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ELECTRONIC PAYMENT SYSTEM: THE NEXT GENERATION OF E-BANKING

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ABSTRACT

Many businesses have been able to maintain a steady growth curve using digital technology, but many others are just beginning to explore its potential. As technology continues to advance and determine the success of any online business, marketers must be equally aware of the products available that can transform their business. When it comes to the challenges of online payments, a robust payment gateway can potentially minimize most issues and greatly improve the customer experience. Paytm Payment Gateway is trusted by hundreds of merchants to solve their payment problems and maximize transaction success.

Keywords: Online Business, Paytm Payment Gateway, Payment, Technology, Success

INTRODUCTION

Information technology has had a great impact on the Indian banking system. After economic liberalisation of 1991, country's banking sector has been exposed to the world's market. As a result, use of computers has increased many folds.

RBI has set up various committees to define and co-ordinate banking technology. These committees include:

- In 1984, Committee on Mechanisation in the Banking Industry (1984) was formed whose chairman was Dr. C Rangarajan, Deputy Governor, Reserve Bank of India. The main focus of this committee was on introduction of MICR technology in all the banks of metropolitan cities in India. This provided for the use of standardised cheque forms and encoders.
- In 1988, Committee on Computerisation in Banks (1988) was set up by RBI which was headed by Dr. C Rangarajan. Its main emphasis was on computerisation of settlement operation in the clearing RBI in Bhubaneshwar, Guwahati, Jaipur, Patna and Trivandrum. It further stated that National Clearing of inter-city cheques and MICR at Kolkata, Mumbai, Delhi and Chennai should be made operational. It also focused on computerisation of branches and increasing connectivity among branches through computers. In 1989 committee submitted its report and computerisation began from 1993 with the settlement between IBA and bank employees' associations.
- In 1994, under the chairmanship of WS Saraf, the Committee on Technology Issues relating to Payment systems, Cheque Clearing and Securities Settlement in the Banking Industry (1994)was set up. It laid emphasis on Electronic Funds Transfer (EFT) system, with the BANKNET communications network as its carrier. It also said that banks with more than 100 branches must have MICR clearance system.

ISSN No: 2349-6762
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- In 1995, the Committee for proposing Legislation on Electronic Funds Transfer and other Electronic Payments (1995) again emphasised EFT system.
- In July 2016, Deputy Governor Rama Gandhi of the Central Bank of India "urged banks to work to develop applications for digital currencies and distributed ledgers."

TYPES OF E BANKING

Various types of services are offered by Banks through electronic banking platforms. These are of three types:

Level 1 – In this level, banks provide basic services through their websites. With the help of these services, bank offers information about its product and services to the customers. In addition to this, some banks receive and reply customer's queries through emails.

Level 2 – In this level, customers can submit their instructions or applications for different services, check their account balance, etc. However, customers are not permitted to carry out any fund-based transactions on their accounts.

Level 3 – In the third level, customers are allowed to operate their accounts for funds transfer, bill payments, and purchase and redeem securities, etc.

Most traditional banks offer e-banking services as an additional method of providing service. Further, many new banks deliver banking services primarily through the internet or other electronic delivery channels. Also, some banks are 'internet only' banks without any physical branch anywhere in the country.

Therefore, banking websites are of two types:

1. **Informational Websites** –General information about the bank and its products and services are offered to customers through these websites.
2. **Transactional Websites** – Through these websites, customers are allowed to conduct transactions on the bank's website. These transactions may range from a simple retail account balance inquiry to a large business-to-business funds transfer. The following table lists some common retail and wholesale e-banking services offered by banks and financial institutions:

Common E-Banking Services

Table 1.1

Retail Services	**Wholesale Services**
Account management	Account management
Bill payment	Cash management
New account opening	Small business loan applications, approvals or advances
Consumer wire transfers	Commercial wire transfers
Investment/Brokerage services	Business-to-business payments

ISSN No: 2349-6762
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Loan application and approval	Employee benefits/pension administration
Account aggregation	

VARIOUS PRODUCT AND SERVICES AVAILABLE UNDER E-BANKING

- ATMs
- Telephone Banking
- Electronic clearing cards
- Smart cards
- EFT (Electronic Funds Transfer) System
- ECS (Electronic Clearing Services
- Mobile Banking
- Internet Banking
- Telebanking
- Door-step Banking
- Bill payment
- Fund transfer
- Investing
- shopping

IMPORTANCE OF E-BANKING

We will look at the importance of electronic banking for banks, individual customers, and businesses separately.

