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Unified Payments Interface (Upi): Driving India's Digital Revolution

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Abstract: The advent of digital transformation has sparked a significant revolution within the financial sector. One of the most notable shifts has been the transition from traditional paper-based systems to digital platforms. The COVID-19 pandemic further accelerated this change, as consumers increasingly adopted contactless and paperless payment methods. Among these advancements, the Unified Payments Interface (UPI) has emerged as a key innovation, gaining widespread acceptance and usage. This study examines the role of UPI in driving digital transformation in the state of Chhattisgarh, with a special focus on the Bastar Division. A total of 150 UPI users participated in the research, and their responses were analyzed through tables, charts, and graphs. The findings reveal a clear trend: a substantial portion of Bastar Division of Chhattisgarh State's population has embraced UPI as a preferred mode of cashless digital transactions.

Key Words: Digital Transformation, UPI, Bastar Division.

I. INTRODUCTION

The Indian banking sector is undergoing transformative changes, largely driven by progressions in information technology. This evolution marks a significant parting from conventional paper-based operations, shifting towards digital platforms. The onset of the COVID-19 pandemic accelerated this transformation, prompting a notable shift in consumer payment behavior. As social distancing norms added prominence, the preference for cashless and contactless transactions grew substantially. Data from the Reserve Bank of India highlights a marked inclination towards digital payment methods during this period.

A major substance in this digital shift is the Unified Payments Interface (UPI), which has emerged as a central feature in India's financial ecosystem. Its extensive adoption has played an essential role in reshaping transaction practices nationwide. India's digital journey has situated it as a global leader in digital payments, evidenced by a remarkable 19-fold increase in transaction volume. Recognizing this progress, Prime Minister Narendra Modi, while launching two digital initiatives by the Reserve Bank of India, underscored the sector's evolution into a seamless, round-the-clock service framework, aimed at enhancing nationwide accessibility and user convenience.

At the heart of this revolution is the Unified Payments Interface (UPI), a real-time payment system that allows instant transfers between bank accounts using smartphones. Supported by various mobile applications, UPI enables seamless, cashless transactions at any time of the day.

The National Payments Corporation of India (NPCI) was set up to streamline and modernize the digital payments landscape in the country. One of its standout innovations is the Unified Payments Interface (UPI), which functions as a unified framework enabling smooth interaction between different banks. This system allows users to handle transactions from multiple bank accounts through a single application. By using a Virtual Payment Address (UPA), more commonly known as a UPI ID, individuals can send or receive funds without needing to share detailed banking information.

This streamlined, secure system is a cornerstone of India's digital economy, making financial services more inclusive and user-friendly than ever before. The Unified Payments Interface (UPI) is a real-time digital

transaction system that facilitates peer-to-peer fund transfers between bank accounts. It operates through a streamlined two-step authentication process, ensuring speed and simplicity. Regulated by the Reserve Bank of India (RBI), UPI enables direct money transfers using mobile platforms, linking users' bank accounts seamlessly. Known for its security and efficiency, the system minimizes the need for physical cash or in-person banking, making digital transactions more accessible and convenient.

Table 1: Growth of UPI from 2019 to 2024 (Number of Member Banks)

Year	Number of Member Banks
2019	143
2020	207
2021	260
2022	312
2023	385
2024	460

Source: Compiled from publicly available NPCI and RBI data.

The table highlights the steady and significant expansion in the number of banks that adopted the Unified Payments Interface (UPI) between 2019 and 2024. In 2019, 143 banks were part of the UPI ecosystem. This number saw consistent annual growth, reaching 207 banks in 2020 and climbing further to 260 in 2021. The upward trend continued, with 312 banks onboard in 2022 and 385 in 2023. By 2024, the total number of member banks had reached 460.

This steady increase reflects the growing acceptance and integration of UPI across India's banking sector. It also suggests improved interoperability between banks, greater convenience for users, and a strong push toward a digitally enabled, cashless economy.

