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Overview the issues and challenges of Electronic Payment System for secure Online Payment

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Abstract - An overview of issues for e - payments, including theft since it is among the most important concerns to e-payments and also is inflicting enormous losses, is offered in this article. Now a day's world shifted to digital world. India seeks to step towards e-payment system. E- Payment system is a payment mechanism through an electronic network. In other words e-payment is a way in which a person can make Online Payments for his purchase of goods & services without physical transfer of cash &cheques, irrespective of place and time. Today India is at a phase of demonetization therefore; in the present scenario this study is unavoidable to makes electronic payments at any time through the internet directly to control the e-business environment. This study aims to highlight the shortcomings & limitations of e - payments & give some ideas to improve the e-payment system. E-payment system not only presents additional chances but numerous hazards also.

Indexterms - E-payments; E-Commerce; Fraud detection; Risk management.

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INTRODUCTION

An electronic payment system, such as the internet, is a method of making payments using a computer network. A more precise definition would be that an individual can use an electronic payment method to pay for goods and services online without the need to send real currency or checks, at any time and from any location. Developing an on-line payment system is a more advanced kind of electronic payments than simply using an electronic payment system. The e-business environment can be managed at any time by making electronic payments immediately through the internet.

With the introduction of the idea of web-based payment, e-payment has made a massive impact on the economy by including web-based showcasing apparatuses to increase the payment development of organizations worldwide. There has been a lot of competition among the payment institutions as a result of online payment. It appears that online payment will continue to grow, expand, and transform the global market for many years to come. It is now possible to shop online from any location and at any time thanks to the increasing availability of Wi-Fi in homes and public places including restaurants, malls, airports, and railway stations. The advantages of online payment are numerous. The adjustment has made it possible to pay for the acquisition of new customers and so on. An indication of global market trends can be found in the predictions made by major corporations like as Google, e-narrows, Facebook & Amazon in innovative work of improvements. Chinese online payment can't be ignored as it appears to be steadily moving into the forefront of the global market thanks to Tancent, Baidu, &Alibaba.

The progress of the worldwide internet Global Market may be seen in the number of businesses that have been established and the growth of these businesses. E-payment will be a huge success over the world, according to financial analysts. The

buying and selling of things is included in the definition of online payment, a subset of e-payment. E-trade is used by a wide range of payment institutions, including administration corporations, retail sites, and assembly companies. E-commerce opens up new possibilities for connecting with customers and managing payments. Virtual shops are open round-the-clock, 365 days a year. "World's top book shops" by Amazon (amazon.com) is only one of the many titles they carry. Users appreciate the ease & convenience of E-trade sites, which offer a wide range of useful features such as a powerful & ground-breaking internet search engine, product recommendation & aggressive pricing. There was a 20% growth in online payment arrangements in 2019.

ISSUES & CHALLENGES REGARDING E-PAYMENT SYSTEM

Lack of Usability

There is a lot of information that must be provided by the end user in order to use an e - payment system, and this can make transactions more difficult. Because of the vast amount of personal information & contact information that must be entered into a web form, credit card payments made via a website are not the most convenient method of payment.

Lack of Security

Cyber criminals have an easier time stealing money & personal data from internet-based payment systems. Customers are required to supply personal information, such as their credit card number and account number, while making purchases online. In some cases, this data is transmitted in an unencrypted manner. By mail or phone, these personal facts can be compromised (Guttman, 2003)

Issues with e-Cash

Moreover, e-cash has a major drawback in that it is not widely recognized due to its dependence on business establishments as a means of payment. In addition, when we use e-cash to make a payment, the customer and the salesman both have accounts with the same bank that issues e-cash. Other banks will not accept the money.

Lack of Trust

A long history of fraud, abuse, and low reliability accompany electronic payments, which are both new systems without a solid track record of trustworthiness. One of the main reasons potential clients cite for not using online payment services because they don't trust them is because of this risk (Lietaer, 2002)

E-Payment System Acceptance Perceptions of Customers

The success or failure of any information system endeavor is directly tied to the level of acceptance it receives from its intended audience. Users' attitudes and human elements are critical to the effectiveness of any information system, according to a number of research on information technology (Davis, 1993). Dillion (1996) state that "the demonstrable readiness within a user group to utilise information technology for the tasks it is designed to enable" is a measure of user acceptance. It applies to electronic payment methods as well. In other words, they can't be a success until people accept them. Online purchases can now be made more conveniently with a new type of electronic payment. In a rapidly changing business environment, issues are difficult to accept because of a lack of security. Improved information technology is needed for the online payment system. When an electronic payment system fails, it is because it fails to meet the needs of its customers & market.

