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THE IMPACT OF UPI ON DIGITAL PAYMENTS IN INDIA

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ABSTRACT:

India has seen a revolution in digital payments since the National Payments Corporation of India (NPCI) introduced the Unified Payments Interface (UPI) in 2016. This study examines how UPI has changed the Indian economy with a focus on small business operations, digital infrastructure, financial inclusion, and consumer behavior. For millions of people, particularly in rural and semi-urban areas, UPI has improved real-time fund transfers, drastically decreased transaction costs, and expanded access to financial services.

The study emphasizes how UPI has aided in the formalization of the economy, encouraged transparency, and sparked growth in the fintech industry. It also looks at issues like digital literacy, cybersecurity, and the necessity of ongoing innovation. The results highlight the vital role UPI plays in creating a more resilient, effective, and inclusive digital

The goal of UPI's development was to provide a single platform that could seamlessly and instantly transfer money between different bank accounts and payment systems. The system has an easy-to-use interface, and all that is needed to complete transactions is a Virtual Payment Address (VPA). Its convenience is increased by the fact that it is 24x7 and compatible with various banks.

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Chapter1: Introduction

The Unified Payments Interface (UPI), which was introduced by the National Payments Corporation of India (NPCI) in 2016, has fundamentally altered the digital payments landscape in the nation. A key element of India's digital economy, UPI was developed to enable rapid, real-time money transfers between bank accounts via a mobile device.

The Indian economy has been significantly impacted. UPI has encouraged financial inclusion by providing digital banking to millions of people, especially in rural and semi-urban areas. It has also significantly strengthened the formal economy by reducing cash-based transactions, enhancing transparency, and enhancing tax compliance. The shift to a cashless society has accelerated due to UPI's ease of use, speed, and interoperability, which has also sparked fintech innovation and economic growth.

The National Payments Corporation of India (NPCI) created the Unified Payments Interface (UPI), a real-time payment system that was introduced in April 2016. Via a mobile platform, it enables immediate money transfers between bank accounts. Without disclosing bank account information, UPI enables users to send and receive money around-the-clock using a Virtual Payment Address (VPA).

By providing a straightforward, safe, and easy method of transaction, UPI has completely transformed digital payments in India. Peer-to-peer, merchant, bill, and QR code scanning are among the features it supports. The Reserve Bank of India (RBI) oversees UPI, which has grown to be one of the most widely used digital payment methods in the nation because of its interoperability, user-

Chapter2:Literature Review

Evolution of Telemedicine

HISTORICAL BACKGROUND

The Unified Payments Interface (UPI) is a system that combines various banking functions, smooth fund routing, and merchant payments into a single mobile application (of any participating bank). The National Payments Corporation of India introduced UPI, which is based on th

Current trends in UPI

There has been a year-on-year rise of 57 per cent in UPI transactions at 131 plus billion transactions in FY 2023–24.

According to forecasts, UPI transactions may hit 439 billion by FY 2028–29, accounting for roughly 91% of retail digital payment transactions in India.

Credit Facilities Integration

UPI is now moving beyond debit-powered payments to the credit-based model — which allows users to buy things on a pre-approved credit and pay for them later — and the ability to even take loans to make such purchases directly through the UPI-enabled apps.

This initiative is designed to offer micro-credit.

UPI STRUCTURE IN INDIA

The Unified Payments Interface (UPI) is based on a multi-layered framework that is monitored and controlled by financial institutions and technology platforms. A synopsis of its structural components is provided below.

1. The central bank of India, the Reserve Bank of India (RBI), is in charge of overseeing and regulating digital payments and ensuring financial stability.

Government initiative

The Indian government has started a number of programs to support and encourage UPI (Unified Payments Interface) in order to further its objectives for financial inclusion and Digital India, in collaboration with the Reserve Bank of India (RBI) and the National Payment Corporation of India (NPCI).

Key Government Initiatives for the Launch of the UPI BHIM App (2016) In order to encourage less tech-savvy and rural users to use digital payments, the government launched the Bharat Interface for Money (BHIM).supports multiple languages and has an intuitive user interface.2. Zero MDR Policy

The government required that UPI and RuPay transactions have a zero Merchant Discount Rate (MDR) as of January 2020.

