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Perceptions, Readiness, and Resistance: Explaining E-Invoicing Adoption among SMEs through the Technology Acceptance Model and Diffusion of Innovation Theory in Malaysia

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Abstract

The global shift toward electronic invoicing (e-invoicing) represents a transformative step in digital finance, offering gains in efficiency, transparency, and tax compliance. In Malaysia, where e-invoicing will be mandatory by 2027, small and medium-sized enterprises (SMEs) face uneven readiness. This study investigates e-invoicing adoption among SMEs in Northern Malaysia, employing the Technology Acceptance Model (TAM) and Diffusion of Innovation (DOI) theory to explain the behavioural, technological, and institutional factors shaping adoption. Data were collected from 175 SMEs across Kedah, Perlis, and Penang and analysed using multiple regression techniques. Findings indicate that perceived usefulness and ease of use, core constructs of TAM, strongly predict adoption. Perceived benefits ($\beta = 0.56, p < 0.001$) and technological readiness ($\beta = 0.40, p < 0.001$) emerged as the most significant drivers, consistent with DOI's emphasis on relative advantage and compatibility. SMEs with stable IT infrastructure, compatible accounting systems, and awareness of operational efficiency gains are more likely to transition successfully. Conversely, financial constraints ($\beta = -0.25, p < 0.05$) and human resistance to change ($\beta = -0.30, p < 0.01$) serve as substantial barriers, resonating with DOI's dimensions of complexity and organizational inertia. Interestingly, regulatory complexity, though perceived as problematic, was not a statistically significant predictor, suggesting that coercive pressures are less influential than technological and perceptual factors in shaping adoption decisions. Theoretically, this study reinforces TAM and DOI by demonstrating their applicability in the context of digital transformation among SMEs in emerging economies. It highlights that adoption is not solely a function of external mandates but depends critically on organizational perceptions of value, usability, and compatibility. The findings extend the discourse on institutional pressures by showing that while regulatory mandates set the direction, actual adoption is mediated by firms' readiness and user attitudes. Practically, the study underscores the need for targeted interventions: simplifying compliance guidelines, strengthening digital infrastructure, offering financial subsidies for system upgrades, and delivering structured training to enhance digital literacy and reduce resistance to change. By bridging the gap between regulatory intent and organizational behaviour, Malaysia can ensure SMEs not only comply with the 2027 mandate but also internalize e-invoicing as a driver of competitiveness and sustainability in the digital economy.

Keywords: E-invoicing, SMEs, Technology Acceptance Model, Diffusion of Innovation, digital transformation, Malaysia.

1. INTRODUCTION

The rapid diffusion of digital technologies is reshaping financial processes worldwide, with electronic invoicing (e-invoicing) emerging as a cornerstone of tax administration modernization. In Malaysia, e-invoices are structured digital records of transactions that must be validated through the Inland Revenue Board of Malaysia's (IRBM) *MyInvois* system before being shared with buyers, embedding a QR code for verification and ensuring

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transaction authenticity (Inland Revenue Board of Malaysia [IRBM], 2023a, 2023b). This clearance model is designed to enhance transparency, auditability, and real-time tax compliance.
Malaysia has adopted a phased rollout, with full mandatory implementation set for 2027. Initially, large taxpayers (e.g., firms with turnover exceeding RM100 million) were targeted, followed by medium firms, and ultimately SMEs by the final phase (IRBM, 2023b). This initiative aligns with the Malaysia Digital Economy Blueprint (MyDIGITAL) and the Twelfth Malaysia Plan (2021–2025), both of which emphasise accelerating digitalisation and advancing fiscal governance (Government of Malaysia, 2021; Prime Minister's Department, 2021).

The success of this mandate is particularly consequential for small and medium-sized enterprises (SMEs), which represent 97.4% of all businesses in Malaysia and contributed 38.4% of GDP in 2022 (Department of Statistics Malaysia [DOSM], 2023; SME Corp. Malaysia, 2023). However, despite their economic significance, SMEs face uneven levels of readiness, particularly in the Northern Corridor Economic Region (NCER), which includes Kedah, Perlis, Penang, and Perak, where SMEs may face challenges due to varying levels of infrastructure and policy support, though empirical assessments suggest readiness gaps in technology, human capital and organizational alignment across Malaysian regions (Techanamurthy, Iqbal, & Abdul Rahim, 2025).

