(Qureshi & Hussain, 2020).

3. Research Methodology

3.1. Research Context

This investigation meticulously delves into the multifaceted challenges encountered by Punjab National Bank (PNB) in the intricate process of marketing its environmentally sustainable banking products, which are increasingly relevant in today's ecologically conscious market. Furthermore, it comprehensively evaluates both the internal and external factors that contribute to these challenges, including but not limited to consumer awareness, the financial viability of the products offered, the constraints posed by regulatory frameworks and the intricate dynamics within the organization itself, while also conducting a thorough analysis of how these various challenges manifest differently across the diverse employee designations within the bank, ultimately influencing the adoption rates and overall effectiveness of the eco-friendly banking solutions provided.

3.2. Objectives of the study

1. To understand the challenges faced by PNB in marketing of green banking products.
2. To analyze the differences in challenges faced by PNB employees across various designations in marketing green banking products to enhance adoption and effectiveness.

3.3. Hypothesis of the study

H_{01}: There is significant relationship between the challenges faced by PNB employees in marketing green banking products.

H_{02}: There is a significant differences in challenges faced by PNB employees across various designations in marketing green banking products.

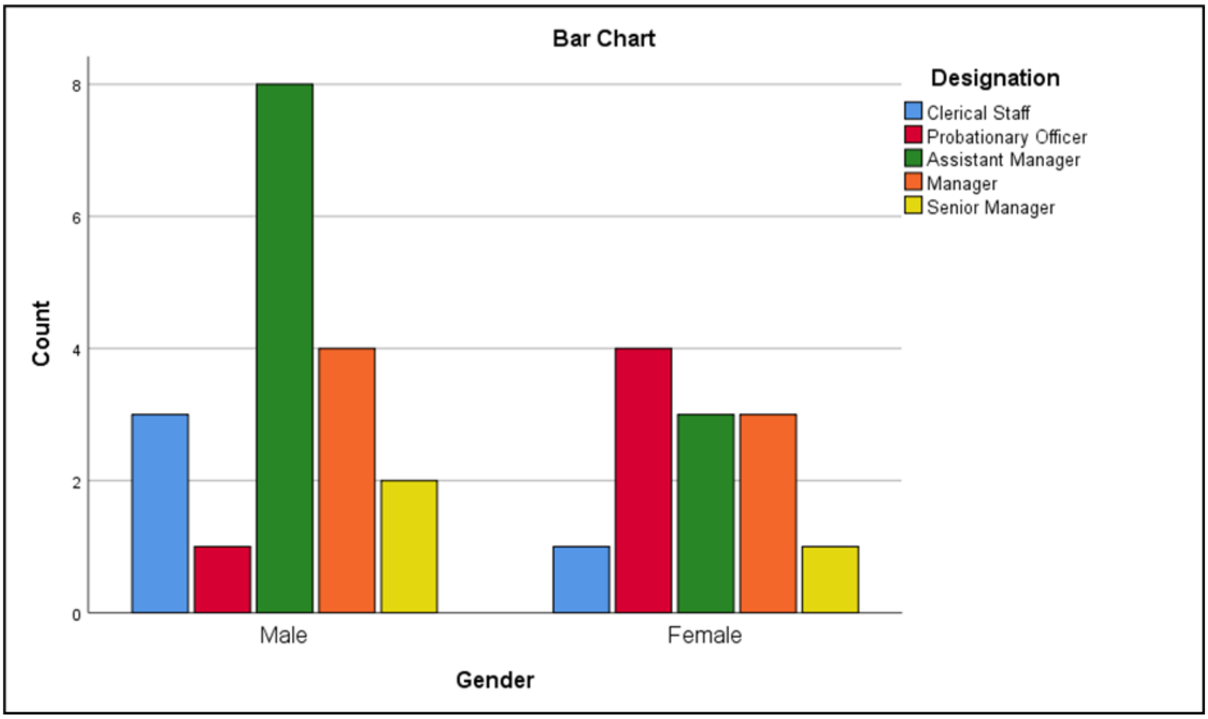
4. Analysis and Interpretation

This section demonstrate the results of comprehensive analysis of 30 employees of Punjab National Bank. The researcher has collected data regarding challenges faced by PNB employees across different designation in marketing of green banking products to customers. The objective of this study was to understand the challenges faced by PNB in marketing of green banking products and analyze the differences in challenges faced by PBN employees across various designations in marketing green banking products to enhance adoption and effectiveness. The data was processed and analysed utilising statistical approaches such as tabulation, charts, descriptive statistics, factor analysis and one way Anova to ascertain the precise relationships and differences among the variables.

