

Role Of Technology In Green Banking In India: An Empirical Study Of Private Sector Banks

Dr. Vivek Sharma¹, Dr. Priyank Kumar Singh², Mr. Gopalan Ramachandran³, Dr. Shweta Rani⁴

¹Director – Management Sohem Group, Bareilly (Uttar Pradesh)

²Ph.D from Doon University, Dehradun

³Ph.D Research Scholar Director, Novature Tech Pvt Ltd, TECCI Park, Chennai-600119

⁴Assistant Professor Department of Geography Dyal Singh College, University of Delhi Lodhi Road, New Delhi 110003

Abstract

As humanity progress through the twenty-first century, one thing that humans will sadly regret is the loss of vegetation. As everyone in contemporary society becomes more interested as well as concerned about the natural environment, corporate organisations as well as businesses have begun to change their operations in an effort to boost greenery to the greatest extent feasible. Green banking entails merging administrative advancements, technologies, as well as evolving consumer behaviour in the banking industry. The concept as well as potential of green banking in India have received special attention in order to make the environment more human-friendly as well as to boost the economic production. This research also addresses innovations made by Private Sector Banks towards development that is long-term, as well as the obstacles that banks confront in execution. The exploration is relied on supplementary information. According to the results, there is an urgent need to raise vulnerability, adopt, as well as practise green banking as much as feasible in today's business sector of new innovation in order to create the human-friendly environment as well as improve the sustainability. Sample of 287 people working in banking sector were surveyed to know the role and importance of technology in green banking in private sectors bank of India. It is found that technology play a significant and important role in green banking in private sector banks in India.

Keywords: Green Banking, Private Sector Banks, Sustainable Development, Beneficial Activities, Environmental Ventures.

Introduction

Green banking is a relatively recent financial phenomenon. Banks play a vital involvement in influencing comprehensive sustainable development as a funding vehicle for economic and developmental operations. Green banking is a phrase used by banks to highlight their attempts to develop additional ecologically responsible. Green banking is the establishment of equitable banking practises that will enable long-term economic and social development.

Green Banking comprises banks encouraging environmentally friendly investments and

prioritising financing to sectors that already have gone green or are attempting to go green in order to assist environmental restoration. Green banking entails merging operational efficiencies, technological, as well as changing customer behaviour in the banking industry. It entails encouraging environmentally beneficial activities.'

Sudhalakshmi and Chinnadorai (2014) researched and claimed that green banking is comparable to traditional banking in that it takes into account all ecological as well as socioeconomic elements; it is also known as an ethical bank. Ethical banks were founded with

the goal of conserving the surrounding in mind. These banks function similarly to ordinary banks in that they strive to safeguard the environment and are governed by the same authorities. Green banks give more credence to the environment exposures, their goal is to give excellent ecological and sustainability business practises, they verify all the variables. Before granting loan, consider whether the proposal is environmentally friendly as well as possesses any potential ramifications, individuals will be bestowed a loan only if individuals pursue all the environmental safety regulations.

Biswas (2011) examined and stated that the advantages of internet banking includes reduced documentation, less mail, as well as less driving to branch offices by bank clients, all of which benefit the environment. Surprisingly, internet banking may improve a bank's effectiveness as well as competitiveness. If more consumers use online banking, a bank's expenditures from paper overload as well as bulk shipping prices can be reduced. Green banking can help eliminate the requirement for costly bank branches. Green banking is also garnering popularity in recent years.

According to **Bihari (2010)**, most banks are computerising, networking, and providing Internet banking to consumers, which significantly lowers the usage of paper both intrinsically as well as extrinsically, resulting in less pollution. Banks may also help eco-friendly organisations by providing green credit and raising funds for local environmental ventures.

Literature Review

Ch (2014) examined and concluded that green banking plays an important role in lowering creditworthiness, liability risk, as well as reputational risks. Some green banking tactics mentioned by the author include carbon credit enterprise, green financial goods, green mortgages, carbon footprint minimization, as well as corporate responsibility services to community.

