

Digital Economy, Future of Money and Financial Inclusion

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Abstract: The world is undergoing tremendous change and one of the fundamental drivers is digital transformation i.e. enhancing the convenience of doing something by using emerging technologies. Global economy is also undergoing a digital transformation at a lightning speed, giving rise to a new economic structure known as digital economy. In a digital economy, digital computing technologies are used during economic transactions among people, businesses, devices, data and processes. The backbone of the digital economy is hyper connectivity i.e. growing interconnectedness among people, businesses and devices due to Internet, mobile technology, the internet of things and improvement in the technological infrastructure. Recently, TechCrunch, a digital economy news site, noted, "Uber, the world's largest taxi company, owns no vehicles. Facebook, the world's most popular media owner, creates no content. Alibaba, the most valuable retailer, has no inventory. And Airbnb, the world's largest accommodation provider, owns no real estate... Something interesting is happening." (Deloitte, 2015). The advent and rapid growth of digital economical activities globally has also transformed the way in which we make payments, transforming our economy into a cashless economy.

When digital payments - via net-banking (IMPS, NEFT and REGT), QR Code, Near Field Communication (NFC), Mobile Wallets, Payment using Wearables, Payment through Biometric Authentication, etc. - is used by everyone for financial transactions in the economy, then it could lead to many benefits such as cost savings due to increased efficiency and speed; transparency and security; financial inclusion; women's economic participation; and inclusive growth. The main advantage of a cashless economy is the presence of a paper trail which allows each transaction to be accounted for and has the potential to cut down on the black money. It can also create vast amounts of data for both the companies and the government to analyse its customers and citizens better.

In 2017, more than 4.1bn people all around the world (52% of the world's population) were using digital payments; and more than 6.1 billion people (78% of the world's population) will use digital payments by 2023. But, the

harsh reality is that many poor people (1.7 billion - 25% of the world's population), even today, use paper money to make financial transactions in the informal economy. They do not have access to a basic online bank account due to lack of digital devices, lack of digital literacy, lack of any form of identification of nationality or socio-economic barriers. On the other hand, more than 1.9 billion records were lost in the first half of 2017 over approximately 960 reported incidents. Of this India's share was 274,198,181 records over 15 reported breaches. (Higgins, 2017). Issues related to trust, privacy, cyber security, and transparency should be addressed, in detail, as the wave of digital transformation hits the lives of every person in the world.

CASH-INTENSIVE VS. CASHLESS ECONOMY

While a cashless economy seems like a natural evolution of currency from coins to notes to digital bytes, the question is, is a cashless economy beneficial or harmful? The study of this question is very important because of the following reasons.

1. According to Boston Consulting Group, cash-intensive economies tend to grow slowly as compared to cashless economies. Cashless models would add about 1% point to the annual GDPs of mature economies and more than 3% points to those of emerging economies.
2. At the same time, there are 2 billion people globally who don't even have a bank account far cry from having access to internet and digital payment devices. The global ratio of cash-to-GDP rose from 8.1 percent in 2011 to 9.6% in 2018. Indian economy is 78 percent cash-intensive and 13% digitally active in terms of digital payments. Cash remains the world's most widely used payment instrument. Therefore, cash remains very essential to financial inclusion of such people who consider cash to be their primary and convenient mode of payment even today.

INDIA BECOMING A DIGITAL COUNTRY

The growth of Indian digital payment space is driven by

1. Rising smartphone penetration
2. Enhanced access to internet connectivity
3. Favourable regulatory framework such as KYC relaxations for small transactions, exemption from two-factor authentication (2FA), Aadhar-enabled easier KYC, etc.

4. Emergence of next-generation payment systems such as bank-led mobile wallets (Pockets by ICICI Bank, PayZapp by HDFC Bank, SBI Buddy by SBI), prepaid payment instruments (PPIs such as mobile wallets and prepaid cards), telcos-based payment system (Airtel Money and Vodafone M-Pesa), 11 payment banks in India (Airtel Payment Banks, PayTm, etc.)
5. Government-led demonetization of the economy in 2016 which, involuntarily, coerced people to use digital methods of payment at least in urban India. Paytm went from 125 million wallet customers before demonetization to 185 million three months later, and it has continued to grow, hitting 280 million users by November 2017. (Wright, 2017).
6. Coronavirus scare which has led people to use contactless digital payments over cash as a hygiene measure.

