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Abstract. The study examines the impact of Point of Sale (POS) business on implementing the cashless policy in the Nigerian economy. The Technology Acceptance Model theory served as the theoretical foundation for this investigation. The work adopts quantitative and qualitative approaches to gather data that aligns with the study's objective. 100 questionnaires were distributed among Point of Sale (POS) operators and users of the services in the Federal Capital Territory, Abuja, Nigeria. 100 respondents (first-degree holders and university students, aged 18-55) were purposively selected to have the necessary knowledge about the subject matter. Questions asked: How do POS transactions impact Nigeria's economy? What are the challenges faced by point-of-sale businesses in Nigeria? The survey period is from 10th October 2023 to 10th May 2024. The study found that the point-of-sale business has significantly impacted the Nigerian economy. It has contributed to financial inclusion, employment generation and consequent economic growth. However, among the factors identified as challenges to POS business and cashless policy in Nigeria are exorbitant transaction charges, lack of adequate infrastructure required to run POS, irregular network connectivity, which erodes the users' trust, and security of network communications. The study provides some plausible recommendations, such as improving the infrastructure and reducing charges, among others.

Keywords: point of sale; cashless policy; business; Nigeria; market

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JEL Classifications: M21, K22, O16, O55**Additional disciplines:** information and communication, law**1. Introduction**

The 21st century has led to many changes in the social environment, affecting not only information processing and communication but also the area of commerce. The communications that support commerce have changed dramatically, with many countries moving towards open and interconnected electronic solutions. However, the presence of a high-speed and efficient transaction infrastructure does not mean an automatic and unconditional solution to related problems (problems of security of financial assets and information; problems of choosing security procedures and methods to prevent expected risks - confidentiality, data integrity, access control, identification, verification, and authorisation; problems cash and consumer habits, etc.).

An electronic transaction typically involves three parties: the seller, the buyer, and the person who technically and financially facilitates the transaction. Therefore, ensuring the interests of all these interconnected counterparties is necessary. In some aspects, these interests coincide, and in some, they differ. For example, all parties are interested in ensuring the security, speed, and simplicity of the transaction - the seller strives to provide the buyer with the opportunity to make impulse purchases without encountering problems with the payment system; the buyer is interested in this to save time and ensure psychological stability; a financial organisation is interested in increasing the number of transactions. In turn, on the issue of transaction costs, interests may differ: the seller wants to have low transaction costs to increase its competitiveness; the buyer wants to have low transaction costs to save his financial resources; however, for a financial institution that processes electronic payments, the size of the commission is essential, which is part of the cost of transactions. Financial institutions may be trying to increase their profits by increasing the use of the means of payment they offer, but this approach will not be used if the means of payment are monopolised. This certainly cannot satisfy consumers, especially if the product price is meager and the transaction cost may be higher than the transaction cost.

It should be noted here that the initial hopes for the extremely rapid development of electronic transactions in all regions of the world were not entirely realised. Experience not only in Africa but also in the European Union has shown that the number of electronic transactions is growing much more slowly than expected, as consumers must have the time and willingness to adapt to changes in the traditional way of conducting transactions and must also see apparent benefits. From a comparison perspective, emerging economies such as Nigeria are exploring various solutions in the financial market that might be locally relevant and thus provide a faster and more likely adoption. This has been evident in some European Union countries at the emergent economy stage before, e.g. the case of e-banking adoption in Latvia (Kaže et al., 2007) less than a few decades ago. Recognising the requirements and assessing the organisational capabilities of each partner are necessary steps in setting up business processes. The main factors that can overcome this problem are reducing transaction costs for payment processing, increasing merchant outlets that enable electronic transactions, reducing technology costs, and ensuring transaction security.

Since the economically developed countries of North America, the European Union, Japan, South Korea, and Australia have already gone through several stages in solving these problems, in the context of this study, countries where these processes are at earlier stages are of particular interest. This article focuses on Nigeria. Nigeria's adoption of a cashless policy was to moderate the cost of cash management, reduce lending rates, encourage the use of electronic payment, and encourage individuals and organisations to convert paper money to bank deposits. Additionally, the objective is to modernize the payment methods, promote and enhance the payment system, and simultaneously reduce the illegal activities linked to carrying large amounts of physical currency (Adanma, 2022). The payment system in Nigeria has primarily relied on cash transactions throughout the years. Supporting the statement, Ali-Momoh (2023) elucidated that cash is the predominant form of payment in Nigeria, with a significant portion of the population lacking access to banking services. A significant proportion of the population stores cash in their residences, rendering them susceptible to security threats. The electronic payment methods implemented in Nigeria include Automated Teller Machine (ATM), web transactions, electronic financial products (such as credit and debit cards) and POS systems. E-payment systems offer a more comprehensive audit trail compared to transactions involving physical cash, resulting in a decrease in the amount of currency in circulation (Afolabi et al., 2019).