Table no 1: Cross tabulation of respondents on Gender basis and Designation wise

			Designation					
			Clerical Staff	Probationary Officer	Assistant Manager	Manager	Senior Manager	Total
Gender	Male	Count	3	1	8	4	2	18
		Expected Count	2.4	3.0	6.6	4.2	1.8	18.0
		% within Gender	16.7%	5.6%	44.4%	22.2%	11.1%	100.0%
	Female	Count	1	4	3	3	1	12
		Expected Count	1.6	2.0	4.4	2.8	1.2	12.0
		% within Gender	8.3%	33.3%	25.0%	25.0%	8.3%	100.0%
Total		Count	4	5	11	7	3	30
		Expected Count	4.0	5.0	11.0	7.0	3.0	30.0
		% within Gender	13.3%	16.7%	36.7%	23.3%	10.0%	100.0%

Chart no 1: Chart showing Cross tabulation of respondents on Gender basis and Designation wise



Interpretation:

The above table and chart depicts cross tabulation of respondents based on gender and designation. Of the total 18 male respondents, most of them hold the position of Assistant Manager (44.4%) followed by Manager (22.2%). There are smaller shares in majority of the other positions which are in Clerical Staff 16.7%, Senior Managers 11.1% while Probationary Officer roles are at 5.6%. The situation is different for female respondents 12 in total where the highest proportions are Probationary Officer at 33.3% followed by Assistant manager and Managers both at 25%. Even smaller numbers of females are in Clerical Staff at 8.3% and the same percentage in Senior Manager Positions. In general, statistics indicate that the pattern of role distribution differs between male and female, with majority of males occupying mid to senior management and most females being Probationary Officers.

Objectives 1: To understand the challenges faced by PNB in marketing of green banking products.

In order to understand the challenges faced by employee in marketing the green product, the initial thing is to identify the challenges which are encountered in the process of marketing and the strength of difficulties is been measured using five pointer scale from least affects to most affects from employees, descriptive statistics helps to know the tendency of each challenges and to determines the significance of challenges in marketing the green banking products, a factor analysis tool is employed. This tool will assess the significance level between different challenges encountered by bank employees. The principle component method will be used to extract the factor from the component that have been grouped according to the challenges. Additionally, the loading of each component will be evaluated to name them.

Table no 2: Descriptive Statistics of Challenges faced by employees in marketing green banking products

Challenges	N	Minimum	Maximum	Mean	Std. Deviation
Limited Awareness and Education	30	1.00	5.00	3.7000	1.02217
Data Availability and Quality	30	1.00	5.00	4.2000	1.24291
Financial Viability	30	1.00	5.00	3.3333	.99424
Lack of Green Finance Opportunities	30	1.00	5.00	3.5667	1.10433
Corporate culture and leadership	30	1.00	5.00	3.6000	.85501
Reputation and Brand Image	30	1.00	5.00	3.8333	.98553
Technological Barriers	30	1.00	5.00	3.7000	.98786
Perception of Higher Cost	30	1.00	5.00	4.1000	1.15520
Lack of Differentiation	30	1.00	5.00	3.4333	.93526
Complexity of Product	30	1.00	5.00	3.4667	1.04166
Regulatory Constraints	30	1.00	5.00	3.3333	1.21296
Risk Perception	30	1.00	5.00	3.7000	.95231
Valid N (list wise)	30				

Interpretation:

The above table reveals descriptive statistics of the challenges encountered by the employees concerning the marketing of green banking products in the case of 30 participants. Among the numerous challenges **Data Availability and Quality** stands out most significantly with the highest mean score of 4.20 and a fairly high standard deviation value of 1.24 indicating variability in responses. **Perception of Higher Cost** is also fairly placed with a mean score of 4.10, indicating a concern for the cost aspect of the green banking initiatives. Moderate challenges are **Reputation and Brand Image** with mean of 3.83, **Limited Awareness and Education** with mean of 3.70 and **Risk Perception** with mean of 3.70 reflecting barriers related to understanding and trust in green products. Other challenges include Corporate Culture and Leadership (mean = 3.60) and Lack of Green Finance Opportunities (mean = 3.57) underline the need for internal support and external financial options. Lower mean scores for challenges like **Financial Viability** (mean = 3.33) and **Regulatory Constraints** (mean = 3.33) suggest these are relatively less pressing but still noteworthy. The standard deviations highlight varying levels of agreement among employees on these issues. Overall, the data indicates that both external factors (data, costs) and internal organizational dynamics significantly impact the marketing of green banking products.

Factor Analysis

Hypothesis:

H_0: There is no significant relationship between the challenges faced by PNB employees in marketing green banking products.

H_1: There is significant relationship between the challenges faced by PNB employees in marketing green banking products.

Table no 3: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.737
Bartlett's Test of Sphericity	Approx. Chi-Square	246.495
	Df	66
	Sig.	.000

Interpretation:

The above results indicate that a factor analysis can be applied to the set of given data as the value of KMO statistics is greater than 0.5, i.e., 0.737 and the Bartlett's test of sphericity represents the significance level towards factors for study as the p-value (chi-square = 246.495, df = 66, p =.000) is less than the level of significance.

Table no 4: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.331	52.760	52.760	6.331	52.760	52.760	3.140	26.170	26.170
2	1.193	9.941	62.701	1.193	9.941	62.701	2.765	23.043	49.213
3	1.084	9.029	71.730	1.084	9.029	71.730	2.009	16.740	65.953
4	1.071	8.928	80.658	1.071	8.928	80.658	1.765	14.705	80.658
5	.760	6.337	86.995						
6	.511	4.257	91.251						
7	.393	3.274	94.525						
8	.184	1.530	96.055						
9	.163	1.356	97.411						
10	.144	1.202	98.613						
11	.105	.876	99.488						
12	.061	.512	100.000						

Extraction Method: Principal Component Analysis.

Interpretation:

From the above table of total variance explained, there are four components extracted through principal component analysis, resulting in a total of 80.658 percent of the variations in the entire data set, which are considered based on Eigen values having more than 1 value, which are said to be significant. The percentage of variation explained by all four components are 26.170, 23.043, 16.740 and 14.705 respectively.

Table no 5: Component Matrix and Communalities

	Component Matrix[a]				**Communalities**	
	1	2	3	4	Initial	Extraction
Limited Awareness and Education	.735	-.200	-.321	.013	1.000	.683
Data Availability and Quality	.753	-.050	-.164	-.428	1.000	.780
Financial Viability	.679	.559	-.085	-.127	1.000	.798
Lack of Green Finance Opportunities	.755	-.362	-.183	.166	1.000	.762
Corporate culture and leadership	**.731**	**-.482**	**.273**	**-.239**	**1.000**	**.898**
Reputation and Brand Image	.778	-.272	-.297	.088	1.000	.775
Technological Barriers	**.639**	**-.158**	**.492**	**-.417**	**1.000**	**.850**
Perception of Higher Cost	**.808**	**.365**	**-.022**	**-.241**	**1.000**	**.845**
Lack of Differentiation	**.805**	**.452**	**-.068**	**-.015**	**1.000**	**.857**
Complexity of Product	**.688**	**-.062**	**.321**	**.479**	**1.000**	**.809**
Regulatory Constraints	.555	.182	.576	.355	1.000	.798
Risk Perception	**.750**	**.034**	**-.260**	**.438**	**1.000**	**.823**
Extraction Method: Principal Component Analysis.						
a. 4 components extracted.						

Interpretation:

The above table indicates the component matrix with communalities, i.e., factor loading of each component extracted with the principal component method and communalities say the sum of squares of each value of a particular variable; it is a measure of the percentage of variable variation that is explained by factors. The highest communalities are corporate culture and leadership, Technological Barriers, Perception of Higher Cost, Lack of Differentiation, Complexity of Product and Risk Perception which indicate accountability of each variable by the underlying factors taken together.