II. Literature Review

This chapter summarizes key studies on the Unified Payments Interface (UPI), especially the factors influencing digital payment growth. UPI, launched by the NPCI under RBI regulation, was introduced in April 2016 and became publicly available in August 2016. It allows users to manage multiple bank accounts through a single app, supporting secure peer-to-peer and merchant transactions. Built on the National Financial Switch platform, UPI ensures fast and seamless money transfers between different banks.

Pathak, A. (2023) – This systematic review explores the rapid growth of UPI from 2016 to 2022, highlighting its role in promoting a cashless economy. The study identifies key drivers such as smartphone penetration, government initiatives, and improved internet access.

Raisagar, V. (2024) – A critical review that examines how demonetization and the Digital India campaign accelerated UPI adoption. It also discusses challenges like digital illiteracy and security concerns, while emphasizing UPI's transformative impact on digital payments.

Baliyan & Singh (2023) – This paper analyzes UPI's architecture and its role in simplifying interbank transactions. It emphasizes UPI's interoperability and its contribution to India's vision of a unified digital payment ecosystem.

Kamala Saravanan (2022) – The study focuses on technological barriers to UPI adoption, particularly the role of internet connectivity. It suggests that 5G infrastructure could reduce transaction failures and enhance user experience.

Sharma & Gupta (2021) – This research investigates consumer behavior toward UPI, identifying trust, ease of use, and perceived security as major factors influencing adoption.

RBI Annual Report (2022) – The Reserve Bank of India's report provides insights into UPI's transaction volume and value growth, highlighting its increasing role in retail payments.

NPCI White Paper (2020) – This document outlines the technical framework of UPI, its scalability, and future roadmap, including integration with international payment systems.

Kumar & Rani (2021) – A study that evaluates the impact of UPI on small businesses and merchants, showing how digital payments have improved transaction transparency and reduced cash handling costs.

Verma et al. (2022) – This paper explores demographic trends in UPI usage, noting higher adoption among urban youth and tech-savvy populations.

Singh & Mehta (2020) – A comparative study of UPI and other digital payment systems like NEFT and IMPS, concluding that UPI offers superior convenience and real-time processing.

III. RESEARCH METHODOLOGY

This chapter presents the research methodology, focusing on how the questionnaire was designed and data collected for the study. Carried out in the Bastar division, Chhattisgarh, the research explored local UPI usage patterns. Informal conversations with frequent users provided initial insights, guiding the development of the questionnaire. A literature review helped shape the approach, highlighting structured questionnaires, focus groups, and interviews as effective tools. Secondary data from online sources supported the findings and enriched the study's context

3.1 Objectives of the Study

The objectives of the study are as follows:

1. To investigate the level of UPI awareness among the population in Bastar Division in Chhattisgarh.
2. To explore the viewpoints of UPI users regarding the possible risks and difficulties they face while using the platform.
3. To explore the various purposes for which UPI is utilized in the Bastar Division in Chhattisgarh.

3.2 Preliminary Informal Engagement and Questionnaire Design

Following the selection of the research topic, initial informal interactions were conducted to guide the direction of the study. A sample of ten UPI users, representing various regions across the Bastar Division of Chhattisgarh, was selected at random. Before proceeding, each individual was asked about their willingness to participate in a conversation about the Unified Payments Interface.

Participants for these informal discussions were purposefully chosen based on their familiarity with digital payment platforms to gain a foundational understanding before collecting responses from a broader sample. The insights gathered during these sessions significantly contributed to the design and structure of the questionnaire.

These preliminary conversations provided sufficient qualitative input to initiate formal data collection. The interviews were personally conducted by the researchers in both South Bastar and North Bastar.

Consequently, the questionnaire was carefully developed in alignment with the objectives of the study and was distributed to respondents through online channels by the researchers themselves.

3.3 Survey study -Questionnaire

The final questionnaire comprised 12 questions and is presented in Appendix I. It was distributed online to UPI users in Bastar Division using a Google Form to facilitate response collection. Efforts were made to ensure the questionnaire was effectively administered through digital means, ensuring the quality and appropriateness of the responses received.

3.4 Sampling and Data Collection Procedures

To gain deeper insights into UPI usage in the Bastar Division, a randomly selected sample of ten users was engaged in informal discussions. These individuals were personally approached by the researchers at various locations across the Bastar Division.