Global experience suggests that SMEs often encounter difficulties in such transitions. In Italy, where e-invoicing became mandatory in 2019, the policy was associated with VAT revenue gains estimated at €2.2–€2.6 billion within the first year (Korte, 2024). Similarly, in Mexico, the *Comprobante Fiscal Digital por Internet (CFDI)* system increased reported revenues significantly, particularly during its early adoption years (Barreix & Zambrano, 2018). While these experiences highlight efficiency and compliance benefits, they also reveal challenges: SMEs in both contexts reported short-term operational delays, increased error rates, and financial burdens related to system upgrades (European Commission, 2020).

For Malaysian SMEs, the challenges are multidimensional. Financial barriers include the cost of acquiring software, upgrading legacy accounting systems, and training employees, investments often viewed as liabilities by resource-constrained firms (OECD, 2021). Technological limitations, such as poor internet connectivity and lack of compatibility between existing systems and new platforms, further constrain adoption (World Bank, 2020). Moreover, human factors, particularly resistance to change and limited digital literacy, remain persistent obstacles, often amplified by cybersecurity concerns and a preference for familiar paper-based systems (Brink & Packmohr, 2023).

The theoretical literature reinforces the idea that adoption is not solely mandate-driven. The Technology Acceptance Model (TAM) posits that adoption is shaped by perceived usefulness and perceived ease of use (Davis, 1989). Complementing this, the Diffusion of Innovation (DOI) theory underscores relative advantage, compatibility, and complexity as critical determinants of diffusion (Rogers, 2003). Prior studies demonstrate that firms are more likely to adopt digital innovations when they perceive clear efficiency gains, compatibility with existing processes, and manageable complexity (Venkatesh & Davis, 2000). Thus, while regulatory coercion establishes direction, adoption outcomes ultimately depend on organizational perceptions, readiness, and change management.

Accordingly, this study examines how SMEs in Northern Malaysia respond to the e-invoicing mandate by investigating the interplay between perceptions (usefulness, ease of use), technological readiness, and barriers (financial constraints, resistance to change, regulatory complexity). Grounded in TAM and DOI, the study provides empirical evidence on what drives SMEs from mandate awareness to actual adoption, contributing insights for both policymakers and SME managers.
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2. LITERATURE REVIEW

2.1 E-Invoicing and Digital Transformation

Electronic invoicing (e-invoicing) is a key driver of digital transformation in financial systems, providing efficiency, compliance, and transparency in business operations. It replaces manual, paper-based invoicing with structured, automated processes that improve accuracy and reduce fraud. According to the OECD (2021), e-invoicing strengthens accountability by enabling real-time monitoring and audit trails, which is particularly relevant for governments seeking to reduce tax evasion. Beyond tax compliance, e-invoicing offers firms a strategic tool for streamlining operations, enhancing data reliability, and improving integration across value chains.

The efficiency gains are substantial. Studies suggest that businesses can achieve up to an 80% reduction in invoice processing costs compared with traditional methods (Hesami, Jenkins, & Jenkins, 2024). These cost savings arise from faster invoice approval cycles, improved accuracy, and reduced need for physical storage. For SMEs—often

constrained by limited manpower and financial resources—such efficiencies can translate into improved competitiveness and sustainability in a rapidly digitalizing economy (Brink & Packmohr, 2023). Moreover, e-invoicing contributes to better working capital management, as quicker processing improves cash flow and reduces delays in payments, enabling SMEs to allocate resources more effectively.

International experiences further demonstrate the transformative potential of e-invoicing. In Italy, mandatory e-invoicing for B2B and B2C transactions, introduced in 2019, significantly narrowed the VAT compliance gap and generated billions in additional revenue (Korte, 2024). In Mexico, the adoption of the *Comprobante Fiscal Digital por Internet (CFDI)* system broadened the tax base and improved revenue mobilization, although SMEs initially struggled with implementation costs and system integration (Barreix & Zambrano, 2018). These examples highlight both the economic benefits and the organizational challenges that come with mandatory digital adoption. Digital transformation, however, is not simply the introduction of new technologies; it involves fundamental changes in organizational culture, processes, and capabilities (Techanamurthy, Iqbal, & Abdul Rahim, 2025). For SMEs, this often requires balancing strategic innovation with operational survival, which can be a difficult trade-off. While large firms often have dedicated resources for IT and compliance, SMEs must adapt with fewer capabilities, making the path to digital maturity more uneven..

