International Journal of Environmental Sciences
ISSN: 2229-7359
Vol. 11 No. 23s, 2025
https://theaspd.com/index.php

The Role Of Digital Payments In Promoting Sustainability: A Study On Consumer Practices In Western Suburbs Of Mumbai

Mr. Gaurang Sampat[1], Dr. Khushbu Agarwal[2]
[1]Research Scholar, Faculty of Management, Pacific Academy of Higher Education and Research University, Udaipur, Rajasthan, India.
[2]Associate Professor, Faculty of Management, Pacific Academy of Higher Education and Research University, Udaipur, Rajasthan, India.

Abstract

The digital payment ecosystem has emerged as a transformative force in contemporary financial systems, reshaping consumer behaviors and redefining traditional transaction methods. Particularly in urban centers like the western suburbs of Mumbai, the proliferation of digital payment platforms reflects a broader shift driven by convenience, security, and accessibility. However, beyond these immediate benefits lies an often-overlooked dimension: the role of digital payments in promoting sustainability.

As societies grapple with environmental challenges, sustainable financial practices are gaining attention, with digital payments positioned as a potential catalyst for reducing resource consumption and paper waste. By embracing digital transactions, consumers can significantly contribute to eco-friendly practices, but the realization of this potential depends on multiple factors, including consumer awareness, demographic influences, and the infrastructure supporting these systems.

This study explores the dynamic relationship between digital payment adoption and sustainability in the western suburbs of Mumbai. It examines key objectives, including understanding adoption patterns, analyzing environmental implications, and investigating consumer awareness and perceptions of sustainability in digital payment systems. Additionally, the study delves into demographic influences, such as age, income, and education, and identifies barriers that may hinder adoption while evaluating their impact on sustainability benefits.

Grounded in these objectives, the research is guided by a primary hypothesis (H1): digital payment adoption significantly contributes to sustainability by reducing paper waste and promoting resource efficiency among consumers. Furthermore, the study tests secondary hypotheses, including the influence of environmental awareness, demographic factors, perceptions of convenience and security, and the role of sustainability-focused features in driving adoption.

By providing insights into these dimensions, the research aims to contribute to the growing discourse on sustainable digital ecosystems while offering actionable recommendations to enhance digital payment adoption and its environmental impact.

INTRODUCTION

In the era of rapid technological advancement, digital payments have emerged as a cornerstone of modern financial ecosystems. The proliferation of mobile wallets, Unified Payments Interface (UPI), and contactless transactions has not only redefined how consumers engage in monetary exchanges but has also led to a paradigm shift in the traditional cash-driven economy. Particularly in urban India, the widespread adoption of digital payment systems has been driven by government initiatives, financial inclusion goals, and increased smartphone penetration.

Beyond the dimensions of convenience, speed, and security, digital payments offer an underexplored benefit: their potential contribution to environmental sustainability. Traditional cash transactions entail significant resource consumption, including paper for currency and receipts, fuel for transportation, and operational energy in physical banking infrastructure. Digital alternatives, by contrast, provide a cleaner, more efficient medium of exchange, potentially reducing carbon footprints and fostering sustainable consumption practices.

As global discourse increasingly centers on climate change and sustainable development, the intersection of financial technology and environmental responsibility warrants deeper investigation. While prior studies have focused extensively on the technological, economic, and security aspects of digital payments, limited

research has delved into their ecological implications and the extent to which consumers recognize and respond to these benefits.

This study, therefore, seeks to explore the role of digital payments in promoting sustainability, focusing on consumer behavior in the western suburbs of Mumbai—a region marked by high digital adoption and urban density. By examining factors such as consumer awareness, demographic influences, perceived security, and eco-friendly features, the research aims to uncover the drivers and barriers influencing sustainable digital payment practices.

Through empirical analysis and structured data collection, the study endeavors to offer insights that bridge the gap between financial technology and environmental stewardship, providing practical recommendations for enhancing both digital payment adoption and its sustainability impact.

REVIEW OF LITERATURE

The growing adoption of digital payment methods has significantly reshaped consumer behavior and influenced sustainability practices worldwide. A review of recent literature highlights multiple dimensions influencing digital payment adoption and its subsequent environmental implications.

