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The Impact of Information Technology Utilization on Vendors at Pasar Lama Tangerang

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A B S T R A K

Technological progress is reshaping traditional markets, bringing improvements in speed, convenience, and reach to day-to-day trading. Digital payment platforms such as QRIS and All Payment along with e-commerce channels allow merchants to process transactions more quickly and give customers flexible, cash-free options. Although these innovations promise greater operational efficiency, widespread uptake remains uneven. Two persistent hurdles are low digital literacy and anxieties over data security, issues that often breed resistance and mistrust among stallholders. Findings from surveys and in-depth interviews suggest that tailor-made education and hands-on training are pivotal in changing perceptions. By demonstrating practical advantages like simplified bookkeeping, real-time sales tracking, and broader customer access training sessions help traders see technology as an ally rather than a threat. Equally important is the coordinated support of local governments, market management bodies, and technology vendors. Their collaboration can produce policies that lower adoption costs, provide subsidies for devices, and establish on-site help desks to address technical problems swiftly. Such institutional backing both incentivizes merchants and accelerates the diffusion of digital tools throughout the market ecosystem. Furthermore, guaranteeing reliable internet connectivity and user-friendly interfaces reduces friction in daily use, reinforcing trader confidence. Early adopters already report smoother workflows, faster customer turnover, and better record-keeping accuracy. These outcomes highlight the need for a multifaceted strategy combining capacity-building, stakeholder engagement, and infrastructure enhancement to modernize traditional commerce while safeguarding its cultural vibrancy and social relevance.

I. INTRODUCTION

In today's era, technological advancement continues to expand and has become an integral part of daily life. Technology is not only a primary necessity for the general public but also plays a significant role in business activities, including for street vendors. It is increasingly evident that street vendors are intensively utilizing technology to enhance their operational efficiency and expand their marketing reach.

It is important to understand that the presence of technology has had a positive impact on improving the operational efficiency of street vendors. The use of digital payment systems and online marketing platforms has become essential in streamlining their business processes. With these technologies, street vendors can manage their business operations more easily and effectively.

In addition to operational efficiency, technology also serves as a tool to broaden customer reach. Through online presence, street vendors can reach a wider range of consumers, even beyond their physical geographic areas. The adoption of technology enables street vendors to open online stores, participate in e-commerce platforms, and engage directly with customers through social media.

The ability of street vendors to connect with customers online not only helps increase sales but also strengthens customer relationships. More effective interactions and easier communication through digital media allow street vendors to better understand their customers' needs, enabling them to tailor their product offerings and services according to market demand.

Thus, the integration of technology into street vendors' businesses is not merely a necessity, but a critical requirement to remain competitive in this digital age. Street vendors who are able to adapt to and wisely utilize technology are more likely to experience significant growth and have greater opportunities to sustain their businesses in the long term.

The main focus of this research is to examine the extent of the impact and benefits that technology has brought to entrepreneurs operating in Pasar Lama, Tangerang. Additionally, the study aims to determine how many business actors have adopted technology in running their businesses and whether the technology used has truly supported their operations in Pasar Lama, Tangerang.

Some street vendors in Pasar Lama, Tangerang may lack confidence in information technology due to limited understanding and experience with digital tools and applications. They may feel uncomfortable or fearful of using new technologies because they are accustomed to traditional business practices. Concerns about data security and uncertainty about investing in technology can also pose significant barriers. These issues create resistance to adopting technology and delay the implementation of innovations that could enhance business efficiency and reach. Therefore, it is necessary to develop approaches to address these concerns and distrust, and to provide appropriate guidance and support to alleviate fears and increase street vendors' confidence in using existing technologies.

Street vendors also face many challenges regarding the implementation of information technology. While technology holds great potential to improve operational efficiency and marketing reach, there are still obstacles that hinder its optimal use. The extent to which technology is adopted in the retail sector remains questionable, and it is important to assess how beneficial it truly is to these businesses. Although the ability of retailers to understand and apply technology as an integral part of their business strategies is a crucial focus, the barriers to adoption and integration of technology also represent a key area of this research.

