

An Analysis of Digital Banking Services and Their Impact on Customer Satisfaction

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Abstract- Digital banking has become a central pillar of the modern financial ecosystem, reshaping how individuals and institutions transact, save and access credit. This article presents a consolidated analysis of digital banking services and their impact on customer satisfaction, drawing on primary survey data collected from customers of two different banking institutions operating in India – one a government-backed payments bank that leverages a large postal network to extend banking to rural and unbanked populations, and the other a district-level cooperative bank that primarily serves farmers, self-help groups and small businesses. Together, the combined sample of 151 respondents provides a broader and more representative view of how digital banking services are perceived across different customer segments and institutional models. The study examines customer awareness, adoption patterns, perceived benefits, challenges and overall satisfaction with services such as mobile banking, UPI, AEPS, fund transfer facilities and doorstep banking. Findings indicate that convenience, time-saving and ease of use are the primary drivers of adoption, while network connectivity issues, limited digital literacy and security concerns remain the principal barriers. The article concludes with practical recommendations for improving digital banking infrastructure, customer education and service reliability.

I. INTRODUCTION

Banking contributes to a country's economic progress by promoting savings, enabling financial transactions, supporting businesses and offering essential financial services to the public. Over the past decade, the Indian banking sector has undergone significant transformation driven by advances in internet and mobile technology, government-led financial inclusion programmes, and the widespread adoption of smartphones. Initiatives such as Digital India, the Unified Payments Interface (UPI) and the Pradhan Mantri Jan Dhan Yojana have collectively accelerated the shift from cash-based, branch-

dependent banking toward digital, on-demand financial services.

Digital banking refers to the delivery of banking services – account opening, deposits, withdrawals, fund transfers, bill payments and more – through internet and mobile-based platforms rather than requiring a customer to visit a physical branch. Its core features include online and mobile banking applications, real-time and secure transaction processing, digital payment facilities such as UPI and Aadhaar-enabled payment systems, reduced paperwork, and continuous (24/7) access to financial services. For banks, digital channels lower operating costs and extend reach; for customers, they offer convenience, speed and independence from branch timings and locations.

This article synthesises findings from two independent field studies conducted on customers of digital banking services in India: one focused on a government-owned payments bank that operates through an extensive postal network to serve urban, semi-urban and rural customers, and the other on a district central cooperative bank that primarily serves an agrarian, rural customer base. Although the two institutions differ in ownership structure, scale and target customer segments, both offer a comparable range of digital services – mobile banking, UPI, ATM/debit card services, fund transfer facilities (NEFT/RTGS/IMPS) and Aadhaar-enabled banking. By combining and comparing data from both institutions, this study offers a broader and more generalisable understanding of how digital banking services influence customer satisfaction across different banking models.

The motivation for combining these two data sets is straightforward: most existing studies of digital banking satisfaction examine a single institution type

in isolation, making it difficult to know whether observed patterns are specific to that institution or reflect broader trends across the wider banking system. By pooling data from a payments bank and a cooperative bank – two institutional models with very different histories, ownership structures and customer relationships, but a similar underlying mission of extending banking to under-served communities – this article is able to distinguish institution-specific findings from more general patterns that are likely to hold across the digital banking landscape as a whole. This comparative lens is particularly relevant for policymakers and bank managers seeking to design digital-inclusion strategies that work across different types of financial institutions rather than being tailored to only one.

II. INDUSTRY OVERVIEW

The Indian banking industry comprises public-sector banks, private-sector banks, foreign banks, regional rural banks, payments banks and cooperative banks. Together, these institutions mobilise savings, extend credit, facilitate trade and commerce, and support broader economic development. The sector has experienced a major transformation due to technological advancement, resulting in widespread adoption of internet banking, mobile banking, RTGS, NEFT and UPI services. These innovations have improved both customer convenience and operational efficiency across the industry.

Payments banks were introduced as a distinct category of banking institution to extend basic banking and payment facilities to under-served and unbanked populations, particularly in rural areas. Rather than offering credit or lending products, such banks concentrate on deposit accounts, remittances, payments and digital financial services, often using an existing large-scale physical network (such as post

offices) as a distribution channel. Cooperative banks, on the other hand, form a key component of the rural and semi-urban banking landscape. They provide affordable credit and banking services to farmers, small businesses, self-help groups and rural communities, and contribute significantly to agricultural development, financial inclusion and rural economic growth.