2.2 Barriers to E-Invoicing Adoption

Despite its advantages, e-invoicing adoption is far from automatic, especially among SMEs. The literature consistently identifies financial, regulatory, technological, and human barriers.

Financial constraints. The upfront cost of software, system upgrades, and employee training is a primary obstacle. Many SMEs operate with limited financial reserves and prioritize short-term operational expenditures over strategic digital investment (Bojanc et al., 2024). Even when government subsidies or grants are available, access is often hindered by bureaucratic hurdles or lack of awareness (Hashim, Ahmad, & Zakaria, 2021). This reflects a structural challenge: while the benefits of e-invoicing are long-term, the costs are immediate, discouraging adoption.

Regulatory complexity. Regulatory compliance is another barrier. E-invoicing mandates typically involve strict technical specifications, reporting formats, and integration with tax authorities' systems. In Malaysia, the Lembaga Hasil Dalam Negeri (LHDN, 2023) requires businesses to comply with evolving formats and protocols under the phased rollout. SMEs often lack dedicated compliance teams and may perceive these requirements as burdensome. Prior studies note that ambiguous or frequently changing regulations heighten uncertainty and discourage SMEs from adopting digital solutions (Hameed, Counsell, & Swift, 2012).

Technological readiness. Digital infrastructure, system compatibility, and IT support are critical enablers. SMEs in rural or semi-urban areas often face unreliable internet access, outdated hardware, and reliance on legacy accounting software. These challenges exacerbate the digital divide between SMEs in metropolitan hubs and those in peripheral regions (MDEC, 2023). Studies highlight that inadequate digital infrastructure not only impedes adoption but can also lead to failed implementations, increasing skepticism among SMEs about the value of digital tools (Techanamurthy et al., 2025).

Human resistance to change. Perhaps the most persistent barrier is organizational inertia. Employees and managers often resist abandoning familiar paper-based practices, citing fears of system unreliability, cybersecurity risks, or data privacy concerns (Crowe Malaysia PLT, 2024). Low digital literacy compounds this resistance, as SMEs frequently lack the human capital needed to operate and maintain new systems (Ghobakhloo, Arias-Aranda, & Benitez-Amado, 2011). Change management literature emphasizes that without awareness campaigns, structured training, and leadership support, SMEs are likely to perceive digital mandates as coercive rather than enabling.

Together, these barriers highlight the multifaceted nature of digital transformation. While governments can legislate adoption, the actual implementation depends on firms' financial capacity, technological infrastructure, and human adaptability.

2.3 Theoretical Framework

To understand technology adoption in SMEs, two complementary theories, Technology Acceptance Model (TAM) and Diffusion of Innovation (DOI) Theory, are particularly relevant.

The Technology Acceptance Model (TAM), introduced by Davis (1989), posits that technology adoption is shaped by two perceptions: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). PU reflects the degree to which users believe a system enhances performance, while PEOU concerns the effort required to use the system. In the case of e-invoicing, SMEs are more likely to adopt if they perceive it as improving efficiency, accuracy, and compliance while being easy to integrate into existing workflows. Conversely, if SMEs perceive e-invoicing as complex, costly, or misaligned with current practices, adoption is unlikely. Numerous studies have confirmed TAM's predictive power in SME digital adoption, particularly in accounting and financial technologies (Ghobakhloo et al., 2011).

Complementing TAM, Diffusion of Innovation (DOI) Theory, introduced by Rogers (2003), explains adoption through five key attributes: relative advantage, compatibility, complexity, trialability, and observability. Relative advantage corresponds to the perceived benefits of e-invoicing, while compatibility addresses how well it fits existing systems and processes. Complexity highlights perceived difficulties in implementation, trialability concerns opportunities to experiment with the system, and observability relates to visibility of results. DOI is especially useful for understanding why adoption rates vary across firms and regions, even under uniform regulatory mandates. For example, SMEs with outdated systems may perceive low compatibility, while those lacking peer benchmarks may find low observability, both leading to slower adoption.