Goal: Promote the use of digital payments by businesses without charging them.

Problem: Has an impact on banks' and payment providers' earnings.

Incentive

Order to cover costs resulting from zero MDR, the government implemented incentives and subsidies for banks and payment apps.

UPI's Global Expansion

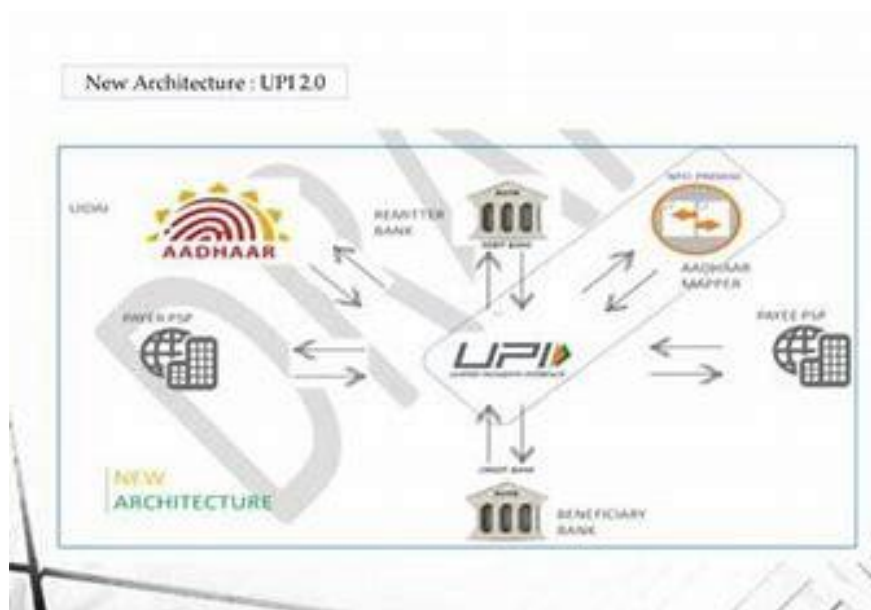
UPI payments are being made possible in other nations (such as the UAE, Singapore, Bhutan, and France) by the RBI and the Ministry of External Affairs

Global Adoption of UPI

3.2 Comprehensive research on UPI

While the UPI market in India is expected to experience a CAGR of 20.50%, the global telemedicine market is anticipated to reach USD 432.31 billion (Fortune Business Insights, 2023).

After revolutionizing is now being compared to digital payment systems around the world. Here is how UPI compares to its global counterparts in terms of government support, infrastructure, accessibility, and adoption.



4 Impact of UPI in India

1. The Revolution of Digital Payments

From smartphone users in cities to owners of feature phones in rural areas, UPI has democratized digital payments and made them available to

Chapter 3: Research Gap

Even though smartphones are not widely used in India, they swiftly rose to the top of the list of preferred payment methods for both urban and semi-urban populations, with millions and eventually billions of users each month. This phenomenon piqued the interest of researchers. This paper examines the economic development that UPI brought about, rather than just the technological aspects of its success. The relationship between financial literacy and economic development is also investigated through the lens of trust and financial stability. It also looks at UPI's slow

Chapter 4: Research Hypothesis

Null Hypothesis (H_0): UPI accessibility is not different before and after introducing payment services in India and other parts of the world.

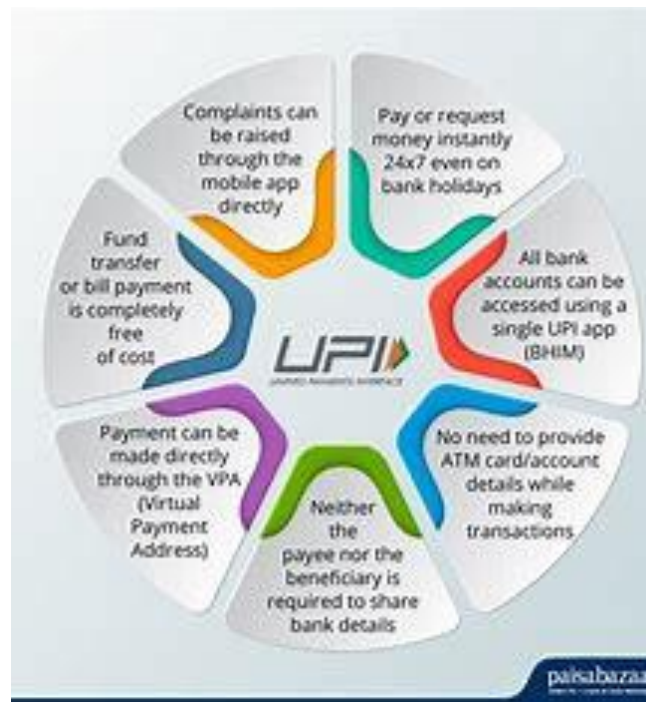
Alternative Hypothesis (H_1): There is a noteworthy enhancement in the accessibility of UPI following the integration of UPI services in India and other parts of the world