This paper examines explicitly the point of sale (POS) business and the implementation of the cashless policy in Nigeria. Nigeria's Point of Sale (POS) industry has grown substantially recently. A point of sale (POS) system encompasses the physical equipment and computer programs employed to handle sales transactions and oversee inventory management in retail establishments. It allows firms to streamline operations and boost efficiency while offering better customer service. This paper aims to present an in-depth examination of the POS business in Nigeria, as well as its impact and challenges. By reviewing relevant literature and studies, we will learn about the notion of POS and its implications on the Nigerian cashless policy and economic growth.

2. Theoretical background

The evolution of technology and its application for electronic transactions opens new opportunities, new horizons for business, and new problems. At the current stage of the development of electronic transactions, the issue of mutual trust between the buyer and seller and the idea of providing security, which helps to establish trust, comes to the fore. Since a purchase creates a transaction description that includes the names of the recipient and the person paying the amount of money, the date and time of the transaction, and the amount of the payment, any payment solution must provide transparency and flexibility.

This area is not limited to issues of security and confidentiality - forms of payment depend on confidence in the security and reliability of the system and control of a particular transaction. The security aspect deals with protecting the buyer from fraud and financial loss, and the privacy aspect deals with protecting personal data and the seller's obligation not to share any data collected during the transaction with third parties.

Of course, risk management is also necessary - consumer behaviour is usually motivated not by real risk but by perceived risk because consumers suffer even from perceived risks (regardless of whether they are real or not). The reluctance of some consumers to conduct electronic transactions and not use cash means that there are risks that the consumer perceives. This may be a financial risk (possibility of monetary loss, likelihood of theft of credit card information); the risk that the confidentiality of personal data (collection by the seller of personal information and information related to purchasing habits - without the knowledge and permission of the consumer); operational risk (hardware or software problems, human error or malicious attack); legal risk (misinterpretation of the meaning of the law or legal uncertainty may expose the payment system or payment participants to financial risks and possible losses).

The structure of risk in a simplified form can be described by three elements: threat, vulnerability and consequence. Therefore, risk analysis requires the identification of means, identification and assessment of threats, assessment of vulnerabilities, and assessment of risks. A business needs to forecast its security investments, considering the possibility that an event will result in a loss (this could include not only direct financial losses but also, for example, loss of reputation and loss of customers). Table 1 summarises the main problems of electronic transactions and refusal to use cash, which are the focus of modern research:

Table 1. Point of sale and cashless policy: the main problems

Problem	Description	Researcher
Efficiency problem	Actions that are required from the parties involved (physical effort, time spent, speed of transaction execution).	Akhisar et al. (2015); Madugba et al. (2021); Nwankwo & Agbo (2021); Hauravi & Chilunjika (2024)
The problem of security	E-commerce systems must be protected from threats such as fraud from internal or external sources, information theft, and sabotage. Security (including IT security) is a fundamental strategic asset. Transaction security consists of (at a minimum) the confidentiality, integrity, and availability of the relevant data.	Khan et al. (2018); Krivins (2019); Javaria et al. (2020); Grondys et al. (2021)
Legal Problems	For a payment system to be effective, it is vital that its legal environment provides finality and irreversibility. settlements and payments. Transaction applications must consider tax, intellectual property, copyright, contract law, and enforcement issues. In addition, it is necessary to consider the specifics of criminal law, the responsibility of business leaders, ensuring public procurement, combating bribery, preventing possible corruption and monopoly, etc.	Kipane et al., (2023); Krivins et al. (2023); Remeikiene, et al. (2022); Krivins (2014); Teivāns-Treinovskis et al. (2022); Vilks et al. (2024)
The problem of consumer interests	Consumers are moving from classic solutions to new relationships with businesses, making customer service the most crucial issue in the global marketplace. The electronic environment poses new challenges for consumers, and new strategies that will help increase consumer confidence are needed. Consumers tend to reject novel electronic finance solutions due to habits of using legacy ones or concerns of trust and security.	Kaže et al. (2007); Masoud & AbuTaqa (2017); Nnamani & Makwe (2019)