The integration of TAM and DOI offers a holistic framework for understanding e-invoicing adoption. TAM captures the internal perceptions of usefulness and ease of use, while DOI situates these perceptions within the broader context of organizational and institutional environments. Prior studies confirm the value of combining these models: Iacovou, Benbasat, and Dexter (1995) showed how perceived benefits and organizational readiness jointly influence technology adoption; Hameed et al. (2012) highlighted the impact of environmental pressures and uncertainty; and more recently, Brink and Packmohr (2023) demonstrated how SMEs' digital transformation readiness is mediated by perceptions of complexity and compatibility.

This combined theoretical lens underscores that adoption is not solely a response to regulatory pressure but a process mediated by perceptions, readiness, and resistance. By applying TAM and DOI, the literature suggests that SME adoption of e-invoicing depends on both psychological acceptance and structural enablers, offering a robust foundation for analyzing barriers and drivers of digital transformation..

3. METHODOLOGY

3.1 Research Design

This study employs a quantitative research approach to systematically examine the factors influencing the adoption of e-invoicing among SMEs in Northern Malaysia. Quantitative research is appropriate for this study as it allows for the collection of numerical data that can be statistically analyzed to identify patterns, relationships, and trends in e-invoicing adoption. By using structured surveys as the primary data collection method, the study ensures that responses are standardized, making it easier to compare data across different SMEs and derive meaningful conclusions.

The survey instrument is designed to measure key factors affecting e-invoicing adoption, including financial constraints, regulatory complexity, technological readiness, and human resistance. Each of these variables is assessed using a 5-point Likert scale, which ranges from strongly disagree (1) to strongly agree (5). This approach enables respondents to express varying degrees of agreement or disagreement with statements related to their experiences and perceptions of e-invoicing. The Likert scale is widely used in social sciences and business research as it allows for the quantification of subjective opinions, making it suitable for analyzing attitudes, beliefs, and challenges faced by SMEs in digital transformation.

The study follows a cross-sectional research design, where data is collected at a single point in time rather than over an extended period. This approach is beneficial for capturing the current state of e-invoicing adoption among SMEs and identifying existing challenges. Given that e-invoicing implementation in Malaysia is in a transitional phase, a cross-sectional design provides valuable insights into how SMEs are preparing for regulatory compliance and what barriers they face at this stage of adoption.

By employing a structured and systematic research design, this study ensures a reliable and objective assessment of the challenges factors influencing e-invoicing adoption, providing evidence-based recommendations for overcoming the challenges faced by SMEs in Northern Malaysia.

3.2 Sampling and Data Collection

This study focuses on SMEs operating in Northern Malaysia, specifically in Kedah, Perlis, and Penang. These states were selected due to their economic significance and the presence of diverse SMEs facing challenges in adopting e-invoicing. The target population comprises SMEs from various industries, ensuring a comprehensive representation of businesses that may be affected by the e-invoicing mandate.

To determine an appropriate sample size, Krejcie and Morgan's (1970) formula was used, which recommended a sample size of 384 respondents for a population exceeding 1,000 SMEs. However, due to constraints such as limited participation, business owners' availability, and response rates, the final number of valid responses successfully collected was 175. While this sample size is lower than the initial target, it still provides valuable insights into the challenges SMEs face in e-invoicing adoption.

A simple random sampling method was employed to ensure fair representation of SMEs from different industries and locations. This method minimizes selection bias and enhances the generalizability of the study's findings. The sample was drawn from a list of registered SMEs, ensuring that only active businesses participated in the research. Data collection was conducted through a mixed-method approach, incorporating both online surveys and in-person questionnaires. The online survey was distributed via email and digital platforms, targeting SMEs with stable internet access. Meanwhile, in-person surveys were conducted in business districts and industrial areas to reach SMEs in regions with limited digital connectivity. This approach allowed for broader participation and ensured that responses were not limited to digitally advanced businesses.

Despite the initial goal of collecting 384 responses, the final number of valid responses obtained was 175, reflecting the real-world challenges of survey participation among SMEs. The data collected was then cleaned and checked for missing values or inconsistencies before being analyzed using descriptive statistics, reliability testing (Cronbach's Alpha), and regression analysis. The findings provide critical insights into the financial, regulatory, technological, and human-related factors affecting e-invoicing adoption among SMEs in Northern Malaysia.

