

A Study the use of E- Payment System for Internet Payment Gateway Service

Ravin Kumar^{1*}, P. K. Bharti²

¹ Research Scholar, Computer Science and Engineering, Shri Venkateshwara University, Gajraula, Uttar Pradesh, India

Email: ravinpal2009@gmail.com

² Professor, Shri Venkateshwara University, Gajraula, Uttar Pradesh, India

Email: padutt@gmail.com

Abstract- A payment system is mechanism for settling financial obligations through the exchange of value. Credit mechanisms are a component of several payment systems, although they are conceptually distinct from the rest of the payment process. Banks & other financial organizations provide a significant service in the form of payment systems, which are utilized instead of cash in local and international transactions. Today, payment processors are vital to any successful online business. Customers can communicate with online retailers using them. It facilitates monetary transactions between a buyer and seller over the Internet. Many different types of payment gateways are currently available to Indian customers. Payment Highway is a payment gateway service that facilitates the use of credit and debit cards for e-commerce purchases.

Keywords - Payment Gateways, E-Payment, Payment Highway, Cash on Delivery

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INTRODUCTION

The use of payment gateways is crucial to the success of the online retail industry¹. In the past, when no concrete measures existed to avoid cybercrimes, it was challenging to conduct non face-to-face (impersonal) business transactions without the development of a secure mechanism for transferring sensitive or confidential data, such as credit card numbers. But things are different now. Numerous payment gateways exist today, each offering their own take on accepting credit card payments online. Payment Gateway was not an option until WordPerfect software engineer Jeff Knowles came up with the idea in 1996. He did a lot of digging to find out whether there was a way to offer payment processing as a service to customers without having to shell out a fortune for antiquated terminals. During that time period, "payment gateway" was thought to be an entirely novel concept in business. Today, payment processors are vital to any successful online business. Customers can communicate with online retailers using them. It facilitates monetary transactions between a buyer and seller over the Internet. Many different types of payment gateways are currently

available to Indian customers. These kinds of payment processors are useful since they make sending money online quick and painless. E-Billing Solutions (EBS), CC Avenue, PayPal, pay you, payTm, etc. are just a few examples.

Functions of Payment Gateways

There are a variety of services provided by payment gateways². These include authorizing transactions, authorizing & capturing transactions, issuing refunds, and canceling transactions altogether. Payment information can be entered into a browser and completed over the phone or via mail using a message indicating that a payment was successful with virtually every major gateway. More than that, you can save and access customer profiles within the gateway itself for speedier payment processing via the virtual terminal. Payment plans such as installments or recurring payments can also be set up, and delayed payments can be processed.

How a Payment Gateways Works?

¹Gulati, V. P., & Srivastava, S. (2007). The empowered internet payment gateway. In *International Conference on E-Governance* (pp. 98-107).

²Oo, K. Z. (2019). Design and implementation of electronic payment gateway for secure online payment system. *Int. J. Trend Sci. Res. Dev*, 3, 1329-1334.

After a consumer places an order and chooses to pay with a credit or debit card, he fills out the necessary information on the website, the server sends it to the payment gateway, & bank receives it through the gateway for verification. To confirm a user's identity, it is necessary to make contact with the issuing bank of their credit or debit card. The bank has the option of either confirming the transaction as legitimate or rejecting it. When a payment is processed, the bank sends the request to a payment gateway, which then notifies the server that the payment was processed properly. This is a simplified version of the actual technique, which is involved.

1. To make a purchase online, a consumer or cardholder must first fill out a payment information form on the website.
2. The gateway receives & encrypts all financial data for safety concerns. The merchant's bank (the processing bank) then verifies the encrypted data.
3. The acquiring bank then notifies the issuing bank of the transaction via the respective payment network (Visa or MasterCard).
4. The card issuer then responds to the processing bank via Visa or MasterCard with an approval or denial of the transaction.
5. Upon receiving the response, the gateway relays it to the merchant, who then processes the payment.
6. When a sale is finalized, the store deposits the receipt with its processing bank to initiate payment.
7. The processor transfers the funds to the merchant's account & submits the transaction to Visa or MasterCard for payment.
8. Once the processing bank receives payment from Visa or MasterCard, it debits the card issuer's account.
9. As a result, a monthly bill will be sent to the cardholder requesting payment for the transaction.