According to a report by Credit Suisse, the digital payment industry in India is expected to grow from USD 200 billion at present to USD 1 trillion by 2023. The major technologies driving this growth include Smart devices, Apps, Near Field Communication Protocol, QR Code and Mobile Wallets.

Major reasons for adoption of digital modes of payments by the consumers include convenience of pay anytime anywhere, convenience of not carrying cash, no hassle of change, one-click payments, discount offers, cashback options, easy to track payments, get an overview of monthly expenditure trends, etc. Indians are using digital payments for prepaid mobile recharge, mobile bill payment, utility bills payment, e-commerce shopping, travel booking, fund transfer, in store payments through point-of-sale transactions, etc. While many have showed positive enthusiasm towards using digital payments, various barriers which act as a hindrance to digital Indian mission include inertial habit of the Indians to use cash, belief that using cash keeps spending patterns in check (budget-management), complexity of understanding and usage of digital payment systems, fear of fraud or hidden charges, risk of failed transactions, insufficient internet connectivity, concerns about data privacy, technical issues during payment (lost internet connectivity, device hangs, overburdened servers), digital illiteracy, resistance to change especially by people of certain age (elder population). Physical cash is therefore safer and more useful to everyone involved.

Sometimes, consumers start using digital payments but stop them after some time because of the need to remember multiple usernames/ passwords, not everyone accepts this payment, possibility of technical/

human mistake, likelihood of fraud/hidden charges, and not enough balance or the criteria of maintaining a minimum balance.

The rapid growth of digital payments in India is accompanied with multiple barriers; and threats of cyber-attacks, digital fraud and data privacy. This requires concerted efforts by stakeholders in the digital payment system landscape to strengthen policies of cyber security and data protection. Such efforts could solve the problems of barriers towards technology adoption and enhance consumer trust in the digital payment system.

VULNERABILITY LANDSCAPE

To understand the complexity and vulnerability of emerging technologies, let us take an example of QR Code and Mobile Wallet.

The various ways in which QR code could be vulnerable are

- Criminals can affix malicious QR Codes over legitimate codes.
- QR code can contain a malware, which allows the hacker to gain access to financial information that is stored on the mobile phone.
- Victims may be allured into scanning a QR Code mimicking a legitimate brand.
- Attackers generate a QR code for a shortened URL, which redirects to a malicious website.
- Fraudsters share a QR code over WhatsApp asking for the code to be scanned to receive money in their account.

A software engineer in Thiruvannamiyur placed an advertisement to sell his washing machine. He was approached by a person posing as a buyer who offered ₹ 16,000. After negotiating for a few minutes, the caller told him that he would send the cash online and asked him to scan a QR code, which he would send through WhatsApp. As soon as the QR code was scanned, a sum of ₹ 32,000 was withdrawn from his account. Then the caller switched off his mobile phone and was unreachable thereafter.

The various ways in which Mobile Wallets could be vulnerable are

- Malicious apps claiming to be banking apps
- Phishing attacks specifically targeting the mobile device
- Malware infecting the mobile device, compromising the legitimate use of the device and stealing credentials etc.
- Spoofed SMS messages to people claiming to be from their payment service provider to encourage them to call a compromised number or visit a malicious website

An Indian digital wallet firm reported to police that an unknown fraudster carried out large-scale fund transfer from his wallet account even though requisite funds were not available. This fraudulent action was possible because of a technical vulnerability existing in the payment system.

Private and public companies offering digital payment solutions should make use case of every possible way in which such vulnerabilities could be taken advantage of by the criminals and make their technology water-tight.

RECOMMENDATIONS

Considering various barriers and vulnerabilities threatening the digital payments landscape, we would like to make recommendations for the same.

Barriers to the adoption of digital payment system

Digital payments could be made simpler by allowing the use of various local languages on the product so that more people can now understand and use the product better. The process of KYC and documentation must be quick and hassle free so that the majority can use these digital cash transfers.