3.3 Data Analysis

The data collected were analyzed using Statistical Package for the Social Sciences (SPSS) software, a widely used statistical tool for quantitative research. The analysis involved multiple statistical techniques, including descriptive statistics, reliability analysis, and regression analysis, to derive meaningful insights into the factors influencing e-invoicing adoption among SMEs in Northern Malaysia.

The first stage of analysis involved descriptive statistics, which provided an overview of the demographic characteristics of the respondents and their businesses. This included details such as business size, industry type, and geographical location. Additionally, descriptive analysis was used to examine the distribution of responses related to financial constraints, regulatory complexity, technological readiness, and human resistance—factors that could potentially influence e-invoicing adoption. Measures such as mean, standard deviation, frequency, and percentage were computed to summarize the data effectively and provide an initial understanding of the trends and challenges faced by SMEs.

Next, reliability analysis was conducted using Cronbach's Alpha to assess the internal consistency of the measurement scales. Since the study utilized a 5-point Likert scale to evaluate respondents' perceptions, it was crucial to ensure that the items measuring each construct (financial constraints, regulatory complexity, technological readiness, and human resistance) were reliable and consistent. A Cronbach's Alpha value above 0.7 was considered acceptable, indicating that the survey items effectively measured the intended constructs without excessive random errors. This step helped validate the accuracy and reliability of the data before proceeding to further statistical tests.

To test the hypotheses and examine the relationships between independent and dependent variables, multiple regression analysis was performed. The independent variables in the study were financial constraints, regulatory complexity, technological readiness, and human resistance, while the dependent variable was e-invoicing adoption. Multiple regression analysis was used to determine the extent to which each independent variable influenced e-invoicing adoption among SMEs. This technique provided insights into which factors had the most significant impact on adoption rates and whether the relationships were statistically significant. The analysis included tests for multicollinearity, ensuring that the independent variables were not highly correlated, which could otherwise distort the results.

By employing these statistical techniques, the study provided a robust and data-driven analysis of the challenges smes in northern malaysia face in adopting e-invoicing. The findings offer valuable insights for policymakers, business owners, and technology providers seeking to improve digital invoicing adoption by addressing financial, regulatory, technological, and human-related barriers.

4. RESULTS AND DISCUSSION

The results are structured into key factors influencing e-invoicing adoption, including financial constraints, regulatory complexity, technological readiness, human resistance, perceived usefulness and ease of use. Each factor is analyzed through descriptive statistics, correlation, and regression analysis, followed by a discussion of its implications.

4.1 Demographic Profile of Respondents

Table 1: Distribution of Respondents by Industry Sector

Industry	***Frequency (n)***	***Percentage (%)***
Consumer Goods & Services (Retailing)	97	55.4%
Construction	38	21.7%
Food & Beverage	33	18.9%
Manufacturing	7	4.0%
Total	**175**	**100.0%**

The study involved 175 SMEs from Penang, Kedah, and Perlis industries. The largest proportion of businesses belonged to the Consumer Goods & Services (Retailing) sector (55.4%), followed by Construction (21.7%), Food & Beverage (18.9%), and Manufacturing (4.0%). In terms of location, Penang had the highest representation (44.0%), followed by Kedah (32.6%) and Perlis (23.4%).

Most surveyed businesses were small enterprises (67.4%), followed by medium enterprises (30.9%), and a small percentage of micro-enterprises (1.7%). Notably, only 2 SMEs had already implemented e-invoicing, highlighting that adoption is still in its early stages. This suggests that most SMEs are unprepared for the transition, facing significant barriers related to financial, regulatory, and technological challenges.

Table 2: Regression Results on Factors Influencing E-Invoicing Adoption

Hypothesis	***Variable***	***Beta Coefficient (β)***	***p-value (Sig.)***	***Result***
H1: Financial Constraints negatively affect e-invoicing adoption.	Financial Constraints	-0.25	0.021	Supported
H2: Regulatory Complexity negatively affects e-invoicing adoption.	Regulatory Complexity	-0.10	0.135	Not Supported
H3: Technological Readiness positively affects e-invoicing adoption.	Technological Readiness	+0.40	0.000	Supported
H4: Human Resistance negatively affects e-invoicing adoption.	Human Resistance	-0.30	0.004	Supported
H5: Perceived Benefits positively affect e-invoicing adoption.	Perceived Benefits	+0.56	0.000	Supported

4.2 Financial Constraints and E-Invoicing Adoption

Financial constraints were identified as a major challenge to e-invoicing adoption. The high cost of implementation (Mean = 4.38, SD = 0.895) was the most pressing concern, followed by dissatisfaction with government incentives (Mean = 4.35, SD = 0.794). SMEs also expressed difficulties in upgrading their accounting systems (Mean = 4.22, SD = 0.964) and questioned the long-term cost benefits of e-invoicing (Mean = 4.26, SD = 0.895).

