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The Application of the Technology Acceptance Model and the Theory of Planned Behaviour in the Context of Green Banking

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Abstract: *The implementation of green banking techniques in the banking sector is anticipated to yield advantages including minimised resource utilisation, lower operational expenses, and improved efficiency, while also fostering a smaller environmental impact. Green banking practices have environmental and financial benefits for the banking sector, but these benefits will only materialise if consumers adopt them. This research adopts the Technology Acceptance Model (TAM) developed by Davis (1989) and the Theory of Planned Behaviour (TPB) proposed by Ajzen (1991) to examine the interplay of External Variables, Perceived Ease of Use (PEOU), Perceived Usefulness (PU), and Perceived Behavioural Control (PBC). The external variables used are Time Availability, Convenience, and Social Norms. The SEM is applied to assess the significance of factors influencing perceived behavioural control about Green Banking. Online questionnaires were used to collect responses from 250 customers' for the aim of this study. Results show that external variables, perceived ease of use, perceived usefulness significantly influences the perceived behavioural control.*

Introduction

Banking is a highly data-intensive endeavour that relies significantly on technological innovations (IT) to collect, organise, and communicate data to pertinent consumers. Information technology is not only crucial in the collection of data, but it also gives the banks with the easiest way to distinguish their products and services from those of their competitors. Banks recognise the necessity of always innovating and updating their offerings to satisfy their valued customers and provide easy, trustworthy, and efficient practices (Darwish, 2016).(Brenner & Hartl, 2021)Globally, prevailing policy and managerial objectives are primarily influenced by major requirements: automation and environmental responsibility. The intricacy and intensity of automation, together with the essential difficulty of attaining environmental growth objectives, drive those objectives forward. (Sharma et al., 2022)When it comes to green banking, technology is the driving force behind creativity, effectiveness, and sustainability. Taken as a whole, they help lessen the impact of the banking sector on the environment and encourage organisations and consumers to do their part to protect it. Green Banking involves integrating efficiency improvements, technology, and evolving client behaviour within the banking sector. It involves promoting environmentally advantageous practices.(Narayanan, 2023)The Green Banking system within the Indian banking industry employs diverse strategies for green technology, with banks functioning at varying levels of green marketing according to their dedication to

the preservation of the environment. Banks may provide customised Green Banking goods like green borrowing, green mortgages, and credit cards that don't use any carbon. These make consumers and companies more likely to contribute funding into green practices.

Literature Review and Hypothesis Testing:

There is a significant body of study regarding technological acceptance or uptake in Green Banking. These studies frequently examine Pakistan and specifically analyse the factors that influence the adoption of different Green Banking Practices (Khan et al., 2024). Certain studies examine the implementation of Green Banking in United Arab Emirates, however with variations in sampling and statistical techniques. For example, (Bouteraa et al., 2023)analyse the adoption of Green Banking technologies by bank consumers and the factors influencing their decision to do so using a mixed-methods methodology. Results show that the perceived ease of use is greatly affected by factors such as perceived trust, trustworthiness of the system, and easy access. The authors have extended the Technology Acceptance Model (TAM) by incorporating supplementary elements, specifically task-technology fit (TTF), perceived trustworthiness, and perceived threat (Almohaimmeed, 2009). (Taneja et al., 2024) The authors have used VosViewer software and PRISMA guidelines to study practices such as internet banking, solar automated teller machine, constructing of environment-friendly buildings, as well as the establishment of facilities for green bonds are the primary Green Banking Practices that the banks have recognised as being able to implement. It was discovered through the findings of the investigation that India has become the nation that has made the most significant contribution to the research on green Banking Practices.(Taneja & Ali, 2021)examined the factors that influence consumers' decisions to choose green banking services and products using a theoretical structure. This paper expands upon the theory of planned behaviour (TPB) by integrating constructs such as trustworthiness, ecological awareness, and perceived behavioural results alongside its fundamental variables. The findings demonstrated that the constructs of the Theory of Planned Behaviour significantly impact customers' behavioural intentions.(Goel & Nath, 2017) identified Green Banking Practices are more likely to be adopted when there is acceptance and cooperation from upper management, as well as when there is pressure from rivals and consumers, perceived usefulness, and ease of use.The findings also provide a framework between the variables and environmental sustainability in India. (Iqbal et al., 2018) explored customers' attitude and their intentions towards the use of Green Banking Practices in context with developing nations like Bangladesh. Utilise a structural equation model to examine the influencing factors that significantly impact customers overall attitude towards Green Banking. From the results it was found that the attitude towards green banking is positively influenced by sustainability issues, effort expectancy, performance expectancy, time availability, and advantageous circumstances.

