

Digital Business Adoption and its Impact on Business Performance and Sustainability among Community Entrepreneurs in Malaysia

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ABSTRACT

The rapid advancement of digital technologies has transformed how small businesses create value, communicate with customers, manage transactions, and sustain market presence. Yet participation in digitalisation programmes does not necessarily result in sustained digital business adoption among community-based micro and small enterprises. This revised conceptual paper develops and strengthens an integrated framework for explaining digital business adoption and its downstream effects on business performance and business sustainability among community entrepreneurs in Malaysia. The framework combines the Technology Acceptance Model (TAM), Resource-Based View (RBV), and an institutional-support perspective, while drawing complementary explanatory insights from the Unified Theory of Acceptance and Use of Technology (UTAUT) and Diffusion of Innovations (DOI). Five antecedents are proposed: digital literacy, perceived usefulness, perceived ease of use, entrepreneurial orientation, and government support. Digital business adoption is positioned as a mediating mechanism linking these antecedents to business performance and business sustainability. The paper formally specifies testable hypotheses, defines community entrepreneurs and control variables, provides a measurement and operationalisation table with sample items and sources, and outlines a pilot study and validation procedures. A quantitative cross-sectional survey of approximately 300–400 Malaysian community entrepreneurs is proposed, with data analysed using PLS-SEM. The paper also explicitly addresses common method bias, cross-sectional limitations, and the limits of causal interpretation. The framework contributes by integrating technology perceptions, entrepreneurial capabilities, and institutional conditions into a single model focused on an underexamined Malaysian community-enterprise context.

Keywords: Digital Business Adoption; Community Entrepreneurs; Business Performance; Business Sustainability; Technology Acceptance Model; Resource-Based View; UTAUT; Diffusion of Innovations; Malaysia

INTRODUCTION

Digital transformation has reshaped contemporary business environments by changing how organisations create value, interact with customers, manage operations, and compete. E-commerce platforms, social media, cloud services, mobile applications, digital payment systems, and data-driven tools can reduce geographical barriers and provide micro and small businesses with relatively accessible mechanisms for marketing, selling, communicating, and managing business activities. The benefits of digitalisation, however, depend not simply on access to technology but on whether entrepreneurs possess the capabilities, perceptions, and support required to integrate digital tools into routine business processes. (OECD, 2020; Shahadat et al., 2023)

Malaysia has placed digitalisation within its broader economic and entrepreneurship development agenda through initiatives involving agencies such as the Malaysia Digital Economy Corporation (MDEC), MARA, and Institut Keusahawanan Negara (INSKEN). The original manuscript appropriately identifies a practical problem: community entrepreneurs may still experience inadequate digital literacy, financial limitations, uncertainty about technology, limited organisational capability, and uneven access to institutional support. These constraints make it important to distinguish participation in digitalisation programmes from actual digital business adoption.

(Malaysia Digital Economy Corporation, 2023; Raji et al., 2020)

The literature also suggests that digitalisation may influence both immediate business performance and longer-term sustainability. Existing studies, however, frequently focus on particular technologies or established SMEs, while less attention is directed to community-oriented micro and small businesses in developing-country settings. The present study therefore treats digital business adoption as an organisational capability rather than as the simple possession or occasional use of a digital tool. (OECD, 2020; Roman & Rusu, 2022; Shahadat et al., 2023)

A second issue concerns theoretical fragmentation. TAM explains technology acceptance through perceived usefulness and perceived ease of use, whereas RBV highlights internal resources and capabilities. Government support, in contrast, represents an external institutional condition. UTAUT provides a complementary lens because its performance expectancy, effort expectancy, and facilitating conditions conceptually overlap with usefulness, ease of use, and support conditions. DOI further highlights how perceived characteristics of an innovation and the social system can shape diffusion. The revised framework uses these theories as complementary lenses rather than adding every theoretical construct to the empirical model. UTAUT was developed as an integrative technology-acceptance model based on eight earlier models, including TAM and innovation diffusion theory (Davis, 1989; Venkatesh et al., 2003; Rogers, 2003).

Accordingly, this paper has five objectives: (1) to identify the determinants of digital business adoption among Malaysian community entrepreneurs; (2) to examine whether digital business adoption is associated with business performance; (3) to examine whether digital business adoption is associated with business sustainability; (4) to test whether digital business adoption mediates the relationships between the five antecedents and the two outcomes; and (5) to provide a clearly operationalised framework suitable for empirical testing.

DEFINITION AND SCOPE OF COMMUNITY ENTREPRENEURS

The term community entrepreneur requires explicit clarification because community entrepreneurship has been used inconsistently across the literature. Prior scholarship notes definitional and conceptual contestation around community entrepreneurship and calls for clearer boundaries. For this study, a community entrepreneur is operationally defined as an owner-manager of a micro or small business in Malaysia whose business is primarily connected to local/community markets and/or who participates in entrepreneurship-development programmes intended to support grassroots or community-based entrepreneurs (Hertel & Belz, 2017).