Adoption Patterns of Digital Payments

Consumer adoption of digital payments has accelerated due to convenience, security, and ease of use, particularly during crises such as demonetization and the COVID-19 pandemic. Studies reveal significant growth in consumer preference for digital transactions driven by promotional incentives, increased smartphone penetration, and banking facilities (Potey & Soni, 2019; Nandihal & Loomba, 2023). Consumers perceive digital payments as quick, efficient, and convenient compared to traditional cash methods (Homiga & Sakthi Sree, 2024).

Environmental Implications

Digital payment methods demonstrate substantial environmental benefits by reducing carbon footprints, paper usage, and non-renewable resource consumption. Research indicates that digital payments significantly reduce physical transaction emissions, promoting sustainable economic practices and aligning with global sustainability goals (An et al., 2022; Niu et al., 2023). Mobile wallets particularly have emerged as environmentally beneficial due to their traceability and reduced dependence on physical resources (Hopalı et al., 2022).

Consumer Awareness and Perceptions

Consumer awareness is critical for the sustained adoption and effective utilization of digital payments. Studies show high awareness but varying levels of actual environmental practice, highlighting the importance of payment technology as a mediating factor in converting awareness into sustainable practices (An et al., 2022). Consumers generally display positive attitudes toward digital payments but express concerns about security, data privacy, and potential fraudulent transactions (Isa & Nasrul, 2017; Lin et al., 2023).

Demographic Influences

Demographic factors like age, gender, education, and regional characteristics significantly impact digital payment adoption. Young consumers, particularly those aged 18-34, show higher adoption rates driven by ease of use and familiarity with technology (Homiga & Sakthi Sree, 2024). Urban consumers exhibit higher adoption compared to rural areas, though rural adoption rates are increasing significantly due to government initiatives and rising smartphone penetration (Zhou, 2022).

Barriers and Sustainability Benefits

While digital payments offer substantial sustainability benefits, consumers face multiple barriers including perceived security risks, lack of infrastructure, and insufficient technological awareness, particularly in less-developed regions (Takale, 2024; Bhardwaj et al., 2023). Research also identifies infrastructure inadequacy and fear of fraudulent activities as primary concerns restricting broader adoption (Nandihal & Loomba, 2023). Addressing these barriers through robust security measures and educational initiatives can enhance adoption rates significantly.

Sustainability and Economic Development

The integration of digital payment systems has demonstrated a positive correlation with sustainable economic development, especially in post-pandemic contexts. Digital payments stimulate consumer demand, contributing to sustained economic growth while reducing environmental degradation (Zhou, 2022; Pratiwi et al., 2025). Moreover, studies underscore how digital payments support SMEs, enhancing operational efficiency and sustainability through increased financial inclusion and improved transaction transparency (Okoye et al., 2023; Udayana et al., 2024).

CONCLUSION

Overall, digital payment systems significantly influence sustainable consumer practices, promoting both economic and environmental sustainability. However, the full realization of these benefits depends heavily on consumer awareness, demographic factors, security enhancements, and infrastructural development. Understanding these dimensions is crucial for policymakers and stakeholders aiming to foster sustainable adoption of digital payments in regions such as the western suburbs of Mumbai.

Research Gap

The reviewed literature provides comprehensive insights into the adoption of digital payment systems, their influence on consumer behavior, sustainability benefits, and key adoption barriers. Studies span across India and several global regions—including Indonesia, Nigeria, Taiwan, and the Philippines—focusing on factors such as convenience, environmental impact, trust, demographic influences, and infrastructure readiness. Common findings highlight that while digital payment systems promote efficiency and sustainability, concerns around security, consumer awareness, and accessibility continue to challenge widespread adoption.

However, a critical research gap emerges in terms of geographic specificity.

Despite extensive national and international studies, **there is a notable lack of research focusing exclusively on the Western suburbs of Mumbai**, a rapidly developing urban belt with a diverse consumer base. This area presents unique dynamics in terms of income diversity, digital infrastructure, and consumer awareness levels. Given Mumbai's status as a financial capital and a major driver of fintech adoption, understanding **localized consumer behavior** and **sustainability-linked payment practices** in its Western suburbs is vital.

Proposed Conceptual Model

Based on the gaps identified in the literature and supported by preliminary analysis, the following model is proposed to examine the interrelationships between environmental awareness, trust and security perceptions, and the challenges and barriers in the adoption of digital payments among consumers in the western suburbs of Mumbai.