(Mohr & Kühl, 2021)have used Technology Acceptance Model and Theory of Planned Behaviour to ascertain the significance of factors influencing acceptance. The findings indicate that perceived behavioural control exerts the most significant influence on acceptance.(Bailey et al., 2017)For the adoption he research examined an updated technological Acceptance Model that included personal mobile payment self-efficacy, security difficulties related to wireless payments, and technological anxiety. It was also found that the key TAM variables were discovered to influence the association between mobile payment self-efficacy and attitude, while attitude impacted the relationship between the primary TAM factors and behavioural intention.(Shampa & Jobaid, 2017)studied variables that influence the expectations of customers regarding Green Banking Practices in Bangladesh. Using factor analysis it was determined that accessibility of data and customer requirements, ethical considerations, favourable savings, cost effectiveness, and product advantages, along with incorporation and personalisation, are the five key factors that shape customer expectations regarding Green Banking Practices in Bangladesh.(Jennifer Austermann, 2014)used linear regression to know the factors that influence customers attitude towards the use. From the findings it was discovered that perceived usefulness and social influence have positive influence on the use of products and services. It was also found that attitude have significant influence on behavioural intention.

Theoretical Background

In 1986, Fred Davis proposed TAM, which is predicated on the notion that our perspectives towards technology are determined by two primary factors: perceived ease of use and perceived usefulness. Perceived usefulness denotes the level to which one believes that utilising a technology would improve performance or accomplish objectives, whilst perceived ease of use signifies the degree

to which one believes that employing a technology will be relatively simple and uncomplicated (Venkatesh & Davis, 2000).

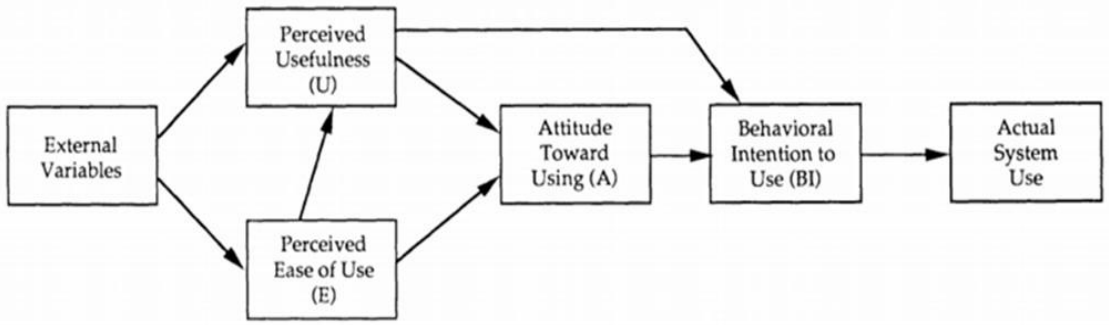

Figure 1: Technology Acceptance Model

Source:(Davis, 1989)

Theory of Planned Behaviour provides a framework for investigating the role of one's own ideas, attitudes, and social influences on one's actions. Attitudes, subjective standards, and perceived behavioural control are the three primary determinants of behaviour, as proposed by this theory. It's quite similar to the Theory of Reasoned Action; the addition of perceived behavioural control acknowledges that people need to feel confident in their own abilities to perform the desired behaviour. (Ajzen, 1991)

