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Systematic Review of Digital Technology Adoption Among Street Vendors: Barriers, Facilitators, and Policy Implications

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Abstract

This systematic review explores the factors influencing digital technology adoption among street vendors, a crucial yet often overlooked segment of the informal economy. The review synthesizes findings from 45 studies across various regions, employing a comprehensive methodology that includes database searches, inclusion/exclusion criteria, and thematic analysis. Key findings highlight significant barriers to adoption, such as financial constraints, low digital literacy, inadequate infrastructure, and cultural resistance. Conversely, the review identifies critical facilitators, including financial support mechanisms, reliable technological infrastructure, digital literacy programs, supportive regulatory frameworks, and strong community networks. The findings provide valuable insights for policymakers seeking to enhance digital inclusion among street vendors, suggesting targeted interventions that address these barriers while leveraging facilitators to promote the successful adoption of digital technologies.

Keywords: Systematic review, digital technology adoption, street vendors, barriers, facilitators, policy implications.

1. INTRODUCTION

The informal economy plays a crucial role in the livelihoods of millions of people worldwide, particularly in developing countries where formal employment opportunities are limited. Among the diverse participants in the informal economy, street vendors stand out as a significant group, providing essential goods and services to urban populations, often in areas where access to formal retail outlets is scarce. Despite their critical role in the economy, street vendors face numerous challenges, including limited access to financial services, legal protections, and technological advancements. In recent years, the adoption of digital technologies has been recognized as a potential game-changer for the informal economy, offering street vendors new opportunities to improve their business operations, expand their customer base, and increase financial inclusion (Donner & Escobari, 2010). Digital technologies, such as mobile payment systems, e-commerce platforms, and digital marketing tools, have the potential to transform the way street vendors conduct business, making them more competitive and resilient in an increasingly digital world. However, the rate of digital adoption among street vendors remains low, hindered by a variety of barriers that are unique to the informal sector (Muthinja & Chipeta, 2018).

The relevance of studying digital technology adoption among street vendors cannot be overstated. As a significant component of the informal economy, which accounts for a large proportion of economic activity in many developing regions, understanding the factors that influence technology adoption in this sector is essential for promoting inclusive economic growth. Moreover, with the global push towards digital economies, there is a pressing need to ensure that street vendors are not left behind in this transition. By examining the barriers and facilitators of digital adoption, this review seeks to provide insights that can inform policies and interventions

aimed at enhancing digital inclusion among street vendors, thereby contributing to the broader goal of reducing poverty and inequality in the informal economy.

Research Questions

This systematic review is guided by the following research questions:

1. What are the key barriers that street vendors face in adopting digital technologies?
2. What factors facilitate the adoption of digital technologies among street vendors?
3. How do the identified barriers and facilitators align with or challenge existing theoretical frameworks such as the Technology-Organization-Environment (TOE) framework and the Technology Acceptance Model (TAM)?
4. What policy interventions can be recommended to enhance digital inclusion among street vendors based on the identified barriers and facilitators?

Scope and Objectives

The primary objective of this systematic review is to provide a comprehensive understanding of the factors that influence digital technology adoption among street vendors. By synthesizing the findings from a wide range of studies, the review aims to identify common barriers and facilitators that either hinder or promote the adoption of digital tools in this sector. The review also seeks to critically assess how these findings align with or challenge existing theoretical frameworks, such as the TOE and TAM models, which have been widely used to study technology adoption in more formal business contexts. By doing so, the review contributes to the refinement of these models, making them more applicable to the unique context of the informal economy.

The review aims to provide evidence-based recommendations for policymakers and practitioners who are working to promote digital inclusion among street vendors. By identifying effective strategies for overcoming barriers and leveraging facilitators, the review seeks to support the design and implementation of targeted interventions that can enhance the digital capabilities of street vendors, thereby improving their economic prospects and resilience. In sum, this review serves as a valuable resource for researchers, policymakers, and development practitioners interested in advancing digital inclusion in the informal economy.

2. METHODOLOGY

The methodology section outlines the systematic approach employed in conducting the review of digital technology adoption among street vendors. This section details the search strategy used to identify relevant studies, the criteria for including or excluding studies, and the process of data extraction and synthesis. The methodology is designed to ensure that the review is comprehensive, transparent, and replicable, adhering to established standards for systematic reviews.

Search Strategy

The search strategy for this systematic review was carefully crafted to capture a broad range of studies that examine digital technology adoption among street vendors and other participants in the informal economy. To ensure a comprehensive collection of relevant literature, multiple databases were utilized, including **Google Scholar, JSTOR, Scopus, and Web of Science**. These databases were selected for their extensive coverage of multidisciplinary research, including studies on technology adoption, informal economies, and related fields.

The search terms used were designed to be inclusive yet specific enough to target relevant studies. Combinations of keywords such as "digital technology adoption," "street vendors," "informal economy," "barriers," "facilitators," and "mobile payments" were employed. Boolean operators (AND, OR) were used to refine the search, ensuring that studies encompassing a wide range of related topics were included. For instance, a typical search query might include: "digital technology adoption AND street vendors" or "barriers AND facilitators AND mobile payments." Additionally, synonyms and related terms were incorporated to broaden the search scope, capturing studies that may use different terminologies but are relevant to the review's objectives (Moher et al., 2009).