Chapter 5: Research Questions

- What is the status and growth pattern of UPI in India and worldwide?
- How do public policy and initiatives by the private sector influence the adoption of UPI?
- what are the infrastructure and technological problem in adapting UPI ?
- .how does UPI affect in accessibility in rural and urban in India ?

Chapter 6: Research Objectives

India has already established UPI as a global standard for India's UPI, which is already a global standard for digital payments, will keep



Chapter 7: Research Methodology

The Unified Payments Interface's (UPI) effect on standards and how users view it.

In order to assess India, this study employs a descriptive and analytical research methodology. The study employs a mixed-methods approach, integrating qualitative information from secondary sources and interviews with quantitative data from structured questionnaires. Urban, semi-urban, and rural UPI users are targeted through stratified random sampling. Online and offline surveys are used to collect primary data, and government publications, the RBI, and the NPCI are used to obtain secondary data. Descriptive statistics in Excel/SPSS are used to analyze the data, and ethical standards are upheld by guaranteeing data confidentiality and voluntary participation.

Data Sources: Principal Information Sources Chapter 8: Country Comparisons Digital Connectivity and Infrastructure

The Boom in Digital Payments

As of 2025, UPI processes more than 13 billion transactions every month.

made digital payments commonplace and available to people from all socioeconomic backgrounds.

Access to Finance

made it possible for millions to join the digital economy, particularly in rural and semi-urban areas.

supported by innovations such as feature phone UPI123Pay.

Assistance for Small Business Owners

QR codes are now used for everyday transactions by small businesses and street vendors.

Under the Zero MDR policy, there are no setup or transaction fees.

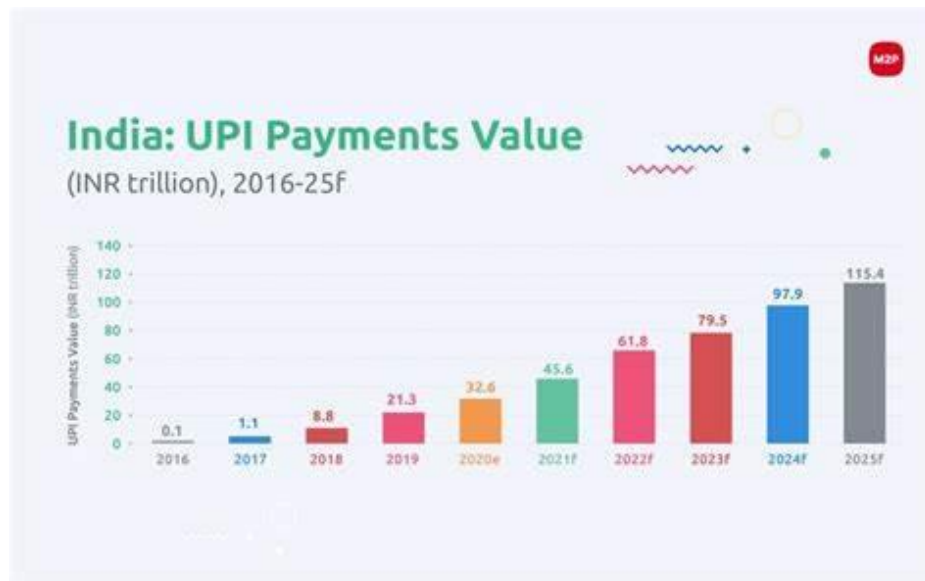
Ease of Doing Business Startups and MSMEs were more efficient thanks to faster, traceable payments.