Model Structure:

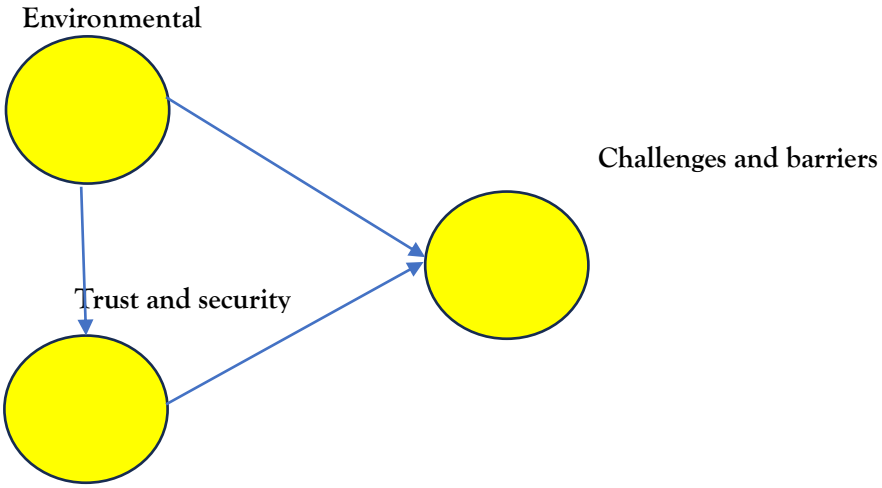
1. **Environmental Factors**
   Environmental concerns such as sustainability awareness, digital receipt preference, and resource efficiency (measured by items q8–q12) are proposed as **independent variables**.
2. **Trust and Security**
   Perceptions of safety, data privacy, and reliability of digital payment systems (measured by q18 and q19) are conceptualized as a **mediating variable** that links environmental consciousness with perceived barriers.
3. **Challenges and Barriers**
   Consumer-perceived barriers such as technical issues, lack of infrastructure, and ease of use (measured by q13–q17) are the **dependent variable** of the model.

Proposed Relationships:

- **H1**: Environmental awareness positively influences trust and security in digital payment systems.
- **H2**: Trust and security perceptions negatively influence perceived challenges and barriers.
- **H3**: Environmental awareness directly reduces perceived challenges and barriers.
- **H4**: Trust and security mediate the relationship between environmental awareness and perceived barriers.

Model Diagram

International Journal of Environmental Sciences
ISSN: 2229-7359
Vol. 11 No. 23s, 2025
https://theaspd.com/index.php



RESEARCH METHODOLOGY

1. Research Design

The study adopts a descriptive and analytical research design, aiming to systematically explore the role of digital payment methods in promoting sustainability among consumers in the western suburbs of Mumbai. It will utilize both qualitative and quantitative approaches to achieve comprehensive insights into consumer behaviors and perceptions.

2. Study Area

The geographical scope of this research is limited to the western suburbs of Mumbai, focusing on consumer populations familiar with digital payment methods.

3. Objectives

a) To explore the adoption patterns of digital payment methods among consumers.
b) To examine the environmental implications of digital payment adoption.
c) To investigate consumer awareness and perceptions of sustainability in digital payments.
d) To analyze demographic influences on digital payment adoption.
e) To identify barriers to digital payment adoption and their sustainability benefits.

4. Hypotheses

H1 . Digital payment adoption significantly contributes to sustainability by reducing paper waste and promoting resource efficiency among consumers in the western suburbs of Mumbai.
H2 . Consumers with higher environmental awareness are more likely to prioritize digital payments over cash transactions.
H3 . Age and income significantly influence the adoption of digital payment methods.
H4 . Consumers who perceive digital payment systems as convenient and secure are more likely to use them regularly.
H5 . Sustainability-focused features, such as eco-friendly receipts or carbon footprint tracking, enhance consumer adoption of digital payments

5. Sample Size and Sampling Technique

a) **Sample Size**: 100 respondents
Sampling Formula: A commonly used formula to determine sample size in social science research is **Yamane's Formula (1967)**:

$$n = \frac{N}{1+N(e)^2}$$

Where:

1) n = Sample size

2) N = Population size
3) e = Margin of error (commonly 5% or 0.05)
   Let's assume the **population (N)** of consumers in the western suburbs of Mumbai using digital payments is large (unknown or >10,000).