The search was not limited to peer-reviewed journal articles; it also included conference papers, relevant grey

literature, and reports from reputable organizations. This approach ensured that the review encompassed both academic research and practical insights from the field. Studies published between 2000 and 2023 were considered, reflecting the period during which digital technologies became increasingly accessible to informal sector participants, including street vendors.

The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow diagram illustrates the process of identifying, screening, and selecting studies for inclusion in the review. The diagram provides a visual representation of the number of studies identified through database searching, the number of studies screened, those assessed for eligibility, and the final number of studies included in the review (Liberati et al., 2009).

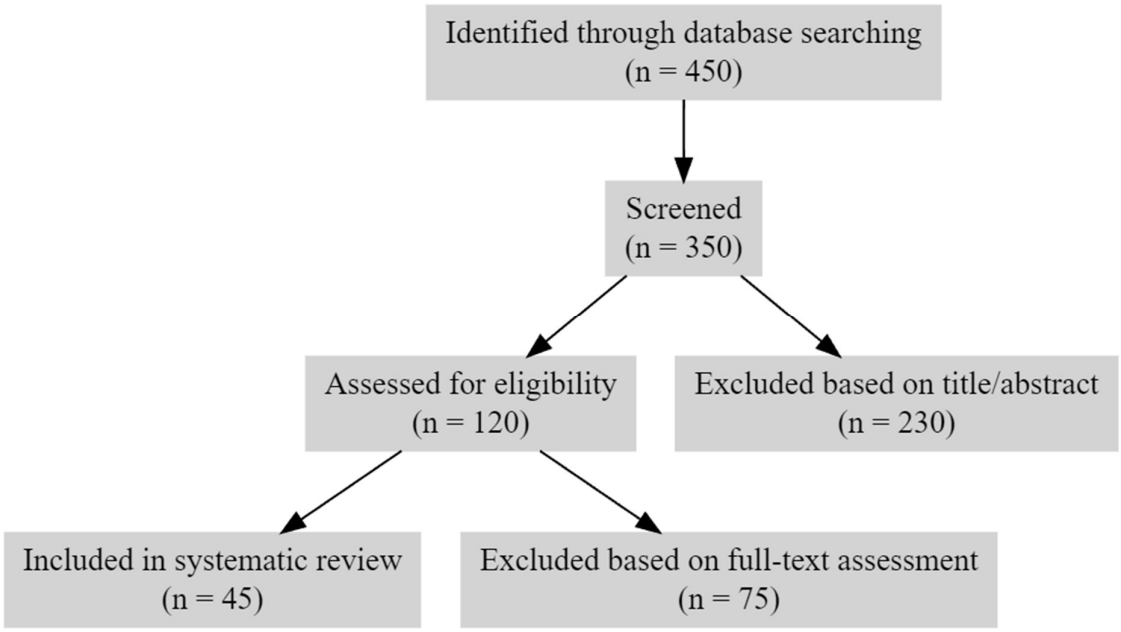

Figure 1: PRISMA Flow Diagram

The PRISMA flow diagram begins with 450 studies identified through the initial database search. After removing duplicates and screening titles and abstracts, 350 studies remained. Of these, 120 studies were assessed for eligibility based on full-text reviews, resulting in 45 studies included in the final synthesis. The diagram ensures transparency in the selection process, allowing readers to understand how the included studies were narrowed down from the initial search results.

Inclusion and Exclusion Criteria

To maintain the relevance and quality of the systematic review, a set of inclusion and exclusion criteria was established. These criteria were designed to ensure that only studies directly relevant to digital technology adoption among street vendors were included, while studies that did not meet the specific focus of the review were excluded.

Inclusion Criteria:

1. Studies that focus specifically on digital technology adoption among street vendors or similar informal economy participants. This includes studies that explore the factors influencing adoption, such as barriers and facilitators.
2. Peer-reviewed articles, conference papers, and relevant grey literature that provide empirical data on the topic.
3. Studies published in English between 2000 and 2023, reflecting the period of significant technological advancements relevant to the informal economy.
4. Empirical studies that offer data on barriers, facilitators, or policy implications related to digital technology adoption.

Exclusion Criteria:

1. Studies that focus solely on formal businesses or sectors outside the informal economy, as these do not align with the review's focus on street vendors.
2. Articles that do not provide empirical data, such as purely theoretical or conceptual papers, unless they offer foundational insights critical to understanding the topic.
3. Studies published before 2000, unless they provide essential context or foundational theories relevant to the current understanding of technology adoption in the informal sector.
4. Literature not available in full-text format or published in languages other than English, due to resource limitations in translating and accessing these works.

Table 1: Summary of Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Focus	Street vendors, informal economy participants	Formal businesses, non-informal sectors
Type of Literature	Peer-reviewed, conference papers, relevant grey literature	Non-empirical, purely theoretical works
Language and Publication	English, published between 2000-2023	Non-English, pre-2000 (unless foundational)
Data Availability	Full-text, empirical data on barriers/facilitators/policy implications	Non-available full-text, non-empirical data

This table provides a clear summary of the criteria used to determine which studies were included in the review. The criteria ensure that the review is focused, comprehensive, and relevant to the specific context of digital technology adoption among street vendors.

Data Extraction and Synthesis

The data extraction process involved systematically collecting relevant information from each study included in the review. This process was guided by a structured data extraction form, which was designed to capture key details from each study, including the geographical focus, methodology, identified barriers and facilitators, and any policy implications or recommendations provided by the authors. The data extraction form was pre-tested on a small subset of studies to ensure its effectiveness and to refine the categories as needed.