Lack of Awareness

Making a payment online is not a simple process. Even the most well-educated people have difficulties with online payment. Because of this, they constantly opt for the old-fashioned method of buying over the internet. When there is a technical issue with the server, customers are unable to make online payments. Therefore, people stay away from it.

Online Payments are not Feasible in Rural Areas

Rural residents are illiterate & unable to use computers, making it difficult for them to participate in modern society. They're not interested in online payments because they don't know about technical advancements. Villagers can't use internet payment methods because they don't have a bank account.

Highly Expensive & Time Consuming

E-payment systems are quite expensive to set up, machine costs, management costs, and so on. They also take longer than physical payment systems to pay for their services.

ONLINE PAYMENT SYSTEMS

Payment Systems in E-payment

Bank-to-bank payments for electronic instalments are supplied by an external interface between banks. Online payment frameworks outperform traditional payment methods in terms of speed, efficiency, & usability. Consumer can complete the entire installation procedure in a short period of time by can use their own personal computer or mobile phone linked to the Internet to complete the process. Internet banking is the most prevalent method of payment for online payment

infrastructures. When customers need to shop online, for example. The customer is required to open an online banking account. This payment can be made using a MasterCard or even a check card. An further trend in internet payments is the rise of third-party payment systems like PayPal. A free association named "outsider instalment" allows you to transition between bank & online instalment stages using the system instalment mode. The outer instalment mode acts as a credit intermediary between online payment and the bank.

Third-party payment businesses offer the most options for clients in terms of online payment structures. Especially for new firms & micro-enterprises. An online payment system makes it easier for clients to pay for goods and services. In addition to avoiding the danger of currency conversion, customers benefit from the convenience of making a quick payment after an online purchase. Banks can boost their payment volume and devote more resources to support & development as a result of online installment. Using an online payment system has additional risks. There is a danger of financial loss throughout the exchange process. Because of all the competition, online installment may suffer. Outsider online installment, for example, is targeted by more than 40 Chinese electronic payment firms, leading to market homogeneity. Last but not least, there is the question of legislation and regulations. It is necessary to set up legislation for online payment.

There are already a large variety of payment alternatives and related services to choose from. In the next section, we'll look at how many nations now use online instalments and then compare it to how many countries still use traditional instalment methods. Each country has their own unique take on online installments. Nordic countries (such as Sweden and Finland) are tempting clients with online instalments, and there is a growing tendency in Australia & New Zealand to do the same (BIS, 2004).

Despite an increase in online payment development, Japan has a low instalment rate, according to a recent study.

For internet purchases in Germany, money down and other unconnected instalment strategies have been utilized as frequently as possible. For a realistic image of Internet payment instruments, third-party groups like the European Pago gathering can be of great help. In 2014, 94% of all online payments made through Pago were made using MasterCard as the mode of payment (Pago, 2014). Visa Multiplying 2002 findings would give us EUR 12.6 billion in European internet transactions in 2014. (Visa, 2004b). As evidenced by Visa Net, MasterCards are becoming increasingly popular among travelers, especially for things like flights and inventory requests (Visa, 2014). But according to Pago data, 81 percent of all transactions were made using credit cards in 2018. Due to an increase in the use of electronic direct charge, particularly by German consumers who have been growing their online purchases & payments, and their quick charge instalments grew from 6.5 percent to 17.5 percent in 2018, the number of offers dropped significantly.

Traditional money-related middlemen, who provided regular electronic payment services, dominated the market in 2017. In light of this, MasterCard's growth as a true payment infrastructure has been very rapid. By country and type of payment, there are considerable disparities in the market, and these differences are driven by national preferences and the features of the industry. To put it another way, in Germany & other Northern European countries, Visa is less widely accepted for online installment payments than MasterCard is. E - payment Systems Observatory (ePSO) data shows that in 2020, 33% of new instalment plans are expected to be implemented using the portable stage, which is a flexible payment approach (Carat, 2002). Even though PCs are more widespread, mobile phones are more frequently utilized in Japan & Finland than PCs for installation (OECD,). It has been difficult to construct self-contained cell phone instalment frameworks even with flexible instalment frameworks, though.