Annadurai (2014) analyzed and ascertained that banks may play an essential importance in lowering society's carbon footprint. Previously, economic development meant alleviating poverty, unfairness, as well as joblessness in society; however, the notion of economic development has shifted to long-term growth,

which implies advancement that meets the necessities of the moment without jeopardising future generations' capacity to satisfy declared or inferred demands.

Shrivastava, et al. (2019) determined that India is lagging behind its peers in wealthy economies. They have begun to embrace green methods, but their environmental effect is still growing. In India, green banks are just getting started. They should make greater use of environmental data in their company operations, credit choices, as well as financial investments. The project will assist them in dynamically improving their ecological efficiency as well as create long-term benefits for their company.

According to **Arora (2020)**, Green Banking is an umbrella word that refers to policies as well as rules that make banks feasible in economic, environmental, as well as social aspects. Green banking may help decrease pollution and safeguard the environment while also promoting long-term economic prosperity. Before deciding to fund a venture, banks must assess its environmental hazards as well as verify that the undertaking participants have ecological protective precautions in place, such as composting operations or even gas as well as smoke capturing devices. A structure of incentive for conscientious banks as well as perverse incentives for polluters is critical for the growth of green banking.

Sarma and Roy (2021) researched and discovered that now, Indian private sector banks are considered as attractive for joining international marketplaces, and it is critical that they understand their environmental and social obligations. As a result, green solutions have grown popular not just among smaller alternatives as well as cooperative banks, but also among diversified financial service providers, asset management organisations, as well as insurance companies. Green initiatives may be defined as the development of green goods that use less energy, with corresponding distribution, marketing, as well as communication channels.

According to **Shailaja and Olekar (2021)**, green banking is a relatively new trend in the financial sector. Banks' actions are linked to environmental conservation as well as sustainable prosperity. Banks and financial

institutions, as conscientious entities, may perform a vital role in saving the surroundings via financing environmentally friendly initiatives as well as adopting environmentally friendly goods and services. Essentially, green banking refers to banking operations that are handled in a way that aids in the overall decline of peripheral carbon emissions as well as internal carbon emissions. Green finance, which comprises subsidised financing for green technology and pollutant-free projects, can help banks decrease their external carbon emissions. On the other hand, through product improvements, the bank minimises its internal carbon footprint. Technology-driven banks contribute to the conservation of natural resources as well as environmental preservation. It will also reduce the amount of paper, water, as well as energy used. Banks are actively engaged in green processes, initiatives, infrastructure improvements, as well as the introduction of a multitude of green merchandise as well as services to safeguard the ecosystem.

Bansal, et al. (2022) examined and said that the improvements in technology had given rise to new information age that enables humanity to as well as know the mother earth comprehensively. People are conscious of present progress's harmful effects, such as global warming as well as environmental catastrophe. Growing awareness as well as the shortage of alternative options, they were forced to reconsider the approach to environmental protection. Several worldwide projects are ongoing to mitigate the damage being done to our mother planet. The focus on lowering demand for fossil fuels by implementing the 3R's (Reduce, Recycle, Reuse) is a common thread running through all of these programmes. Banks, as lenders, may influence firms to adopt environmentally friendly practises. Banks, as key technology implementers, may embrace green practises and thereby pioneer the road in this worldwide endeavour. Furthermore, product innovation as well as the use of technology enables banks and their consumers to limit the use of commodities such as paper, so contributing to environmental conservation.

Jayalakshmi & Mahalingam (2020)

researched and concluded that Green banks prioritise ecological considerations; their goal

is to offer good social as well as environmental corporate practices; they verify all the considerations before lending a loan, whether the project is environmentally friendly and has any potential implications; and a loan is only granted if all environmental safety standards are met. It strives to make financial operations as well as the usage of IT as well as infrastructural facilities as economical as well as appropriate as feasible while having little or little environmental impact. Indian banks have launched environmentally friendly programmes and plans to cut paper consumption, use green cards, invest in solar sets, and take a fresh attitude to beloved mother planet.