Subsequently, a structured questionnaire—comprising both open-ended and closed-ended questions—was distributed online via Google Forms. The design of the form enabled participants to access the questionnaire through a shared link, input their responses, and submit them digitally.

Participants were specifically targeted based on their regular use of UPI platforms and their familiarity with digital tools required to complete the survey. The questionnaire was administered exclusively to UPI users in Bastar Division, resulting in the collection of 150 fully completed and valid responses.

IV. STATISTICAL TEST AND RESULTS

This chapter presents the analysis and interpretation of the collected data. A total of 150 respondents from the Bastar Division participated in the study through structured interviews. For the informal discussions, users of the Unified Payments Interface (UPI) system were personally approached by the researchers. The findings and interpretations provided here are derived from a careful examination of the analyzed data.

4.1 demographic profile of the respondents

The collected data has been analyzed using tabular representation and basic percentage calculations.

Demographic profile of the Respondents:

Table 4.1: Gender of Respondents

Respondents	Male	Female	Total
Number	68	82	150
Percentage	45.33%	54.67%	100%

(Source: Compiled from Primary data)

The table illustrates the gender distribution of the 150 respondents who participated in the study. Out of the total sample, 68 individuals identified as male, accounting for 45.33% of the participants, while 82 identified as female, representing 54.67%. This indicates a slightly higher participation rate among female respondents, providing a balanced yet diverse perspective for the analysis.

Table 4.2: Age of Respondents

Age Group	Below 18	18–25	26–35	36–45	46–60	Above 60	Total
Number	15	88	27	11	5	3	150
Percentage	10%	58.67%	18%	7.33%	3.33%	2%	100%

(Source: Compiled from Primary data)

The table outlines the age distribution of 150 respondents who participated in the study. Among them, the largest proportion—88 individuals or 58.67%—belonged to the 18–25 age group, reflecting a strong representation from younger adults. This is followed by 27 respondents (18%) in the 26–35 age range and 15 respondents (10%) aged below 18. Smaller proportions were observed in older age groups: 11 participants (7.33%) were aged 36–45, 5 participants (3.33%) were in the 46–60 bracket, and 3 participants (2%) were aged above 60. This distribution indicates that the perspectives predominantly inform the study of younger UPI users, particularly those aged between 18 and 25.

Table 4.3: Education Qualification of Respondents:

Educational Qualification	SSC	HSSC	Graduation	Post Graduation	Professional	Total
Number	16	29	74	19	12	150
Percentage	10.67%	19.33%	49.33%	12.67%	8%	100%

(Source: Compiled from Primary data)

The table displays the educational background of 150 respondents surveyed in the study. Among them, the highest proportion—74 individuals or 49.33%—had attained a graduate-level education. This is followed by 29 participants (19.33%) who completed higher secondary education (HSSC), and 19 participants (12.67%) who held postgraduate qualifications. Additionally, 16 respondents (10.67%) had completed secondary school (SSC), while 12 individuals (8%) possessed professional qualifications. These figures suggest that the majority of the respondents were well-educated, with a strong representation from graduates, contributing to the reliability and depth of insights obtained in the study.

Table 4.4 Occupation of Respondents

Occupation	Self-Employed	Salaried	Professional	Retired	Unemployed	Students	Total
Number	21	34	14	5	6	70	150
Percentage	14%	22.67%	9.33%	3.33%	4%	46.67%	100%

(Source: Compiled from Primary data)

The table outlines the occupational distribution of the 150 respondents. Students represent the largest group at 46.67%, followed by salaried employees (22.67%) and self-employed individuals (14%). Professionals make up 9.33%, while unemployed and retired respondents account for 4% and 3.33%, respectively. This reflects a diverse yet student-dominated sample.