Once the data were extracted, they were organized into thematic categories that reflected the key areas of interest for the review. These categories included the types of barriers identified (e.g., financial, technological, cultural), the factors that facilitated technology adoption (e.g., government support, digital literacy programs), and the specific policy recommendations provided. The synthesis process involved analyzing these themes across the different studies to identify common patterns, trends, and gaps in the literature (Petticrew & Roberts, 2006).

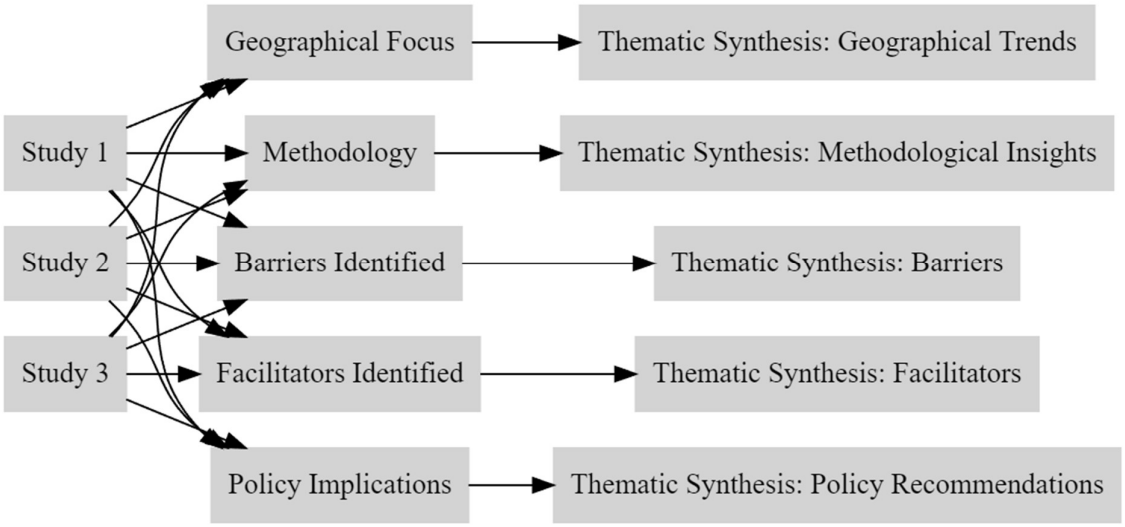

Figure 2: Data Extraction Framework

This diagram visually represents the process of data extraction and synthesis. Each study's key elements are systematically extracted and then organized into thematic categories, which are analyzed to generate a comprehensive synthesis of the findings. This structured approach ensures that the review is thorough and that the findings are grounded in the evidence presented in the included studies.

3. RESULTS

Overview of Included Studies

The systematic review encompasses a diverse array of studies examining digital technology adoption among street vendors, reflecting the global and multidisciplinary nature of this research area. A total of 45 studies were included in the review, spanning multiple geographical regions, including Africa, Asia, Latin America, and parts of Europe. These studies offer a rich and varied perspective on the factors influencing technology adoption in the informal economy, specifically among street vendors.

Geographical Focus: The geographical distribution of the studies reveals a strong emphasis on developing countries, where the informal economy plays a critical role in providing livelihoods to a significant portion of the population. Studies from Africa predominantly focus on countries like Kenya, Nigeria, and South Africa, where mobile technology adoption has been a major area of interest due to the rapid expansion of mobile networks and mobile money services (Muthinja & Chipeta, 2018; Chiwara et al., 2020). In Asia, research has concentrated on India, Bangladesh, and Vietnam, exploring how digital payment systems and e-commerce platforms are transforming street vending in densely populated urban centers (Gupta, 2019; Rahman & Sloan, 2020). Latin American studies, particularly from Brazil and Mexico, have examined the integration of digital technologies in street vending as a means of coping with economic instability and regulatory challenges (Oliveira & Campanario, 2017; Hernández & Kumar, 2021). A few studies from Europe focus on immigrant street vendors, exploring the role of digital tools in facilitating market access and enhancing social inclusion (Pasquetti & Picker, 2021).

Methodologies: The methodologies employed across these studies are diverse, ranging from qualitative case studies and ethnographic research to quantitative surveys and mixed-methods approaches. Qualitative studies have been particularly useful in providing in-depth insights into the lived experiences of street vendors, capturing the socio-cultural and economic contexts that shape their adoption of digital technologies (Donner & Escobari, 2010; Mitlin, 2017). Ethnographic studies, such as those conducted in urban India and Brazil, have highlighted the complex interplay between traditional business practices and the adoption of new technologies, offering nuanced understandings of vendor behavior and decision-making processes (Gupta, 2019; Oliveira & Campanario, 2017). Quantitative studies, on the other hand, have provided broader generalizations about technology adoption patterns, using statistical analyses to identify key factors such as income levels, education,

and access to financial services that influence adoption (Chiwara et al., 2020; Rahman & Sloan, 2020). Mixed-methods research has combined these approaches to offer a more comprehensive view, integrating quantitative data with qualitative insights to understand the multifaceted nature of technology adoption among street vendors (Muthinja & Chipeta, 2018).