With a **5% margin of error** and **95% confidence level**, the formula becomes:

$$n = \frac{10,000}{1+10,000(0.05)^2} = 384.6$$

Although 384 would be statistically ideal, **100 respondents** are considered acceptable in academic and pilot studies because of time constraints, limited resources and difficulty in collecting data due to scattered population. As this is a descriptive and exploratory research 100 is manageable yet statistically analyzable number. Many published studies in the filed of digital payment adoption, sustainability and consumer perception have used sample size between **80 to 200**

b) Sampling Technique: Simple Random Sampling. Respondents will be randomly selected to ensure each individual within the population of the western suburbs of Mumbai has an equal chance of being included in the study

6. Data Collection Method

The study will employ a structured questionnaire comprising both open-ended and close-ended questions, distributed electronically via Google Forms and physically for respondents who prefer direct interaction.

a) **Primary Data:**
   1. Structured questionnaire surveys.
b) **Secondary Data:**
   1. Academic journals, reports, and papers on digital payments and sustainability.
   2. Government publications and industry reports.

7. Tools for Data Analysis

The collected data will be analyzed using statistical software such as SPSS or MS Excel, applying techniques like descriptive statistics, chi-square tests, correlation analysis, and regression analysis to test the stated hypotheses.

8. Ethical Considerations

a) Ensuring respondent confidentiality and anonymity.
b) Obtaining informed consent from all participants.
c) Allowing voluntary participation and the right to withdraw.

9. Limitations

a) Limited sample size due to resource and time constraints.
b) Findings specific to the western suburbs of Mumbai may not be fully generalizable to other regions.

This structured research methodology ensures clarity, reliability, and validity in examining how digital payment adoption impacts sustainability practices among consumers.

ANALYSIS OF DATA

A. Reliability Level:

Reliability Statistics

Cronbach's Alpha	N of Items
.717	12

1) A Cronbach's Alpha of **0.717** indicates **acceptable internal consistency** for the questionnaire.
2) Common benchmarks for interpretation:
   a) **> 0.9**: Excellent
   b) **0.8–0.9**: Good
   c) **0.7–0.8**: Acceptable
   d) **0.6–0.7**: Questionable

e) **< 0.6**: Poor

Implication:

1. The items in the questionnaire measure the same underlying construct with reasonable consistency.
2. It suggests that the responses are reliable for further statistical analysis.

B. T test

The test value (reference point) is **3**, likely indicating a "neutral" response on a Likert scale (e.g., 1 = Strongly Disagree, 5 = Strongly Agree).

The objective is to determine whether the mean response significantly differs from this neutral value.

Interpretation of Results

1. Significant Results (p<0.05)

- For these items, the mean response is significantly different from the test value of 3.

Statement	t-value	p-value	Mean Difference	Direction
I am aware that digital payments reduce the need for paper receipts and currency.	13.295	0.000	+1.366	Significantly above neutral.
I believe digital payments contribute positively to environmental sustainability.	9.556	0.000	+1.139	Significantly above neutral.
I consider the environmental benefits of digital payments when choosing my payment method.	2.162	0.034	+0.361	Slightly above neutral.
Providing eco-friendly features like digital receipts motivates me to use digital payments.	3.692	0.000	+0.556	Moderately above neutral.
Digital payments are easy to use and save time compared to cash transactions.	11.059	0.000	+1.222	Significantly above neutral.
I feel secure using digital payment platforms for my transactions.	4.853	0.000	+0.639	Moderately above neutral.
I trust the security measures implemented by digital payment providers.	5.152	0.000	+0.639	Moderately above neutral.
I worry about fraud and scams associated with digital payments.	3.793	0.000	+0.486	Moderately above neutral.

2. Non-Significant Results (p>0.05)

- For these items, the mean response does **not significantly differ** from the test value of 3.

Statement	t-value	p-value	Mean Difference	Interpretation
Lack of trust in digital payment systems discourages me from using them.	-0.990	0.326	-0.139	No significant difference.
I face difficulties in accessing reliable internet for digital payments.	-0.546	0.587	-0.069	No significant difference.
Limited acceptance of digital payments by merchants discourages me from using them.	1.040	0.302	+0.125	No significant difference.