Table no 6: Rotated Component Matrix

	Component			
	1	2	3	4
Limited Awareness and Education	.733	.306	.224	.042
Data Availability and Quality	.459	.529	.524	-.123
Financial Viability	.172	**.855**	.082	.176

Lack of Green Finance Opportunities	**.790**	.127	.273	.220
Corporate culture and leadership	.460	.059	**.797**	.222
Reputation and Brand Image	**.802**	.250	.237	.114
Technological Barriers	.077	.269	**.841**	.253
Perception of Higher Cost	.275	**.799**	.322	.164
Lack of Differentiation	.323	**.808**	.118	.293
Complexity of Product	.417	.146	.170	**.765**
Regulatory Constraints	.043	.250	.215	**.829**
Risk Perception	.722	.363	-.108	.397
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.				
a. Rotation converged in 6 iterations.				

Interpretation:

From the above study, four components have been extracted using an extraction method called principal component analysis, followed by a rotation method called Varimax with Kaiser Normalization, performed to the factor loading of each component extracted. We will use the rotated component matrix using 0.75 as a cut-off point for factor loading when naming the factors. Component 1 comprises of Lack of Green Finance Opportunities and Reputation-Brand Image. This can be named as **Green Finance and Brand Perception**. Component 2 comprises of Financial Viability, Perception of Higher Cost and Lack of Differentiation. This can be named as **Cost Challenges and Market Positioning**. Component 3 comprises of corporate culture and leadership along with Technological Barriers. This can be named as **Organisational Dynamics and Technological Constraints**. Component 4 comprises of Complexity of Product and Regulatory Constraints. This can be named as **Products and Regulatory Hurdles**.

Therefore, From the Test of **KMO and Bartlett's test of sphericity** the factor analysis applied is said to be significant where P-value is less than the level of significance of 1% and 5% therefore **alternative Hypothesis** is satisfied as there is **significant** relationship between the challenges faced by PNB employees in marketing green banking products.

Objectives 2: To analyze the differences in challenges faced by PBN employees across various designations in marketing green banking products to enhance adoption and effectiveness.

The previous test demonstrate that there is a significant challenges in the process of marketing green banking products faced by employees of Punjab national bank and the challenges which has higher influence in marketing the green banking products are been extracted and named as per their factor loading to their respective components. As a further study to analyse the differences of challenges in marketing green banking products faced by employees of different designation which is evidencing the second objective of study, the one way Anova is ben conducted to find out these difference among the employees of different designation.

Hypothesis

H_0: There is no significant differences in challenges faced by PNB employees across various designations in marketing green banking products.

H_1: There is a significant differences in challenges faced by PNB employees across various designations in marketing green banking products.

Table no 7: Table showing summary of one way Anova Results

Descriptive				Test of Homogeneity of Variances				ANOVA	
	N	Mean	Std. Deviation	Levene Statistic	df1	df2	Sig	F	Sig.
Clerical Staff	4	2.0357	.81961	2.667	4	25	.056	2.980	.039
Probationary Officer	5	1.9429	1.29205						
Assistant Manager	11	2.9740	.73072						
Manager	7	3.0000	.60609						
Senior Manager	3	1.7619	.65983						
Total	30	2.5619	.93334						

Interpretation:

The hypothesis examines the challenges faced by PNB employees across various designations in marketing green banking products. The table contains a summary of one-way Anova results, descriptive statistics and a test of homogeneity of variance using the Levene statistic. The test shows the mean score of respondents of different designation along with their deviation: Clerical Staff (M = 2.0357, SD = .81961), Probationary Officer (M = 1.9429, SD = 1.29205), Assistant Manager (M = 2.9740, SD = .73072), Manager (M = 3.00, SD = .60609), Senior Manager (M = 1.7619, SD = .65983). The descriptive statistics show variations in the mean scores of challenges across designations, with **Managers** reporting the highest average score (3.00) and **Senior Manager** reporting the lowest (1.7619), indicating differences in the perception of challenges among roles. The findings of the one-way analysis of variance (ANOVA) indicate that there are substantial variations in the manner in which employees with different designation faces the challenges in marketing the green banking products. The findings of the analysis of variance (ANOVA) ($F = 2.980$, $p = 0.039$) reveal that the differences across designation are statistically significant. However, The Levene's test for homogeneity of variances yields a p-value of 0.056, confirming that the assumption of equal variances is met. Given that the p value falls below the significance thresholds of 0.05, researcher accept the alternative hypothesis. Therefore, there is a significant differences in challenges faced by PNB employees across various designations in marketing green banking products.