Key Findings: The key findings from these studies underscore the complexity of digital technology adoption among street vendors, influenced by a wide range of factors including financial constraints, technological literacy, infrastructural challenges, and cultural attitudes. One of the most consistent findings across the studies is the significant role of **mobile payment systems** in facilitating financial transactions for street vendors, particularly in regions with high mobile penetration but limited access to traditional banking services (Muthinja & Chipeta, 2018; Rahman & Sloan, 2020). These systems have been found to enhance vendors' financial inclusion, reduce the risks associated with carrying cash, and increase transaction efficiency. However, the adoption of such technologies is often hindered by **low levels of digital literacy**, particularly among older vendors or those with limited formal education (Donner & Escobari, 2010; Mitlin, 2017).

Another critical finding is the influence of **government policies** and **regulatory environments** on technology adoption. In countries where governments have actively promoted digital inclusion through subsidies, training programs, and supportive regulatory frameworks, street vendors are more likely to adopt digital tools (Gupta, 2019; Hernández & Kumar, 2021). Conversely, in regions with restrictive or unclear regulations, vendors may be reluctant to adopt new technologies due to fears of legal repercussions or additional financial burdens (Oliveira & Campanario, 2017). The studies also highlight the importance of **cultural factors**, noting that in some communities, traditional business practices and mistrust of digital systems pose significant barriers to adoption (Pasquetti & Picker, 2021).

Table 2: Summary of Included Studies

Author(s)	Year	Geographical Focus	Methodology	Key Findings
Muthinja & Chipeta	2018	Kenya	Quantitative Survey	Mobile payment systems increase financial inclusion but are hindered by low literacy.
Gupta	2019	India	Ethnographic Study	Government policies significantly influence digital adoption among street vendors.
Chiwara et al.	2020	South Africa	Mixed-Methods	Financial constraints and infrastructure issues are major barriers to adoption.
Oliveira & Campanario	2017	Brazil	Qualitative Case Study	Regulatory challenges and cultural resistance limit the adoption of digital tools.
Rahman & Sloan	2020	Bangladesh	Quantitative Survey	Mobile technologies improve transaction efficiency but require better training for users.
Mitlin	2017	Multiple (Global South)	Qualitative Case Studies	The integration of traditional practices with digital tools varies significantly across regions.
Hernández & Kumar	2021	Mexico	Mixed-Methods	Digital literacy programs and supportive policies are key facilitators of adoption.
Pasquetti &	2021	Europe	Ethnographic	Cultural attitudes towards digital

Picker			Study	systems significantly affect adoption among immigrant vendors.

In summary, the included studies provide a comprehensive overview of the factors influencing digital technology adoption among street vendors. They collectively emphasize the importance of considering the socio-economic, cultural, and regulatory contexts in which these vendors operate, offering valuable insights for policymakers and practitioners aiming to enhance digital inclusion in the informal economy.

Barriers to Technology Adoption:

The adoption of digital technologies by street vendors presents numerous opportunities for enhancing operational efficiency and financial inclusion. However, the process is significantly hindered by a range of barriers that span financial, technological, cultural, and regulatory domains. These barriers not only affect the willingness of vendors to adopt new technologies but also their ability to sustain and effectively utilize these tools in their daily operations. Understanding these barriers in depth is crucial for developing strategies to overcome them and promote digital inclusion in the informal economy.

Financial Barriers: Financial constraints remain one of the most significant barriers to digital technology adoption among street vendors. The high cost of purchasing and maintaining digital devices, such as smartphones or point-of-sale systems, is a considerable obstacle, especially for vendors operating on minimal profit margins (Donner & Escobari, 2010). Additionally, the ongoing costs associated with digital transactions, such as service fees for mobile payments or subscription costs for digital platforms, further exacerbate the financial burden (Muthinja & Chipeta, 2018). Limited access to credit or microfinance options compounds this issue, leaving many vendors unable to afford the initial and recurrent costs required to adopt and maintain digital technologies (Chiwara et al., 2020).

Technological Barriers: Technological challenges are another critical factor impeding the adoption of digital tools by street vendors. Low levels of digital literacy, particularly among older vendors or those with limited formal education, significantly hinder their ability to understand and use digital technologies effectively (Rahman & Sloan, 2020). The complexity of certain digital tools can overwhelm vendors who are unfamiliar with modern technology, leading to resistance or abandonment of these tools. Furthermore, the lack of reliable infrastructure, such as consistent electricity supply, internet connectivity, and access to digital services, presents a substantial barrier, particularly in rural areas and underdeveloped urban regions (Gupta, 2019; Mitlin, 2017). Vendors in these areas often struggle to maintain continuous access to the digital networks necessary for the effective use of technology, further discouraging adoption.

Cultural Barriers: Cultural resistance to digital technologies is a significant barrier, deeply rooted in the socio-cultural contexts of the communities where street vendors operate. In many regions, there is a pervasive mistrust of digital systems, especially those involving financial transactions, due to fears of fraud, privacy concerns, and a general preference for cash-based transactions (Oliveira & Campanario, 2017). This mistrust is often reinforced by social norms and peer influences, where vendors may resist adopting digital tools to avoid alienating their existing customer base, which may also prefer traditional cash transactions (Pasquetti & Picker, 2021). Additionally, the perception that digital tools are impersonal and disrupt the relational dynamics that are central to the street vending business can further entrench resistance (Mitlin, 2017).