ADVANTAGES OF PAYMENT GATEWAYS

Although the merchant stands to gain the most from implementing a payment gateway, the customer stands to gain just as much. The exchange takes place in "real time." This means that credit card purchases can only be made in the moment. The funds are sent to the retailer instantly. As a result, it cuts down on paperwork and saves time. Every step of the purchasing process is simple & secure for the buyer. He or she need only maintain a web presence & contribute content. In other situations, directing the consumer to a different website to complete the transaction would be inconvenient. Additionally, this could plant the seed of suspicion in the minds of potential buyers. As a result, the payment gateway streamlines the payment process for the customer's benefit. A payment gateway is the most common and

convenient method of online payment nowadays³. By allowing the transfer of the correct amount to the merchant's account in real time, it reduces the customer's effort & guarantees effective transaction. A successful transaction that helps the consumer takes place in a matter of seconds. Some of the features & advantages of payment gateways are shown in Figure 1.



Figure 1: Advantages of Payment Gateways

Cash on Delivery (COD) - Popular Payment Option

When e-commerce first took off in India, there was some apprehension about using credit cards to make purchases⁴. Even though the number of people making purchases online has expanded dramatically over the past several years, cash on delivery (COD) is still the preferred mode of payment among Indian consumers. As per the Wikipedia, "COD⁵ is the sale of things via mail order when payment is made on delivery instead of in advance" (2004). According to Nielsen's Global Connected Commerce Survey, COD is the preferred payment method for online purchases made by Indian consumers (2017). Customers are wary of using credit cards online because of the prevalence of identity theft. According to a recent poll, COD is the most popular payment option for online retailers like Flipkart, accounting for 72% of payments in large cities and 90% in smaller towns. Despite the growth of mobile wallets and net banking transactions, cash-

³Lowry, P. B., Wells, T. M., Moody, G. D., Humphreys, S., & Kettles, D. (2006). Online payment gateways used to facilitate e-commerce transactions and improve risk management. *Communications of the Association for Information Systems (CAIS)*, 17(6), 1-48.

⁴<https://blog.bluetuskr.com/how-to/cash-on-delivery-payment-shopify>

⁵https://en.wikipedia.org/wiki/Cash_on_delivery

on-delivery remains the most preferred way of payment for online purchases. Only 30% of online purchases are paid for using traditional methods like net-banking, credit/debit cards, and e-wallets; the rest are paid for using cash on delivery. Since its inception in 2007, Flipkart has been at the forefront of the e-commerce industry. The success of Flipkart & growth of e-commerce can be directly attributed to the company's cash-on-delivery option. The internet has made it possible for even students from small communities without access to a bank or debit card to make purchases with a few clicks of the mouse.

Factors for the Growth of COD

The convenience of COD is a huge win for consumers⁶. They preferred to use it because it is more convenient for them and because it increases their confidence in cash transactions. They don't have to have a credit or debit card in order to buy things online. As money is not due at the time of ordering, there may be an increase in impulse purchases. Because of security concerns, many people avoid making online payments. COD, on the other hand, gives them peace of mind because they don't have to pay until they've really received their order.