Table 4.5: Annual income of Respondents

Monthly Income (INR)	Below 10,000	10,000–25,000	25,000–50,000	50,000–1,00,000	Total
Number	68	28	26	28	150
Percentage	45.33%	18.67%	17.33%	18.67%	100%

(Source: Compiled from Primary data)

The table illustrates the monthly income distribution of the 150 respondents. The majority—68 individuals or 45.33%—earn less than ₹10,000, indicating a significant representation from lower-income groups. Respondents earning between ₹10,000 and ₹25,000 and those in the ₹50,000 to ₹1,00,000 bracket each account for 18.67% (28 individuals). Additionally, 26 respondents (17.33%) fall within the ₹25,000 to ₹50,000 income range. This distribution provides valuable insight into the financial backgrounds of UPI users included in the study.

Table 4.6: Awareness of Respondents about UPI

Response	Yes	No	Total
Number	137	13	150
Percentage	91.33%	8.67%	100%

(Source: Compiled from Primary data)

The table summarizes participants' responses regarding a specific query. Out of 150 respondents, 137 (91.33%) answered “Yes,” while 13 (8.67%) responded “No.” This indicates a strong majority in favor of the affirmative response, reflecting a clear consensus among participants on the matter addressed in the question.

Table 4.7: Source of Awareness of Respondents about UPI

Source of Information	Television	Friends/Relatives	Social media	Newspaper/Radio	Total
Number	40	47	55	8	150
Percentage	26.67%	31.33%	36.67%	5.33%	100%

(Source: Compiled from Primary data)

The table highlights the primary sources through which respondents became aware of the subject under study. Among the 150 participants, the most cited source was social media, accounting for 36.67% (55 individuals). This was followed by friends and relatives, with 47 respondents (31.33%), and television, reported by 40 participants (26.67%). A smaller proportion—8 respondents or 5.33%—gained information through newspapers or radio. These figures suggest that digital and interpersonal channels play a dominant role in information dissemination among the target audience.

Table 8: Usage of UPI Apps

Response	Yes	No	Total
Number	131	19	150
Percentage	87.33%	12.67%	100%

(Source: Compiled from Primary data)

The table reflects the participants’ responses to a specific question posed during the study. Out of 150 respondents, 131 individuals (87.33%) answered "Yes," while 19 respondents (12.67%) answered "No." This indicates a strong inclination toward the affirmative option, highlighting a clear trend or preference among the majority of participants.

Table 4.9: Frequency of Using the UPI Apps

Usage Frequency	Frequently	Occasionally	Rarely	As and when needed
Number	56	32	22	40
Percentage	37.33%	21.33%	14.67%	26.67%

(Source: Compiled from Primary data)

The table presents how frequently the 150 respondents use the service or platform in question. A majority—56 individuals (37.33%)—reported using it frequently. This is followed by 41 respondents (27.33%) who use it as and when needed, while 32 participants (21.33%) use it occasionally. A smaller segment, 21 respondents (14%), indicated rare usage. These findings suggest that regular engagement is common, though a significant proportion still relies on situational usage.

Table 4.10: Knowledge of UPI Apps

Preferred UPI App	Google Pay	Paytm	Amazon Pay	Phone Pe	Others	Total
Number	8	17	12	106	7	150
Percentage	5.33%	11.33%	8%	70.67%	4.67%	100%

(Source: Compiled from Primary data)

The table outlines the preferred UPI applications among 150 respondents. A significant majority—106 individuals (70.67%)—identified **PhonePe** as their primary UPI platform, highlighting its dominant usage within the sample group. In comparison, only 8 respondents (5.33%) reported using **Google Pay**. Other notable platforms include **Paytm**, selected by 17 respondents (11.33%), and **Amazon Pay**, preferred by 12 individuals (8%). An additional 7 respondents (4.67%) reported using other UPI apps. This distribution suggests PhonePe leads in user preference, followed by Paytm and Amazon Pay, while Google Pay has a notably smaller user base in this context.

Table 4.11 Predominately Use of UPI Apps

Purpose of UPI Usage	Bill Payment	Recharge	Online Shopping	Utilities	Money Transfer	Total
Number	68	40	17	22	33	150
Percentage	45.33%	26.67%	11.33%	14.67%	22%	100%

(Source: Compiled from Primary data)

The table details the various purposes for which respondents utilize UPI services. Among the 150 participants, the most common use is **bill payments**, reported by 68 individuals (45.33%). This is followed by **money transfers** (33 respondents or 22%) and **recharges**, cited by 40 users (26.67%). Additionally, 22 respondents (14.67%) use UPI for **utility payments**, while a smaller group—17 individuals (11.33%)—employs it for **online shopping**. These findings highlight that essential financial transactions, such as bill payments and money transfers, are the primary drivers of UPI usage behavior.