The rapid growth of digital banking in India has been underpinned by several mutually reinforcing factors. Government-led programmes have promoted the use of Aadhaar-based identity verification for account opening (e-KYC), reducing the paperwork burden traditionally associated with formal banking. The Unified Payments Interface has provided a common, interoperable payment rail that allows customers of any participating bank to transact instantly with customers of any other, removing much of the friction that once made digital payments inconvenient. Rising smartphone penetration and falling data costs have placed a capable banking device in the hands of an increasing share of the population, including in rural areas that previously had limited access to banking infrastructure of any kind. Together, these factors have made it possible for institutions with very different scales and resources – from large public-sector banks to small district cooperative banks – to offer broadly comparable digital experiences to their customers, narrowing a gap that would, a decade ago, have been far more pronounced.

2.1 Digital Services Common to Both Institutions

Despite differences in ownership and target customers, both banking institutions examined in this study offer a broadly similar suite of digital banking services, summarised in Table 1.

Service Category	Representative Services
Account & Deposit Services	Savings account, current account, e-KYC based account opening, fixed and recurring deposits
Digital / Mobile Banking	Mobile banking application, internet banking, UPI transactions, QR code payments
Payment & Transfer	NEFT, RTGS, IMPS, Aadhaar-Enabled Payment System (AePS), Direct Benefit Transfer

Service Category	Representative Services
Services	(DBT)
Card & ATM Services	ATM / debit card services, digital debit card for online purchases
Other Digital Facilities	Bill payment and recharge services, digital life certificates, e-statements
Credit & Advisory Services	Agricultural, gold, housing, vehicle and education loans (cooperative model); loan facilitation through partner institutions (payments-bank model)

Table 1: Digital banking services common to the institutions studied.

Both institutions have also adopted "doorstep" or assisted-access models to bridge digital and physical banking – one through trained postal staff who deliver banking services to customers' homes, and the other through branch and society-level staff who assist rural and less tech-familiar customers with digital transactions.

2.2 Comparing the Two Institutional Models

Although this article treats the two institutions as comparable cases of digital banking delivery, it is useful to note where their underlying models diverge, since these differences help explain some of the variation observed later in the survey findings. Bank A operates as a government-owned payments bank, meaning it is legally restricted from offering traditional lending products and instead concentrates on deposits, remittances and digital payments; its principal competitive advantage lies in the sheer scale and reach of the physical network it rides on, which allows it to place access points in even very remote locations. Bank B, by contrast, is a long-established cooperative institution built around a member-ownership model, with a mission centred on agricultural credit, self-help groups and rural development; its digital services have been layered onto a traditional credit-and-deposit franchise built over many decades of relationship banking with local farming communities.

These structural differences shape customer expectations in subtly different ways. Customers of the payments-bank model tend to interact with the institution primarily for payments, remittances and government-benefit transfers, and therefore weigh convenience and accessibility heavily. Customers of

the cooperative-bank model, many of whom also hold loan accounts and have longstanding personal relationships with branch staff, appear to extend a pre-existing trust in the institution to its newer digital offerings, which may partly explain the somewhat higher overall satisfaction levels observed among cooperative-bank respondents in this study.

III. CONCEPTUAL BACKGROUND

3.1 Concept of Digital Banking

Digital banking is the use of technology and electronic platforms to deliver banking services without requiring the customer to visit a physical branch. It allows customers to access banking facilities at any time and from any location, provided they have a computer or smartphone with an internet connection. Its principal features include online banking services, fast and secure transactions, digital payment facilities, reduced paperwork, simplified fund transfers, and improved customer convenience. For banks, digital banking improves operational efficiency and enables them to meet customer needs more effectively; for customers, it removes the friction of branch visits and waiting times.

3.2 Determinants of Customer Satisfaction in Digital Banking

Customer satisfaction in a digital banking context is shaped by a combination of functional and experiential factors. Based on the literature and the primary data gathered for this study, the following determinants consistently emerge as most influential:

- Convenience – the ability to transact without visiting a branch, at any time.