Problems for Marketers and Suppliers

Whether it's the fear of making a long-term commitment or the relief of not having to pay for something right away, the COD system generally finds favor. For sellers & marketers, however, this service comes with complications:

1. COD is convenient for customers but cumbersome for merchants & suppliers. Those orders take more time to close, which is bad for cash flow. Even if there is no request for a refund or return, the seller may not receive payment for several months. They are finding it challenging to gauge or keep daily operations going in light of this.
2. It'll set you back more money if you choose for "Cash on Delivery," as courier services add on to their standard rates to accommodate these orders. In the event of a return, the cost is increased because marketplaces & logistics firms charge courier fees.
3. High profits: a cash-on-delivery & no-questions-asked return policy is a lethal combo. People purchase items on the spur of the moment and then easily return them. Compared to non-COD sales, sellers expect higher returns from COD orders since, in their

minds, customers must have a good reason to pay COD⁷.

Reducing the Prevalence of Cash Transactions

The Indian government and its banking institutions have been making concerted efforts to promote digital payments & discourage cash transactions in an effort to stimulate the country's flagging economy. The government is incentivizing the shift to a cashless economy by lowering the tax on cashless transactions, enforcing regulations, and streamlining the digital payment process. As a result, many online retailers are experimenting with alternatives to COD in an effort to lower their customers' dependency on them:

- Cards accepted upon delivery;
- Enhancing gateways;
- More alternatives for making payments
- Advantages of using digital wallets include
- Instant refunds,
- Discounts for making purchases online, & special offers.
- Allowing sellers to determine their own payment & shipment policies;
- Partnering with banks to offer cash-back & discount incentives for card payments;
- Launching mobile transactions;
- Charging a premium for COD orders;
- Capping the value, number, and type of products that can be ordered COD;
- Revising the return policy to eliminate frivolous reasons for returns;

In conclusion, eliminating COD and establishing a cashless economy still seems like a pipe dream in a country like India, where people are adapted & comfortable with cash transactions.

Pay-Per-Click (PPC) Advertising

A relatively recent innovation in online marketing is pay-per-click (PPC) promotion⁸. When a user enters

⁶Cash On Delivery – COD *Investopedia*, 2013. Retrieved 28 December 2013.

⁷PuneetBhalla (2017)Cash On Delivery (COD) Pros & Cons In eCommerce. <https://www.shiprocket.in/blog/cash-on-delivery-pros-cons-ecommerce/>

a specific term into a search engine, an appropriate text ad with a link to a corporate page is presented to them. Text advertisements, often referred to as "sponsored links," appear down the right hand side of search engine results pages. Pay-per-click advertising differs from more traditional forms of marketing in that the advertiser pays only when a user clicks on their advertising & taken to the advertiser's website. However, there may be some attrition, which cannot be controlled but which marketers should be aware of, as the vast majority of clicks do result in visits to the site.

When determining their relative positions, these paid performance placements often take into account the highest CPC offered for each search phrase. Ultimately, the business willing to shell out the most money per click will see the most success. While ranking the sponsored links, Google also considers the relative click through rates of the advertisements, thus ads that do not appear relevant due to less clicks will slip down or may even disappear from the listing. All businesses need to be visible on all search engines, paid search listings, and sponsored links to survive in today's market.

For businesses that have the capital to invest, pay-per-click (PPC) advertising is a fantastic option for reaching their target audience online⁹. Google AdWords traffic is also considered targeted, just as SEO traffic, because users enter keyword words directly related to the advertised products or services before clicking on the advertising. It's a great option if the marketing team can successfully convert the resulting traffic into sales for the online store.

AN OVERVIEW OF E-PAYMENT SYSTEM

E-commerce has given rise to a plethora of new monetary requirements that were previously unmet by established methods of exchange. With the advent of e-commerce came the need for new methods of doing financial transactions online. So the many parties involved devised new approaches to making electronic payments. As a result, nearly everyone with a vested interest is looking into the many forms of electronic payment systems & the issues that surround them. Online electronic money systems, online MasterCard payments, electronic checks, & card-based electronic payment systems are the most common types of e-payment methods¹⁰. There are advantages &