INDIA

The National Payments Corporation of India (NPCI) created the revolutionary digital payment system known as the Unified Payments Interface (UPI) in 2016. It makes financial transactions between bank accounts on mobile devices safe, effective, and compatible. Because it makes peer-to-peer (P2P) and person-to-merchant (P2M) payments simple, UPI has grown to be an essential component of India's digital economy.

Important Aspects of UPI Development and Startup in India: In an effort to simplify digital payments, the Reserve Bank of India (RBI) and NPCI introduced UPI in April 2016. It utilizes the Immediate Payment Service (IMPS) platform, which provides improved efficiency and security. In India.

In 2023, the platform processed 12.20 billion transactions, generating ₹18.41 lakh crore, or approximately \$222 billion, or 41.72%



FRANCE

To launch UPI in France, NPCI International teamed up with Lyra, a major French payment provider.

Indian tourists can use UPI to make direct payments from their Indian bank accounts at well-known tourist locations like Lafayette and the Eiffel Tower with the aid of apps like Paytm, PhonePe, and Google Pay.

How This Helps the Indian Economy

- Improving Transactions Based on International Rupees
- By enabling direct rupee payments abroad, UPI reduces dependency on foreign exchange transactions (like credit card payments in USD/EUR).
- By lowering forex outflows and conversion fees, this can increase the value preserved in Indian financial systems.
- Growing Fintech Exports
- India's fintech sector is becoming a significant provider of global payment infrastructure under the direction of UPI. Similar to how Germany is renowned for its engineering or Japan for its high-quality electronics, it produces a national branding effect.
- Establishing Opportunities for Data and Market Access Indian businesses can gather useful payment data on worldwide usage trends than to cross-border UPI payments.

Germany

The latest country to adopt UPI, following successful implementations in nations such as the UAE, Singapore, and France. This expansion was highlighted during the visit of German Minister Volker Wissing to India, where he experienced firsthand the convenience of UPI by making a digital payment at a local vegetable market in Delhi. His reaction underscored the simplicity and efficiency of India's digital payment system.

□ Economic Implications for India

- Enhancing India's Digital Soft Power
digital financial infrastructure. By showcasing a robust and scalable payment system, India positions itself as a model for other nations, enhancing its influence in the global digital economy.
- Boosting Digital Exports
UPI's global impact, feel free to ask!GERMANY

Singapore

There are several ramifications to linking India's Unified Payments Interface (UPI) with Singapore's PayNow system, particularly with regard to digital payments, cross-border transactions, and remittances. This connection, which was introduced in February 2023, enables rapid and affordable money transfers between the two countries using mobile numbers or UPI IDs.

The Indian economy may be impacted in the following ways:

Increased Cross-Border Remittances Lower Transaction Costs: With more than 650,000 Indians living in Singapore, remittances from the Indian diaspora are now easier and less costly. With fees ranging from 3 to 6%, remittance services are typically costly; however, this integration significantly lowers costs.

Increased Inflows: One important source of foreign exchange and a stabilizing element for the rupee, remittance flows to India, may increase as a Southeast Asia's regional financial integration.

Assistance for Indian Companies and Independent Contractors

It is easier for MSMEs, independent contractors, and service providers

Cross-nation comparison India

- billion inhabitants, India is the most populous nation in the world. Although its GDP per capita is still low, indicating continued development challenges, its economy is expanding quickly and is currently the fifth largest in the world by nominal GDP. India is a leader in digital infrastructure, particularly in UPI-enabled digital payments, which have revolutionized financial inclusion. The nation is well-known for its robust IT industry, exports of pharmaceuticals, and expanding startup scene.
- Nonetheless, India has problems with public services, education, and healthcare. Despite advancements, poverty and inequality are still issues, and its Human Development Index (HDI) falls into the medium range. Nevertheless, India is becoming a more powerful nation with a growing impact in international trade, technology, and

France

France is a significant European power with a robust industrial base and a developed economy. It provides high standards for infrastructure and education, universal healthcare, and a comprehensive welfare system. France is a major exporter of agricultural products, luxury goods, and aerospace technology.