The Relationship marketing problem	Relationships with clients, their successful development, and management as factors of business success can become one of electronic processes' competitive advantages. The result is assessed by assessing the degree to which consumer expectations are met. Consumer human values and socio-cultural context significantly affect their choices and preferences for specific services and digital service solutions.	Okoye et al. (2021); Ali-Momoh (2023); Adanma (2022); Chedrawi et al. (2019); Kaže et al. (2022); Bhukya & Paul (2023)
The problem of quality of solutions	The quality of modern electronic solutions is assessed based on the corresponding consumer perceptions - consumers evaluate specific parameters to make a judgment about quality. This is mainly determined by the ability to solve customer problems and respond to complaints effectively.	Kavitha (2017); Ojo (2021); Osazevbaru & Yomere (2015); Uwaisu et al. (2023)
The problem of information accuracy	All information necessary to conduct and complete the transaction must be clearly and unambiguously provided. No aspect of the problem should be misleading.	Adeoti & Omidiora (2019); Davis (1989); Gilbert & Tochukwu (2023); Kimiagari & Baei (2021)

Source: authors' created

Having analysed scientific articles that address similar issues, we discovered a gap: articles mainly focus on general theoretical problems of POS, which could be correlated with global trends, or articles of a similar direction focus on well-developed markets in North America, Europe, etc. Articles that relate specifically to Nigeria examine individual problems in the banking sector, cashless payments or e-commerce. Thus, our article can fill the gap - the lack of articles that would consider the problem of POS in Nigeria, firstly - comprehensively, and secondly, using data from direct research - surveys of local residents.

3. Research methodology

The study applied qualitative research due to its usefulness in providing insights, uncovering trends in opinion, and its usefulness in delving deeper into a phenomenon. Data for this research were collected mainly from secondary sources. The secondary data were sourced from articles and publications of previously acknowledged works of scholars such as journals, textbooks, media, and the internet on POS business and the cashless policy in Nigeria. Therefore, a conclusion emerged from content analysis.

The study is based on Fred Davis's (1989) Technology Acceptance Model theory. The Technology Acceptance Model (TAM) posits that an individual's intention to adopt a technology is influenced by two fundamental beliefs: perceived utility (PU) as well as perceived ease of use (PEOU). TAM2 expanded upon the concepts of TAM by incorporating new factors that influence the perceived usefulness and intention to use TAM's constructs. This model facilitates the comprehension of how the impacts of these factors vary as user experience with the envisioned system increases over time. Consumer behaviour might play a major role in technology adoption as well if policies facilitate a natural choice of propositions matching locally relevant and predominated values and, hence, attitudes. Contrary to that, attempts to enforce untrusted and less relevant technologies might face challenges of rejection as attitudes and behaviours are dependent on personal values and situations, which are associated with the skills of individuals, including financial literacy (Kaže et al., 2022).

This approach can certainly be applied to our study. This will allow us to understand in more detail the level of POS technology acceptance which, in turn, affects both economic growth and operational efficiency of Nigerian enterprises.

4. Results and discussion

According to 70% of the respondents, the payment system in Nigeria was improved with the implementation of the cashless policy, which was established by the Central Bank of Nigeria (CBN) in 2012. This improvement was achieved through the adoption of POS terminals for financial transactions. Since the inception of the program, banks have been providing an increasing number of operational POS terminals to mobile money merchants. This discovery aligns with the claim made by Okoye et al. (2021), who noted that the introduction

of the cashless policy has led to increased awareness and acceptability of POS transactions in society. Most Nigerians, who were in dire need of employment opportunities and a stable income, explored this possibility.