3. Negative Mean Difference

- Indicates the mean response is **below neutral**.

Statement	t-value	p-value	Mean Difference	Direction

Statement	t-value	p-value	Mean Difference	Direction
I find digital payment platforms difficult to navigate or understand.	-5.802	0.000	-0.861	Significantly below neutral.

Summary (Hypothesis H1, H2, H4, H5)

1. Respondents generally:
    a) **Agree** with statements about the positive impact of digital payments (environmental benefits, ease of use, and security).
    b) **Disagree** that digital platforms are difficult to navigate or understand.

2. No significant concerns about:
    a) Lack of trust in digital payment systems.
    b) Difficulties in internet access.
    c) Limited merchant acceptance.
3. The **most strongly agreed** statement is about the awareness of digital payments reducing paper use.

C. Chi square test (h3)

Age Group and Frequency of use

Chi-Square Tests				
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	3.212[a]	3	.360	.354
Likelihood Ratio	4.333	3	.228	.354
Fisher's Exact Test	4.304			.254
N of Valid Cases	72			
a. 5 cells (62.5%) have expected count less than 5. The minimum expected count is .08.				

Since the **p-values** from all tests (Chi-Square, Likelihood Ratio, and Fisher's Exact Test) are **greater than 0.05**, we conclude that there is **no significant relationship** between the two variables being tested. This suggests that, in this sample, age group and frequency of usage are not significantly associated with each other.

Chi-Square Tests Monthly income and frequency of use				
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	3.111[a]	9	.960	.972
Likelihood Ratio	4.185	9	.899	.950
Fisher's Exact Test	3.947			.976
N of Valid Cases	72			
a. 12 cells (75.0%) have expected count less than 5. The minimum expected count is .08.				

Based on both the **Chi-Square** and **Fisher's Exact Test**, there is **no significant relationship** between monthly income and frequency of use. The **p-values** from all tests are **greater than 0.05**, we conclude that the two variables are not significantly associated.

D. FACTOR ANALYSIS

The Rotated Component Matrix provides valuable insights into the underlying factors influencing responses related to digital payment adoption and sustainability.

Rotated Component Matrix

	Component		
	1	2	3
a) Providing eco-friendly features like digital receipts motivates me to use digital payments.	.828		
b) I consider the environmental benefits of digital payments when choosing my payment method.	.816		
c) I believe digital payments contribute positively to environmental sustainability	.815		
d) Digital payments are easy to use and save time compared to cash transactions.	.609		
e) I am aware that digital payments reduce the need for paper receipts and currency	.593		
f) I find digital payment platforms difficult to navigate or understand.		.761	
g) I worry about fraud and scams associated with digital payments.		.709	
h) Limited acceptance of digital payments by merchants discourages me from using them.		.701	
i) I face difficulties in accessing reliable internet for digital payments.		.698	
j) Lack of trust in digital payment systems discourages me from using them.		.659	
k) I trust the security measures implemented by digital payment providers.			.916
l) I feel secure using digital payment platforms for my transactions.			.911

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

Interpretation

1. **Component 1: Awareness and Environmental Benefits**

This component captures attitudes related to environmental awareness and the perceived sustainability of digital payments. The highest loading items under this component include:

a) Providing eco-friendly features like digital receipts motivates me to use digital payments (.828).
b) I consider the environmental benefits of digital payments when choosing my payment method (.816).
c) I believe digital payments contribute positively to environmental sustainability (.815). These loadings indicate a strong relationship between eco-consciousness and the motivation to adopt digital payments.

2. **Component 2: Barriers and Challenges**

This component focuses on the barriers or challenges that hinder digital payment adoption. Items with high loadings include:

a) I find digital payment platforms difficult to navigate or understand (.761).
b) I worry about fraud and scams associated with digital payments (.709).
c) Limited acceptance of digital payments by merchants discourages me from using them (.701).
d) I face difficulties in accessing reliable internet for digital payments (.698). These barriers highlight usability issues, concerns about security, and infrastructure limitations.

