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ORIGINAL RESEARCH ARTICLE

Benefits and challenges of EPS in developing countries

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ABSTRACT

The primary emphasis of this study is on the adoption of an electronic payment system (EPS) in developing countries, including the economic rewards and problems related to online electronic payment. The internet has allowed consumers to purchase products and services while also transmitting credit card details through a network that cannot guarantee protection of data. The advantages of electronic payment are vast such as emerging people and organizations into a cashless payment while also removing the fear of trading through internet. However, the challenges to use electronic payments, such as public acceptance, a lack of platform operated by finance organization due to insufficient infrastructure and cyber-security and the inappropriate use of the EPS makes several problems for organization. This paper aims to discuss the benefits and challenges of EPS adoption in developing countries.

Keywords: e-commerce; electronic payment system; e-payment; EPS challenges; EPS benefit

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1. Introduction

Electronic payment system (EPS) is considered an operational system in the network as defined by policy, regulations, and standards; the payment system connects bank accounts while also providing monetary exchange capability via the use of deposits from financial institutions (banks)[1]. EPS is important part of the infrastructure in organizations, instruments, regulations, processes, standards, and technological means that have been formed to facilitate the transfer of monetary value between parties that are in the process of fulfilling mutual commitments. The effectiveness with finance processes or money transactions is utilized in the business, as well as the risk connected with its usage, are determined by its technical efficiency [2,3].

What distinguishes it as a "system" is the fact that it uses currency substitutes in the form of electronic money and other information and communication technology devices. Bills of exchange and documentary credits such as letters of credit are examples of traditional means of payment that are negotiable instruments [4,5]. The advent of computers and electronic communications has led to the development of a variety of alternative electronic payment methods. Payment techniques such as "debit cards, credit cards, electronic funds transfers, direct credits, direct debits, online banking, and e-commerce payment systems can be cited as illustrative examples"." Some payments include credit systems, but these are a completely different component of payment than the others. Payment systems, primarily offered by banks and other financial organizations, are used in place of cash for

both domestic and international transactions. EPSs are an important facility to control electronic payments[6,7].

EPS has its own processes and regulations to comply with organizational rules. Although legalization has allowed certain EPS and networks to expand internationally, there are still many country and product specific schemes[8]. Credit cards and ATM networks are two examples of payment systems that have spread throughout the world. Various payment systems are used to facilitate the trading of commodities in the capital, liaison, foreign exchange, futures, swap, and elective marketplaces. In addition, these systems are used to transfer contributions between financial institutions locally and globally, through the use of elimination and RTGS (Real Time Gross Settlement) systems and the network operated by SWIFT[9–11].

Aside from the simplicity and security they provide, electronic payment systems (EPS) also offer a significant number of economic benefits, including the mobilization of savings and the certainty that cash available in the nation is held in banks. Borrowers, both businesses and individuals, benefit as cash is made accessible [11]. In addition, EPS is able to track individual spending, which allows banks to create products in an easier way. When the government makes decisions, this knowledge is also beneficial to them. In addition, EPS is able to reduce cash handling and printing costs for its customers. According to Moody's analysis, real GDP has grown by an average of 0.2 percent per year," above what it would have been without the use of credit cards. Simply put, credit card use increases a country's gross domestic product (GDP) by 0.2 percent each year[12,13].

The transition from a predominantly cash-based society, where 90% of currencies are held outside financial institutions, to a cashless world represents remarkable progress. As a result, stakeholders, including governments, banks, and individuals, have a major responsibility to ensure that the economic benefits of this system are realised. It is very likely that there will be changes in operations, finance, economics and marketing, all of which require efficient management[14].

Throughout history, trade has usually involved the exchange of products and services in addition to an equal abstract value, such as money, to compensate for the defeat of barter. When they pointed out that money was introduced as an abstract form of value[15], they emphasized that there has been a mechanism for payment transactions since that time. Throughout history, new and more abstract representations of value have been developed and presented. From barter to banknotes and money orders to checks and credit cards, there has been a reasonable history of value transfer mechanisms, culminating in the electronic payment system. Since they are not available for lending, the inclusion of monetary assets organised outside the banking system in the financial services system leads to an increase in the total number of deposits of the monetary system. This is important because the amount of currency that is outside the banking system is potentially an ineffective financial asset because it is not accessible for copying[16–18].

