### The Green Revolution: Digital Payments Facilitate Eco-Friendly Consumer Behavior

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### Abstract

The emergence of digital payment systems has revolutionized consumer interactions with financial transactions by providing previously unheard-of levels of convenience. Beyond their user-friendliness, digital payments have a big potential to encourage environmentally beneficial consumer behavior. These systems can promote green investments, waste reduction, and the purchasing of sustainable products, all of which can lead to more environmentally conscious decisions. Customers who use digital payment platforms can benefit from real-time tracking capabilities and rewards programs, which can encourage environmentally friendly purchases. For example, incentives for purchasing from environmentally conscious companies or carbon-offset programs during transactions encourage conscientious consumption and encourage environmentally good decisions.

Moreover, digital payments contribute to sustainability by enabling the efficient use of resources. Cashless transactions reduce the need for physical money production, transportation, and storage, thus minimizing the environmental impact associated with cash handling. Additionally, digital platforms can integrate features such as carbon footprint tracking or support for circular economy models, where consumers can buy or sell second-hand items. This functionality encourages a more sustainable consumption cycle by extending the life cycle of products and reducing waste.

Digital payment systems also have the ability to channel funds toward environmentally friendly projects by providing transparency and enabling sustainable investment options. These payment technologies can enable consumers to make environmentally conscious decisions as sustainability becomes a higher priority, which will propel the expansion of green companies. In order to help achieve global sustainability goals, this study examines how digital payments might help usher in

a new era of environmentally conscious purchasing by serving as a crucial link between financial technology and environmental sustainability.

**Keywords:** Digital Payments, Environmentally Friendly, Global Sustainability Goals, Cashless Transactions, Financial Technology

# Introduction

Digital payment methods, such as peer-to-peer payment platforms, internet banking, and mobile wallets, have become increasingly popular worldwide in recent years. Customers' interactions with financial services have changed as a result of this digital revolution, which offers previously unheard-of speed, convenience, and security. Beyond these technological developments, digital payments have emerged as a crucial device for encouraging environmentally conscious consumer behavior. The financial industry has a rare chance to influence major shifts in purchasing habits, environmental awareness, and carbon footprint reduction through digital payment systems as the world struggles with the pressing need for sustainability.

There are several environmental advantages to digital payments via nature. The materials needed for manufacture, storage, and delivery make traditional payment systems like cash and physical credit cards extremely environmentally harmful. For example, coins and banknotes are made of metal, paper, or polymer, all of which need a lot of resources to make and eventually discard. Physical cards also need plastic, which results in energy-intensive production procedures in addition to adding to plastic trash. By eliminating the need for such tangible commodities, digital payments, on the other hand, minimize waste production throughout the transaction lifecycle and the consumption of raw materials.

Additionally, the banking and financial sectors' carbon impact is lessened because to digital payments. The shift to cashless transactions reduces the need for cash circulation, which includes handling, storing, and moving actual currency—all of which have an adverse effect on the environment. Financial institutions can reduce energy consumption and emissions associated with their physical infrastructure by streamlining their operations through the transition to digital platforms.

Digital payment systems have the potential to affect consumer behavior in a way that supports sustainability in addition to these direct effects on the environment. Numerous digital payment systems are incorporating functions that promote eco-friendly decisions, like delivering incentives for purchases that are ecologically conscientious, promoting sustainable products, and offering insights into spending trends. Some payment providers, for example, encourage customers to choose greener options by tracking and displaying their carbon footprint based on their transactions. Additionally, the growing trend toward digital platforms makes it easier for customers to obtain knowledge about the environmental impact of products, empowering them to make better selections that support sustainability objectives.

Digital payments have the potential to be environmentally beneficial for the entire ecosystem. These technologies aid in lowering paper waste and needless resource consumption across industries by enabling more effective supply chain management, decreasing paper-based transactions, and encouraging the usage of digital receipts. Reduced administrative expenses and environmental effect benefit manufacturers, retailers, and service providers, which in turn motivates more companies to embrace green practices. Therefore, the adoption of digital payments in daily life acts as a trigger for more significant changes in public perceptions of sustainability.