This definition is intentionally operational rather than claiming that every sampled entrepreneur is a community enterprise in the collective or social-enterprise sense. The study focuses on grassroots entrepreneurs who operate resource-constrained micro and small businesses and who are accessible through entrepreneurship-development programmes. Eligible respondents should therefore: (i) be at least 18 years old; (ii) own or manage a micro or small business operating in Malaysia; (iii) have operated the business for at least six months; and (iv) have used, attempted to use, or been exposed to at least one digital business tool such as social media, e-commerce, digital payment, online communication, digital accounting, or online customer-management tools.

LITERATURE REVIEW

Digital Business Adoption

Digital business adoption refers to the integration and continued use of digital technologies in business activities, processes, capabilities, and value-creation activities. It therefore extends beyond owning a smartphone or maintaining a social-media account. In this study, adoption encompasses the extent to which entrepreneurs' application of digital tools for marketing, sales, customer communication, payments, administration, distribution, and business management. This broader definition is coherent with the original manuscript's argument that digital adoption should be treated as an integrated business capability rather than as isolated technology use (OECD, 2020; Ramdan et al., 2020).

Digital adoption offers micro and small businesses a broader market reach, reduced transactional and overhead costs, enhanced customer engagement flexibility, and diversified sales channels. Nonetheless, adoption may remain uneven because digital skills, perceived benefits, perceived effort, entrepreneurial posture, and external support differ across entrepreneurs. (Ramdan et al., 2020; Shahadat et al., 2023)

Business Performance

Business performance is treated as a multidimensional outcome covering financial and non-financial aspects. Consistent with the original manuscript, relevant indicators include sales growth, profitability, customer growth, productivity, operational efficiency, and competitive position. Subjective performance measures are appropriate when objective financial records are difficult to obtain from micro and small enterprises; prior Malaysian SME research, for example, has used owner-manager perceptions of financial performance indicators such as sales, profit, costs, and return on investment (Venkatraman & Ramanujam, 1986; Roman & Rusu, 2022).

Digital business adoption is expected to support performance because digital channels can increase market reach, improve customer communication, facilitate transactions, reduce administrative effort, and enable entrepreneurs to respond more quickly to customer needs. The relationship is therefore formulated as an empirical hypothesis rather than assumed as a guaranteed causal effect (Roman & Rusu, 2022; Shahadat et al., 2023).

Business Sustainability

Business sustainability concerns the ability of a business to remain viable and create value over time while responding to economic, social, and environmental considerations. The original manuscript draws on the Triple Bottom Line perspective, which distinguishes economic, social, and environmental dimensions. In the context of community entrepreneurs, sustainability also includes continuity, adaptability, responsible resource use, stable customer relationships, and resilience to changes in the external environment. Research on SME sustainability measurement similarly supports the use of economic, social, environmental, and operational indicators (Elkington, 1997; Malesios et al., 2020).

Digital business adoption may contribute to sustainability by diversifying sales channels, supporting business continuity, reducing paper-based processes, improving resource efficiency, and strengthening customer relationships. Nevertheless, the proposed study will test these relationships empirically rather than presuming that all forms of digitalisation are inherently sustainable (OECD, 2021; Malesios et al., 2020).

Digital Literacy

Digital literacy refers to the knowledge and skills required to access, understand, evaluate, communicate, create, and solve problems using digital technologies in a business setting. A systematic review by van Laar et al. (2017) identifies technical, information-management, communication, collaboration, creativity, critical-thinking, and problem-solving skills as important components of digital capability. In community businesses, stronger digital literacy should reduce the knowledge barrier to using digital platforms and increase entrepreneurs' ability to integrate technology into routine activities. The original manuscript similarly identifies digital knowledge and skills as an important enabler of digital platform use (van Laar et al., 2017; Ramdan et al., 2020).

H1: Digital literacy has a positive and significant relationship with digital business adoption among community entrepreneurs in Malaysia.

Perceived Usefulness

Perceived usefulness originates from Davis (1989) in TAM and refers to the extent to which a person believes that using a technology will improve task or business performance. In this study, entrepreneurs are expected to be more willing to adopt digital business tools when they believe those tools can improve sales, productivity, customer engagement, market access, or business management.

H2: Perceived usefulness has a positive and significant relationship with digital business adoption among community entrepreneurs in Malaysia.

Perceived Ease of Use

Perceived ease of use refers to the degree to which an entrepreneur believes that using a digital technology will require relatively little effort. Simple interfaces, manageable learning requirements, and ease of integration can reduce resistance to adoption, particularly where entrepreneurs have limited technical experience. This relationship follows TAM (Davis, 1989) and is also conceptually consistent with UTAUT's effort-expectancy logic (Venkatesh et al., 2003).

H3: Perceived ease of use has a positive and significant relationship with digital business adoption among community entrepreneurs in Malaysia.