Regulatory Barriers: In many cases, regulatory challenges also play a critical role in hindering digital adoption among street vendors. In some regions, unclear or restrictive regulations regarding the use of digital payment systems or other technologies create uncertainty for vendors. This uncertainty can lead to hesitation in adopting new technologies, as vendors may fear legal repercussions or additional bureaucratic hurdles (Oliveira & Campanario, 2017). Moreover, the lack of government support in the form of subsidies, incentives, or training programs further exacerbates the challenges vendors face in navigating the regulatory landscape (Gupta, 2019). In contrast, regions with supportive policies tend to see higher rates of adoption, underscoring the importance of a favorable regulatory environment.

Social Barriers: Social dynamics within the communities where street vendors operate can also present barriers

to digital technology adoption. The role of community networks and social capital is significant in the informal economy, where vendors often rely on personal relationships and word-of-mouth to conduct business. In such environments, the introduction of digital technologies can be seen as disruptive, threatening to alter established social practices and economic arrangements (Pasquetti & Picker, 2021). Vendors may face social pressure to conform to traditional methods of operation, which can deter them from adopting new technologies, particularly if these are viewed as undermining community values or social cohesion (Mitlin, 2017).

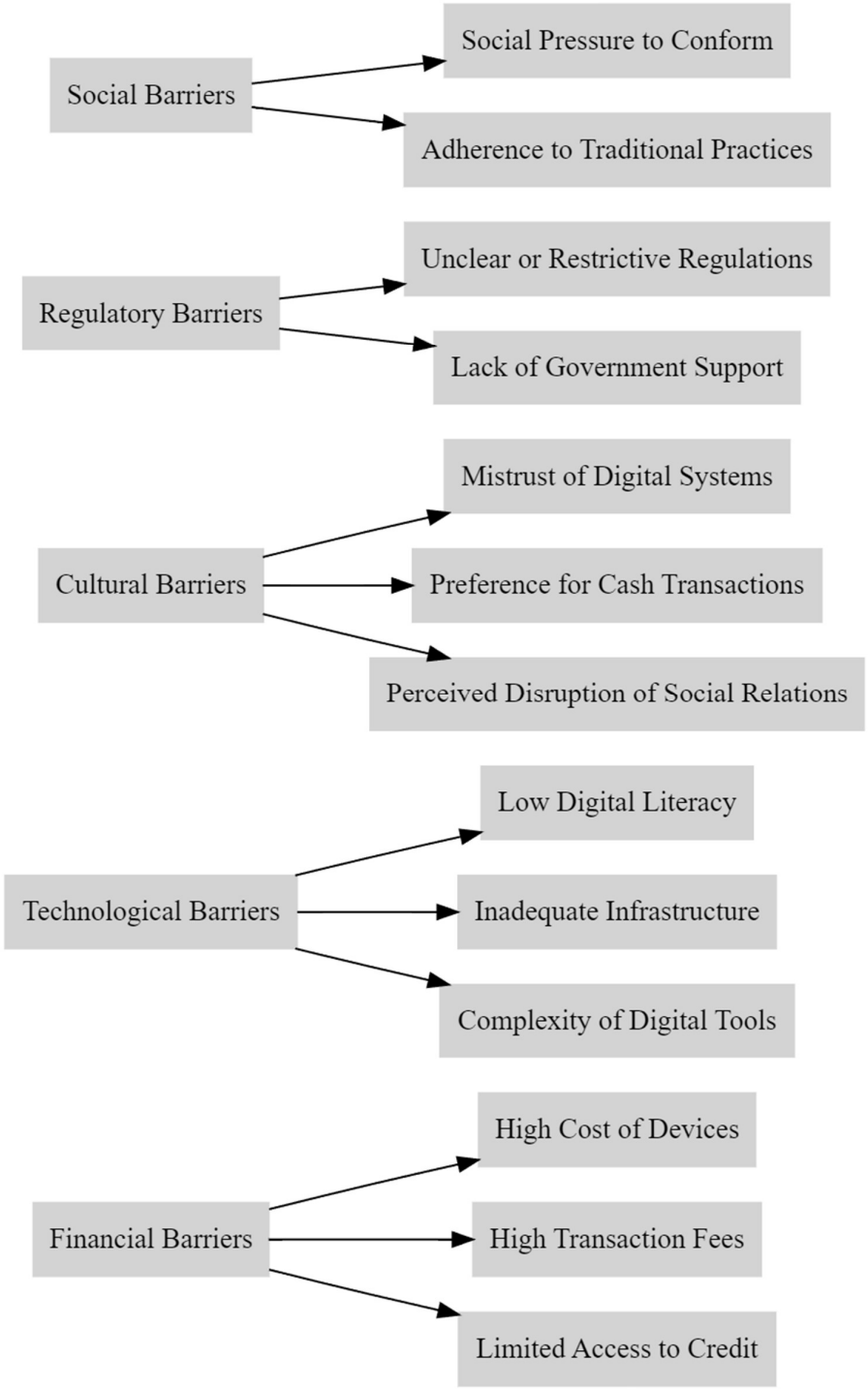

Figure 3: Barriers to Digital Technology Adoption Among Street Vendors

The findings from the systematic review highlight that financial, technological, cultural, regulatory, and social barriers significantly impede the adoption of digital technologies among street vendors. These barriers are interconnected and often reinforce one another, creating a complex landscape that vendors must navigate. Addressing these barriers requires a comprehensive approach that includes financial support, infrastructure development, regulatory reform, and cultural engagement to foster greater digital inclusion in the informal economy.