# **Objective of the study:**

- 1. To Examine the Environmental Benefits through digital payment.
- 2. To Analyse Consumer Behaviour Shifts after adopting digital payments.
- 3. To Assess the Role of Financial Technology in Sustainability.
- 4. To Identify Future Opportunities in digital payments.

# Literature Review:

Opportunities to further advance sustainability are opening up as digital payment systems develop. Future developments in decentralized finance (DeFi) and blockchain technology, according to

Sims and Lewis (2023), may significantly lessen the environmental impact of financial transactions. Blockchain may offer a more environmentally friendly option to conventional banking systems by streamlining payment procedures while using less energy.

Furthermore, according to Mehta (2024), AI-powered payment systems may be able to tailor customer experiences and give recommendations for sustainable products based on previous purchases, giving consumers and businesses more chances to make eco-friendly decisions.

The potential for digital payments to integrate with smart city infrastructures, such as automated public transport systems and energy-efficient buildings, presents an exciting opportunity for further synergies between financial technology and environmental sustainability (Davis & Green, 2023). As digital payment solutions become more embedded in everyday life, their ability to influence behavior and support sustainable initiatives will likely grow

Spending statistics are being incorporated into contemporary digital payment apps to let users know how much they consume. In order to encourage customers to consider their ecological impact and make more environmentally friendly decisions, platforms such as Klarna and Mastercard have begun to offer carbon footprint tracking tools (e.g., Doconomy, 2022).

Digital payments simplify retail and logistical operations while lowering waste and energy consumption, according to research by Zhao et al. (2020). Automated methods increase the effectiveness of environmentally conscious supply chains and reduce the requirement for paper-based inventory management.

Numerous studies (Kumar & Singh, 2021, for example) highlight how digital payment systems, specifically e-receipts, online billing, and cashless transactions, can reduce the amount of paper used. Reduced carbon footprints from the production and distribution of paper are a direct result of the move away from cash and checks.

# **Research Methodology:**

This research employs a mixed-methods approach to explore how digital payment systems influence eco-friendly consumer behavior in the context of the Green Revolution.

Secondary data will be utilized to analyse existing studies, market reports, and statistical data from reputable sources such as government publications, industry surveys, and sustainability reports. The focus will be on identifying trends in consumer adoption of digital payments and their correlation with environmentally conscious purchasing decisions.

Quantitative analysis involves statistical techniques such as regression analysis to examine the relationship between the use of digital payment methods and the frequency of eco-friendly purchases, such as those supporting sustainable brands or reducing paper waste.

Qualitative data through content analysis to identify themes in consumer behavior, motivations for choosing digital payments, and the environmental impact of these decisions.

## **Data Collection and Analysis:**

| State   | % of Digital | % of Consumers      | Top Digital Pay-   | <b>Eco-Friendly Initiatives</b> |
|---------|--------------|---------------------|--------------------|---------------------------------|
|         | Payment      | Making Eco-Friendly | ment Methods       |                                 |
|         | Adoption     | Purchases           |                    |                                 |
| Maha-   | 87%          | 45%                 | Paytm, Google Pay, | Incentives for green prod-      |
| rashtra |              |                     | PhonePe            | ucts on digital platforms       |
| Delhi   | 90%          | 50%                 | Paytm, Google Pay, | Government promotion            |
|         |              |                     | Debit/Credit Cards | of paperless transactions       |
| Karna-  | 82%          | 40%                 | PhonePe, Google    | Encouraging sustainable         |
| taka    |              |                     | Pay, Amazon Pay    | businesses through digi-        |
|         |              |                     |                    | tal platforms                   |
| Tamil   | 75%          | 38%                 | Paytm, Google Pay, | Digital payment for eco-        |
| Nadu    |              |                     | UPI                | friendly transportation         |
|         |              |                     |                    | options                         |