5. Conclusion

The comprehensive study underscores the significant and multifaceted challenges that are encountered by Punjab National Bank (PNB) in its efforts to effectively market its green banking products, which include but are not limited to limited awareness among potential consumers, concerns regarding financial viability, regulatory constraints imposed by governing bodies and various technological barriers that hinder progress. It is essential to note that these challenges manifest differently across various employee designations within the organization, where individuals occupying managerial roles are confronted with strategic and compliance-related obstacles that require a high level of expertise, whereas clerical and operational staff are more likely to face difficulties that pertain specifically to their training and the engagement with customers in a meaningful way. By proficiently addressing the specified hurdles with well-planned marketing approaches, robust workforce training initiatives and advancements in tech infrastructure, PNB can effectively elevate the recognition and utilization of its green banking services, thereby fostering the growth of sustainable banking methods and improving its competitive stance in the business realm.

References

1. Ahmed, S. U. (2012). Green Banking : Advancement and Opportunities. KEIEI TO KEIZAI, 92(1–2), 1–12.
2. Ahuja, N. (2015). Green banking in India : A Review of Literature. Neyati Ahuja / International Journal for Research in Management and Pharmacy, 4(1), 11–16.
3. Akhila, K. H., & Nedumaran, G. (2024). Customer Awareness And Gratification On Green Banking Products

And Services Of State Bank Of India In Thiruvananthapuram Of Kerala. Library Progress International, 44(3), 17570–17581.