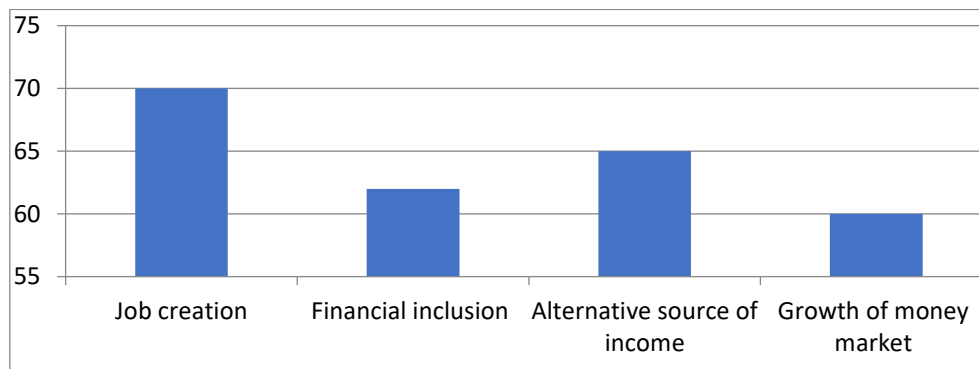


Figure 1. Impact of POS Transactions on the Nigerian Economy

Source: authors created based on Field survey, 2024

Despite Nigeria's debilitated economy and high unemployment rate, the imperative to endure has resulted in a remarkable surge in the number of money dealers or point-of-sale (POS) enterprises functioning in the country. This is due to the perception that this chance holds the possibility for substantial profitability and employment prospects. Worth around 663 billion Nigerian Naira, marking a rise compared to the prior years. From 2015 to 2022, the percentage of POS payments climbed considerably. Between 2017 and 2022, the percentage of POS terminals in Nigeria expanded dramatically. In 2017, there were over 155 thousand terminals, whereas as of April 2022, this total reached around 1.1 million. Over recent years, Nigeria's value and total number of POS payments underwent an impressive rise (Gilbert & Tochukwu, 2023).

65% of the respondents also revealed that the introduction of POS created an opportunity for an alternative revenue stream for small businesses by delivering complementary services to the end users. As per the agents' survey conducted by Enhancing Financial Innovation and Access (EFINA) in 2020, agent banking such as POS businesses, not only facilitates simpler and safer access to financial services but also offers micro, small, and medium-sized enterprises (MSMEs) with additional revenue streams while fostering financial inclusion and literacy (Gilbert & Tochukwu, 2023). Thousands of individuals in the nation are employed by small-scale businesses, including agency banking, which is also generating employment due to the high number of people becoming bank agents (Social Voices, 2021).

According to records, in Nigeria, throughout the first three months of 2018, banks registered 17,193 POS machines for use during cashless transactions. The Nigeria Inter-Bank Settlement Scheme (NIBSS) provided statistics indicating that as of 2018, there were 164,607 operational point-of-sale terminals in Nigeria. According to data from the Nigeria Inter-Bank Settlement System, the number of point-of-sale transactions increased by 50% from 2019 to 2020, from 438.6 million to 655.7 million. According to Statista, a Nigerian database provider, there were 266,039 bank agents in Nigeria as of 2019 compared to 38,416 agents in 2018 (Gilbert & Tochukwu, 2023).

62% of respondents said that it is difficult for residents in many Nigerian regions to obtain financial services since the nation has a small number of financial institutions. A 2019 study from the National Financial Inclusion Strategy states that as of 2019, there were 7,564 bank branches and cash centres, including microfinance institutions, serving an estimated 201 million people. But agency banking, a model that enables banks to collaborate with outside retail networks, provides financial services to clients in underbanked or unbanked areas on behalf of mobile money providers and/or licensed deposit-taking financial institutions through an intermediary (an agent) (Ojo, 2021). Furthermore, the 2019 National Financial Inclusion Strategy highlights that the main obstacles to financial inclusion are the great distances between communities and formal banking institutions, eligibility requirements, low financial literacy, poverty, and high service costs. It also notes that

agency banking is a major force behind efforts to boost financial inclusiveness in Nigeria (Ojo, 2021; Uwaisu et al., 2023). People and company owners can conduct transactions whenever it is convenient for them if they reside in developing and undeveloped areas without access to banks. Small business owners and dealers can deposit their everyday profits without worry, and customers who require money for a variety of purposes will be happy to travel to a location where they can receive prompt service. Due to the increasing need, the total number of agents of the bank has increased dramatically over time and continues to do so. About 440 million point-of-sale transactions were recorded in Nigeria in 2019, as reported by Nairametric, and the cause is clear (Gilbert & Tochukwu, 2023).