BANKS

1. Lesser transaction costs – Electronic transactions are the cheapest and viable modes of transaction.
2. A reduced margin for human error – Since most of the information is transferred electronically, there is no chance of human error
3. Lesser paperwork – Availability of digital records has reduced the requirement of paper work. As a result, it has become easier as well as eco-friendly.
4. Reduced fixed costs – With e-banking physical requirement of branches has reduced, resulting in reduction of fixed cost requirement.

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5. More loyal customers – Since all the services under e-banking are customer-friendly, banks experience higher loyalty from its customers.

CUSTOMERS

1. Convenience – A customer can access his account and transact from anywhere throughout the year without any time barriers.
2. Lower cost per transaction – With the introduction of e-banking, customer need not to visit the branch for every transaction. It saves customer's time as well as money.
3. No geographical barriers – With e-banking, you can carry out any transaction in any part of the world without actually visiting the place.

BUSINESSES

1. Account reviews – With the help of online banking interface, business owners and designated staff members can access the accounts quickly. This allows them to review the account activity and also ensure the smooth functioning of the account.
2. Better productivity – Electronic banking improves productivity. It allows the automation of regular monthly payments and a host of other features to enhance the productivity of the business.
3. Lower costs – Normally, costs in banking relationships are based on the resources utilized. If a business requires more assistance with wire transfers, deposits, etc., then the bank will charge higher amount of fees. With online banking, these expenses are minimized.
4. Lesser errors – Electronic banking helps to reduce banking errors like bad handwriting, mistaken information, etc. which may lead to losses in future. Also, easy review of the account activity enhances the accuracy of financial transactions.
5. Reduced fraud –With the introduction of e-banking it has become difficult for fraudsters to play mischief. E-banking provides all employees with a digital footprint that allows them to modify banking activities.

VIRTUAL PAYMENT SYSTEM

Here are various platforms for online payments:

1. Banking Cards

Generally, two types of cards i.e., debit card and credit card, are used for cashless payments all around the world. Banking cards provide benefit at almost every store, secure payments, and many more places. Banking cards can be used for making various types of digital payments. For instance, card information can be saved in mobile wallet to make cashless payments in future. These cards can also be used on PoS machines, internet banking, online transactions, etc. The top and most secure names in banking cards are Master Card, Visa and Rupay.

ISSN No: 2349-6762
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National Research Journal

2. USSD

USSD stands for Unstructured Supplementary Service Data. It is a cashless payment option for those who don't have a smartphone. To use this facility the user needs to dial *99# to interact with the voice menu through mobile screen. The only requirement in this gateway is that the mobile number that is being used must be linked with the bank account.

3. Mobile Wallet Apps

Mobile wallet applications are the future of cashless payments because it is fast, secure, and offers convenient payment methods. These applications allow the user to send, receive and store money easily. By just linking bank account to the respective wallet the user can easily add or store money.

The top benefit of these applications is that by just entering a phone number, unique ID or scanning QR code, the user can easily send money to his friends, relatives or any person in fraction of minutes. User can even pay all the utility bills like electricity bill, water bills, mobile recharge, dish recharge etc. directly from the mobile wallet app.

4. QR Codes

QR stands for Quick Response as it is a two-dimensional code that has a unique pattern of black squares which are arranged on a square grid. These QR codes can be easily read by imaging devices like smartphone, QR code scanner etc. To make payment using QR code, the user just needs to scan the code of the merchant service provider.

5. Contactless Payment

The most commonly used cashless payment method is contactless payment as it is the most convenient and secure method. It can be done using any debit card, credit card or smart card that are enabled with a chip-based on NFC or RFID technology.

The feature that makes contactless payments the most convenient method is that it doesn't require any signature or PIN for making any payment as you can also make contactless payments via NFC-enabled phones.

6. ECS

ECS stands for electronic clearance service. It is widely used in the cases where it comes to making bulk payments that are divided in monthly or weekly instalments. It also helps in making various utility payments and helps in disbursement of payments like pensions, salaries, or dividends interests. ECS can be used to debit or credit the amount.

To make ECS a simple task, authorization has to be provided by the bank for making periodic credits and debits. ECS is a safe method of payment because it allows you to provide instructions for the maximum sum of debit, validity period, and the purpose of the transaction.

ISSN No: 2349-6762
Peer Reviewed & Refereed Journal
National Research Journal

7. Gift Cards & Vouchers

Gift Vouchers are also one of the great ideas to make cashless payments. It allows the receiver to purchase anything with the help of a voucher. There are many stores that offer various discounts on gift vouchers.