4. Amir, M. K. (2021). Banker Attitudes and Perception towards Green Banking : An Empirical Study on Conventional Banks in Bangladesh Banker Attitudes and Perception towards Green Banking : An Empirical Study on Conventional Banks in Bangladesh. Munich Personal RePEc Archive, 10(02), 01–13.
5. Anggraini, F., Mohammad, U., Fadli, D., & Rosmawati, E. (2024). RESEARCH IN MANAGEMENT OF TECHNOLOGY AND RMTB Customer Perception and Literacy Regarding the Implementation of Green Banking at BCA Bank Tbk . (Gen-. RESEARCH IN MANAGEMENT OF TECHNOLOGY AND BUSINESS, 5(1), 1871–1884.
6. Ankita Dhamija, D. S. (2021). GREEN BANKING: PERCEPTION AND WILLINGNESS OF CUSTOMER TO ADAPT GREEN BANKING. BIMS Journal of Management, 5(2), 34–40.
7. Anwesha, M., & MajumdER, S. (2024). A Study on Green Banking Services of Commercial Banks and Customer Awareness in West Bengal. Journal of Academic Advancement, 03(02), 56–67.
8. Bouteraa, M., Rizal, R., Raja, I., & Zairani, Z. (2021). EXPLORING DETERMINANTS OF CUSTOMERS ’ INTENTION TO ADOPT GREEN BANKING : QUALITATIVE INVESTIGATION. Journal of Sustainability Science and Management, 16(04), 187–203. https://doi.org/10.46754/jssm.2021.04.014
9. Chen, J., Siddik, A. B., Zheng, G., & Masukujjaman, M. (2022). The Effect of Green Banking Practices on Banks ’ Environmental Performance and Green Financing: An Empirical Study. Energies, 1–22.
10. Debnath, S., & Roy, S. (2019). Customer ’ s Awareness on Green Banking Initiatives. IUJ Journal of Management, 7(2), 75–78.
11. Ekwueme, A., Alikeikwo, N., State, E., Alike, N., State, E., Idume, G., Ekwueme, A., & State, E. (2020). GREEN BANKING AWARENESS , CHALLENGES AND SUSTAINABILITY IN NIGERIA. International Journal of Mechanical Engineering and Technology (IJMET), 11(03), 30–54.
12. Herath, H. M. A. K., & Herath, H. M. S. P. (2019). Impact of Green Banking Initiatives on Customer Satisfaction : A Conceptual Model of Customer Satisfaction on Green Banking Impact of Green Banking Initiatives on Customer Satisfaction : A Conceptual Model of Customer Satisfaction on Green Banking. IOSR Journal of Business and Management (IOSR-JBM), 21(01), 24–35. https://doi.org/10.9790/487X-2101032435
13. Ilhamalimy, R. R., & Septika, B. H. (2023). Green Marketing and Digital Marketing Strategies in Increasing Sales Products NTB Waste Bank. BASKARA Journal of Business and Entrepreneurship, 06(01), 31–46.
14. Judith, C., Mathe, A., Com, I. M., & College, M. C. (2019). A Study on the Customer Aware ness on Green Banking Initiatives in the City of Bengaluru. THINK INDIA JOURNAL, 22(43), 79–85.
15. Kala, K. N. (2020). A Study on The Impact of Green Banking Practices on Bank ’ s Environmental Performance With Special Reference To Coimbatore City. African Journal of Business and Economic Research, 15(3), 1–6.
16. Katti, V. (2022). An Evaluation of Customer Awareness towards Green Banking Practices of State Bank of India. YMER, 21(05), 825–833. https://doi.org/10.37896/YMER21.05/95
17. Kurian, J. (2022). A Study on Customers Knowledge Awareness and Perception Regarding Green Banking. International Journal of Research in Engineering, Science and Management, 5(2), 97–99.
18. Marwah, S. A. P. (2019). Customer Awareness and Adoption of Sustainable Green Banking Practices : An Empirical Study on banks in Delhi. Global Journal of Enterprises Information System, 11(03), 26–30. https://doi.org/10.18311/gjeis/2019
19. Maulani, T. S. (2015). Green Banking : A Service Product Innovation In Brand Image Enhancement Through The Marketing Mix. First International Conference on Economics and Banking (ICEB-15), 39–43.
20. Meesaala, K. M., Subramani, V., Ibrahim, R., Farsi, A., & Kumar, R. V. (2023). Customer Awareness and Knowledge on Green Finance Activities Towards Sustainable Environment of Banking Sector in Oman -A Study. Samdarshi, 16(04), 2902–2908.
21. Murugan, D. S. (2019). CUSTOMERS ’ AWARENESS ON GREEN BANKING PRACTICES – A STUDY WITH SPECIAL REFERENCE TO NEW GENERATION. International Journal of Research and Analytical Reviews (IJRAR), 06(02), 703–710.
22. Murugan, S. & D. G. J. (2017). Customer satisfaction regarding green banking. International Journal of Management Research & Review, 07(08), 822–830.
23. Nath, V., Nayak, N., & Goel, A. (2014). GREEN BANKING PRACTICES – A REVIEW. IMPACT: International