In the past few decades, the utilization of POS terminals and e-payment systems has significantly increased due to the growing adoption of online banking and shopping (Madugba et al., 2021). POS systems reduce the need for cheque and money transactions by handling e-payments in a safe and efficient way as technology advances (Nwankwo & Agbo, 2021). It has been determined that the banking sector may improve customer happiness and loyalty, grow its market share, and save operating and admin costs by implementing point-of-sale (POS) systems. Customers prefer POS stations for transactions, including utility payments, cashouts, and transfers due to advantages such as speed, courteous operators, affordable rates, and easy placement.

When POS machines are used for financial transactions, long lines at ATMs and overcrowding in banking halls are also reduced, which improves client satisfaction in the banking industry (Nnamani & Makwe, 2019; Uwaisu et al., 2023). The banking industry in many countries has benefited greatly from implementing Point of Sale (POS) systems. These advantages include shorter checkout lines, better hygiene, a reduced danger of bearing enormous sums of cash, greater volume of sales, easy to collect cash (Kimiagari & Baei, 2021), greater comfort, better service options, and less expensive banking services (Williams et al., 2018). In Nigeria, the banking sector benefits greatly from using point-of-sale (POS) terminals for both banks and clients. Consumers no longer need to go to a branch in person because they may do their financial transactions online and from any place (Chedrawi et al., 2019). Customers can now conduct banking operations whenever they choose without being constrained by branch operations (Awoniyi, 2022). In short, POS adoption impacts the Nigerian banking system by giving clients a self-service alternative that removes time and location restrictions and increases ease of use (Kavitha, 2017).

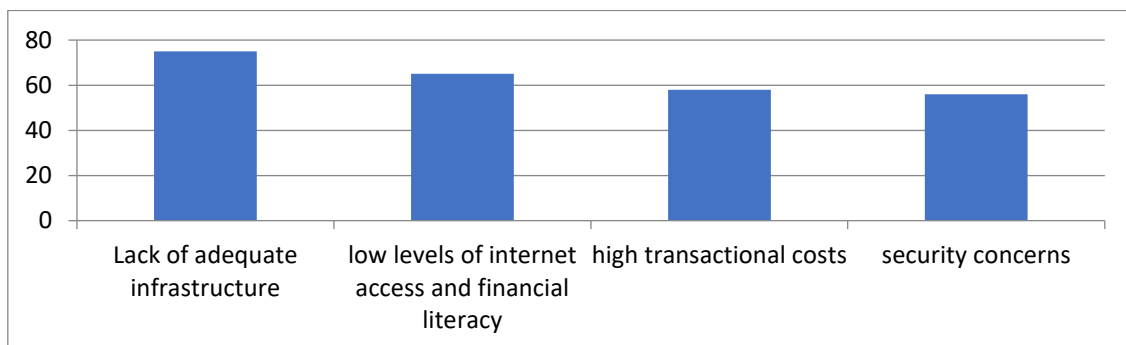


Figure 2. Main Challenges of Point-of-Sale Business in Nigeria

Source: authors created based on Field survey, 2024

Despite the advantages that point-of-sale (POS) technology offers the Nigerian banking system, including its affordability and payment simplicity (Akhisar et al., 2015), there are a number of obstacles that prevent its widespread use. According to Nwakoby et al. (2020), these difficulties include insufficient facilities, low levels of web usage and financial education (Fakunle & Ajani, 2021), expensive transaction charges, and security issues. According to a study by Ekele and Ukpata (2020), network interruptions, passcode insecurity, and confidential information safeguarding are some of the main problems that affect the use of POS terminals. The study also examined the effects of digital banking on the operational efficiency of commercial banks in Nigeria.

According to some research, bank customers' reluctance to use POS terminals is largely due to security concerns (Khan, Olanrewaju & Anwar, 2018 & Sudharsan, 2019). Other research, however, has shown that security does

not provide a major obstacle to the uptake and application of POS systems. Furthermore, clients may be dissuaded from using POS terminals by the heavy transaction charges that banks impose on them (Osazevaru & Yomere, 2015). The banking populace may be resistant to adopting POS terminals due to the high costs and levies involved, especially among those without bank accounts (Osazevaru & Yomere, 2015). However, according to Okeke, Nwatu, and Ezech (2017), network crashes, false authorisation, and data transaction intrusions can all jeopardise point-of-sale safety.