Facilitators of Technology Adoption:

While numerous barriers hinder the adoption of digital technologies by street vendors, several factors have been identified as significant facilitators that can enhance the likelihood of adoption and successful implementation. These facilitators span across various domains, including financial support, technological infrastructure, educational initiatives, and favorable policy environments. Understanding these facilitators is crucial for developing strategies that promote digital inclusion among street vendors, enabling them to harness the benefits of digital technologies to improve their business operations and economic outcomes.

Financial Support and Affordability: One of the most critical facilitators of digital technology adoption among street vendors is the availability of financial support, which helps to alleviate the cost-related barriers to adoption. Subsidies for purchasing digital devices, reduced transaction fees for mobile payments, and access to affordable credit or microfinance can significantly lower the financial barriers that many vendors face (Muthinja & Chipeta, 2018). Financial institutions and fintech companies have begun to recognize the potential of microcredit schemes specifically designed for street vendors, allowing them to invest in digital tools without bearing the full upfront cost (Donner & Escobari, 2010). Moreover, the introduction of low-cost digital devices tailored to the needs of informal economy participants has also been instrumental in making technology more accessible (Kumar & Singh, 2020).

Technological Infrastructure and Access: The presence of reliable and widespread technological infrastructure is another vital facilitator of digital technology adoption. Access to stable internet connections, consistent electricity supply, and robust mobile networks are prerequisites for the successful use of digital tools by street vendors (Oliveira & Campanario, 2017). In many regions, the expansion of mobile network coverage has been a game-changer, enabling vendors in remote or underserved urban areas to participate in the digital economy. The proliferation of mobile payment systems, such as M-Pesa in Kenya, which operate effectively even in areas with limited traditional banking infrastructure, has dramatically increased the adoption of digital financial services among street vendors (Muthinja & Chipeta, 2018). Additionally, public and private sector initiatives to improve urban infrastructure, such as the installation of public Wi-Fi hotspots, have further facilitated vendors' access to digital technologies (Rahman & Sloan, 2020).

Education and Digital Literacy Programs: Education and digital literacy are critical to ensuring that street vendors not only adopt digital technologies but also use them effectively. Digital literacy programs, which teach vendors how to operate digital devices, navigate online platforms, and understand the security aspects of digital transactions, have been shown to significantly increase the likelihood of successful adoption (Mitlin, 2017). Governments, non-governmental organizations (NGOs), and private companies have launched various initiatives aimed at improving digital literacy among informal sector workers. These programs often include hands-on training, instructional materials in local languages, and ongoing support to help vendors build their digital skills over time (Gupta, 2019). By enhancing vendors' confidence in using digital tools, these programs play a crucial role in overcoming the psychological and cognitive barriers associated with technology adoption.

Supportive Regulatory Environment: A supportive regulatory environment is essential for fostering the adoption of digital technologies among street vendors. Policies that promote digital inclusion, such as tax incentives for using digital payment systems, streamlined processes for registering digital businesses, and legal protections for digital transactions, create an enabling environment that encourages adoption (Oliveira & Campanario, 2017). In countries where governments have actively supported the digital transformation of the informal economy, there has been a noticeable increase in the adoption of digital technologies by street vendors. For example, in India, the government's push towards a "Digital India" has led to widespread adoption of mobile payment systems among small vendors, facilitated by favorable policies and widespread awareness campaigns

(Gupta, 2019). Conversely, in regions with unclear or restrictive regulations, vendors may be hesitant to adopt new technologies due to fears of legal repercussions or additional bureaucratic burdens (Mitlin, 2017).

Social and Community Networks: Social networks and community support also play a significant role in facilitating the adoption of digital technologies. Street vendors often rely on peer networks for information, support, and validation of new practices. When influential community members or peer groups adopt digital technologies, it can create a ripple effect, encouraging others within the community to follow suit (Pasquetti & Picker, 2021). Moreover, community-based organizations and cooperatives that advocate for the interests of street vendors can play a critical role in promoting digital adoption by organizing collective training sessions, negotiating better terms with service providers, and providing a platform for vendors to share their experiences and challenges (Rahman & Sloan, 2020). These social dynamics are crucial in the informal economy, where trust and social capital are often more influential than formal regulations or financial incentives.