Journal of Research in Business Management, 2(4), 45–62.
24. Nedumaran, G. (2020). Impact on Customer Perceptions of Green Banking Process with Special Reference in Rajapalayam Taluk. TEST: Engineering & Management, 82(Jan-Feb), 9376–9382.
25. P Deepa, D. C. K. (2018). A study on customer ' s awareness on green banking in selected public and priva te sector banks with reference to Tirupur. International Journal of Advanced Research and Development, 03(01), 58–63.
26. Prabhu, G. N., Aithal, P. S., & Prabhu, N. (2021). A Review-Based Research Agenda on Green Banking Service Practices through Green CSR Activities. International Journal of Management, Technology, and Social Sciences (IJMTS), 6(2), 204–230. www.srinivaspublication.com
27. Pratap, S. J. P. S. (2024). " Exploring Customer Awareness of Green Banking Initiatives in Karnataka : A Comprehensive Study on Public and Private Sector Banks ." Library Progress International, 44(3), 1140–1147.
28. Qureshi, M. H., & Hussain, T. (2020). Green Banking Products : Challenges and Issues in Islamic and Traditional Banks of Pakistan. Journal of Accounting and Finance in Emerging Economies, 6(3), 703–712.
29. Rai, R., Kharel, S., Devkota, N., & Paudel, U. R. (2019). Customers Perception on Green Banking Practices : A Desk Review. The Journal of Economic Concerns, 10(1), 82–95.
30. Rajan, P. (2017). A STUDY ON THE CUSTOMER AWARENESS ON GREEN BANKING INITIATIVES. INTERCONTINENTAL JOURNAL OF FINANCE RESEARCH REVIEW, 05(07), 54–65.
31. Sahoo, B. P., Singh, A., & Jain, N. (2016). GREEN BANKING IN INDIA : PROBLEMS AND PROSPECTS. International Journal of Research -GRANTHAALAYAH, 4(8), 92–99. https://doi.org/10.29121/granthaalayah.v4.i8.2016.2566
32. Saromi, N., & Sahayaselvi, S. (2023). Customer Awareness and Application of Green Banking Practices. Cross Res.: ISSN 0976-5417, 14(2), 255–265.
33. Sathiyabama, S. C. M. C. & D. B. (2020). PERCEPTION ON GREEN BANKING PRACTICES IN SELECTED. Journal of Shanghai Jiaotong University, 16(8), 654–672.
34. Shah, P. R., Gadhavi, P. D., Chintan, P., & Harshal, M. (2023). A Study on Customer Awareness : Green Banking. International Journal for Multidisciplinary Research (IJFMR), 5(4), 1–14.
35. Shampa, T. S. (2017). Factors Influencing Customers ' Expectation Towards Green Banking Practices in Bangladesh. European Journal of Business and Management, 9(12), 140–152.
36. Shantha, A. A. (2019). Customer ' s Intention to Use Green Banking Products : Evidence from Sri Lanka. International Journal of Scientific and Research Publications, 09(06), 148–161. https://doi.org/10.29322/IJSRP.9.06.2019.p9029
37. Sharma, M., & Choubey, A. (2022). Green banking initiatives : a qualitative study on Indian banking sector. Environment, Development and Sustainability, 24(01), 293–319. https://doi.org/10.1007/s10668-021-01426-9
38. Sharma, M. K., Pandey, N., & Sajid, R. (2015). Green Marketing : A Study of Emerging Opportunities and Challenges in Indian Scenario. International Journal of New Technology and Research (IJNTR), 01(4), 51–57.
39. Shayana, A., & Rai, S. (2017). A STUDY ON PROBLEMS AND PERSPECTS OF GREEN BANKING WITH REFERENCE. International Journal of Research in Finance and Marketing (IJRFM), 7(1), 141–151.
40. Solekah, N. A. (2019). The effect of green banking product and green corporate image on green customers loyality in green customers satisfaction syariah banking mediation. Management and Economics Journal E-ISSN:, 3(1), 81–94.
41. Stauropoulou, A., Sardianou, E., Malindretos, G., & Evangelinos, K. (2023). The role of customers ' awareness towards the sustainable development goals (SDGs) of banks on their behavior. Environmental Science and Pollution Research, 30, 13495–13507. https://doi.org/10.1007/s11356-022-23111-8
42. Tara, K., & Kumar, R. (2015). Green Banking for Environmental Management : A Paradigm Shift Green Banking for Environmental Management : A Paradigm Shift. Current World Environment, 10(03), 1029–1038. https://doi.org/10.12944/CWE.10.3.36
43. Thi, N., Dang, M., Pham, T. T., Nguyen, N. B., & Do, L. T. (2023). CUSTOMER PERCEPTION ON GREEN BANKING - AN EMPIRICAL STUDY IN VIETNAM. SDG JOURNAL OF LAW AND SUSTAINABLE DEVELOPMENT, 11(12), 1–18.
44. Ullah, I., Zahid, K., Safeer, H., Khan, U., & Ahmad, M. (2024). Green banking practices, bank reputation and environmental awareness : evidence from Islamic banks in a developing economy. Environment, Development

and Sustainability, 26(6), 16073–16093. https://doi.org/10.1007/s10668-023-03288-9

45. Vijai, C. (2018). A Study on Customer ' s Awareness on Green Banking Initiatives in Selected Public and Private Sector Banks with Special Reference To Cuddalore District. International Journal of Innovative Research in Science, Engineering and Technology, 07(11), 9362–9367. https://doi.org/10.15680/IJIRSET.2018.0711033
46. Zhang, X., Wang, Z., Zhong, X., Yang, S., & Siddik, A. B. (2022). Do Green Banking Activities Improve the Banks ' Environmental Performance ? The Mediating Effect of Green Financing. Sustainability (Switzerland), 14(989), 1–18.