Digital Payment Adoption and Eco-Friendly Consumer Behaviour across Indian States

| Uttar   | 70%  | 32%  | Paytm Google Pay   | Digital receipts for gov-  |
|---------|------|------|--------------------|----------------------------|
|         | /0/0 | 5270 | D 1 T C            | Digital lecepts for gov    |
| Pradesh |      |      | Bank Transfers     | ernment transactions to    |
|         |      |      |                    | reduce paper               |
| West    | 80%  | 35%  | Paytm, Google Pay, | Collaboration with eco-    |
| Bengal  |      |      | UPI                | friendly merchants via     |
|         |      |      |                    | UPI                        |
| Raja-   | 68%  | 30%  | Google Pay, Paytm, | Digital payment systems    |
| sthan   |      |      | PhonePe            | for green tourism initia-  |
|         |      |      |                    | tives                      |
| Gujarat | 85%  | 42%  | Paytm, Google Pay, | Sustainable agriculture    |
|         |      |      | UPI                | promoted via digital pay-  |
|         |      |      |                    | ments                      |
| Benga-  | 92%  | 55%  | PhonePe, Paytm,    | Strong push for paperless  |
| luru    |      |      | Google Pay         | transactions by local      |
|         |      |      |                    | businesses                 |
| Kerala  | 78%  | 40%  | Google Pay, Paytm, | Green initiatives in local |
|         |      |      | UPI                | markets incentivized dig-  |
|         |      |      |                    | itally                     |

\*Source Survey report of NPCI



Table: Gender-Wise Discrimination in Digital Payment Adoption and Eco-Friendly Consumer Behaviour across Indian States

| State          | % of<br>Men Us-<br>ing Dig-<br>ital Pay-<br>ments | % of<br>Women<br>Using<br>Digital<br>Payments | % of Men<br>Making Eco-<br>Friendly Pur-<br>chases via<br>Digital Pay-<br>ments | % of Women<br>Making Eco-<br>Friendly Pur-<br>chases via<br>Digital Pay-<br>ments | Gender<br>Gap in<br>Eco-<br>Friendly<br>Purchases | Top Barriers for<br>Women in Adopt-<br>ing Digital Pay-<br>ments |
|----------------|---|---|---|---|---|--|
| Maha-<br>rash- | 89%   | 85%   | 48%   | 42%   | 6%  | Limited access to smartphones, lack                              |
| tra            |   |   |   |   |   | of financial literacy  |
| Delhi          | 92%   | 88%   | 53%   | 47%   | 6%  | Trust issues with<br>online transactions,<br>fear of cyber fraud |

| Kar-<br>nataka | 84% | 80% | 43% | 37% | 6% | Limited awareness<br>of eco-friendly dig- |
|----------------|-----|-----|-----|-----|----|---|
|                |     |     |     |     |    | ital payment initia-                      |
|                |     |     |     |     |    | tives                                     |
| Tamil          | 78% | 72% | 40% | 34% | 6% | Low digital liter-                        |
| Nadu           |     |     |     |     |    | acy, lack of targeted                     |
|                |     |     |     |     |    | eco-friendly cam-                         |
|                |     |     |     |     |    | paigns for women                          |
| Uttar          | 73% | 67% | 35% | 28% | 7% | Limited                                   |
| Pra-           |     |     |     |     |    | smartphone usage,                         |
| desh           |     |     |     |     |    | regional socio-cul-                       |
|                |     |     |     |     |    | tural factors                             |
| West           | 83% | 77% | 38% | 32% | 6% | Limited access to                         |
| Ben-           |     |     |     |     |    | payment infrastruc-                       |
| gal            |     |     |     |     |    | ture in rural areas                       |
| Raja-          | 69% | 66% | 30% | 25% | 5% | Lack of support for                       |
| sthan          |     |     |     |     |    | women-focused                             |
|                |     |     |     |     |    | green business initi-                     |
|                |     |     |     |     |    | atives                                    |
| Guja-          | 87% | 83% | 44% | 39% | 5% | Concerns about dig-                       |
| rat            |     |     |     |     |    | ital payment secu-                        |
|                |     |     |     |     |    | rity, lack of aware-                      |
|                |     |     |     |     |    | ness on eco-friendly                      |
|                |     |     |     |     |    | purchases                                 |
| Ben-           | 94% | 90% | 57% | 52% | 5% | Socio-economic                            |
| galuru         |     |     |     |     |    | barriers, need for                        |
|                |     |     |     |     |    | more localized                            |
|                |     |     |     |     |    | campaigns for                             |
|                |     |     |     |     |    | women                                     |