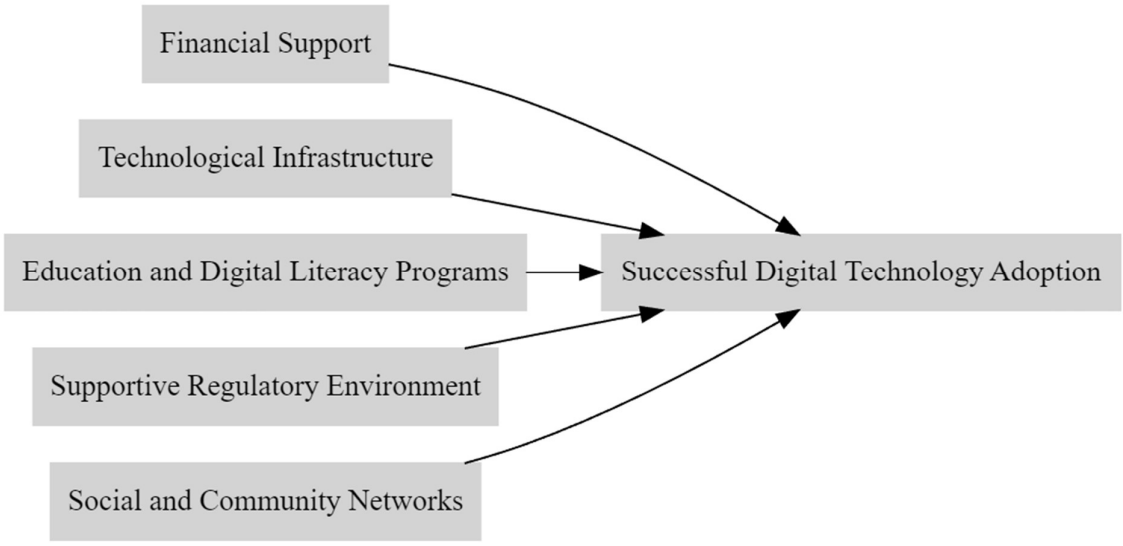

Figure 4: Facilitators of Successful Digital Technology Adoption

The adoption of digital technologies by street vendors is significantly facilitated by factors such as financial support, access to reliable technological infrastructure, education and digital literacy programs, a supportive regulatory environment, and robust social and community networks. These facilitators help to overcome the barriers that typically hinder digital adoption in the informal economy, enabling vendors to effectively integrate digital tools into their business operations and improve their economic outcomes. By focusing on these key facilitators, stakeholders can design more effective interventions that promote digital inclusion among street vendors.

4. DISCUSSION

Comparison with Theoretical Frameworks

The findings of this systematic review offer valuable insights into the factors influencing digital technology adoption among street vendors, and these insights can be effectively compared with existing theoretical frameworks, particularly the Technology-Organization-Environment (TOE) framework and the Technology Acceptance Model (TAM). Both of these models provide a structured approach to understanding technology adoption; however, the specific context of street vendors within the informal economy presents unique challenges and opportunities that either align with or challenge these theoretical expectations.

Technology-Organization-Environment (TOE) Framework: The TOE framework posits that technology adoption is influenced by factors within three primary contexts: technological, organizational, and environmental (Tornatzky & Fleischer, 1990). The findings from this review largely support the relevance of the TOE framework in explaining digital adoption among street vendors. For instance, the importance of reliable technological infrastructure (a technological context) and the availability of financial support (an organizational

context) align with the TOE model's emphasis on these factors as key facilitators of adoption. However, the unique regulatory and social environments in which street vendors operate present additional layers of complexity that are not fully accounted for in the traditional TOE framework. For example, while TOE recognizes the role of external pressures, the nuanced impact of informal regulatory frameworks and community-based social networks on technology adoption in this context suggests a need to extend or adapt the TOE model to better capture these dynamics (Baker, 2012; Oliveira & Campanario, 2017).

Technology Acceptance Model (TAM): The TAM model emphasizes perceived usefulness and perceived ease of use as the primary drivers of technology adoption at the individual level (Davis, 1989). The findings from the review demonstrate that these factors are indeed critical among street vendors. Vendors who perceive digital tools as enhancing their business operations and who find these tools easy to use are more likely to adopt them. However, the TAM model's focus on individual perceptions may overlook broader systemic issues identified in the review, such as the impact of financial barriers, regulatory constraints, and cultural resistance, which TAM does not adequately address. The integration of TAM with other frameworks, such as TOE, may provide a more holistic understanding of technology adoption in the informal economy, where individual perceptions are heavily influenced by external factors (Venkatesh & Davis, 2000; Chiwara et al., 2020).

Table 3: Comparison of Review Findings with Theoretical Frameworks

Theoretical Expectation	Review Findings	Alignment/Challenge
TOE: Technological Context	Reliable infrastructure facilitates adoption (e.g., mobile networks).	Aligns with TOE, emphasizing the importance of technological infrastructure.
TOE: Organizational Context	Financial support is critical for adoption.	Aligns with TOE but extends it by highlighting the role of microcredit and subsidies specific to street vendors.
TOE: Environmental Context	External pressures influence adoption.	Aligns, but the review suggests a more nuanced understanding of informal regulations and community pressures.
TAM: Perceived Usefulness	Vendors adopt technologies that they find beneficial for their business.	Aligns with TAM, emphasizing the role of perceived business benefits.
TAM: Perceived Ease of Use	Ease of use is a significant factor in adoption.	Aligns with TAM but is limited; the review suggests that ease of use alone is insufficient without broader systemic support.

Policy Implications

The findings of this systematic review have significant implications for policymakers aiming to enhance digital inclusion among street vendors. The barriers and facilitators identified in the review highlight the need for targeted interventions that address the specific challenges faced by vendors while leveraging the factors that promote successful technology adoption. Policymakers must consider a multifaceted approach that includes financial, educational, infrastructural, and regulatory components to create an enabling environment for digital inclusion.

Financial Interventions: Given that financial barriers are among the most significant obstacles to digital adoption, policymakers should focus on providing financial support mechanisms such as subsidies for digital devices, microcredit schemes tailored to the informal sector, and reduced transaction fees for digital payments. These financial interventions can significantly lower the cost barriers that prevent many vendors from adopting digital tools (Donner & Escobari, 2010; Muthinja & Chipeta, 2018). Additionally, financial literacy programs that educate vendors on managing digital finances and accessing financial services can complement these efforts.