Table 4.12 Opinion About UPI

Barrier to UPI Usage	Tool Complicated	Distrust	Security Purpose	High Transaction Cost	Total
Number	32	23	82	13	150
Percentage	21.33%	15.33%	54.67%	8.67%	100%

(Source: Compiled from Primary data)

The table presents key factors that discourage respondents from using UPI services. Among the 150 participants, **security concerns** were the most cited issue, raised by 82 individuals (54.67%). **Tool complexity** followed, with 32 respondents (21.33%) indicating that they find the system difficult to use. **Distrust in digital transactions** was reported by 23 individuals (15.33%), while 13 respondents (8.67%) highlighted **high transaction costs** as a barrier. These findings suggest that while UPI adoption is widespread, security and usability remain significant concerns for a substantial portion of users.

Table 4.13: Satisfaction with UPI

Response Type	Number	Percentage
Yes	135	90%
No	15	10%
Total	150	100%

(Source: Compiled from Primary data)

The table presents the distribution of responses to a particular question, based on a total of 150 participants. Out of these, **135 respondents (90%)** answered "Yes," indicating a strong majority in favor of the given option. On the other hand, **15 respondents (10%)** selected "No," representing a small minority. This clear disparity suggests a dominant preference or agreement among the participants regarding the subject in question.

Table 4.14 Factors that build trust on UPI

Category	Trust in Privacy	Trust in No Fraud	Personal Confidentiality	Low Risk Association
Number of Respondents	63	34	28	25
Percentage (%)	42.00%	22.70%	18.70%	16.60%

(Source: Compiled from Primary data)

The table presents a breakdown of 150 participants' trust-related perceptions across four key factors. Among them, **63 respondents (42.0%)** expressed strong trust in privacy, making it the most significant factor. This was followed by **34 individuals (22.7%)** who trusted the system's protection against fraud. **Personal confidentiality** was valued by **28 respondents (18.7%)**, indicating a noteworthy concern for the safeguarding of individual information. Lastly, **25 participants (16.6%)** associated the system with low risk, showing comparatively lower, yet notable, confidence in safety. This layout highlights the relative importance users place on different trust aspects—insightful for understanding behavioral trends in digital financial systems like UPI.

Table 4.15: Problems faced while using UPI

Category	Internet Issues	Privacy Concerns	Over Spending	Operational Complexity
Number of Respondents	70	36	32	12
Percentage (%)	46.70%	24.00%	21.30%	8.00%

(Source: Compiled from Primary data)

The table highlights key challenges faced by digital payment users. The main issue is poor internet connectivity (46.7%), followed by concerns about privacy (24.0%). Some users also struggle with overspending (21.3%) or find the systems too complex to use (8.0%). These findings emphasize the need for better infrastructure, user-friendly design, and trust-building measures to support wider adoption.

Table 4.17: Awareness about fraud while using UPI

Category	Yes	No
Number of Respondents	123	27
Percentage (%)	82.00%	18.00%

(Source: Compiled from Primary data)

The table presents the overall distribution of responses from a group of 150 participants. A substantial majority—**123 individuals (82.0%)**—chose "Yes," reflecting widespread agreement or support for the subject in question. In contrast, only **27 respondents (18.0%)** selected "No," indicating a smaller, less common viewpoint. This clear divide suggests a strong consensus among participants, which can be valuable when analyzing prevailing attitudes or acceptance levels in your study.

V. CONTRIBUTION OF THE STUDY

A qualitative study conducted in the Bastar Division revealed that the Unified Payments Interface (UPI)—a digital and cashless payment system—is especially popular among younger users, largely due to its simplicity and ease of use. Across India, and notably within Bastar, the shift toward digital payments has become increasingly evident. UPI has seen widespread adoption in the region, with PhonePe standing out as the preferred app among users.