ENHANCING E- PAYMENT SECURITY

Electronic payment systems must follow an effective security protocol that ensures high security for online transactions if they are to be widely used as a payment method worldwide. E-commerce transactions can be secured using two standard protocols proposed by Koponen (2006). Secure Electronic Transaction Protocol (SEP) and the Secure Sockets Layer Protocol (SSL) are examples of these protocols (SET). Encrypting the entire session between computers, SSL allows for secure communication over the internet, making it a more popular ecommerce transaction protocol. SSL utilizes public-key cryptography to encrypt data sent between a Web server & client during transmission over the Internet. The SET protocol, on the other hand, prevents the consumer's complete credit card number from being transmitted over the internet, instead allowing only a portion of it to be transmitted. Data coding and digital signatures are used to ensure the integrity of all company data, as well as data integration. Additionally, Ismaili et al. (2014) have outlined several additional needs for e - payments.

- Confidentiality of information shared by consumers
- Data integrity
- Authentication of all the participants
- Non-repudiation

- End-user requirements that include usability, flexibility, affordability, reliability, speed of transactions, and availability.

The advent of mobile payments has brought with it a slew of new security concerns, such as the ability to clone a device, the spread of malware in apps, and the theft of personal information. However, in addition to tokenization, device & SIM authentication, location patterns, or user verification, such as fingerprint authentication, the device itself can assist provide additional levels of protection to the payment.

OVERCOMES OF PROBLEMS IN E-PAYMENT SYSTEM

A. Encryption

A common misunderstanding about online shopping is that it's risky. Encryption is used by the vast majority of online payment systems to protect the transmission of sensitive personal & financial data. Encryption methods are employed to prevent online payment fraud.

B. Digital signature

All parties involved in an online financial transaction must use digital signatures in order to ensure transaction legitimacy.

C. Firewall

Unwanted electronic access to a networked computer system can be prevented by using a firewall, which is a collection of security mechanisms that protects private networks & individual computers from over-the-internet threats. Outbound traffic can be filtered with this tool. Regulations for firewalls can be included in a set of policies.

D. Compare the country where the credit card is issued with the country where the bill is sent.

Checking the nation of origin & billing address is another important consideration. Make that the nation of issue & country of billing are the same. Minor banks may not have strict identification procedures, thus this is very critical.

E. Verify the authenticity of your credit card by contacting the issuing bank.

If online merchants have any doubts about an order or need to verify the order's specifics, they can phone the issuing bank and ask to verify the general account information. In order to avoid the card being stolen, this step is necessary. Based on the first six digits of a credit card number, known as the Bank Identification Number, the issuing bank phone number can be found.

F. Request more identification in case of doubts

Even if customers appreciate privacy and want to order quickly via the internet, it is vital to collect enough information to verify the identity of the customer. Name, card number, & expiration date are insufficient. If merchants have any doubts, they should phone them and ask for phone verification or request a photo ID be faxed.

LITERATURE REVIEW

P.A.Shemin et al. (2016) E-commerce has seen rapid expansion in recent years as a result of the advantages it offers. Even though online purchasing has many advantages, it also introduces new security risks, such as credit card fraud and phishing. In this study, we describe a new type of electronic payment system that uses visual & quantum cryptography to deliver unmatched security. One time passwords can be transmitted securely using Quantum cryptography while the details of customers can be hidden using Visual cryptography, which generates shares. With image steganography, the share is encrypted with a one-time password for safe transfer to the bank. More secure than a standard E-payment system, the proposed method uses two key cryptography algorithms.

LeventeKovácset al. (2016) With this document, the European Forum on the Security of Retail Payments aims to conduct an up-to-date review of rules governing electronic payment security, payment innovation vulnerabilities & their solutions. To begin, the essay details a major scam that took place within the Hungarian financial sector. Payment channel security vulnerabilities are well-illustrated in this scenario. In the following section, we'll take a look at some of the international SecuRe Pay Forum recommendations for reducing fraud. Lastly, the article examines how these ideas stack up against current domestic regulations. In the wake of recent fraud instances, payment service providers, consumers, supervisors, and overseers were all paying attention. Because of their efforts, the European Forum on Retail Payments Security was born. To fill up the gaps in current Hungarian & pan-European rules, the forum developed three sets of suggestions on Internet payment security, payment account access services, & mobile payments. To avoid future cases of fraud resembling the one described in this article, regulators on the domestic and international levels should build on the updated Payment Services Directive and the aforementioned recommendations. The case study in the article is

based on actual events that occurred in Hungary in 2014.

Momin Mukherjee et al. (2017) Exchanges of products between the two sides before to the beginning of recorded history were carried out in person. Traditional payment systems have always had security issues. After the introduction of the electronic payment system, there was a major shift in society. In spite of the fact that digital documents can be completely replicated, anyone's signature can be replicated. By linking the buyer's name to each payment, the concealment surrounding their funds is eradicated. E-commerce will no longer be viable unless it has a high-quality security mechanism in place. A well-designed electronic payment system, on the other hand, can give greater label security than a traditional payment. Electronic payment systems include a variety of processes, advantages, and security concerns, all of which we explored in this article.