Bhasin (2016) examined and concluded that the banking and financial industry has a significant impact on the country's socioeconomic development. Environmental concerns are receiving more emphasis these days, putting pressure on organisations everywhere, especially financial institutions, to adopt, execute, and promote green projects. The banking industry is critical in fostering ecologically friendly as well as socially conscious initiatives. The financial industry should subsidise green technology initiatives to help reduce carbon emissions. E - Banking is not only responsible for the economic growth, it also performs a crucial function in environmental conservation. As a result, it is critical to examine bankers' perspectives on the acceptable use of green technology.

Green banking involves technical advancements, operational efficiencies, as well as a shift in client behaviour in the banking industry. It comprises promoting ecologically friendly practises as well as lowering the carbon impact of financial activity. It is a forward as well as proactive mode of thinking that envisions future sustainability. Banking activities are not physiologically connected to their surroundings, but their client acts have a substantial external impact. Banks should promote goods, procedures, as well as technology that significantly lower the environmental carbon footprint. **Kumar and Prakash (2020)** discovered a favourable relationship between environmental as well as financial success. Formerly, banks just analysed their business performance, but today it is necessary to analyse their social as well as ecological achievement as well. Banks, as key

technology implementers, may embrace green practises and thereby lead the way in this worldwide endeavour. Furthermore, product innovation as well as the use of technologies empower banks as well as their consumers to limit the use of resources such as document, so contributing to environmental conservation.

Singh (2021) analyzed and ascertained that banks are emerging to acknowledge that they have a social obligation to fulfil beyond simply receiving deposits for the objective of lending or investing. Banks must assess the repercussions of their financing as well as borrowing decisions due to the relatively indirect nature of their social as well as environmental implications. Incorporating environmental as well as social parameters into company decision-making can help to lessen the environmental as well as social implications of operations. Financial institutions may contribute significantly to initiatives to accomplish corporate social responsibilities as well as sustainable development. Capturing the consumer's voice as well as comprehending comprehensive requirements comprises both stated demands as well as extra value-added criteria that will please the consumers.

Das (2013) explored and concluded that green banking offers a wide range of business applications consistent with mainstream green banking notions. In the Institute for Banking Technology Development and Research, the study gives two levels of recommendations on greening banking: (1) greening banking operations, commodities, services, as well as initiatives, as well as (2) greening banking infrastructure (IDRBT). Profitable business methods and greener IT, as well as physical infrastructure, are present at both levels. Fintech advancements have completely transformed India's banking as well as financial institutions. In recent years, an increasing number of banks have made efforts to focus their funding, capital, and lending capacity in order to reduce environmental degradation as well as develop financially viable banking. Vital criteria such as lenders' obligations, borrowers' ability to meet the economic strain, environmental weaknesses, as well as economic prospects are few of the causes that urge banking to form a link between renewable finance as well as green finance.

Handoo (2010) examined and concluded that commercial and public banks use Green Banking practises to assure long ecological responsibility. Using a case study approach, they explore that Indian banks identify the need of implementing beneficial ecological projects. Additionally, the outcomes of the study demonstrate that, with the exclusion of ICICI Bank, Public sector banks have implemented more safeguards than private sector banks. Only ICICI Bank's strategy is viable in the private sector.

George and Kumar (2013) researched and mentioned above in order to check and so raise consumer knowledge about Green Banking. They outline important metrics necessary in Green Banking by interviewing people as well as as employing specifically developed questionnaire for surveys. Green Checking Accounts, Green Loans (reduced rate to those who seek to acquire solar equipment's) for assisting environmentally friendly home initiatives, energy conservation equipment's, Green Credit Cards, Paper Saving Mobile Banking are just a few of the methods they recommend. Green banking will guarantee that companies progress toward sustainable development. Banks' lending policies are likely to have a green aspect. Every action performed now will contribute to a better global environment in the future.