To increase the reach of the digital payments, the implicit cost of carrying cash should be made realized through consumer education; by providing incentives to consumers such as interest over the wallet balance; analysis of consumer's monthly expenditure with suggestions on how to manage cash efficiently; and by providing incentives to merchants such as consumer insights, marketing package to grow their sales. The merchants can also allow the facility for the consumers to preorder for each month digitally through digital applications to increase the ease of buying and merchants are also happy as they can foresee the demand and order products and manage their inventory better. For this plan to work out, the infrastructure connectivity must also be improved across the nation, which will instil confidence in the consumers to undertake digital payment anywhere instead of just carrying cash.

Call centres must be set up by each digital payment service provide to resolve the issues of its customers promptly.

VULNERABILITIES IN THE DIGITAL PAYMENT SYSTEM

One of the major challenges of a cashless economy is the issue of consumers' data privacy in the hands of payment service providers and the lack of knowledge among consumers regarding the ways their personal sensitive data (comprising demographic details, spending habits, political-religious-caste affiliations, etc.) could be exploited by different politico-economic

forces at play. Such instances could create a trust deficit between the providers and consumers, hampering inclusive growth as the technology assimilates in our lives. Stricter laws are required for ensuring liability of digital payment service providers in the cases of cyber frauds.

1. Data Privacy

- a) Implement data protection and privacy laws to create a balance between the user safety online and the industry growth. Establish a strong baseline protection requirements and regulate global cross-border data flow through established principles and multilateral cooperation. India should soon finalize the Personal Data Protection Bill after the Supreme Court mandate that right to privacy is a fundamental right.
- b) Formulate best data protection practices and make it mandatory for all the stakeholders in the industry. Some of the best practices include consumer's right to forget on the internet, deletion of personal data beyond a certain time period, hosting of the sensitive data on the servers within the country of the consumer.

2. Cyber Threats and Regulations

- a) Develop a long-term cyber security strategy, considering the dynamic nature of the industry.
- b) Establish standards and comprehensive guidelines for cyber security, fraud and technology risk management for the digital payment industry. Update them regularly to reflect the changing landscape due to advancements like IoT, Artificial Intelligence, Machine Learning and Block chain.
- c) Establish a committee comprising experts from the industry to provide guidance to the digital payment sector on cyber security.
- d) Align with the globally accepted cyber security frameworks to ensure that India's digital payment industry is benchmarked with the global best.
- e) Carry out transparent and independent investigations of cyber/ financial crimes
- f) Establish a regulatory framework, allowing the market entry of new next-generation technologies in a graded manner.
- g) There must be strict laws in place for companies to run these digital mobile wallets and banks as they are more susceptible to hacking and as these companies do not have a physical presence.

For even smaller needs like a coffee or a quick snack if cashless-ness is enforced, then the majority of the people on this planet will be left out of the loop for sure at this point in time. There must be a balance in use of cash and digital payments for the time being and it can be slowly assimilated into our lives.

The rise of e-commerce requires an efficient electronic payments infrastructure. However, after thousands of years of fiat currencies, policymakers and corporate leaders should not underestimate the challenges. The solution should be a holistic approach, comprising the right infrastructure, legal frameworks, technologies, and a willingness to partner and collaborate. The task is complex and must be taken in a phased manner holistically so that there will only be benefits but no one losing due to this change. The prize of completing this task is faster growth and an economy which thrives with lower corruption and reduced chances for black money.

The image shows a screenshot of the Grammarly plagiarism checker interface. On the left, a document titled 'ECONOMICS ARTICLE SUBMISSE...' is open, containing text about the digital economy. On the right, the 'Plagiarism' panel is active, displaying a '12%' match rate. Below this, a list of sources is shown, including 'BBK Digital Economy Forum addresses economic...', 'Uber, the world's largest taxi company, ...', 'More than 61 billion people will u...', 'Cashless vs Cash-based E...', 'How Cashless Payments Help Econom...', 'Euromoney How Paytm went bi...', and 'China overtakes US in ranking...'. The interface also shows an 'Overall score' of 76 and various other metrics like 'Correctness', 'Clarity', 'Engagement', and 'Style guide'.

PLAGIARISM: 12% (Grammarly)

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