These findings align with prior studies indicating that financial limitations are a key barrier to digital transformation among SMEs (Alam & Noor, 2020). The cost of new software, infrastructure upgrades, and employee training can be prohibitive for small businesses operating on limited budgets. Although government financial incentives exist, the study suggests they are insufficient or not easily accessible. To enhance adoption,

policymakers should expand financial assistance programs, particularly for SMEs needing software, infrastructure, and workforce training support.

4.3 Regulatory Complexity and Compliance

The study found that complex government regulations (Mean = 4.22, SD = 0.984) and lack of compliance guidance (Mean = 4.22, SD = 0.960) are major barriers to e-invoicing adoption. The lack of training from regulatory authorities (Mean = 4.38, SD = 0.926) was identified as the most significant regulatory issue. Additionally, SMEs reported that integrating e-invoicing with tax compliance (Mean = 4.24, SD = 0.897) was particularly challenging.

These findings support prior research suggesting that unclear tax policies and compliance burdens hinder technology adoption (Ahmad et al., 2021). SMEs struggle with understanding and implementing new digital regulations, which increases the risk of non-compliance. While regulatory complexity was a challenge, regression analysis indicated that it was not a statistically significant predictor of adoption. This suggests that while SMEs perceive compliance as difficult, it may not directly determine their decision to adopt e-invoicing. Governments must simplify compliance processes, provide structured training, and offer clearer guidelines to ease adoption.

4.4 Technological Readiness and Adoption Rates

SMEs had mixed perceptions of their technological readiness. The lack of technical expertise (Mean = 4.34, SD = 0.901) was the most significant challenge, indicating that many businesses lack the knowledge to manage e-invoicing systems. While stable internet access (Mean = 2.95, SD = 1.212) received a neutral rating, accounting software compatibility (Mean = 1.69, SD = 0.642) was rated the lowest, confirming that many SMEs do not have the necessary IT infrastructure for e-invoicing.

The regression analysis confirmed that technological readiness ($\beta = -0.462$, $p < 0.001$) was the strongest predictor of e-invoicing adoption. These findings align with prior research emphasizing that businesses with stable IT infrastructure and compatible software are more likely to transition to digital systems (Hashim et al., 2020). Policymakers and industry stakeholders should prioritize investment in SME digital infrastructure, subsidize accounting software upgrades, and expand broadband access to rural SMEs.

4.5 Human Resistance to Change

SMEs reported strong resistance to change, with disruptions to business processes (Mean = 4.49, SD = 0.765) and lack of training (Mean = 4.43, SD = 0.602) being major concerns. Employees' preference for manual invoicing (Mean = 4.37, SD = 0.723) further delayed adoption. However, cybersecurity concerns (Mean = 3.56, SD = 1.054) were rated lower, suggesting that security fears are not as critical as operational and training barriers.

These results align with the Technology Acceptance Model (TAM), which suggests that users are less likely to adopt technologies they perceive as difficult to use (Davis, 1989). Employee reluctance to change is a common challenge in digital transformation. To address this, SMEs should implement comprehensive training programs, change management strategies, and user-friendly e-invoicing interfaces to ease the transition.

4.6 Perceived Usefulness & Ease of Use

SMEs had low perceptions of e-invoicing's benefits and usability. The belief that e-invoicing is easy to use (Mean = 1.51, SD = 0.829) received the lowest rating. Additionally, respondents were skeptical about whether e-invoicing improves accuracy (Mean = 1.95, SD = 0.822) and reduces processing time (Mean = 1.62, SD = 0.842).

Regression analysis found that perceived usefulness ($\beta = -0.214$, $p = 0.017$) was a significant predictor of adoption, reinforcing the importance of user perception in technology acceptance. These findings align with prior research suggesting that businesses are more likely to adopt e-invoicing if they recognize its operational benefits (Venkatesh et al., 2003). Awareness campaigns and practical demonstrations of efficiency, cost savings, and accuracy improvements can enhance SMEs' willingness to adopt the system.