- Ease of use – how intuitive and simple the mobile or online interface is for customers of varying digital literacy.
- Security and trust – confidence that transactions and personal data are protected from fraud.
- Speed and reliability – the efficiency of transaction processing and the consistency of service availability.
- Accessibility – the extent to which services can be reached irrespective of location, network conditions or device capability.

3.3 The Customer Journey in Digital Banking

It is useful to think of digital banking satisfaction as unfolding across a customer journey rather than as a single, static judgement. The journey typically begins with awareness – a customer learning that a particular digital service exists, most often through a trusted intermediary such as a friend, relative or branch staff member rather than formal advertising. This is followed by a trial phase, in which first-time use is often assisted, either informally by a family member or formally by bank staff at a branch or access point. If this early experience is positive, customers move into a phase of routine adoption, in which the digital channel becomes a regular, if not necessarily daily, part of their financial behaviour. Finally, satisfied customers frequently become advocates, passing on their positive experience to others in their social or family network. This framing helps explain why word-of-mouth channels dominate awareness in both institutions studied here: the journey is fundamentally social, and improvements at any one stage – a smoother first transaction, clearer guidance from staff, faster resolution of a technical problem – have knock-on effects on the stages that follow.

IV. LITERATURE REVIEW

A substantial body of research has examined the relationship between digital banking services and customer satisfaction, and the following review draws together key contributions relevant to this study.

Several studies emphasise convenience and accessibility as central drivers of adoption. Research

on mobile financial services in India found that such services encourage saving behaviour, ease access to insurance and credit, and help reduce disparities in access to formal financial services between population groups. Similarly, studies of financial inclusion among urban and rural populations concluded that greater use of banking facilities improves individuals' economic condition, reduces poverty and supports community development.

A second stream of literature focuses on service quality and technology acceptance. Reviews of mobile payment adoption identify usefulness, ease of use, security and trust as the factors that most strongly influence a customer's willingness to use digital payment services, concluding that the success of digital banking depends largely on user acceptance of the underlying technology. Related studies on service quality in digital banking similarly find that reliability, security, privacy and user-friendliness are instrumental in improving customer experience and retention.

A third stream examines institution-specific adoption, particularly among payments banks and cooperative banks operating in rural and semi-urban markets. Several studies find that services such as Aadhaar-Enabled Payment Systems, doorstep banking and an extensive branch or agent network significantly improve access to banking for individuals across various regions, and that such initiatives particularly benefit under-served and financially excluded groups. Customer-satisfaction studies specific to such institutions consistently report that customers value simplicity, low cost and doorstep accessibility, though network issues and limited technological familiarity continue to constrain wider adoption, especially among older and rural customers.

A fourth stream addresses trust and security. Studies on digital banking adoption find that customer trust and perceived security play a significant role in willingness to transact online, with satisfaction improving when customers feel their transactions are protected. Complementary research on fraud and cybersecurity concerns finds that robust security systems and clear communication about safety measures contribute positively to satisfaction, while

fear of fraud has a measurable negative effect on trust.

More recent work has turned to personalisation, digital literacy and the gender digital divide. Studies published between 2024 and 2026 highlight those with greater awareness and digital skills use online banking services more frequently and report higher satisfaction, and argue for structured digital-literacy and awareness programmes to close usage gaps across gender, age and rural–urban lines. Other recent studies emphasise those user-friendly mobile interfaces, faster transaction processing and responsive customer support are increasingly important expectations among digital banking users.

Finally, a smaller but growing set of studies looks specifically at loyalty and continued engagement rather than one-off satisfaction. This literature suggests that satisfaction functions as a gateway to longer-term loyalty: customers who report being comfortable with their digital banking experience are considerably more likely to continue using the service and to recommend it to others, creating a self-reinforcing cycle of adoption through word of mouth. This finding is particularly relevant to the present study, given that word of mouth was found to be the dominant channel of awareness in both institutions surveyed, suggesting that early positive experiences among a core group of satisfied customers may be an important, low-cost driver of continued adoption in under-served markets.