8. PoS Terminals

PoS terminals are the handheld devices that are used at the stores to read the banking cards of the customers. As these services are now available on various mobile platforms via the internet, the use of PoS is increasing gradually. PoS can be further bifurcated into different types i.e., Physical PoS, Mobile PoS and Virtual PoS.

9. Authorize.net

With a user base of more than 445,000 merchants, Authorize.net is one of the Internet's most widely used payment gateways. This payment solution from Visa has been in use since 1996. At present it is handling more than a billion transactions per year. Many widely used e-commerce platforms, such as Magento, Volusion, and X-Cart, integrate easily with Authorize.net.

10. Paypal

PayPal is the world's most widely used payment acquirer, processing over 19 billion payments in 2021. PayPal is used by more than 30 million merchants and 400 million active customers. Payments are made using a user's existing account or with a credit card. Money can be sent directly to an email address, thus prompting the users to sign up for a new PayPal account. In addition to taking payments, PayPal also allows its users to send money through the service, which is a feature that only a few online payment solutions provide.

11. Google Pay

Google Pay is Google's version of PayPal. With Google Pay, users can easily pay for goods and services through an account already connected to their Google profile. A major benefit that Google Pay enjoys is that millions of Internet users use Google for other services, making a purchase through Google Pay a simpler process.

12. Amazon Pay

Shoppers can easily make purchases from their amazon account using already saved payment methods. Merchants can add an Amazon Pay button to their checkout processes.

13. Dwolla

Dwolla is another payment platform option which emphasizes on simplicity and security. It offers various features such as digital wallets, the ability to send up to 5000 payments at once, real-time payments to banks participating in the RTP® Network, and same-day ACH payments.

ISSN No: 2349-6762
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14. Stripe

Web developers who wish to integrate payment system into their projects, stripe provides an excellent solution using robust API. By bypassing the traditional signup process, Stripe acts as a merchant account for its providers, handling all PCI compliance and merchant approvals.

15. Braintree

Braintree is an online payment gateway and merchant account solution known for working with popular tech startups such as Airbnb and StubHub. PayPal acquired the company in 2013. Since then, it has been the part of PayPal ecosystem. Braintree, however, is geared toward companies with high sales volumes that need customization capabilities. With Braintree, customers can also use a range of online payment methods, including PayPal, Venmo, debit and credit cards, Google Pay, and more.

16. WePay

WePay is an online payment solutions company that provides payments infrastructure for independent software vendors and software platforms. 17. This infrastructure enables small businesses to accept payments through the software platforms. JPMorgan Chase acquired WePay in 2017, which enabled functionality such as same-day deposits to Chase bank accounts.

RECENT TRENDS IN VIRTUAL PAYMENT SYSTEM

Cashless payments had started gaining attention across the globe even before the pandemic. But 2020 and the new normal has acted as a huge turning point where people wanted to make contact free payments and follow the social distancing rules. With contactless payments a more secure option, people have allowed global digital payments to reach $5.4 trillion in 2020. The entire segment of eCommerce, eServices and digital media transactions or eTravel bookings is expected to reach $5.8 trillion by 2025, growing by nearly 40%.

With the help of digitization, people have a unique opportunity to make payments conveniently using a secure channel. Digital payment systems are doing their best to make these payment methods safer, more reliable and more convenient.

Digitization has brought a new payment system to people, which they have embraced with open arms. Every mobile app development company is trying to make more progress in the existing digital payment methods. Here are some of the major payment trends that will boost digital payment technology.

1. Biometric authentication

Biometric authentication is one of the most anticipated features of a digital payment system. This verification method helps to make payments safely and securely. Verification of the person is done through structural and biological characteristics of a person. After assessing the biometrics of the user in the form of facial recognition, fingerprint scanning, iris recognition, heartbeat analysis, and vein mapping, the digital payment shall be processed.

Biometric authentication helps in limiting the risk of theft and fraud. This payment technology would be the future of card payments. Tap-and-go payments with enhanced

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Peer Reviewed & Refereed Journal
National Research Journal

security from biometric authentication will secure the payments in the future. This new payment method will remove the problem NFC transactions have. It is estimated that about 2.5 million payment cards will be issued to people in the year 2021, according to Biometric Update.com. Accuracy, efficiency, and security all can be provided with the help of this payment trend.