In determining solutions to the issue, overcoming the distrust and fear of information technology among street vendors in Pasar Lama Tangerang requires a holistic approach. Vendors need to gain deeper understanding through direct, targeted, and practical education about the benefits of technology in enhancing operational efficiency and market access. Tailored training programs that cater to the specific needs of vendors, along with continuous technical support, help reduce anxiety and build confidence in using available technologies.

Moreover, the importance of implementing appropriate and effective technology must be emphasized. Understanding the level of technology usage among street vendors requires in-depth research. Steps such as providing more accessible and affordable technology, offering system implementation support, and training on the use of online platforms and business applications can significantly encourage vendors to utilize technology effectively.

Promoting collaboration among stakeholders such as local governments, educational institutions, and economic bodies is also a viable solution. These collaborations can provide resources and platforms for street vendors to adopt technology and access the necessary information, training, and technical support. In doing so, vendors in *Pasar Lama Tangerang* will be more likely to recognize the tangible benefits of information technology in the development of their businesses.

In this regard, several objectives must be achieved through a structured and focused approach to enhance the use of information technology among street vendors in *Pasar Lama Tangerang*, including:

1. **Increasing Vendor Knowledge and Understanding:** Aims to improve their knowledge and understanding of the benefits of information technology in their business activities. This can be measured through participation in training sessions, workshops, and seminars specifically designed to introduce and deepen their understanding of relevant technological applications.
2. **Broadening Technology Adoption:** Seeks to accelerate technology adoption among vendors. This can be measured by the growing number of vendors starting to use digital payment systems, joining e-commerce platforms, or actively using social media for marketing purposes.
3. **Improving Operational Efficiency:** Aims to enhance the operational efficiency of street vendors through the use of technology. This can be evaluated by comparing the time and resources spent before and after technology implementation, as well as by gathering feedback from vendors whose business operations have become more efficient.
4. **Expanding Market Reach:** Targets expanding the market reach of street vendors. This can be measured by whether they are able to reach customers beyond their physical geographic area or if the number of customers reached through their online platforms has increased after adopting technology.
5. **Fostering Collaboration and Community Support:** Sets a goal to strengthen collaboration between the government, educational institutions, the business community, and street vendors. This can be assessed through community involvement in collaborative initiatives, the support provided, and improved vendor access to the resources and guidance needed to adopt technology.

II. LITERATURES REVIEW

Technology encompasses all means that provide the goods necessary for the sustainability and comfort of human life [1]. According to the *Kamus Besar Bahasa Indonesia* (KBBI), the word "technology" refers to scientific methods used to achieve practical objectives, applied science, or the total means available to provide the goods necessary for the sustainability and comfort of human life. Etymologically, the term "technology" is derived from the Greek word *technologia*, where *techno* means "skill" and *logia* means "knowledge." In general, technology is defined as the application of scientific knowledge for practical purposes in human life, or as the process of altering and manipulating the human environment [2].

Technology has developed rapidly, becoming one of the tools created with the purpose of assisting and simplifying the resolution of various problems in human life. The development of technology in daily life begins with simple processes in everyday activities and extends to fulfilling satisfaction as both individuals and social beings [3]. Technological advancement is something that cannot be avoided in life, as it progresses in line with the advancement of scientific knowledge. Every innovation is created to bring positive benefits to human life. Technology also offers many

conveniences and introduces new ways for humans to carry out their activities. People have already enjoyed numerous benefits brought about by the technological innovations that have been developed [4].

Information is the result of data processing that goes through a series of procedures within a system, processed in such a way that it becomes suitable for presentation to the general public [5]. In the Journal of Economics and Business, it is stated that information is the result of data processing from one or multiple sources, which is then processed to provide value, meaning, and benefits [6]. It can be concluded that information is the result of data processing, the outcome of which will be beneficial and useful to those who receive it [7]. Therefore, information is highly needed by many people, as it can broaden perspectives and enhance knowledge about various matters.