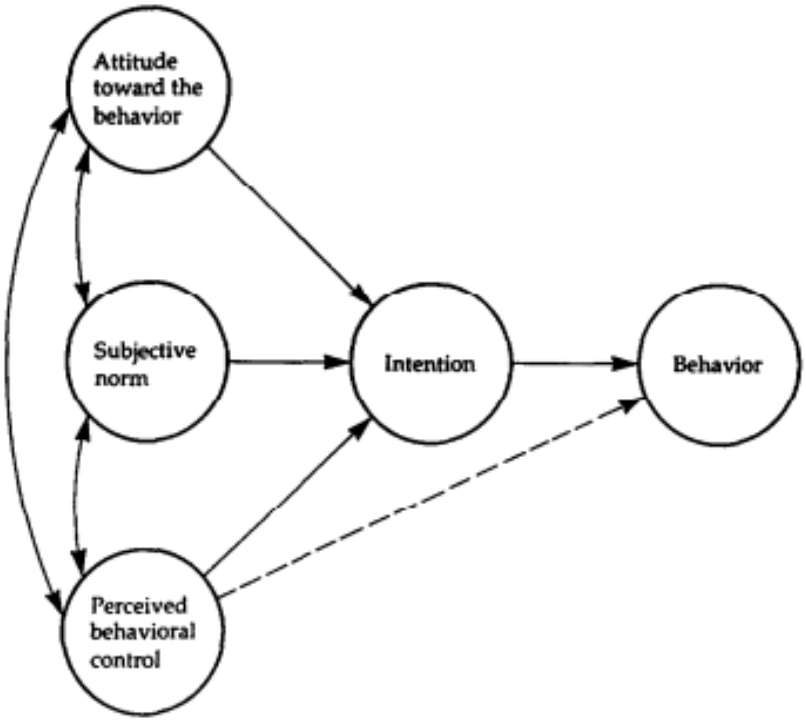

Figure 2: The Theory of Planned Behaviour

Source: (Ajzen, 1991)

Conceptual Framework

The research has tried to identify the relationship between external variables, perceived ease of use, perceived usefulness, and perceived behavioural control. External variables give the context that influences both perceived ease of use and perceived usefulness, which are fundamental determinants of behavioural intention in the Technology Acceptance Model (TAM). The perceived ease of use influences

perceived usefulness, as individuals typically get value from an interface that is user-friendly. In the Theory of Planned Behaviour, perceived behavioural control operates in conjunction with perceived ease of use, as both pertain to an individual's belief in properly utilising technology. Elevated perceptions of usefulness and simplicity of use enhance perceived behavioural control, hence bolstering the probability of behavioural adoption.

Interconnection

- External Variables with PEOU/PU: Features like time availability, convenience, and social norm serve as determinants affecting Perceived Ease of Use (PEOU) and Perceived Usefulness (PU).
- PEOU and PU as Predictors: These concepts are the driving force behind attitudes towards the utilisation of technology, which in turn influence behavioural intentions.
- PBC's Moderating Role: PBC can influence how external variables affect real behaviour, highlighting the importance of resources and independence in facilitating or limiting technology utilisation.

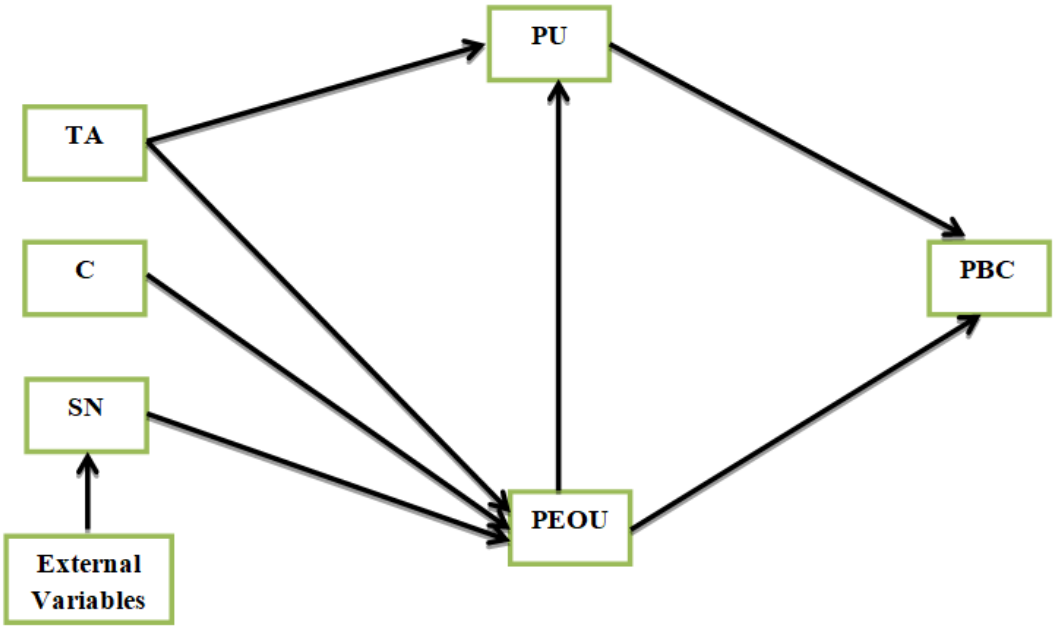

Figure 3: Conceptual Model for Green Banking

Research Methodology

The current study adopted the Technology Acceptance Model (TAM) and the Theory of Planned Behaviour (TPB) as a conceptual framework to understand customer behaviour. During the course of the research undertaking, both the exploratory and descriptive research designs were applied. In order to collect responses from the target audience, the researcher developed a survey that was conducted online using Google Forms and then sent it out to the respondents directly. A total of 250 responses were gathered from customers of banks operating in both the public and commercial sectors. A five-point Likert scale was employed, with 1 representing Strongly Disagree and 5 representing Strongly Agree. The examination was conducted using Smart PLS 4.