| Kerala | 80% | 75% | 42% | 37% | 5% | Women's limited       |
|--------|-----|-----|-----|-----|----|-----------------------|
|        |     |     |     |     |    | participation in for- |
|        |     |     |     |     |    | mal digital econ-     |
|        |     |     |     |     |    | omy activities        |

\*Ministry of Women and Child Development (MWCD).



| Year | Digital Payment Adoption (%) | Eco-Friendly Consumer Behavior (%) |
|------|------------------------------|------------------------------------|
| 2015 | 15%                          | 30%                                |
| 2016 | 18%                          | 32%                                |
| 2017 | 22%                          | 34%                                |
| 2018 | 28%                          | 37%                                |

### Digital Payment Adoption and Eco-Friendly Consumer Behaviour Year Wise

| 2019 | 35% | 40% |
|------|-----|-----|
| 2020 | 45% | 45% |
| 2021 | 55% | 50% |
| 2022 | 60% | 55% |
| 2023 | 70% | 60% |
| 2024 | 75% | 65% |



# **Conclusion:**

The adoption of digital payments and environmentally conscious consumer behavior are strongly correlated across Indian states, according to data. With programs promoting sustainability through digital platforms, states like Bengaluru and Delhi are leaders in the use of digital payments and environmentally responsible shopping. Popular digital payment systems like Paytm, Google Pay, and PhonePe are often utilized, and regional eco-friendly programs range from encouraging paperless transactions to assisting green enterprises and goods. Overall, the evidence points to a

shift in consumer behavior toward more sustainable practices brought about by the growing use of digital payments, which benefits the environment and the economy.

Men and women in different states are adopting digital payments and making eco-friendly purchases. Though the gender gap is still only 5% to 7%, men often use digital payments more frequently and buy more environmentally friendly products than women. With 94% of men and 90% of women utilizing digital payments and 57% of men and 52% of women making eco-friendly Bengaluru, for purchases, instance. has the smallest gender disparity. On the other hand, Uttar Pradesh has the biggest gender disparity, with 35% of men making ecofriendly purchases compared to 28% of women and 73% of males using digital payments compared to 67% of women.

Limited smartphone access, low digital knowledge, and worries about the security of digital payments are major obstacles for women. It is essential to overcome these obstacles and implement focused eco-friendly programs for women in order to reduce the gender gap. Women are more likely to make eco-friendly purchases and use digital payments in states like Bengaluru and Delhi, where policies are more inclusive.

From 2015 to 2024, the data demonstrates a consistent rise in the use of digital payments as well as environmentally conscious consumer behavior. The COVID-19 pandemic and technology improvements caused the percentage of digital payments to increase from 15% in 2015 to 75% in 2024. As a result of growing environmental consciousness, eco-friendly consumer behavior also rose, rising from 30% to 65%. The parallel expansion of both movements indicates that consumers are embracing sustainable behaviors along with digital payments. This change presents chances for companies to be in line with eco-consciousness and technological convenience, fostering the creation of future customer experiences that are more efficient and environmentally friendly.

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