The term "information technology" can simply be defined as technology that is closely related to information. Information technology also refers to a broad range of tools and capabilities used in the creation, collection, processing, storage, and dissemination of information. Within an organization, the term "Information Technology" generally encompasses the organization's information resources, its users, and the management responsible for operating it. Information technology in an organization includes both the IT infrastructure and all information systems present within the organization [8].

It can be said that information technology encompasses all integrated methods or tools used to capture data, process it, and transmit or present it electronically as information in various formats that are useful to its users [9]. Information technology enables organizations to discover new business strategies [10]. Therefore, information technology becomes a tool that can be used to develop newer ideas in the future.

Street vendors, commonly referred to as PKL (an abbreviation of *pedagang kaki lima*), are individuals who engage in commercial activities on public pathways or sidewalks (designated as public road areas) that are originally intended for pedestrians. The term *pedagang kaki lima* first emerged during the Dutch East Indies era, specifically under the rule of Governor-General Stamford Raffles. Street vendors play a crucial role in economic activity and serve as an essential component in supporting economic development [11]. In general, economic growth is defined as an increase in an economy's capacity to produce goods and services. Economic growth is one of the most important indicators used in analyzing the economic development occurring in a country [12].

The market is an inseparable part of daily life for the Indonesian people [13]. In a narrow sense, a market is a place where, on certain days, sellers and buyers meet to conduct the buying and selling of goods. However, in a broader sense, the term "market" refers to the interaction between sellers and buyers for the purpose of conducting transactions, which is no longer limited to a specific place or particular day [14]. Within a market, goods, services, and labor are traded among people in exchange for money, and purchasing these goods requires money as a legal means of payment [15].

Markets can be classified into several types, including traditional markets, modern markets, retail markets, supermarkets, and wholesale markets. Currently, modern markets are the most favored, as they are more advanced in marketing strategies compared to traditional markets [16]. Basically, the market serves an important function as a place where sellers and buyers engage in direct communication during transactions.

III. METHODS

The research framework is designed to illustrate the systematic process of examining technology adoption among street vendors in traditional markets. The study begins with the identification of vendor owners who serve as the subjects of the research, followed by data collection using questionnaires aimed at uncovering patterns of technology use in commercial transactions. Respondents are divided into two main categories based on their use of transaction technology those who use it and those who do not.

The data collected from the questionnaires is then processed through several stages, including the preparation of the research proposal and report, data collection and verification, and the finalization of the research documentation. This process is intended to ensure the validity and reliability of the data and to produce comprehensive findings on the factors influencing technology adoption in traditional market settings. The following figure visually presents the research workflow to clarify the steps taken in this study.