The study found that technological readiness and perceived usefulness are the strongest drivers of e-invoicing adoption among SMEs. While financial constraints and regulatory complexity lead to challenges, they do not directly impact adoption. Training programs, financial incentives, regulatory clarity, and infrastructure investments are key to encouraging SMEs to transition to e-invoicing.

5. CONCLUSION AND RECOMMENDATIONS

5.1 Summary of findings

The findings of this study confirm that financial constraints, regulatory complexity, and technological readiness play significant roles in determining the ability of SMEs to adopt e-invoicing. Many SMEs struggle with the financial burden of acquiring e-invoicing software, upgrading accounting systems, and training employees, making cost one of the primary barriers to adoption. Additionally, regulatory complexity remains a major concern, as many SMEs find government guidelines difficult to interpret and compliance requirements burdensome.

Without sufficient regulatory support and training, businesses may face challenges in implementing e-invoicing effectively. Furthermore, technological readiness is another critical factor, with many SMEs lacking the necessary IT infrastructure, stable internet access, and compatible accounting software to facilitate e-invoicing adoption. The study also highlights that human resistance to change further exacerbates the adoption challenges, as employees and business owners often prefer manual invoicing methods due to familiarity and concerns about cybersecurity, usability, and operational disruptions. These combined factors create significant barriers that must be addressed to ensure a smooth transition to e-invoicing.

5.2 Policy and Practical Recommendations

To address these challenges, several policy and practical recommendations should be considered. One key area of focus should be government support, as financial assistance and training programs can play a crucial role in helping SMEs transition to e-invoicing. Providing targeted financial incentives, such as subsidies or grants for software purchases and system upgrades, can reduce the financial burden on SMEs and encourage them to adopt digital invoicing. Additionally, training programs should be made widely available to educate SMEs on how to implement e-invoicing effectively and ensure compliance with government regulations.

Another essential recommendation is the simplification of regulatory requirements. Many SMEs struggle with understanding e-invoicing regulations, which can hinder compliance and discourage adoption. To overcome this, government agencies should develop clearer compliance guidelines that are specifically tailored for SMEs. By providing easy-to-understand instructions, step-by-step guidance, and accessible support channels, businesses will be better equipped to integrate e-invoicing into their operations without confusion or uncertainty.

Investing in technological infrastructure is also critical to improving e-invoicing adoption among SMEs. Expanding broadband access, particularly in rural areas, can help businesses overcome connectivity issues that hinder digital transformation. Additionally, providing affordable e-invoicing software solutions tailored to SMEs' needs will ensure that businesses of all sizes can access user-friendly and cost-effective systems.
Another important recommendation is the implementation of change management training to reduce resistance to e-invoicing adoption. Many business owners and employees hesitate to transition to digital invoicing due to a lack of familiarity with the technology and concerns about cybersecurity. To address this, digital literacy programs should be introduced to educate SMEs on the benefits of e-invoicing, improve their confidence in using digital tools, and minimize resistance to change. Practical demonstrations, hands-on training, and awareness campaigns can further help SMEs recognize the long-term advantages of e-invoicing, such as increased efficiency, improved tax compliance, and reduced operational costs.

5.3 Future Research

Future research should focus on exploring longitudinal studies that track SMEs' adaptation to e-invoicing over time. By studying the long-term effects of e-invoicing implementation, researchers can gain deeper insights into the challenges businesses face during different stages of adoption and identify effective strategies for improving compliance rates. Additionally, further research should assess the impact of government incentives on e-invoicing adoption.

Understanding how financial support and regulatory assistance influence SMEs' decision-making processes will help policymakers develop more effective intervention strategies. Investigating case studies from other countries that have successfully implemented e-invoicing mandates could also provide valuable lessons that can be adapted to the Malaysian SME landscape.

In conclusion, this study underscores the importance of addressing financial, regulatory, technological, and human barriers to e-invoicing adoption among SMEs. By implementing targeted policies, improving technological infrastructure, simplifying compliance requirements, and offering structured training programs, the government and relevant stakeholders can facilitate a smoother transition to digital invoicing, ensuring that SMEs are well-prepared for the mandatory implementation of e-invoicing in the coming years

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