Results

Reliability and Validity

The researchers utilized Cronbach's alpha and composite reliability metrics to perform reliability evaluations on the constructs. Each construct demonstrated reliability exceeding the acceptable threshold of 0.700. All constructs demonstrated Cronbach's alpha values exceeding the accepted

threshold of 0.700. The degree of convergent validity was considered sufficient, as the average variance extracted (AVE) surpassed 0.500(Hair et al., 2019).

Table 1: Loading, Validity, and Reliability

Construct	Loadings	Cronbach's α	Composite Reliability	AVE
C1	0.873	0.914	0.914	0.795
C2	0.900			
C3	0.912			
C4	0.881			
SN1	0.558	0.835	0.889	0.680
SN2	0.893			
SN3	0.900			
SN4	0.896			
PBC1	0.857	0.934	0.934	0.791
PBC2	0.897			
PBC3	0.898			
PBC4	0.901			
PBC5	0.894			
PEOU1	0.881	0.924	0.925	0.767
PEOU2	0.845			
PEOU3	0.886			
PEOU4	0.888			
PEOU5	0.878			
PU1	0.877	0.918	0.919	0.803
PU2	0.906			
PU3	0.928			
PU4	0.873			
TA1	0.865	0.901	0.910	0.717
TA2	0.892			
TA3	0.889			
TA4	0.775			
TA5	0.806			

Model of Structure

The structural model demonstrates the suggested pathways utilized within the research framework. The SRMR method was utilized to assess how well the model fits the data. The SRMR score recorded was 0.041, which is below the established the minimum threshold of 0.10. Taking this into consideration, it appears that the model's goodness of fit was satisfied(Hair et al., 2024).

Table 2: Model Fit

	Saturated Model	Estimated Model
SRMR	0.041	0.047
d_ULS	0.635	0.852
d_G	0.416	0.429
Chi-square	1673.027	1711.901
NFI	0.909	0.907

Table 3: Fornell-Larcker

	C	SN	PBC	PEOU	PU	TA
C	0.892					
SN	0.794	0.825				
PBC	0.712	0.633	0.889			
PEOU	0.713	0.661	0.853	0.876		

PU	0.703	0.649	0.836	0.896	0.896	
TA	0.873	0.795	0.701	0.713	0.689	0.847

Note: C- Convenience, SN- Social Norm, PBC- Perceived Behavioural Control, PEOU- Perceived Ease of Use, PU- Perceived Usefulness, TA- Time Availability

The Fornell-Larcker criterion is widely acknowledged as a reliable metric for evaluating the validity of measurement equipment and the existence of common method bias(Hair et al., 2024).

Table 3: Result Summary

Hypothesis	Relationship	Original Sample (O)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Result
H1	C -> PEOU	0.308	0.052	5.972	0.000	Significant
H2	SN -> PEOU	0.173	0.048	3.590	0.000	Significant
H3	PEOU -> PBC	0.525	0.058	9.062	0.000	Significant
H4	PEOU ->PU	0.825	0.025	33.602	0.000	Significant
H5	PU -> PBC	0.366	0.058	6.337	0.000	Significant
H6	TA -> PEOU	0.307	0.059	5.243	0.000	Significant
H7	TA -> PU	0.101	0.027	3.745	0.000	Significant

The hypothesis tests revealed a significant positive influence of Convenience on Perceived Ease of Use (H1: β = 0.308, t = 5.972, p = 0.000), Social Norm on Perceived Ease of Use (H2: β = 0.173, t = 3.590, p = 0.000), Perceived Ease of Use on Perceived Behavioural Control (H3: β = 0.525, t = 9.062, p = 0.000), Perceived Ease of Use on Perceived Usefulness (H4: β = 0.825, t = 33.602, p = 0.000), Perceived Usefulness on Perceived Behavioural Control (H5: β = 0.366, t = 6.337, p = 0.000), Time Availability on Perceived Ease of Use (H6: β = 0.307, t = 5.243, p = 0.000), and Time Availability on Perceived Usefulness (H7: β = 0.101, t = 3.745,p = 0.000). Therefore, H1-H7 were supported.