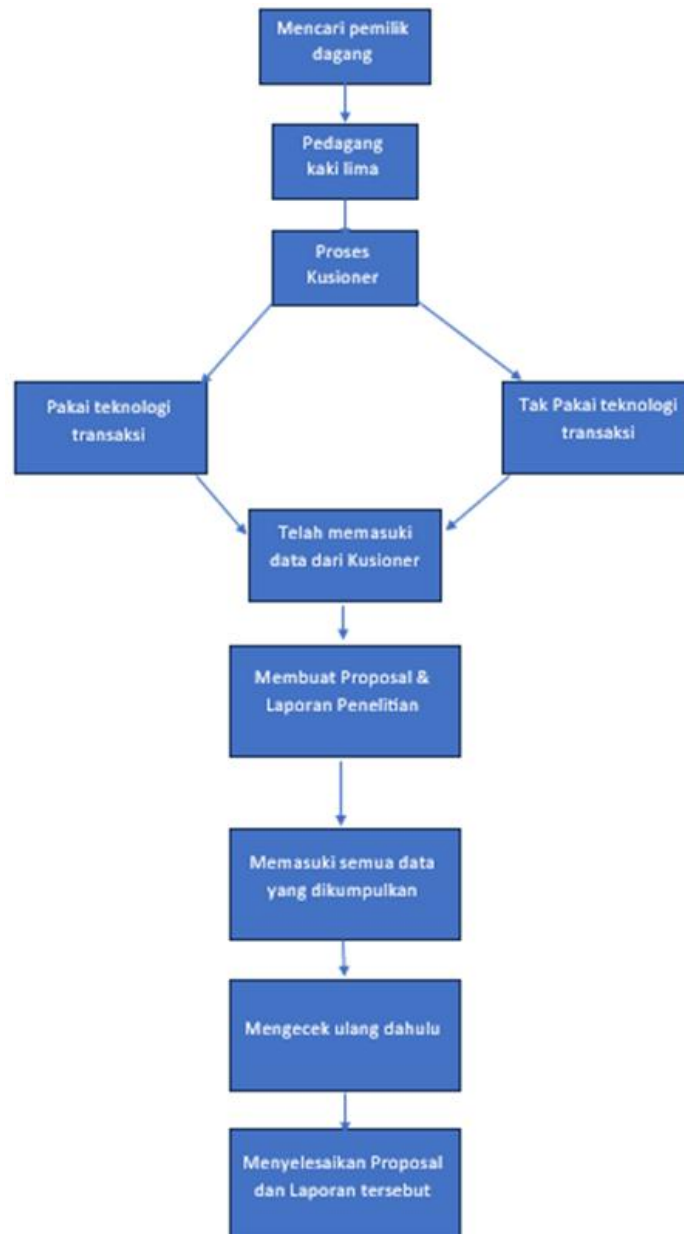


Figure 1. Research Framework

The framework illustration depicts the methodological flow used in this study to understand the patterns of technology adoption among street vendors. Following the identification of vendors as research subjects, a questionnaire was employed to gather data related to their use of technology in transactional activities. The collected data was then classified based on technology usage distinguishing between vendors who use transaction technology and those who do not.

Subsequently, the data was systematically analyzed by preparing the research proposal and report, incorporating all collected data, and conducting re-checks to ensure the accuracy and consistency of the results. The final stage involves completing the proposal and report, which

include findings and recommendations based on the analyzed data. This approach ensures that the entire research process is conducted in a structured manner, yielding valid information to support understanding and the development of strategies to enhance technology adoption in traditional markets.

Description of Research Methodology

The research method used in this study involves a mixed-methods approach, combining interviews and questionnaires. The integration of these two methods is expected to provide more comprehensive and in-depth data regarding respondents' perceptions and experiences related to the impact of information technology utilization among vendors at *Pasar Lama Tangerang*.

Pasar Lama Tangerang was selected as the research site to reflect the diversity of vendors in a traditional market setting, allowing for the collection of more representative data.

Questionnaires will be distributed and handed out to randomly selected respondents. Data collection will be carried out while ensuring the diversity of respondents from various business sectors, ranging from street vendors to grocery shop owners operating in *Pasar Lama Tangerang*.

IV. RESULTS

In this study, we were able to gather convincing results that offer the potential to bring positive impact to vendors at *Pasar Lama*.

To support the analysis of electronic payment technology and online commerce adoption among traditional market vendors, the following data is organized based on survey results. These results highlight the reasons for not using electronic payment applications, perceived benefits by users, the level of online commerce adoption, the impact of competition with online vendors, interest in using e-commerce platforms, and the duration of electronic payment application usage. Presenting the data in table format facilitates a clearer understanding of the key variables influencing the technology adoption process in traditional markets.