Objective

1. To know the factors that determine the role of technology in green banking in private sectors bank of India.
2. To know the importance of technology in green banking in India.

Research methodology

Sample of 287 people working in banking sector were surveyed to know the role and importance of technology in green banking in private sectors bank of India. This empirical study was conducted through survey method and random sampling method was used to collect the primary data and factor analysis to get the end results.

Findings

Table is showing demographic details in which it is found that in total 287 respondents 68.6% are male and 31.4% are female. 30.0% of them

are below 35 years of age, 35.9% belongs to age group 35-46 years and 34.1% are above 46 years of age group. 24.6% of the respondents are holding the post of General manager, 31.4%

are working as managers, 29.0% are assistant managers and rest 15.0% of the respondents are working on other position in the private sector banks of India.

Table 1 Demographic details

Variable	Respondents	%age
Gender		
Males	197	68.6
Females	90	31.4
Total	287	100
Age profile		
Below 35 years	86	30.0
35-46 years	103	35.9
Above 46 years	98	34.1
Total	287	100
Designation		
General manager	71	24.6
Manager	90	31.4
Assistant manager	83	29.0
Others	43	15.0
Total	287	100

“Factor analysis”

“Table 2 KMO and Bartlett's Test”

“Kaiser-Meyer-Olkin Measure of Sampling Adequacy”		.884
“Bartlett's Test of Sphericity”	“Approx. Chi-Square”	3767.573
	“df”	120
	“Sig.”	.000

“KMO and Bartlett's Test” shows KMO value as .884 in the table above with .000 under the significant column.

“Table 3 Total Variance Explained”

“Component”	“Initial Eigenvalues”			“Rotation Sums of Squared Loadings”		
	“Total”	“% Of Variance”	“Cumulative %”	“Total”	“% Of Variance”	“Cumulative %”
1	6.815	42.596	42.596	3.513	21.959	21.959
2	2.401	15.005	57.601	3.455	21.596	43.555
3	1.953	12.206	69.807	2.904	18.150	61.704
4	1.488	9.298	79.106	2.784	17.401	79.106
5	.622	3.887	82.993			
6	.506	3.162	86.155			
7	.409	2.554	88.709			
8	.366	2.288	90.998			
9	.279	1.744	92.742			
10	.249	1.554	94.297			
11	.227	1.419	95.716			

12	.187	1.170	96.886			
13	.162	1.014	97.900			
14	.138	.862	98.762			
15	.113	.705	99.467			
16	.085	.533	100.000			

“It is found from Total Variance Explained table that all the 4 factors explain total 79% of the variance. The 1st Factor explains 21.959% of the variance followed by the 2nd Factor with 21.596%, 3rd Factor having 18.150% and 4th factor explains 17.401% of variance”.

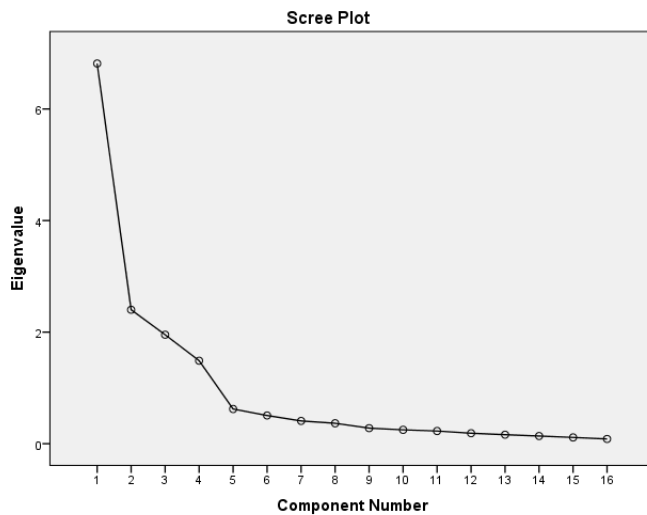


Figure 1 Scree Plot

Figure 1 is the graphical presentation of the Eigen values obtained from the Table 3 “Total Variance Explained.” The figure shows an elbow at 4 components. Hence portrays that total 4 Factors have been extracted.