3. **Component 3: Security and Trust**

This component represents trust and security perceptions regarding digital payment platforms. The highest loadings are:

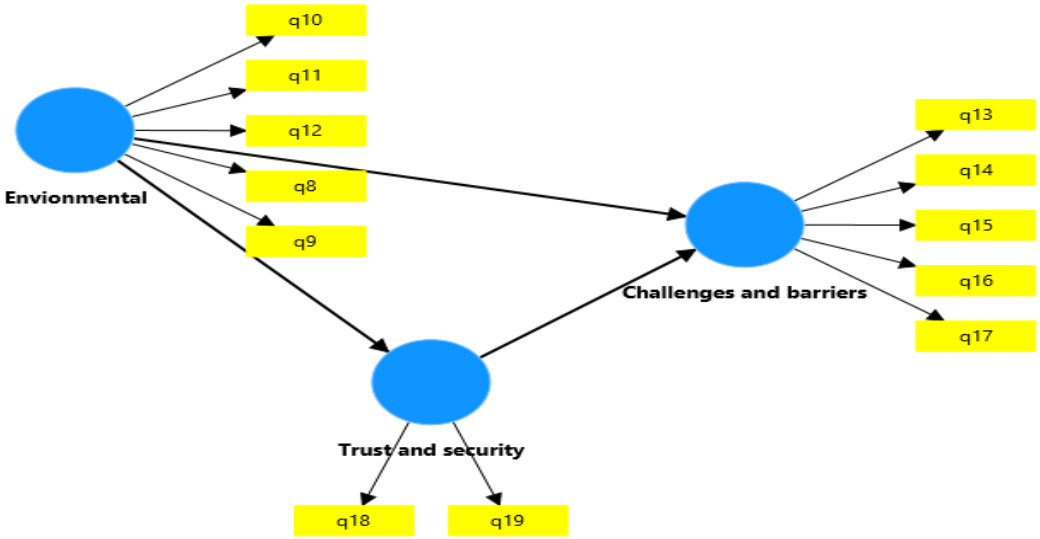
a) I trust the security measures implemented by digital payment providers (.916).
b) I feel secure using digital payment platforms for my transactions (.911). It underscores the importance of security features in building consumer confidence in digital payment systems.

CONCLUSION BASED ON ANALYSIS

1. **Cronbach's Alpha** indicates that questionnaire is reliable, ensuring that the findings are consistent and trustworthy.

2. **One-Sample t-Test** results show that most respondents have **positive perceptions** about digital payments in terms of **environmental sustainability**, ease of use, and security, supporting the hypothesis that **digital payments have a positive impact on sustainability**.
3. There is **NO** relationship between Age and income demographics on the adoption of digital payment methods.

PROPOSED MODEL



Q8	I am aware that digital payments reduce the need for paper receipts and currency
Q9	I believe digital payments contribute positively to environmental sustainability
Q10	I consider the environmental benefits of digital payments when choosing my payment method.
Q11	Providing eco-friendly features like digital receipts motivates me to use digital payments.
Q12	Digital payments are easy to use and save time compared to cash transactions.
Q13	I feel secure using digital payment platforms for my transactions.
Q14	I trust the security measures implemented by digital payment providers.
Q15	Lack of trust in digital payment systems discourages me from using them.
Q16	I face difficulties in accessing reliable internet for digital payments.
Q17	I find digital payment platforms difficult to navigate or understand.
Q18	I worry about fraud and scams associated with digital payments.
Q19	Limited acceptance of digital payments by merchants discourages me from using them.

The model depicted in your diagram is a structural equation model (SEM) or a path model, reflecting the relationships among latent constructs and their measured indicators. Here's a detailed analysis:

Constructs (Latent Variables):

1. **Environmental**:
   a) Indicators: q8, q9, q10, q11, q12
   b) This latent variable seems to represent environmental factors or considerations related to digital payments, likely measuring perceptions of sustainability, reduced paper waste, or environmental awareness.
2. **Challenges and Barriers**:
   a) Indicators: q13, q14, q15, q16, q17

   b) Represents perceived or experienced challenges, barriers, or obstacles in adopting digital payment methods, potentially including issues like accessibility, convenience, reliability, and infrastructure.
3. **Trust and Security**:
   a) Indicators: q18, q19
   b) Reflects consumer trust, perceived security, and confidence in digital payment systems.