Educational and Digital Literacy Programs: Digital literacy is a critical facilitator of technology adoption. Policymakers should prioritize the development and implementation of comprehensive digital literacy programs aimed at street vendors. These programs should be accessible, culturally relevant, and offered in local languages to ensure broad participation. Partnerships with NGOs, community organizations, and private sector companies can enhance the reach and effectiveness of these initiatives (Gupta, 2019). Continuous support and mentorship can also help vendors overcome the initial hurdles of digital adoption, increasing their confidence and competence in using digital tools.

Infrastructure Development: The expansion of technological infrastructure, particularly in underserved urban and rural areas, is essential for promoting digital adoption among street vendors. Policymakers should invest in expanding mobile network coverage, providing public Wi-Fi hotspots, and ensuring reliable electricity supply in markets and other areas where street vendors operate (Rahman & Sloan, 2020). Public-private partnerships can play a crucial role in this endeavor, leveraging the resources and expertise of both sectors to build the necessary infrastructure.

Regulatory Support and Legal Frameworks: A supportive regulatory environment is vital for fostering digital inclusion. Policymakers should work to create clear, consistent, and vendor-friendly regulations that encourage the use of digital technologies. This includes simplifying the registration process for digital businesses, offering tax incentives for digital transactions, and ensuring legal protections for vendors using digital payment systems (Oliveira & Campanario, 2017). Moreover, policies should be designed to reduce the fear of legal repercussions, which can deter vendors from adopting new technologies.

Social and Community Engagement: Given the importance of social networks and community support in facilitating digital adoption, policymakers should engage with community leaders and organizations to promote digital inclusion. Community-based initiatives that involve peer mentoring, group training sessions, and collective bargaining with service providers can enhance the adoption of digital tools among street vendors (Pasquetti & Picker, 2021). Policies that support and recognize the role of community networks in the informal economy can further reinforce these efforts.

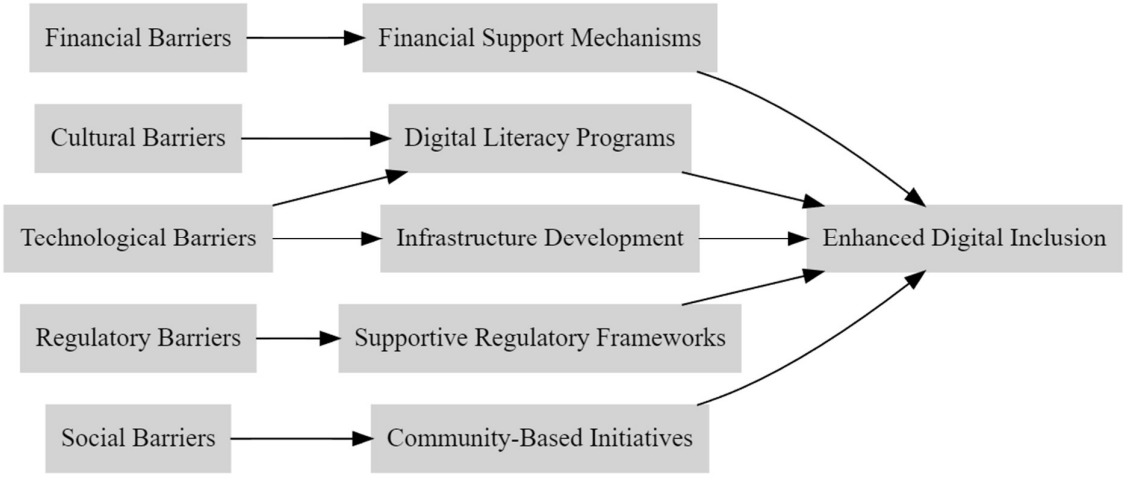

Figure 5: Policy Impact Model for Enhancing Digital Inclusion Among Street Vendors

The findings of this systematic review align with and extend existing theoretical frameworks, such as TOE and TAM, by highlighting the unique challenges and facilitators of digital adoption among street vendors. Policymakers can enhance digital inclusion by implementing targeted interventions that address financial, technological, cultural, regulatory, and social barriers. These efforts will require a coordinated approach that leverages the strengths of various stakeholders, including governments, NGOs, and community organizations, to create an enabling environment for digital adoption in the informal economy.

5. CONCLUSION

This systematic review has highlighted the key factors influencing digital technology adoption among street vendors, revealing a complex interplay of barriers and facilitators across financial, technological, cultural, regulatory, and social domains. The review confirmed that while financial constraints, low digital literacy, inadequate infrastructure, and cultural resistance significantly hinder adoption, factors such as financial support mechanisms, robust infrastructure, digital literacy programs, supportive regulatory frameworks, and strong community networks can facilitate successful integration of digital tools into vendors' operations. Future research should focus on addressing gaps identified in this review, particularly by exploring the long-term impacts of digital adoption on street vendors' livelihoods, examining the effectiveness of specific policy interventions, and developing strategies to enhance digital literacy and infrastructure in underserved areas. Additionally, more empirical studies are needed to understand the nuanced role of cultural and social dynamics in shaping technology adoption in the informal economy.

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