Table 4 Rotated Component Matrix^a

S. No.	Statements	Factor loading	Factor Reliability
	Online and digital services		.955
	Internet banking and mobile help the banking sector to go green	.881	
	Green technology initiatives to help reduce carbon emissions	.878	
	Digitalization speeds up the process of transaction and saves the energy	.857	
	Technology help to make green channel counter, e-statements, green loan, solar ATM for green banking	.840	
	Cost optimization		.940
	Expenditure on paper overload and bulk shipping is reduced by use of technology	.899	
	Technology had eliminated the requirement for costly bank branches	.890	
	Technology in bank leads to less driving to branch offices	.883	
	To reach to customers and provide them the banking facilities is cost effective due to technology	.878	
	Being Paperless		.871
	Technology had reduced documentation in green banks	.883	

	Less use of paper by computerising, networking, and Internet banking in green banks	.866	
	Technology had reduced the amount of paper, water and energy in banking sector	.836	
	Technology-driven banks contribute to the conservation of natural resources as well as environmental preservation	.681	
	Efficiency and effectiveness		.840
	Technology had increased the working efficiency of the bank employees	.841	
	Technology helps in providing green credit and raising funds for local environmental ventures	.809	
	Usage of IT and infrastructural facilities increases the potential of green banks	.766	
	Technical advancements, operational efficiencies, as well as a shift in client behaviour in the banking industry	.749	

Development of the factors

Online and digital services is factor number one which includes the variables like Internet banking and mobile help the banking sector to go green, green technology initiatives to help reduce carbon emissions, Digitalization speeds up the process of transaction and saves the energy and Technology help to make green channel counter, e-statements, green loan, solar ATM for green banking. Second factor is named as Cost optimization consist of the variables like Expenditure on paper overload and bulk shipping is reduced by use of technology, Technology had eliminated the requirement for costly bank branches, Technology in bank leads to less driving to branch offices and to reach to customers and provide them the banking facilities is cost effective due to technology. Being Paperless is factor number three which include the variables like Technology had reduced documentation in green banks, Less use of paper by computerising, networking, and Internet banking in green banks, Technology had reduced the amount of paper, water and energy in banking sector and Technology-driven banks contribute to the conservation of natural resources as well as environmental preservation. Fourth and the last factor is Efficiency and effectiveness which includes the variables like Technology had increased the working efficiency of the bank employees, Technology helps in providing green credit and raising funds for local environmental ventures, Usage of IT and infrastructural facilities increases the potential of green banks and technical advancements, operational

efficiencies, as well as a shift in client behaviour in the banking industry.

Conclusion

Green banking has helped to enhance the environment while also supporting economic progress. The majority of conventional banks did not practise green banking or proactively explore venture possibilities in an ecologically sustainable mannered industries or firms until recently. Indian Private Sector Banks lag considerably behind their developed-country peers. If Indian banks want to access global markets, they must realise their ecological as well as ethical obligations. These techniques have just lately become increasingly common, not only among smaller alternatives as well as among communal banks, but also across diverse financial service providers, corporate finance organisations, as well as insurance firms. Furthermore, those industries that have already gone green, as well as those that are making genuine efforts to go green, should be given precedence in bank funding.

The study concludes that technology had different role for green banking in private sector banks of India such as it help the banks to provide online and digital services, it optimizes the cost, help the bank being paperless and also it increases the efficiency and effectiveness of banking sector and help them in their green banking activities. It is also found that technology play a significant and important role in green banking in private sector banks.

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