The conventional payment system is based on a number of factors that can be considered either advantageous or disadvantageous. Advantages include the instantaneous exchange of cash for other currencies without the need for a banking institution. However, disadvantages include the secrecy and lack of accountability of illicit electronic payment systems (EPS). Many governments of developing countries, such as Iraq, have been inundated with allegations of corruption in the public sector, and governments have adopted electronic payment systems. These policies have been criticized by many for their lack of preparation, inefficiency, and delay in paying for products and services[12,19,20].

2. Literature review

The online perspective of business conducted is the most common definition of e-commerce. With e-commerce, products, services, and information can be sold and purchased over the Internet and in other online environments. Each commercial transaction requires the exchange of reliable and secure money between the

two parties involved. Payments are made electronically in e-commerce, which is why the system is also called an electronic payment system[21]. One of the most important features of e-commerce is electronic payments. In its broadest sense, electronic payment is a type of financial exchange facilitated by online means between the supplier and the buyer. An electronic payment for e-commerce is a financial exchange that takes place online[22,23].

When customers decide to pay for a service or item, electronic wallets are called upon to support the most critical process: transmitting payments from customers to suppliers as efficiently, effectively, and yet hassle-free as possible. The importance of e-commerce. The future of e-commerce depends on the timely development of EPS, which is critical to business[5,11,17,24,25]. Because of the evolution of new e-commerce purchasing relationships and company models, new money exchange methods and EPS have been necessary. Due to the popularity of online auctions, payment mechanisms that allow people to pay each other directly have become more necessary. Micropayments and minor payments are required for some types of information services and products. A company's goal is to sell low-cost information material that generates large amounts of income. EPS can be tailored to sell a specific type of commodity, such as music, which is protected by copyright[14]. Another requirement that was not anticipated before is the use of wireless mobile devices, such as PDAs or mobile phones, for conducting e-commerce. Because of the demand for mobile payment systems, these solutions have been developed[4,14].

During the COVID -19 pandemic, consumers were encouraged to make cashless transactions. Is there a difference in resilience between retailers that use cashless payment technologies and those that do not? A comparison between retailers that adopt cashless payment technologies and those that do not shows that retailers that adopt this technology experience an 8.3% (10.2%) increase in card sales (number) when differences are evened out. In addition, adopting contactless payment during an epidemic shock helps merchants attract new customers. Digital payment technology continues to help small businesses and young entrepreneurs increase sales[26,27]. We can look at how the impact of the COVID -19 epidemic on economic activity and the adoption of EPS platforms can help reduce risk and facilitate activity. According to previous research, EPS transactions serve as real-time indicators of the cyclical state of the economy and can be used to assess the real-world impact of catastrophic events[27,28].

3. Methodology

The processes that applied in the methodology is illustrated in **Figure 1**.

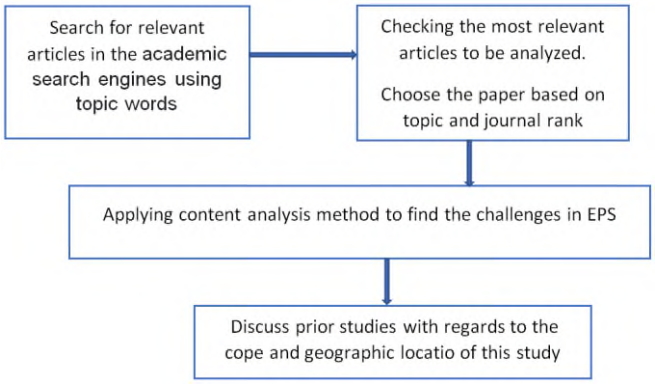

Figure 1. Methodology.

We reviewed more than 50 journal articles, some of them are referenced here. The searched journals cover International Journal of Bank Marketing, Management and Information, International Marketing Review,

Marketing and Psychology and, International Journal of Electronic Commerce Information Technology for Development, Technology in Society.

The key words used for the search were as follows: [“electronic payment system” adoption], with a different range of terms and phrases like [“Electronic payment system acceptant”], [“Electronic payment”], [“E-payment”], [“E-payment”], [“Internet banking adoption”], [“Online payment”], [“E money”], [“E finance”], [“Cashless”], [“E cash”], [“E banking”], [“Online payment”].