disadvantages to both buyers and sellers with every type of payment system. Some fundamental requirements for these modern payment systems are that they be secure, convenient, inexpensive, anonymous, acceptable, traceable, and controlled. As a means of staying afloat in the industry's cutthroat environment, many financial institutions have begun to use the e-commerce and e-payment systems. Although India's economy is mostly dependent on cash transactions, the widespread adoption of electronic payment services in the country's banking & retail sectors is not far off (Roy, 2015)¹¹. Many people believe that the financial sector is the true backbone of any economy. As the volume of economic transactions in terms of money grows, a trustworthy and open financial system becomes increasingly important. By "financial system," we mean the interconnected network of traditional banks & non-financial entities that provide consumers with a wide range of financial products and services. When compared to the other services offered by the payment system, transferring money and clearing financial transactions take center stage. The payment system plays a crucial part in promoting economic development, raising the level of financial transparency, and bolstering industry-wide changes. Over the past two decades, there has been a dramatic shift in the way users, or customers, of new payment systems think & act. Some of the most important ones are listed here:

There has been an increase in either the amount or value of transactions, reflecting people's growing awareness of the importance of tending to their financial affairs. As a result of this innovation, financial market activity is rising quickly, and with it, the corresponding payments are being made to more and more people all over the world.

Second, technology has made incredible strides in the banking & monetary sector during the past 20 years. This is due to the massive expansion of the internet and the progress made in the field of information and communication technology. Because of this, financial institutions and customers alike have the latitude and means to move money about the system far faster and more cheaply than before.

Thirdly, globalization has resulted in a reduction in barriers to trade across different parts of the world. This has led to a great deal of cross-border financial activity. The business that figures out how to modify its payment system first will have a leg up on the competition. Only international transactions will make this possible. The effects of globalization &

⁸Kapoor, K. K., Dwivedi, Y. K., & Piercy, N. C. (2016). Pay-per-click advertising: A literature review. *The Marketing Review*, 16(2), 183-202.

⁹Fjell, K. (2009). Online advertising: Pay-per-view versus pay-per-click—A comment. *Journal of Revenue and Pricing Management*, 8(2-3), 200-206.

¹⁰Ali, M. A., Hussin, N., & Abed, I. A. (2019). Electronic payment systems: Architecture, elements, challenges and security concepts: An overview. *Journal of Computational and Theoretical Nanoscience*, 16(11), 4826-4838.

¹¹ Roy, Sanghita (2015). "Overview of Electronic Payment System: A Special Reference to India". Handbook of Research on Cultural and Economic Impacts of the Information Society. pp. 01-28.

monetary revolution on emerging countries were profound. Many things have shifted, including the availability of new trading and investment opportunities, the evolving tastes of customers, and the rising demand for goods from around the world. One of the most important contributors to the elimination of national boundaries is the development of communication and transportation technologies. There have been incredible benefits to the global economy thanks to the Internet and other forms of modern communication technologies. As a byproduct of this convergence, digital currency has been proven to be a viable electronic replacement for cash. The use of digital currencies as a means of exchange is not novel. Electronic payment, or payment through a computer network, was promoted in a number of different ways beginning in the late 1970s and continuing into the early 1980s.

E-payment

The term "e-payment" refers to the "exchange of monetary value over electronic payment systems, such as the Internet, private networks, or a combination thereof" (Majhi et al., 2000)¹². When clients pay for products and services online with electronic payment systems like PayPal, this is an example of a typical e-payment transaction. To make matters worse, fraudulent actions are just one of several threats associated with making a payment online. Electronic-payment is an activity in which, many users can participate in reducing their risk. (Whyte, 2001)¹³. Nevertheless, e-payment does provide some benefits and convenience to customer, merchants, and banks that are involved in an electronic transaction (Anderson, 2001)¹⁴. Different electronic payment methods have different benefits and risks.

KEY BARRIERS TO ADOPTION OF E-PAYMENTS

Habit to use cash

Even in the modern era, many Indians still like paying with hard currency rather than using digital methods. The survey found that 68.2% of all transactions are conducted in cash (Shah et al. 2016). For these reasons, both domestic & international e-commerce services began offering cash-on-delivery options to their Indian customers. The rationale for this approach

¹²Majhi, B; Panda, G. and Dash, P. K. (2000) "Electronic money: An essence of ecommerce". IETE Technical Review. Vol. 17. No. 4. pp. 203-207.