MuddassirMasihuddin et al. (2017) Electronic Payment Systems (EPS) are the subject of this research, which examines the advantages, problems, and security considerations of EPS. The suggested study also examines the influence of electronic payment systems on the economy of a country. Analytical Procedures: These studies on online payment systems were used to compile a complete survey of all aspects of electronic payment in this study. The most up-to-date references and information about electronic payment systems have been accessed. The study found that, despite the many challenges that electronic payment systems provide, they are seen as a positive step toward the economic development of a nation. However, it is only by increasing public knowledge that its full potential may be realized. Applications/Improvements: The perception of conducting business online is certain to gain traction as technology advances and the Internet becomes more popular. Electronic payment systems, which provide various advantages over traditional payment methods, are expected to take over the market in the near future.

Tsaur et al. (2017) Certificate-based public key cryptosystems were used to overcome associated security difficulties in many smart card-based electronic payment activities designed for Internet customers. Nevertheless, the certification authority (CA) must be honest and must manage the key directory in order to be able to do so. In addition, it takes more time to verify the digital certificate's signature, which is signed by the CA. Since modular exponentiation schemes utilize more bits to achieve the same security level as ECC, the secure electronic payment system presented in this paper uses less bits to achieve the same level of security as other public key cryptosystems. For the blinded e-cash-based payment systems, we have devised efficient session key exchange & blind signature procedures based on ECC self-certification. Self-certified public key cryptosystems offered for efficient on-line electronic currency payment are safe for Internet users to use.

Rashidah Funke Olanrewajuet al. (2017) E-commerce relies heavily on electronic payments, so this paper examines how to secure their security & success. In addition to covering the basic prerequisites for payment gateways to be regarded as powerful payment gateways, this article also covers the key functions, purpose, & benefits associated with payment gateways. In order to securely process, authorise, & route a wide range of local & international monetary transactions, this is required. On the basis of security, pricing, customer service, or other factors, the most popular payment gateways have been compared in this article. Concerns about payment gateway security have been addressed based on the information gathered. After analyzing the security restrictions in payment gateway structure, a number of recommendations have been made for clients before accepting or whilst using such a method of payment online.

S. Solatet al. (2017) The security of e - payments was the focus of this detailed assessment. As far as e - payment system security was concerned, we looked at both established methods and emerging ones. CP transactions & review of the dominant system, EMV, along with several Cambridge University researches to designate variant types of attacks against this standard, illustrate the lack of a secure "offline" authentication method that is the primary purpose of using the smart cards instead of magnetic stripe cards, the appraisal of the EMV migration from magnetic stripe cards. A comparison is made between various methods for securing Card-not-present transactions such as 3D Secure & 3D SET, as well as SET/EMV & EMV/CAP, as well as the impact and role played by Tokenization & Blind Signatures schemes in electronic cash & payment systems. A quantum key distribution (QKD) approach is used in electronic payment systems to obtain unconditional security rather than relying solely on computation to ensure security levels. Our report's criterion for measuring and judging the quality of e - payment system security was the quote: "The security of a system is only as strong as its weakest link."

Ali et al. (2019) Research in this study focuses on the increased understanding of various online payment system concepts, including their advantages, challenges, & security concerns.. With the software as a service approach, providers of payment processing systems supply their customers with an all-in-one payment gateway that accepts a wide range of payment options. When paying for something online, people frequently divulge personal information like their names, credit card numbers, & like. Electronic money exchange can be done through an online payment system. The Internet, computer networks, or other digital stored value systems are commonly used in this type of payment. In order to accept an online payment, the customer must have agreed to give the service provider with some personal information. An extensive examination of online/electronic payment systems is undertaken in this work, with an emphasis on the analysis of several studies. Research into e - payments has been conducted using the most recent studies.

CONCLUSION

An electronic payment is one that does not involve the use of actual currency, such as cash or checks. Debit cards, credit cards, smart cards, & electronic wallets are all included. Some of the payment methods that we have studied in this paper are the primary link between e-commerce and its growth on-line. Risks to online payments include loss of transaction data, personal information, or fraudulent rejections by customers. As a result, and until electronic signatures are widely adopted, we must rely on the current state of technology to ensure a decent level of network security. It is hard to state that any of the payment systems that have been examined in this book are flawless, but each of them offers advantages over the others. Those payment options, such as E-cash or Net Bill Checks, ensure a better level of confidentiality for the customer who values their privacy. The usage of Smart Cards should be the first priority if security is a concern.

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