2. Gen Z: The tech-savvy generation

Gen Z or Generation z is the term used for people born between 1997 and 2012/15. Currently, these people are between the ages of 6 and 24. There are about 68 million Gen Z people in the US. According to Forbes, about 31% of the global population is expected to be Gen Z by 2021. The 7–20-year-old population is tech-savvy and will drive all payment methods. A generation exposed to technology will have a huge impact on how people make payments. This group prefers fast, automatic and efficient services and technologies, hence the demand for digital payment systems will grow.

3. Use Codes Instead of Cards

Moving away from recognizing a random number printed on a card, EMV technology is more secure. EVM technology or Europay, Mastercard, Visa are new payment methods that are automated and have higher security measures. Traditional magstripe cards, as the name suggests, stored all the information in one magnetic stripe, and with one swipe, the transaction was complete. EMV cards, on the other hand, have microprocessor smart chips with encrypted data to protect you from being caught by a skimmer.

EMV cards are a new payment technology that can perform transactions even in offline mode. Because the cards have microprocessors that can communicate with the terminals, offline transaction verification and cardholder verification are possible. With improved security without the need to connect to banks online, this new payment system is one of the best payment trends. Card and mobile payments are both made according to global standards, allowing tourists to spend money from their own cards

4. Mobile-point-of-sale

The demand for Mobile-point-of-sale (mPOS) payment technology is increasing every day. Be it a retail store or a street vendor, everyone looks forward to accepting payments through this payment method. The mPOS system is portable and can be plugged into the audio jacks or charging ports of smart phones and smart touch screen tablets. With the help of a mobile app created by Digital eWallet Mobile App Development Company, payments can be made easily from anywhere.

A good mPOS system can also collect data and help you grow your business. From notifying you of all top-selling products to products that are stagnant, mPOS is a new payment system that has many more features. mPOS systems is expected to grow at a CAGR of about 19% between 2020 and 2026, according to Global Market Insights. This payment system can make a huge difference to your business, making it more efficient and organized.

ISSN No: 2349-6762
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National Research Journal

5. Smart speaker payments

A new revolution in payment technology uses smart speakers to pay fees. Home assistants or smart speakers receive your voice command and respond to your query. From ordering food on Zomato to booking a cab, everything is possible with smart speakers. What if you said, 'Alexa! Make Payment" and the payment has been made. Amazon came up with a smart speaker in 2014, Google in 2016 and Apple in 2017. Smart speakers can be used to purchase products such as home care, food and clothing. Here is a list of the items people are doing with their smart speakers according to statista.com.

6. AI and Machine Learning Powered Payments

The future of payments is artificial intelligence and machine learning. The most important feature of any payment is its security. Thanks to the integration of artificial intelligence, safe and convenient payments are possible. A digital payment system can have chatbots that provide 24/7 service to users and answer all their queries.

AI digital payment technologies have the ability to flag unexpected bills and tips that are higher than usual. All these features can prevent digital payment fraud. The need for payment verification from banks has also been reduced with AI. Amazon Deepens technology eliminates the need to go to the cashier to have the goods billed. You can view your groceries using your mobile phone, so payments are quick and you don't have to queue up.

7. Contactless payments

You could pay via smartphone or credit card without physical contact. No physical contact between the buyer's credit card or smartphone and the POS ensures safety from contact with viruses and bacteria, in addition to being fast. Near Field Communication, or NFC, is the technology that powers contactless payments using radio frequency identification (called RFID).

A specific radio frequency enables payment by card or smartphone when the payment reader and the payment instrument are close to each other. Contactless payments are much more secure than magnetic stripe cards. Magnetic stripe cards use outdated technology that can be easily cloned, leaving you vulnerable to fraudulent charges and identity theft. New payment methods using contactless payments are really hard to hack.

8. Mobile Wallet Solutions

About 2.1 billion customers, according to a Retail Dive report, used mobile wallets in 2019. It is a new payment method that works like a virtual wallet and stores a person's virtual payment information on a smartphone. With this digital payment system, you can send and receive money virtually. Unlike physical wallets, digital payments enabling mobile wallets cannot be collected or lost. One tap transaction that can be done in no time and consume less energy compared to internet banking can be done with this digital payment system.

Not paying amounts in round numbers and taking advantage of discounts, vouchers, gift cards and offers are some of the benefits of using this digital payment technology. Online banking facilities and credit/debit card payments also require sensitive information each time

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you want to make a payment. On the other hand, digital payment using a mobile wallet keeps confidential information safe.

ISSUES IN VIRTUAL PAYMENT SYSTEM

1. Low internet bandwidth

A solvable but common problem, low internet bandwidth is usually responsible for failed online payments. No matter how advanced your virtual presence is, low bandwidth can be a critical issue, especially if you use an integrated payment gateway.