According to data gathered from NIBSS, as of the third quarter of 2019, criminals in the banking sector had succeeded in carrying out 8,920 attempted frauds totalling N597 million across a variety of transaction platforms. An analysis of the channels reveals that during the period, N40.964 million went unaccounted for in 40.988 million fraudulent attempts by means of point of sale; N79.497 million disappeared in 80.499 million fraudulent attempts over the counter; N136.542 million disappeared in 142.278 million manoeuvres at ATM fraud; and N144.440 million was vanished in 158.087 million steps at fraud by means of mobile banking (Gilbert & Tochukwu, 2012).

Although POS adoption offers advantages including enhanced productivity and interpersonal interaction, high-quality products, and a competitive edge, it may also influence job security for banking industry personnel (Ololade & Ogbeide, 2017). Specific job skills have become outdated because of the banking sector's increased emphasis on technology improvements, such as the use of online banking channels like POS, which has raised turnover among employees and uncertainty about employment (Gilbert & Tochukwu, 2023). Because of the paucity of new naira notes, the cost of obtaining money at POS machines in Nigeria has increased significantly and is currently profit-oriented. People with fewer financial resources may find it challenging to rationalise the costly nature of POS technology, particularly when contrasted to conventional banking services' price tag (Gilbert & Tochukwu, 2023).

The high cost of using POS terminals may make it more difficult to advance the cause of a cashless economy and lessen the advantages of POS technology in terms of increased accessibility, ease of use, and security (Gilbert & Tochukwu, 2023). In a nutshell, while trying to spur broader use of the technology and support the development of a cashless economy, the expensive nature of employing POS terminals in Nigeria continues to be a barrier that must be dealt with.

5. Conclusions

This study concentrated on how the POS industry affects Nigeria's economy's adoption of the cashless policy. A cashless economy policy minimises the number of business activities involving cash. The initiative aims to dissuade people in Nigeria from conducting cash transactions. Nonetheless, Nigeria's use of digital banking has significantly impacted the advancement of the payment system. One of the electronic payment methods used in Nigeria to advance the cashless policy is POS. However, based on the experience of the European Union, where POS development has gone through many stages in earlier periods than in Nigeria, a gradual reduction in transaction costs can be predicted.

We expect that the total value of transaction costs will be reduced for several reasons: 1) savings on staff salaries - the development of POS will inevitably lead to more active use of self-service cash registers and payment processing will require less and less personnel who will communicate with customers; 2) automation of processes - since there are no stages of processing documents and entering data into the system, this will gradually reduce procedural costs - the personnel that was traditionally required to process documents and provide communication channels within the company will be replaced by an automatic registration system (this applies not only to the place of trade, but also to the company directly providing the transaction amount); 3) increasing the accuracy of transactions - with the automatic electronic method of entering the name of the product and the price of the product, registration errors are minimized, in turn, reducing errors means reducing the time and money spent on correcting them; 4) increased competition - the previous three factors of reducing transaction costs could not influence the final price of the transaction if this process was monopolized by one player or group of players who are in a monopolistic conspiracy. Only free competition - a common means of payment supported by many independent organisations - can provide an efficient market for financial services.

In addition, competition between financial services organisations may enable more effective transaction risk management.

Further research, including a comparison study of other economies that had undergone the emerging economy stage, as well as a follow-up quantitative study of the adoption of cashless policies, including the attitudes of the local population, might provide valuable insights to facilitate the transition to the new electronic commerce solutions. It is recommended that local authorities carry out such a study with the assistance of independent academic researchers.

The widespread transition from the former traditional form of payments to electronic commerce transactions raises many unresolved issues and allows buyers, sellers and financial institutions to benefit from new opportunities. The future of commercial transactions is primarily electronic, so the current priority is secure, fast and cost-effective consumer access to electronic payment systems. This fact is directly related to the issues of training specialists and personnel not only in entrepreneurship and electronic technologies.

Payment systems must not only satisfy technical, economic and social needs but also comply with institutional and legal requirements, not conflict with government regulations and laws, and must comply with the environmental obligations of a particular country. Thus, the issue of POS terminals is a complex, multidisciplinary problem, including business aspects, economic and financial dimensions, legal elements, technical solutions, issues of information and communication technologies, education and sociology, marketing and management. This systematic approach emphasises the need for cooperation between man, science and technology to eliminate problematic situations.

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