Relationships:

1. **Environmental → Challenges and Barriers**:Suggests that environmental factors or perceptions may influence the perception of challenges or barriers related to digital payment adoption. For example, heightened environmental awareness may either mitigate or accentuate perceived barriers.
2. **Environmental → Trust and Security**: Indicates a direct relationship where environmental factors possibly influence trust and security perceptions. Consumers with higher environmental awareness might also demonstrate higher trust in digital solutions due to their alignment with sustainable practices.
3. **Trust and Security → Challenges and Barriers**:Implies that trust and security significantly affect perceived challenges. Higher trust and perceived security are likely to reduce perceived barriers to adopting digital payments.

Analytical Implications:

1. The indicators (questions q8 to q19) reflect measurement items derived from the survey instrument, presumably from questionnaire.
2. The structure suggests testing of both direct and indirect effects between variables, thus SEM or path analysis is an appropriate analytical approach.

CONCLUSION

The structural model effectively illustrates the interconnectedness between environmental awareness, trust and security perceptions, and perceived challenges in adopting digital payment methods. The findings suggest that enhanced environmental awareness positively influences consumer trust and perceptions of security, subsequently reducing perceived barriers to digital payment adoption. Therefore, to promote sustainable practices through digital payments, it is crucial to focus on building robust, secure, and environmentally conscious digital payment solutions. Emphasizing these aspects can significantly enhance consumer confidence, facilitating greater adoption and ultimately contributing to environmental sustainability by reducing resource usage and promoting eco-friendly consumer behavior.

REFERENCES

1. An, J., Di, H., Yao, M., & Jin, S. (2022). *Frontiers in Environmental Science*, 10. https://doi.org/10.3389/fenvs.2022.881293
2. Bhardwaj, H., Kapoor, P., Kumar, A., Ganapathi, N. V., & Madhu, B. (2023). *E3S Web of Conferences*. https://doi.org/10.1051/e3sconf/202343001206
3. Hopalı, E., Vayvay, Ö., Kalender, Z. T., Turhan, D., & Aysuna, C. (2022). *Sustainability, 14*(24), 16541. https://doi.org/10.3390/su142416541
4. Isa, M. A. M., & Nasrul, F. (2017). *ICAS 2015 Conference Proceedings*. Retrieved from https://www.researchgate.net/publication/320195651
5. Lin, L.-H., Lin, F.-C., Lien, C.-K., Yang, T.-C., Chuang, Y.-K., & Hsu, Y.-W. (2023). *Journal of Risk and Financial Management, 16*(8), 346. https://doi.org/10.3390/jrfm16080346
6. Nandihal, C. S., & Loomba, A. (2023). *International Journal of Novel Research and Development*, 8(7), IJNRD2307230.
7. Niu, H.-J., Hung, F.-H. S., Lee, P.-C., Ni, Y., & Chen, Y. (2023). *Sustainability, 15*(24), 16739. https://doi.org/10.3390/su152416739
8. Okoye, C. C., Nwankwo, D. O., Okeke, N. M., & Nwankwo, E. E. (2023). *Malaysian E-Commerce Journal*, 32–41. https://doi.org/10.26480/mecj.01.2023.32.41
9. Potey, D., & Soni, J. (2019). *The Management Quest, 2*(1).
10. Pratiwi, D. A., Lutfi, A., Akbar, M., Layli, N., & Salam, K. N. (2025). *Paradoks: Jurnal Ilmu Ekonomi, 8*(1), 17–19.
11. Takale, S. S. (2024). *International Journal of Enhanced Research in Management & Computer Applications, 13*(4), 109–110.
12. Udayana, A. A. G. B., et al. (2024). *International Journal of Data and Network Science, 8*, 167–178. https://doi.org/10.5267/j.ijdns.2023.10.007
13. Zhou, R. (2022). *International Journal of Environmental Research and Public Health, 19*(14), 8819. https://doi.org/10.3390/ijerph19148819

14. Varma, A. J., Kulkarni, S., & Ranjith, P. V. (2021). *Psychology and Education, 58*(1), 3304–3319.
15. Udhayaraj, G., & Jocil, D. (2017). *International Journal of Emerging Technology in Computer Science & Electronics, 24*(3).
16. Meghana, K., & Tripathi, S. K. (2018). *Organization and Management*, 4(44). https://doi.org/10.29119/1899-6116.2018.44.8
17. Kumar, H., & Sofat, R. (2022). *International Journal of Electronic Banking, 3*(4), 337–357. https://doi.org/10.1504/IJEBANK.2022.128569