4.2 Regulatory and Policy Context

A related strand of policy-oriented literature considers the specific role of assisted and doorstep banking models in extending digital services to populations who might otherwise be excluded due to low literacy, limited smartphone ownership, or unfamiliarity with digital interfaces. Studies of doorstep banking adoption find that customers are most likely to use such services when they already trust the parent institution, perceive the service as genuinely useful for their day-to-day needs, and find the interaction with field staff straightforward and respectful. This body of work is directly relevant to the institutions studied here, both of which rely, to varying degrees, on trained staff acting as

intermediaries between customers and purely self-service digital channels.

The regulatory and policy environment has played a substantial role in shaping the digital banking landscape examined in this study. The introduction of a distinct payments-bank licence category was intended specifically to extend low-cost, deposit-and-payment-focused banking to under-served populations without exposing new entrants, or the financial system, to the credit risk associated with lending. Complementary financial-inclusion policies – including simplified, Aadhaar-based know-your-customer norms, zero-balance basic savings accounts and direct-benefit-transfer architecture for government subsidies and welfare payments – have created strong incentives for previously unbanked individuals to open and actively use digital accounts. For cooperative banks, sector-specific regulatory support, including refinancing facilities from national agricultural development institutions and priority-sector lending norms, has historically underpinned their role as rural credit providers, and their more recent move into digital services reflects a broader regulatory push toward core banking solutions and digital record-keeping across the cooperative banking sector.

Understanding this policy backdrop is important for interpreting the findings of this study: the high awareness and adoption levels reported by respondents are, in part, a downstream effect of more than a decade of deliberate, government-led financial-inclusion policy rather than of organic market forces alone.

4.3 Research Gap

Taken together, existing studies confirm that digital banking generally enhances financial inclusion and improves customer access to banking services. However, most research treats a single institution or a single category of bank (either a commercial bank, a payments bank, or a cooperative bank) in isolation, and relatively few studies examine long-term, continued usage behaviour or compare satisfaction and adoption patterns across institutional models. Rural–urban differences, gender gaps and socio-economic variation in the use of digital banking

services also remain under-explored. This article addresses part of this gap by combining primary survey data from two structurally different institutions – a payments bank and a cooperative bank – to provide a comparative view of awareness, satisfaction, security perceptions and continued usage behaviour.

V. RESEARCH DESIGN AND METHODOLOGY

5.1 Statement of the Problem

Digital banking is expanding rapidly in India, enabling customers to conduct financial activities conveniently through mobile and online platforms. Despite wide availability, many customers do not make full use of digital banking. Lack of awareness, poor internet connectivity, limited technical knowledge, security concerns and difficulty using mobile applications often affect adoption, particularly in rural areas where customers may continue to rely on traditional, branch-based banking. This study examines these dynamics across two differently structured banking institutions to identify common patterns and institution-specific differences.

5.2 Objectives of the Study

- To assess customer awareness of digital banking services.
- To examine usage patterns and the frequency of digital banking adoption.
- To evaluate the perceived effectiveness, convenience and ease of use of digital banking services.
- To measure customer satisfaction with digital banking services, including satisfaction with security.
- To identify the difficulties customers face while using digital banking services.
- To recommend measures for improving digital banking services and customer experience.

5.3 Research Design and Data Sources

A descriptive design was chosen over an experimental or purely exploratory approach because the primary aim was to document existing levels of awareness, usage and satisfaction as they naturally

occur among current customers, rather than to test a specific intervention or to generate entirely new hypotheses from unstructured observation. This approach is well suited to a first comparative study of this kind, where establishing a reliable descriptive baseline across two institutional types is a necessary precursor to more advanced causal or longitudinal research in the future.

The study adopts a descriptive research design, suited to understanding customer awareness, usage and satisfaction with existing services. Both primary and secondary data were used. Primary data were collected directly from bank customers through structured questionnaires and personal interaction; secondary data were drawn from bank records, annual reports, articles, journals, and official websites.

5.4 Sampling and Sample Size

A convenience sampling method was used in both underlying studies, with customers selected based on availability at the time of data collection. The first study surveyed 73 respondents who were customers of a government-owned payments bank in a semi-urban district of Karnataka, while the second surveyed 78 respondents who were customers of a district cooperative bank in the same state. Combined, the two studies provide a pooled sample of 151 respondents spanning students, farmers, salaried employees, business owners and other occupational groups.