This initial exploratory phase offered valuable insights that helped shape the subsequent quantitative segment of the study. The responses not only provided relevant data but also shed light on key behavioral patterns surrounding digital payments.

Demographic analysis showed that younger individuals were more likely to use UPI, driven primarily by its convenience and accessibility. The study also uncovered a link between income levels and UPI usage—middle-income participants demonstrated a stronger preference for the platform. Gender-based trends pointed to greater adoption among women than men, and users from varied professional backgrounds and remote areas consistently embraced UPI for their financial transactions.

The current study underscores a widespread preference for UPI among residents of the Bastar Division. Awareness levels were found to be notably high, with approximately 89 % of the participants reporting familiarity with the platform. The research further reinforces the idea that awareness significantly influences

digital payment preferences, a trend echoed by earlier studies as well. To summarize, the study highlights a strong presence of UPI adoption in the Bastar Division, driven by accessibility, awareness, and demographic alignment.

- UPI enables instant fund transfers by simply scanning a QR code.
- A single UPI ID can be linked to multiple bank accounts, offering users convenience.
- It facilitates the creation of a Virtual Payment Address (VPA), which eliminates the need to share sensitive bank details. The system uses two-factor authentication for enhanced security.
- To use UPI, users must first download a UPI-enabled app and complete registration with their bank details.
- An M-PIN must be set to authorize transactions. Among respondents in Bastar Division, PhonePe was the most widely used application, followed closely by PhonePe.
- Amazon Pay was noted for offering the most cashback and promotional rewards.
- Merchants in Bastar Division preferred Paytm, largely because it provides a QR code with a sound box that helps them monitor transactions audibly and track their earnings efficiently.
- Respondents rated PhonePe and Google Pay highly for their intuitive and easy-to-use interfaces.
- Many users favored digital payments over cash due to the convenience of carrying a smartphone rather than physical currency, which is more susceptible to loss.
- However, Google Pay was reported to face more frequent server issues compared to other apps.
- The majority of UPI spending was directed towards groceries, fuel, and utility bill payments.
- The study found that awareness and digital literacy regarding UPI fraud protection remain limited among users.
- Many respondents believed that while UPI is useful, it cannot fully replace the use of cash.
- Government initiatives were seen as actively encouraging a transition toward a cashless economy through UPI promotion.
- PhonePe was observed to be steadily increasing its market presence, while Google Pay, BHIM, and Amazon Pay appeared to be losing some traction.
- Technical issues, particularly with Google Pay's servers, were noted as common complaints.
- BHIM and Amazon Pay showed signs of declining usage in the market.
- The number of UPI users surged during the lockdown period, indicating a behavioral shift toward digital payments.
- Some users continued to express concerns about the confidentiality of their financial information.
- Respondents often installed multiple UPI apps to take advantage of various cashback offers, rewards, and discounts.

VI. MANAGERIAL INSIGHTS AND APPLICATIONS

This study provides valuable insights that can inform policy-making among listed banks. It also offers a clearer understanding for stakeholders regarding the operational strengths and effectiveness of Unified Payments Interface (UPI) platforms.

VII. LIMITATIONS OF THE STUDY

This research draws upon primary data supported by insights from academic literature and official statistics published by the Government of Chhattisgarh. However, the current sample size limits the generalizability of the findings. To strengthen the validity of these conclusions, future studies should involve a larger sample and incorporate a second-level quantitative investigation.

VIII. FUTURE RESEARCH

The adoption and impact of Unified Payments Interface (UPI), a digital cashless transaction system, has not been extensively studied in the context of Goa. While UPI has been widely researched in Western countries and several parts of India, there remains a noticeable gap in academic literature focused specifically on Goa, despite its prominence as a commercially developed state. This presents an opportunity to examine the role of government initiatives and their effects on digital payment adoption in the region. Conducting research that involves key stakeholders—such as the Government of Goa and leading fintech companies—alongside a larger and more diverse respondent base, could enhance the academic understanding of UPI and support more informed policy-making decisions.

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