The payment process may be interrupted due to unresponsive servers. In many cases, this results in the payment being deducted from the customer's bank but not reaching the merchant - a situation that results in further difficulties for both the customer and the store.

How to overcome low internet bandwidth issues

Make sure your website, mobile app and payment gateway of your choice can work smoothly even on slow internet. It is always better to have a lightweight version of the website or app to ensure that the connection continues without interruption.

Paytm Payment Gateway comes with smart routing, direct bank integration, stored cards and stored UPI IDs, making the payment process super-fast with minimal distractions and page loading. These features make transactions a breeze even with limited bandwidth.

2. Card data security

Online fraud, including ID theft, database misuse, phishing attacks and card fraud, is common in India and has only increased during the pandemic. So, while being careful with data, it is also imperative that e-commerce merchants use a secure payment system that ensures the least possibility of data leakage.

According to Microsoft's 2021 Global Tech Support Scam Research report, consumers in India experienced a relatively high online fraud rate of 69% last year. 31% of Indians have lost money through fraud – the highest in the world.

How to overcome card data security issues

The best way to ensure the security of card data is to use a payment gateway that complies with the PCI DSS (Payment Card Industry Data Security Standard). PCI contains a set of regulations that all payment gateways must follow when processing card payments.

It encrypts the data and turns it into a series of random characters and numbers before it reaches your server. This means that you will not process any payment data yourself. Encrypted data is commonly known as a token and is valid for a short period of time, making it difficult to crack.

Paytm Payment Gateway is PCI DSS Level 1 Compliant and has been chosen by several SMEs in the country. Getting PCI compliant in your payment system is expensive, instead an integrated system like Paytm Payment Gateway can be a wise and affordable choice. Compliance benefits can also be availed when you use Paytm Payment Gateway on hosted e-commerce platforms like Woocommerce, Shopify and Zoho.

ISSN No: 2349-6762
Peer Reviewed & Refereed Journal
National Research Journal

3. Technical integration

When it comes to online transactions, an integrated payment gateway store helps securely process online payment from your website to your bank. However, seamlessly integrating a payment gateway can be a daunting task. The process may require support and assistance.

There are several steps and aspects of a payment system that you need to consider when it becomes part of your website or app. Some of the points to consider are whether it can be easily integrated without specific programming knowledge and whether the system fits into your business infrastructure.

How to ensure smooth technical integration of the payment gateway

Choose a payment gateway with robust and reliable support to handle any issues that may arise during integration. Marketers must also consider the flexibility of the product to seamlessly integrate it with the platform they are using.

In the same way, when deciding on a payment gateway, it is necessary to check the support and assistance of the service provider. Paytm Payment Gateway has a dedicated team of experts who offer assistance to business owners in seamlessly integrating the payment gateway with their app and website. The team will help you deploy a well-functioning payment gateway along with all the fine-tuning required for its usability.

4. Multi-currency transactions

Thanks to social media and other channels, it is now possible for even smaller businesses to reach a global audience. Sellers can cater to international clients without having to worry about the success of these transactions.

However, when we compare domestic transactions with international ones, the latter can be slow and expensive. One reason is the multiple functions an integrated payment gateway must cover, including banking standards, currency exchange and security.

How to smoothly process multi-currency transactions

Become a partner of a trusted payment gateway that supports international transactions. There are several advanced payment gateway options available for your website and app that can reduce the time it takes to complete a transaction and provide better security.

For example, Paytm Payment Gateway is suitable for businesses with a global customer base as it allows merchants to accept payments in almost all currencies in the international market. You don't need a separate API integration to accept payments. In addition, you can also enable real-time currency conversions with a single click and be assured of instant settlement.

5. User experience and checkout challenges

Cart abandonment is a huge challenge for businesses and one of the main reasons is the long and tedious checkout process at the final stages. Integrating a good payment gateway can help make a transaction successful, but ease and speed of execution are just as important. Complex steps, more details and pages that take a long time to load can distract the user and ultimately mean huge losses for the merchant.

ISSN No: 2349-6762
Peer Reviewed & Refereed Journal
National Research Journal

References

1. History of Internet Banking - Wealth How.
2. E Banking: E-banking in India -Types of E-Banking and Importance (toppr.com)
3. https://www.techopedia.com/
4. https://www.avantixlearning.ca/training/training-methods-for-the-virtual-classroom-12-popular-methods/
5. https://www.vervelogic.com/
6. https://business.paytm.com/blog/common-challenges-in-online-payment-gateway-how-to-overcome