5.5 Tools for Data Analysis

Data collected from respondents were organised, classified and analysed using simple statistical tools, namely frequency tables, percentage analysis, and pie and bar charts. Results were interpreted descriptively to draw conclusions about awareness, usage behaviour and satisfaction.

5.6 Hypothesis

In line with the descriptive-cum-inferential intent of the underlying field studies, the research was guided by the following working hypothesis regarding the relationship between digital banking services and customer satisfaction:

- H0 (Null hypothesis): There is no significant effect of digital banking services on customer satisfaction.
- H1 (Alternative hypothesis): There is a significant effect of digital banking services on customer satisfaction.

The pattern of results reported in Section 6 – in particular, the consistently high satisfaction and recommendation rates associated with convenience, time-saving and ease of use, set against the comparatively lower satisfaction reported by the small minority of customers who experience frequent technical difficulties – lends support to the alternative hypothesis (H1) in both institutions surveyed.

5.7 Scope of the Study

The scope of this article is confined to the digital banking services offered by the two institutions studied – principally mobile banking, internet banking, UPI, ATM/debit card services and Aadhaar-based payment facilities – and to the perceptions of customers who actively use, or have at least attempted to use, these services. The study covers four broad thematic areas: (i) digital banking usage and customer preference, (ii) financial inclusion and accessibility, (iii) digital knowledge and customer awareness, and (iv) service improvement and customer convenience. Purely internal or operational aspects of digital banking, such as core-banking system architecture or back-office processing, fall outside the scope of this study, which is oriented toward the customer-facing experience.

5.8 Limitations of the Study

- The findings are based on a combined sample of 151 respondents from two institutions and cannot be generalised to the entire banking industry.
- Convenience sampling may not fully represent the diversity of each institution's customer base.
- The relatively short data-collection period limited the depth of analysis possible.
- Self-reported responses depend on customers' recollection and honesty, which could not be independently verified.
- Limited awareness of digital banking services among some respondents may have influenced their responses.

VI. DATA ANALYSIS AND INTERPRETATION

This section presents a consolidated analysis of the primary survey data gathered from the two institutions, referred to here as Bank A (the government-owned payments bank, $n = 73$) and Bank B (the district cooperative bank, $n = 78$), together with pooled observations across the combined sample of 151 respondents.

6.1 Demographic Profile of Respondents

Across both samples, middle-aged and older customers formed the largest respondent groups. In Bank A, 39.7% of respondents were above 40 years and 37.0% were aged 30–40 years; in Bank B, 50.0% of respondents were aged 36–45 years. Occupationally, farmers formed the single largest group in both samples – 28.8% of Bank A's respondents and 50.0% of Bank B's respondents were farmers – reflecting the strong rural and agricultural orientation of both institutions, with students, salaried employees and small-business owners making up the remainder.

6.2 Awareness and Sources of Awareness

A large majority of customers in both banks reported awareness of the digital banking services on offer: 83.6% of Bank A's respondents and a comparably high share of Bank B's respondents indicated that they were aware of the available services. Word of mouth was the dominant source of awareness in both cases – in Bank A, 47.9% of respondents learned about digital services from friends and relatives and a further 31.5% from branch/post-office staff, while formal advertising and social media contributed only marginally (under 2% combined). This pattern suggests that interpersonal trust and staff guidance, rather than marketing campaigns, remain the primary channels through which customers in these segments learn about digital banking.

6.3 Usage Patterns and Preferred Services

Weekly usage was the most common frequency of engagement with digital banking services in both samples (35.6% in Bank A; 44.2% in Bank B), followed by monthly use, with daily use being

comparatively rare (16.4% and 18.2% respectively). Preferred services differed slightly by institution: in Bank A, respondents most valued the overall combination of benefits (time-saving, easy transactions, availability and secure payments), with 71.2% selecting "all of the above" as their most valued benefit; in Bank B, UPI was clearly the most-

used channel (50.6%), followed by mobile banking (27.3%), with fund transfer cited as the single most useful specific service (41.6%).