As a result, the enquiry yielded a cumulative count of 150 scholarly research articles. Among this quantity, a total of 30 were derived from empirical evidence. This study conducted a review of 30 empirical papers that met the explicit criteria of examining factors that impact electronic payment systems.

The purpose of the current study is first to identify relevant articles published in various academic journals and conference proceedings worldwide on electronic payment systems. Then, the objective is to review and revisit previous research studies considering the geographic scope of the study, the methodology used, and the information system models employed. The purpose of this endeavor is to conduct an analysis and synthesis of previous research to identify areas where further investigation is warranted, thus highlighting potential research gaps.

4. Electronic payment system benefits in developing countries

There are several benefits stated by previous researches that can be useful for organization when use electronic payments system. These benefits help consumers to buy products online and ship exposed credit card details across the network, compromising security and privacy. As customers grew more mindful of their privacy and security, new secure network payment solutions emerged[29,30]. EPS provides substantial advantages for banks and retailers. Anonymous, flexible electronic payments are possible with digital money payment, but with extra security standards for online transactions. According to the study of Hawash et al.[31], secure electronic currency system can protect legitimate users’ privacy while tracing unlawfully issued or laundered monies. If there was any criminal conduct, the bank might revoke the anonymity of the digital cash.

A method of protecting content against illicit redistribution, according to the study of Alzoubi et al.[30], is to use digital money, which can track double spending and reveal the identity of the double spender. By including tracking content characteristics into the digital currency payment method, users are prevented from individually duplicating material[32]. Using this capability, lawful anonymous buyers may legally distribute material to other paying anonymous users. Making digital money simpler and safer to use in sectors like digital entertainment might raise demand for items. This increases author security while also delaying lost income and sales for digital media entertainment corporations[11,30].

In addition to property producers and distributors, digital media entertainment may use this technology and its security features to increase consumer copyright compliance[33]. This payment and distribution concept can reduce or even eradicate piracy of software and intellectual property. It can enable decentralized architecture, faster transactions and decisions, and lower transaction costs. In addition to simplicity and security, electronic payments also offer great economic benefits. These benefits, if harnessed, can contribute significantly to a country’s economic success.

Automated EPS help expand bank deposits, making more cash available for marketable loans, a key driver of economic growth. claim that efficient, secure, and convenient electronic payments offer major macroeconomic benefits. “Electronic payments are like the gears on a bicycle. An effective electronic payment system boosts an economy. Improved credit management for consumers and businesses boosts economic dynamism”[34].

The e-commerce business advantages from the significant amount of transactions in cash, it harms local economies. Cash must be coined, safely transported, tallied and reconciled, and stored for future use. Per-payment expenses will always be high, while electronic system costs are fixed. Once the infrastructure is created, transaction costs are extremely minimal[5].

By using their cards at checkout, cardholders help keep money in the banking system. This promotes transparency, trust and participation in the financial system. ALGhamdi et al.[34] found a link between rising sales volumes and rising demand deposits. "Automated electronic payments are a significant growth engine for the financial industry. As a result, low-cost funds are available to support bank lending for investments that boost overall economic activity. It improves efficiency and economic performance by increasing openness and accountability. Electronic payments are incredibly user-friendly. In most cases, you only have to enter your account information once. In a database on the retailer's Web server. When you return to the site, you simply enter your login and password. All you have to do is confirm your purchase and you are done. Payments processed online save money on paper and shipping. Accepting electronic payments can help businesses retain customers who have already entered and stored their information.