Table 1. Survey Data on Usage and Perceptions of Electronic Payment Applications

Variable	Category	Percentage (%)
Native to Tangerang	Yes	59
	No	41
Duration of Trading at <i>Pasar Lama</i>	< 1 year	27
	< 2 years	9
	< 5 years	27
	< 10 years	14
	> 10 years	23
Vendor Origin	Banten	73
	DKI Jakarta	9
	West Java	5
	Central Java	5
	Others	8
Type of Goods Sold	Groceries	64
	Vegetables	9
	Fruits	9
	Clothing	9
	Culinary	4
Payment Method Used	Cash	59
	QRIS	41
	Bank Transfer	0
	Others	0
Willingness to Use E-payment Apps	Yes	38
	No	62
Reasons for Not Using E-payment Apps	Don't Understand	19
	Fear	40

	Difficult	8
	Not Used To It	31
	Others	2
Benefits of Using E-payment Apps	Easier	89
	No Change Needed	1
	Faster	1
	Safer	1
	No Difference	8
Use of Online Commerce/E-commerce	Yes	23
	No	77
	Others	0
Impact of Competition with Online Vendors	No Impact	27
	Less Traffic	5
	Decreased Sales	69
	No Sales	0
	Increased Sales	0
Willingness to Use E-commerce	Yes	36
	No	64
	Others	0
Duration of Using E-payment Apps	<1 year	33
	<2 years	11
	<4 years	50
	>4 years	6

From the table, it is evident that the primary reasons vendors do not use electronic payment applications center around a lack of technological understanding (19%) and fears related to security or risk (40%), followed by deeply ingrained habits (31%). Nevertheless, the majority of vendors who do use electronic payment applications acknowledge significant benefits, with 89% citing ease of transactions.

The level of online commerce adoption remains relatively low, with only 23% of vendors actively utilizing e-commerce platforms. Additionally, the impact of competition with online vendors is largely perceived as a decrease in sales (69%), highlighting a substantial challenge in technology integration. The willingness to adopt e-commerce is also limited, with only 36% expressing interest, indicating the need for more intensive interventions to drive behavioral change.

The fact that the majority of electronic payment application users have only been using them for less than four years (94%) suggests that technology adoption is still in its early stages and requires continued support to ensure sustainability and optimal use. These findings underscore the importance of technological education, improved data security, and the strengthening of incentives for traditional market vendors to adopt digital technology.

V. DISCUSSION

This study demonstrates that the utilization of information technology has a positive impact on enhancing operational efficiency and expanding market reach for street vendors. However, for vendors who lack understanding and trust in technology, a holistic approach is needed one that includes education and training to improve both their comprehension and confidence in adopting technological tools. The discussion highlights several key aspects:

1. **Acceptance of Technological Benefits:** Vendors can adopt digital payment systems and open online stores, which helps them understand and integrate these technologies into their daily operations.
2. **Barriers and Challenges:** The situation faced by street vendors varies, with obstacles such as lack of technological knowledge, concerns over data security, and resistance to change.

Nonetheless, these challenges raise awareness and can guide the development of solutions and support mechanisms for technology use.

3. **Collaboration:** Building collaborations such as with local governments, educational institutions, and the business community can provide essential resources that enable street vendors to fully leverage technology in growing their businesses.
4. **Recommendations:** Offering strategic recommendations is crucial in creating a significant positive impact for street vendors. These include strengthening support systems and enhancing the practical application of technology in their business activities.

Based on these aspects, it can be concluded that vendors who have shown interest in or have already adopted technology benefit from greater efficiency and effectiveness in their businesses. In today's digital era, it is crucial for all vendors to adapt to avoid being left behind. However, this transition must also be accompanied by increased awareness and understanding of how to use technology wisely and securely.

VI. CONCLUSION

In this study, technology has proven to offer significant positive benefits to vendors in Pasar Lama, where several have already begun incorporating it into their business activities. However, many vendors are still reluctant or unwilling to adopt technologies such as digital payment systems or online selling platforms. Common reasons include difficulty in use, lack of understanding, and other personal concerns.

Despite these challenges such as worries about data security and limited technological knowledge training and ongoing support can play a critical role in addressing these issues. As a result, it is evident that technology is increasingly being adopted by many vendors in Pasar Lama, and a substantial number of them have found it helpful in simplifying their business operations. Nevertheless, some also experience negative aspects when first integrating technology into their trading activities.

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