The nation has a very high HDI and a robust capacity for research and innovation. It does, however, occasionally face social unrest, high public debt, and youth unemployment—all of which are frequently linked to labor reforms or economic inequality. France is a permanent member of the UN Security Council and a major force in the European Union.

SINGAPORE

With fewer than 6 million residents, Singapore is a tiny but extremely advanced island city-state. It is renowned for its outstanding governance, ease of doing business, and a strong financial services sector, and it boasts one of the highest GDPs per capita in the world. In terms of infrastructure, education, and innovation, the nation is among the Cross-border fintech collaboration is encouraged by Singapore's PayNow digital payments system, which is incredibly effective and connected to India's UPI. Singapore has a significant impact on international trade, technology, and finance despite its small

Germany

Germany has the biggest economy in Europe and is among the most industrialized and export-focused countries in the world. It is well known for its superior engineering, especially in the areas of machinery, chemicals, and automobiles. Germany maintains a robust education and vocational training system, with a very high HDI and first-rate infrastructure.

In terms of innovation, sustainability, and global competitiveness, it continuously scores highly, and its economy is strong and effective. Germany is a major player in both international and EU affairs. Compared to other European countries, its public debt is comparatively well-managed, and its economic policies are regarded as fiscally responsible.

Chapter9:Results&HypothesisTesting

Based on data from India FranceSingapore Germany our key findings are –

UPI GROWTH AND ADOPTION

INDIA- UPI's first phase of adoption began in August 2016 when it processed about 93,000 transactions totaling ₹3 crore (₹30 million).

Adoption of UPI by 2025

By January 2025, UPI had advanced to the point where it could process 16.99 billion transactions in a single month, totaling ₹23.48 lakh crore (₹2.348 trillion).

AVAILABLE

Compared to 34% in 2019, UPI accounted for 83% of all digital payment transactions in India in 2024.

SINGAPORE-By 2025, less than 1% of all payments in Singapore will be made using UPI for domestic transactions. However, with more than 12,000 merchants taking UPI payments from Indian users, cross-border usage is increasing, particularly since the UPI–PayNow connection.

FRANCE- In France, UPI is only used in a few tourist locations as of 2025. In February 2024, Indian tourists were able to use their UPI apps to book tickets at the Eiffel Tower, which was the first to accept UPI payments.

The adoption of UPI is still specialized and primarily serves Indian tourists, despite the National Payments Corporation of India's (NPCI) partnership with French payment company Lyra to increase acceptance. The French population doesn't use it much at home●

GERMANY - Due to the country's strong preference for cash transactions and the lack of widespread UPI acceptance, UPI usage in Germany is incredibly low as of 2025. Google Pay is not as widely used in Germany as it is in other nations, despite the fact that some German businesses use it. In Germany, specifically, 16% of users pay online with Google Pay and 31% use it for in-store purchases.

DemandSage

HYPOTHESIS TESTING

- Null Hypothesis(H_0) Payment accessibility is not different before and after introducing UPI services in India and other parts of the world.
- Alternative Hypothesis (H_1): There is a noteworthy enhancement in the accessibility of payments following the integration of UPI services in India and other parts of the world

Chapter10: Conclusion

This comparative study demonstrates that UPI has been a powerful catalyst for **expanding access** to care across all four countries examined. India scaled to hundreds of millions of consults, the Germany established near- universal payment adoption, France legalized and rapidly expanded digital and Singapore launched digital UPI system.

Yet, **inequities persist** along digital and infrastructural divides UPI up take remains highest among well-served populations. To overcome this, we propose a **superfast model** that partners payments platforms with **zero percent commission**

- India:
- Singapore
- France
- Germany

PolicyRecommendations

- **Invest in Rural Connectivity** : Subsidize broadband and create UPI based Wi-Fi hubs.
- **Integrate CHWs**: Provide training and devices so local customer to use the UPI
- **Open bank accounts for use of digital payments** cross border and rural and urban
- Implement Feedback Loops: Track customers to outcomes and satisfaction to continually refine protocols.

By combining robust infrastructure, supportive regulation, and localized human facilitation, UPI can transition from a country stop gap to a core pillar of universal digital platform

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