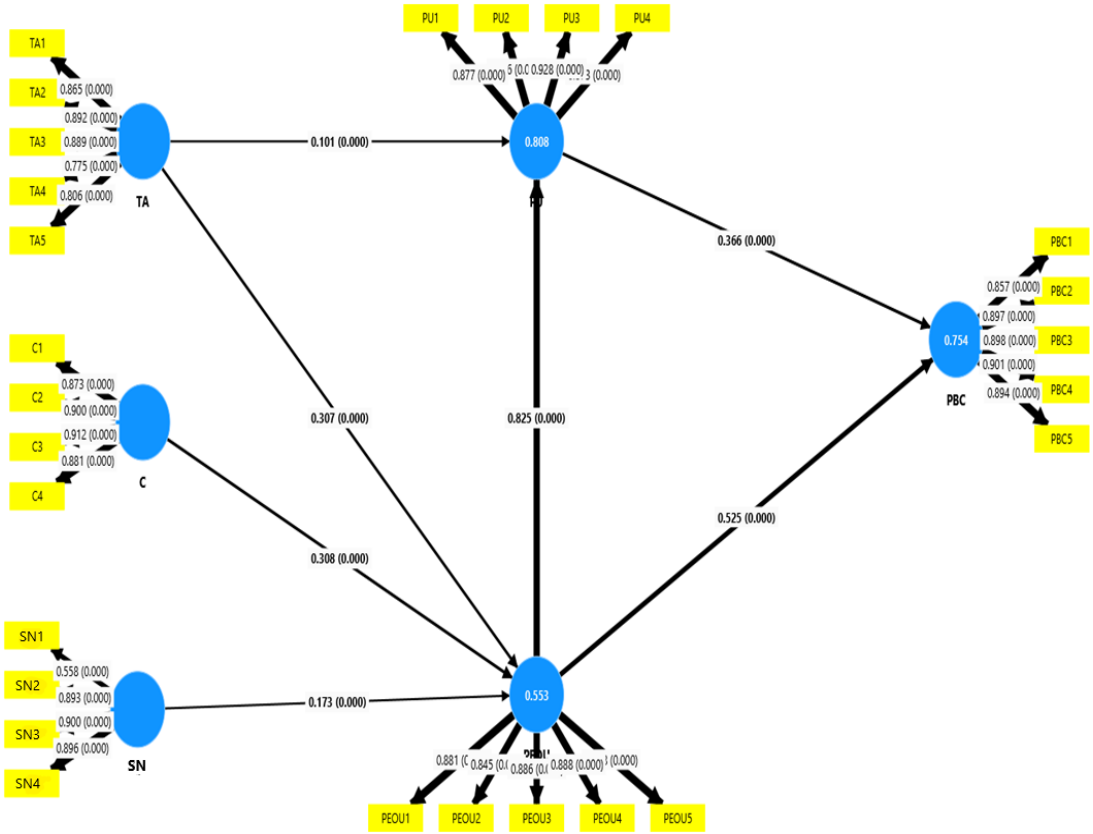

Figure 4: Hypothesis Test Results

Source: Research Output

Note: It is possible to determine the extent to which the construct has an effect on the dependent variable by observing the direction or thickness of the arrows that are highlighted. An influence that is more substantial is shown by an arrow that is thicker.

Conclusion

The main aim of this study is to examine the external factors that affect consumers' behavioural control over Green Banking, implementing a conceptual model for research. Using Davis' (1989) Technology Acceptance Model (TAM) and Ajzen's (1991) Theory of Planned Behaviour (TPB) as well as two more elements—time availability and convenience—this study investigates how different factors impact Green Banking customers' behaviour. Results show that two major factors of Technology Acceptance Model, Perceived Ease of Use and Perceived Usefulness have significant influence on Perceived Behavioural Control which is the important factor of Theory of Planned Behaviour. Accordingly, this study also states that External Variables of Technology Acceptance Model i.e. Time Availability have significant impact on Perceived Ease of Use and Perceived Usefulness; whereas, Convenience, and Social Norms is having statistically significant influence on Perceived Ease of Use. As a result, this study contributes to the expanding body of research on acceptability and implementation in Green Banking, with the distinction that it focusses on several types of external variables. The acknowledged influencing factors can be utilised by policymakers, regulators, financial institutions, corporations, and environmental organisations to advance and enhance green banking practices within the banking sector. These initiatives seek to enhance the banking sector's dedication to sustainability, establishing Indian Green Banking as a global frontrunner in environmentally friendly financial practices.

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