Ali et al.[5] claim that "electronic payments can reduce transaction costs, promote government efficiency, strengthen financial intermediation, and improve financial transparency". It is crucial for governments to create an environment that allows these advantages to be accomplished in line with their own economic growth strategies. The development and usage of electronic payment instruments promises to benefit both businesses and customers by making payment and settlement easier, more convenient, and more secure for a potentially enormous variety of products and services supplied globally through the internet or other electronic networks. Electronic payments allow users to conduct everyday financial activities without having to visit a bank location. Electronic payments might save retailers time and money. The resource cost of a country's payment system might be 15% of GDP. Since most as compared to non-cash payments on paper, it is clear that the automated payment systems have a lower societal cost. Automating and simplifying self-service electronic payments (ATMs, branch offices) POS systems and terminals may decrease paper-based mistakes and expenses. A study by Visa Canada Association and Global Insight indicated that consumers, retailers, banks, and the economy benefit from electronic payments. Since 1983, electronic payments have injected $107 billion into the Canadian economy. 27% of the $37 billion overall increase in the Canadian economy. During the same period, personal consumption expenditures increased by $60 billion attributed to electronic payments, with credit cards accounting for the majority ($39.4 billion), debt $11.4 billion[35].

Iraq lags well behind most of the globe in boosting microeconomic activity, by minimizing the use of cash in everyday transactions and fostering the development of cashless society, we can avoid. However, financial analysts warn that until something completely new happens, introducing functional and smart, which accounts for attitudes and the massive unbanked population, the country's goal of a cashless society in the shortest period feasible may be unrealistic[30].

5. Challenges of electronic banking

Even in the industrialised world, electronic payments have their drawbacks. The issues raised by Rajasulochana et al.[36], claim that: integrity: ensure that transferred financial data is unaltered. Verify that all parties have non-repudiable evidence of receipt. Assure transaction confidentiality from potential eavesdroppers.

Reliability: reducing the risk of failure and affirmation of people' rights and privileges. The people have to be educated and informed about the new system so they can appreciate the government's efforts to defend their interests. The programme will be fully acceptable if they are properly informed. Banks must also be included in the implementation process since they are vital. Also, many regard e-payment as a tax[36,37].

5.1. The absence of a standardized banking platform

In the absence of a compelling regulation, banks are not required to utilise a single software platform. Each bank is free to choose whatever platform they believe will best serve their customers' e-payment needs in the future. If you are transferring money from one bank to another, you may have problems with switches. Interconnectivity has been a source of contention. Because various banks use different numbering methods, there is no consistency in account numbers. As it turns out, according to Bagudu and Okolie[37], the Federal Government would be rolling out an uniform platform configuration in the near future, presumably via the office of the "Accountant General of the Federation".

5.2. Absence of suitable infrastructure

The EPS is now being introduced in phases in order to support the sales performance and online transactions. The establishment of infrastructures will be necessary before it can be totally performed. The aforementioned items encompass a range of technological resources such as desktops, laptops, scanning devices, fast connectivity to the internet, educational instruction, and globally applicable applications. According to Gavine and Chuks[38], the supply of fundamental information technology infrastructures is a significant problem.

5.3. Platform security

According to Bojjagani et al.[39], one of the most significant difficulties facing e-payment in the nation is security. Security in terms of platform, hackers, and virus assaults are all important considerations. This will guarantee that the system's output is dependable and accurate in the future. The MDAs continue to bring their schedule(s) to the banks on compact discs (CDs), flash drives, or as e-mail attachments to the banks[39].

5.4. Lack of seriousness by banks

However, although a number of banks have put in place the essential infrastructure to guarantee smooth implementation, it is regrettable to notice that other institutions are still not completely prepared for this new payment system, which is a source of concern[40].

6. Resistant to new technologies by customers and staff

The resistance to change in new technology among users such as staff and customers. In important businesses, there is a lack of understanding about the advantages of new technology, as well as a fear of taking risks and a scarcity of properly qualified staff. A tendency to be comfortable with present arrangements; and a resistance to new payment systems among the general population. Safety and protection falsification and unauthorized manipulation of payment data may be commonplace in areas where private information has been published[23].

A low literacy rate is a significant hurdle to the adoption of electronic payments since it makes financial services inaccessible to those who do not have a high level of education. It is necessary for individuals to not only be able to read and write but also to have a basic understanding of information and communications technology (ICT). Internet connectivity is prohibitively expensive as compared to per capita income, which is a significant consideration[23]. Entry into the e-payments and e-commerce markets in developing nations is more expensive than in developed ones. Among them include costly start-up expenses, high computer and telecommunications expenditures, and stringent licensing requirements.

The inability to maintain a steady power supply is a significant barrier to the seamless operation of electronic payments and electronic banking that the endeavors of ICT financiers to transition payment methods through major expenditures in essential facilities, such as Points of Sale, or POS, ports in numerous grocery

stores, fuel media outlets, lodgings, leisure activities centers, and other organizations, between other attempts, have not been well-received by urban residents.