¹³ Whyte, B. (2001). Enabling e-Business: integrating technologies, architectures and applications. John Wiley. New York.

¹⁴ Anderson, R. (2001). Security engineering: a guide to building dependable distributed systems. Chichester: John Wiley.

is that people have difficulty managing their money, but they are content with the current state of currency exchange and are not eager for a shift that would make their lives easier.

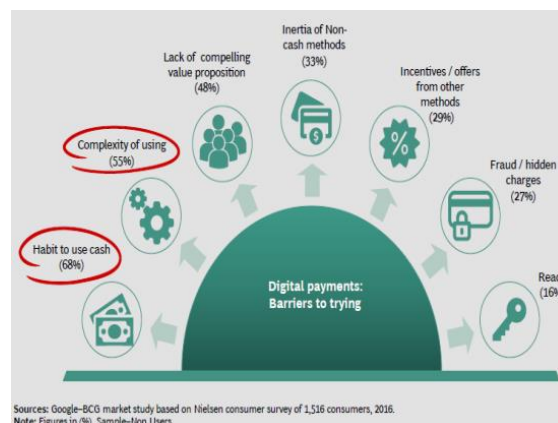


Figure 2: Key barriers to adoption of e-payments

Complexity of usage

Half of all clients don't make use of the online transaction app because they find it too complicated. Approximately one-third of those who don't use the app don't understand how it works, and another 20% think it's pointless to even try because of how hard it looks. Because of the wide variety of customers and businesses represented by today's booming online retail industry, it's imperative that any proposed solution take into account these many stakeholders as it draws up its blueprint. If we're going to be picky, we should note that cash is always the preferred method of payment in any transaction because of its ease of use, widespread acceptance, and convenience. Taking advantage of the simplicity of the application, the pace of change in the world of commerce accelerates daily.

A perceived lack of compelling value proposition

Most consumers avoid doing financial transactions online because they either do not trust the system or they lack the knowledge or confidence to use the system effectively. Consumers avoid online purchases because they worry about their security, and there is a dearth of electronic payment options. There may be a dip in adoption rates if consumers decide they aren't comfortable using an app because of security concerns. If a customer wants to make a purchase online, their P2P service provider must give them all the information they need to successfully complete the transaction. Rather of worrying about whether or not the app would actually help him, the consumer may dive right in. That can only happen if providers engage in meaningful conversation with their customers and take the time to explain the many advantages their services offer.

Inconvenience, low reach & possibility of making mistake arresting usage

Some of the barriers that prevent people from using internet banking include the inconvenience of having to remember a password, inadequate funds, the potential of a technical or human error occurring during a transaction, and so on. All these challenges can be avoided if customer service providers give their customers the information they need to successfully complete an online transaction. For instance, replacing the need for users to remember several usernames & passwords with a single biometric identifier that is acquired and consolidated within the system will likely lead to a rise in users' confidence in conducting financial transactions over the web. The auto sweep feature of an online transaction account is also useful for dealing with account inactivity & keeping a minimum balance.

Security, identity theft, & fraud are not big barriers in India

In India, researchers found that online payment systems with hidden fees and other forms of fraud are unlikely to be trusted. Customers who have never made an online purchase are understandably wary of the security risks involved.

- The diverse international market; security, privacy, & fraud are not immediately connected.
- Seventy-five per cent of business owners think digital will boost & speed up future sales (Shah et al. 2016).

According to the findings, most retailers have trouble handling little change, and some even have to pay to get enough of it to run their businesses.