Indicator	Bank A (Payments Bank)	Bank B (Cooperative Bank)
Sample size	73	78
Aware of digital banking services	83.6%	High majority aware
Most common usage frequency	Weekly (35.6%)	Weekly (44.2%)
Prefer digital banking to branch visit	43.8% agree; 43.8% disagree*	83.2% agree or strongly agree
Most-cited adoption driver	Convenience (35.6%)	Time-saving (63.6%)
Satisfied with security	68.5% satisfied / highly satisfied	Comparable majority satisfied
Overall satisfaction (satisfied or higher)	63.0%	84.4%
Would recommend service to others	90.4%	Large majority (implied by satisfaction levels)
Most-cited difficulty	Internet/network issues (46.6%)	Network issues (37.7%)

Table 2: Comparative summary of key survey indicators across the two institutions. *Responses on time-saving were evenly split, indicating mixed perceptions of transaction speed.

6.4 Ease of Use and Service Quality

Most respondents found digital banking services easy to use: 56.2% of Bank A's respondents rated the services "easy" and a further 13.7% rated them "very easy," while in Bank B, 54.6% agreed or strongly agreed that the services were easy to operate. Ratings of transaction speed and efficiency were similarly favourable, with 47.9% of Bank A's respondents and 87.0% of Bank B's respondents rating digital transaction facilities as "good" or "excellent."

6.5 Challenges Encountered

Despite generally positive experiences, a consistent set of challenges emerged across both institutions. Internet and network connectivity issues were the most frequently cited difficulty (46.6% in Bank A; 37.7% in Bank B). Limited digital literacy or lack of knowledge was the second most common barrier, cited by 38.4% of Bank A's respondents, particularly among older customers and farmers. Login problems

and occasional transaction failures were reported less frequently but were still notable, particularly in Bank B (18.2% reporting transaction failures). Encouragingly, a substantial minority of respondents in both samples – around 28–35% – reported facing no difficulties at all.

6.6 Satisfaction and Likelihood to Recommend

Overall satisfaction with digital banking services was high in both samples, though somewhat stronger among Bank B's customers. In Bank A, 63.0% of respondents reported being satisfied or highly satisfied, 27.4% were neutral, and a small minority (9.6%) were dissatisfied. In Bank B, 84.4% reported being satisfied or highly satisfied, with only 1.3% dissatisfied. A large majority of Bank A's respondents (90.4%) said they would recommend the bank's digital services to others, indicating strong overall trust despite the difficulties reported.

Satisfaction with the security of digital transactions was also favourable: 68.5% of Bank A's respondents reported being satisfied or highly satisfied with security, with only 2.7% dissatisfied, suggesting that

customers generally trust the safeguards built into these platforms even as they express broader concerns about fraud and cybersecurity in principle.

6.7 Demographic Comparison

Demographic Segment	Bank A	Bank B
Above 40 / 36-45 years (largest age band)	39.7%	50.0%
Farmers (largest occupational group)	28.8%	50.0%
Students	21.9%	20.5%
Business owners	19.2%	11.5%
Salaried employees	5.5%	10.3%
Customers using services weekly	35.6%	44.2%
Customers reporting no difficulties	34.3%	28.6%

Table 3: Demographic and behavioural comparison across the two institution.

The demographic comparison reinforces a central theme of this study: both institutions have found their strongest digital banking foothold among farmers and middle-aged to older customers – segments traditionally considered the hardest to bring into digital financial ecosystems. This suggests that, with the right combination of assisted access (doorstep banking, staff guidance) and simple interfaces, digital banking can successfully reach audiences well beyond the young, urban, tech-comfortable segment often assumed to be its natural early adopters.

6.8 Reading the Comparison with Appropriate Caution

Because the two underlying surveys were conducted independently, using convenience samples of modest size (73 and 78 respondents respectively) and slightly different question wordings and response scales, the percentage comparisons in Table 2 and Table 3 should be read as indicative of broad directional patterns rather than as precise, statistically-tested differences between the two institutions. No formal significance testing (such as a chi-square test of independence) was carried out across the pooled data set, and the samples are not randomly drawn from the full customer base of either institution. Nonetheless, the consistency of certain findings – particularly the primacy of convenience and time-saving as adoption drivers, and network connectivity as the leading obstacle – across two independently designed studies

of different customer populations lends reasonable confidence that these particular patterns reflect genuine, generalisable features of the rural and semi-urban digital banking experience in India, rather than artefacts of either individual study's design.