7. Evaluation of e-payment

However, it is evident that only a handful of the mission's goals of introducing an electronic payment system in developing countries have been realised. These include the following, to name a few:

In addition to armed robbery, fraud, and theft, there are other dangers associated with moving large amounts of money. At the very least, state-owned enterprises are no longer required to pay cash to "contractors" and public employees. The elimination of the use of cash is intended to enable prompt payment for all transactions. However, the following goals have not yet been achieved to any significant extent.

Eliminating delays in the government payment system will allow government plans to move forward more quickly. There have been instances where contractors have not been paid on time because they were not prepared to play ball. In response to the problems associated with the electronic payment system, several contractors working on projects in remote areas have expressed dissatisfaction. Thus, the challenges companies face in implementing electronic payment systems make it difficult to do business.

Minimize the interconnectedness between government, officials, and contractors to reduce the possibility of developing corruptive tendencies. If the EPS administration in developing countries is honest with itself, it will be impossible to abolish this type of interconnectedness, which will continue to exist at all levels, official and unofficial. In any situation, it is necessary to ask the question. Who are the contractors, and where are they located? Is there government due process and is it effective or not? Who are the authorities responsible for undermining these and other laudable government initiatives? Is it possible to completely eradicate corruption from the system?

Achieving economy and efficiency in financial transactions involving the federal government. As long as corruption exists inside the polity, the system will be unable to function effectively and efficiently. A common ground would have to be found between the EFCC and the courts in order to deal with this cankerworm that has contaminated all possible solutions. China's model may be the ideal option, except for the ethnic and religious sentiments that exist among certain users. Improving the accuracy of financial reporting systems in the public sector and enhancing real-time reporting. The execution of the policy has resulted in late returns or no response in the case of unapplied money, it has been seen since the introduction of the policy. The current technology is unable to provide real-time financial reporting due to technical limitations. A solid financial reporting system cannot exist as a consequence.

8. Conclusion

Our lives have undoubtedly been made easier by technological progress. It has overcome the limits of distance, geography, and even time itself. The electronic payment system is one of the practical advances in finance, economics and business. Electronic payments offer people more choices in remitting taxes, licenses, costs, expenses, consequences, and purchasing decisions, and allow them to do so in unconventional places and at any time of day, such as weekends. The success of e-commerce payment systems is influenced by a variety of factors, including consumer preferences, ease of use, cost, industry standards, regulatory compliance, security, reputation, and acceptance rates. Electronic payments offer a number of benefits to the country, banks, and people, but they also have their drawbacks. The report identifies four main categories of barriers: Security, infrastructures, legal and regulatory concerns, and socio-cultural issues. Security, and infrastructures are the first of these categories[41,42].

9. Recommendation

It is necessary to raise public awareness in order to encourage unbanked persons to join the banking system. Increased education and advertising on electronic payments are required by the banks in order for the public to understand and utilize the electronic goods that are accessible to them. When it comes to using cash, there are many drawbacks and issues that may be avoided by using electronic payment. Cash and checks must pass through a number of procedures, increasing the likelihood that they may be lost or stolen. Transportation and counting are examples of such processes. The majority of users in developing countries need more knowledge to learn about the advantages of electronic payments, and as a result, they are sluggish to accept them. The banks must also be trained in order to promote e-payments; a training program for top management at the banks will aid in this endeavor. The federal governments in developing countries should offer the much-needed leadership and support for electronic payments to the country's financial institutions.

Among other things, regulations for electronic licensing procedures, consumer protection, and transactions should be created and unified as needed. Government and business efforts to build the necessary infrastructure, such as promoting the development of key technologies, hiring specialists, and expanding high-speed information networks, will help create a solid foundation for electronic payments. To take full advantage of the benefits arising from the introduction of the new EPS, the country's power supply must be reliable.

Author contributions

Conceptualization, SMA and IM; methodology, SMA; project administration, SMA; writing—review and editing, IM and MSZ; validation, SM and MS. All authors have read and agreed to the published version of the manuscript.

Conflict of interest

The authors declare no conflict of interest.

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