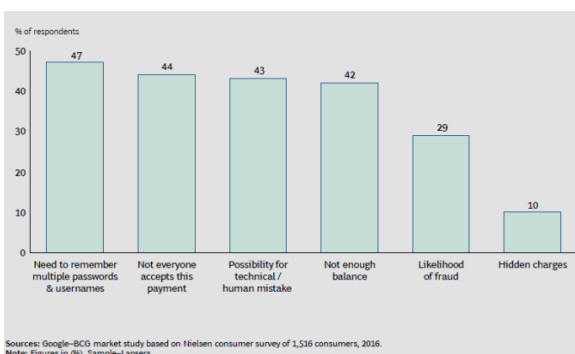


Figure 3: The Drawbacks of Electronic Payments

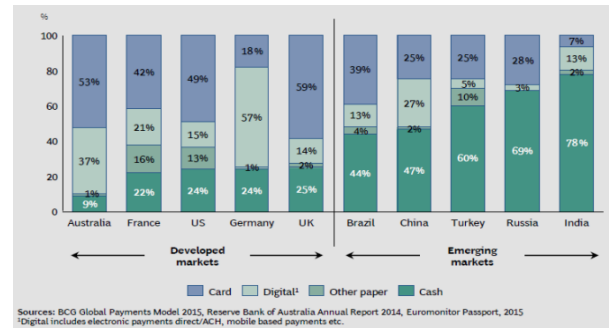


Figure 4: Payment instrument mix of countries

GOVERNMENT INITIATIVES FOR GROWTH OF E-PAYMENT

NITI Aayog leads an initiative to convert 100% Government – Citizen Transactions to the digital platform. To eliminate corruption and black money from the system, the Government of India has formed a Committee of officials to facilitate a digital platform to convert all Government – Citizen transactions into digital transactions. The committee will be framing a user-friendly digital payment platform in the earliest possible timeframe for all sections of the economy under the leadership of Mr. Amitabh Kant, CEO NITI Aayog. The main intention of the committee is to make different digital payment systems user-friendly and accessible for different sectors of the economy. This committee will also be identifying the infrastructure bottlenecks affecting the utility and accessibility of digital payments. To attain quick progress into the digitisation (cashless, digital payments) across all sectors and States, the committee will connect with the State Governments, District Administrations, Central Ministries, Local Bodies, Regulators, and Trade & Industry Associations etc. to support the quick implementation of digital payments in these places.

The effort to observe and establish a structure which should be implemented with stringent timelines to meet the target of 80 percent digitisation in transactions taken place within India. The committee will also figure out the expenses involved in different kinds of digital payments and make provision to generate all digital transactions among Citizens and Government economical than cash transactions. The committee guided by the NITI Aayog will execute an action plan on awareness and support among the community, small enterprises, and all stakeholders. The committee will be organising training and competence building of different representatives of States/UTs, Departments/Ministries of the Government of India, various bodies of Industry and other stakeholders. Various members of the committee who drives the digital payment system in India consists of Secretary Department of Industrial Policy and Promotion, Secretary Department of Financial Services, Ministry of Finance, Secretary Department of Investment and public Asset Management, Secretary Ministry of Electronics and Information Technology, Secretary Ministry of Rural

Development, MD & CEO, National Payments Corporation of India and Adviser, NITI Aayog¹⁵.

CONCLUSION

The current payment system, or more specifically a modern payment system, directly integrates point of sale & offers a reliable payment experience to both merchants & customers. It links businesses to the whole payment ecosystem, including hardware, remote terminal solutions, and merchant services. Banks have created a variety of payment options to make it simple to exchange money, which encourages business growth, supports economic development, and promotes flexibility with low transaction costs & security. Today, there are many other payment methods available, including checks, money transfers, cards, and online transfer procurement.

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Corresponding Author

Ravin Kumar*

Research Scholar, Computer Science and Engineering, Shri Venkateshwara University, Gajraula, Uttar Pradesh, India

¹⁵ Report of the committee of Chief Ministers, appointed by NITI Aayoge, Retrieved from niti.gov.in. 2016.