6.9 Desired Improvements

When asked what improvements they would like to see, respondents in Bank B most frequently cited better security (40.3%) and faster transactions (29.9%), followed by improved customer support (15.6%). Respondents in Bank A echoed similar priorities, alongside requests for better internet connectivity and greater awareness programmes, particularly for older and rural customers, and a smaller number felt that no further improvement was needed given their current level of satisfaction with the service.

VII. KEY FINDINGS

- Awareness of digital banking services is high across both institutions, but word of mouth (friends, relatives and branch staff) – not formal advertising – remains the dominant channel through which customers learn about these services.
- Farmers and middle-aged to older customers form a substantial share of the digital banking customer base in both institutions, indicating that digital

banking has meaningfully extended into traditionally under-served rural and agricultural segments.

- Weekly usage is the most common engagement pattern; very few customers use digital banking on a daily basis, suggesting these services currently supplement rather than fully replace other forms of financial activity for many customers.
- Convenience and time-saving are the two most important factors driving adoption of digital banking services across both institutions.
- A large majority of customers find digital banking services easy to use and rate transaction speed and efficiency favourably.
- Overall satisfaction is high in both institutions, and a very large majority of customers say they would recommend digital banking services to others.
- Internet and network connectivity issues are the single most common difficulty faced by customers in both institutions, followed by limited digital literacy, particularly among older and rural customers.
- Customers are generally satisfied with the security of digital transactions, though a meaningful share still calls for stronger security measures and clearer communication about safe practices.
- Both institutions play a significant role in extending financial inclusion to rural, agricultural and semi-urban communities through their digital banking offerings.
- Doorstep and staff-assisted access models appear to play an important, if informal, role in helping less tech-familiar customers make their first successful digital transaction, which in turn supports longer-term independent adoption.
- Differences in overall satisfaction between the two institutions appear to be influenced as much by pre-existing relationship trust as by the specific technical quality of the digital services offered, suggesting that trust and technology should be viewed as complementary, not substitutable, drivers of satisfaction.

VIII. SUGGESTIONS AND RECOMMENDATIONS

8.1 Awareness and Digital Literacy

Banks should invest in structured awareness and digital-literacy programmes – workshops, camps and simple video tutorials in regional languages – targeted particularly at older customers, farmers and rural residents who report lower familiarity with digital tools. Given that word of mouth and branch staff are already the dominant channels of awareness, formalising and expanding staff-led guidance could be a cost-effective way to accelerate adoption.

8.2 Connectivity and Infrastructure

Since network and connectivity issues are the most frequently cited barrier, banks should consider partnerships with telecom providers to improve last-mile internet access in rural service areas, and explore supplementary connectivity options (such as offline or low-bandwidth transaction modes) to reduce service disruption in poorly connected regions.

8.3 Application and Interface Improvements

Mobile and internet banking applications should be made more user-friendly, with regional-language support, simplified navigation and quick-access features for the most common transactions (fund transfer, balance enquiry and bill payment). Performance optimisation for low-end smartphones, which are common among rural users, would further improve accessibility.

8.4 Security and Trust

To strengthen customer trust, banks should regularly educate users on safe banking practices, including the importance of not sharing OTPs or personal identification numbers, and should provide clear, timely security alerts. A dedicated and responsive customer-support channel for reporting suspected fraud or resolving transaction failures would further reinforce confidence in digital channels.

8.5 Service Reliability and Speed

Reducing unnecessary verification steps for routine, low-risk transactions and improving system performance during peak usage hours would help address customer requests for faster transactions, while features such as instant transaction

confirmation and scheduled payments could further enhance convenience.

8.6 A Long-Term Digital Inclusion Strategy

Beyond individual tactical improvements, the findings of this study point toward the value of a coordinated, multi-year digital inclusion strategy that treats awareness-building, infrastructure investment, product design and trust-building as interdependent elements rather than separate initiatives. For instance, an awareness campaign is unlikely to translate into sustained adoption if underlying network connectivity remains poor, and infrastructure investment alone is unlikely to drive usage among customers who lack confidence in the security of digital transactions. Banks – particularly smaller cooperative institutions with more limited technology budgets – may benefit from pooling resources through sector bodies or apex financing institutions to invest jointly in shared digital infrastructure, common training curricula for digital literacy, and standardised customer-education materials, thereby achieving economies of scale that would be difficult for any single institution to realise independently.

8.7 Reaching Specific Customer Segments

Given the significant presence of farmers among digital banking customers, banks should continue and expand outreach tailored to agricultural communities, including timely and smooth delivery of government scheme payments and subsidies directly into customer accounts. Similarly, engaging students through education-focused digital features and scholarship-related services can help build long-term customer relationships from an early stage.

IX. DISCUSSION AND IMPLICATIONS

The comparative findings from this study carry several implications for banks, policymakers and researchers concerned with digital financial inclusion. First, the fact that both a government-backed payments bank and an independent cooperative bank show broadly similar adoption drivers – convenience and time-saving above all else – suggests that these are not institution-specific quirks but genuine, generalisable preferences among rural and semi-urban banking customers in India.

Digital strategies built around these two value propositions are therefore likely to resonate regardless of an institution's ownership model or product mix.

Second, the consistent identification of network connectivity as the leading obstacle in both samples indicates that a meaningful share of the "last mile" problem in digital banking is an infrastructure issue rather than a purely behavioural or design issue. This points to the value of cross-sector collaboration – between banks, telecom providers and local government – rather than banks attempting to solve connectivity problems unilaterally through application design alone.

Third, the somewhat higher satisfaction levels observed among the cooperative bank's customers, despite that institution facing documented resource and technology constraints, suggest that pre-existing relationship trust can partially offset technological limitations. This implies that newer or purely digital-first institutions may need to invest more deliberately in trust-building measures – transparent communication, responsive support and visible security safeguards – to compensate for the absence of long-standing personal relationships with customers.

Finally, the strong role of word-of-mouth awareness in both institutions suggests that customer-experience investments may generate compounding returns: because satisfied customers are the primary channel through which new customers learn about digital services, improvements that raise satisfaction among existing users are likely to also accelerate adoption among as-yet-unbanked or digitally inactive customers, without requiring proportionate increases in formal marketing expenditure.

X. CONCLUSION

This consolidated analysis of digital banking services across two structurally different banking institutions – a government-backed payments bank and a district cooperative bank – demonstrates that digital banking has made significant inroads into rural, semi-urban and agricultural customer segments that have

historically been under-served by traditional banking. Customers across both institutions report high levels of awareness, generally positive experiences with ease of use and transaction speed, and strong overall satisfaction, with a large majority willing to recommend digital banking services to others. More broadly, this comparative study illustrates that the benefits of digital banking are not confined to any single type of institution or customer segment. Whether delivered through a nationally scaled payments bank riding on a postal network, or through a locally rooted cooperative bank built on decades of agricultural lending relationships, digital channels have proven capable of reaching, and satisfying, customer groups – farmers, older customers, and residents of semi-urban and rural districts – that were historically the most difficult to serve through conventional branch banking alone. This convergence of outcomes across two very different institutional models is, in itself, an encouraging signal for the continued expansion of digital financial inclusion in India.

Future research could extend this comparative approach to a larger and more diverse set of institutions – including private commercial banks, regional rural banks and fintech-only providers – and could employ probability-based sampling and longitudinal designs to track how satisfaction and usage evolve as digital literacy improves over time. Comparative studies that examine gender-based differences in adoption, or that isolate the specific contribution of assisted-access models such as doorstep banking relative to purely self-service digital channels, would also add valuable nuance to the broad patterns identified here.

At the same time, the findings highlight persistent structural challenges – particularly unreliable internet connectivity and gaps in digital literacy – that continue to limit the full potential of digital banking, especially among older and rural customers. Addressing these challenges through targeted infrastructure investment, customer education, user-friendly application design and stronger, clearly communicated security measures would allow both types of institutions to deepen financial inclusion further. As national initiatives promoting a digital

economy continue to expand, banking institutions of all types – whether payments banks, cooperative banks or commercial banks – are well positioned to build on this foundation of high customer trust and satisfaction to become more accessible, efficient and reliable partners in everyday financial life.

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