Entrepreneurial Orientation

Defined as a firm's strategic posture toward entrepreneurial action, entrepreneurial orientation (EO) is widely conceptualised through Covin and Slevin's (1989) three dimensions: innovativeness, proactiveness, and risk-taking. Although Lumpkin and Dess (1996) expanded this construct to include autonomy and competitive aggressiveness, this study utilizes Covin and Slevin's (1989) original model to maintain analytical parsimony while directly capturing an entrepreneur's propensity for digital experimentation, proactive opportunity seeking, and risk tolerance. Integrating Barney's (1991) Resource-Based View (RBV) framework, EO serves as an internal capability that enables strategic adaptation. Consequently, as implied by Lumpkin and Dess (1996), business owners with elevated EO levels perceive digital technologies as drivers of strategic advantage rather than mere operational requirements.

H4: Entrepreneurial orientation has a positive and significant relationship with digital business adoption among community entrepreneurs in Malaysia.

Government Support

Government support, as characterized by the OECD (2021), comprises an array of financial incentives, capability-building workshops, strategic advisory services, and infrastructural policies that systematically lower technology adoption barriers. For resource-constrained community-based enterprises, the OECD (2021) notes that these public initiatives absorb the initial capital risks of digitalisation while facilitating vital knowledge transfer. Within the Malaysian landscape, agencies such as MDEC, MARA, and INSKEN operationalize these institutional mechanisms. Therefore, rather than treating public support as an internal organizational resource, this study conceptualises government intervention as a foundational external enabling condition.

H5: Government support has a positive and significant relationship with digital business adoption among community entrepreneurs in Malaysia.

Digital Business Adoption and Business Performance

Grounded in recent empirical findings by Roman and Rusu (2022) and Shahadat et al. (2023), digital adoption serves as a catalyst for organizational performance through multi-channel market expansion, operational communication efficiencies, digitalized transactions, enhanced customer relationship architectures, and superior information accessibility. Although Shahadat et al. (2023) confirm that small and medium-sized enterprises (SMEs) leverage digital tools to capture performance dividends, Roman and Rusu (2022) highlight that performance gains are non-uniform, varying considerably across environmental contexts and technological topologies. Consequently, this study directly tests the relationship between digital business adoption and performance outcomes to clarify these empirical variances.

H6: Digital business adoption has a positive and significant relationship with business performance among community entrepreneurs in Malaysia.

Digital Business Adoption and Business Sustainability

As highlighted by the OECD (2021), digital adoption underpins long-term organizational sustainability by facilitating market channel diversification, driving operational efficiencies, strengthening customer retention, and reinforcing operational resilience during systemic disruptions. Furthermore, Malesios et al. (2020) emphasize that enterprise sustainability extends beyond short-term financial performance to encapsulate enduring viability and adaptive capacity. Recognizing this conceptual distinction, the analytical framework explicitly differentiates business performance from long-term business sustainability.

H7: Digital business adoption has a positive and significant relationship with business sustainability among community entrepreneurs in Malaysia.

Alternative Theoretical Perspectives: UTAUT and DOI

UTAUT provides a useful complementary perspective because performance expectancy parallels the usefulness logic in TAM, effort expectancy parallels ease-of-use perceptions, and facilitating conditions provide a theoretical basis for considering external support. The present model retains TAM constructs for parsimony but uses UTAUT to strengthen the theoretical explanation of why technology perceptions and enabling conditions may shape adoption. UTAUT was developed by integrating eight prominent acceptance models and reported substantial explanatory power for behavioural intention and technology use in its original validation. (Venkatesh et al., 2003).

Rogers' (2003) Diffusion of Innovations (DOI) theory provides a complementary perspective by conceptualising technology adoption as a structural diffusion process embedded within a broader social system. While DOI underscores innovation attributes and adoption pathways, its core tenets are strategically embedded within the existing model: perceived usefulness operationalises the relative advantage construct, whereas government support and community dynamics mirror the contextual enabling environment. Rather than introducing DOI as a discrete predictor—which would induce construct redundancy and model over-specification—its principles are leveraged to explain digital business adoption as a macro diffusion phenomenon rather than a isolated individual choice (Rogers, 2003).

Consequently, the theoretical contribution of this study rests on synthesizing three distinct analytical strata: individual-level cognitive evaluations of technology, as established by Davis (1989) and extended by Venkatesh et al. (2003); internal strategic capabilities, anchored in Barney's (1991) Resource-Based View; and macro-level institutional enablement, informed by Rogers' (2003) systemic diffusion framework.

CONCEPTUAL FRAMEWORK

Figure 1 presents the revised conceptual framework. The five antecedents are modelled as predictors of digital business adoption. Digital business adoption is then modelled as the immediate mechanism linking these antecedents to business performance and business sustainability. Business age, business size, and geographic location are included as control variables because differences in organisational maturity, resource availability, and local market/infrastructure conditions may be associated with adoption and outcomes. (Hair et al., 2019)

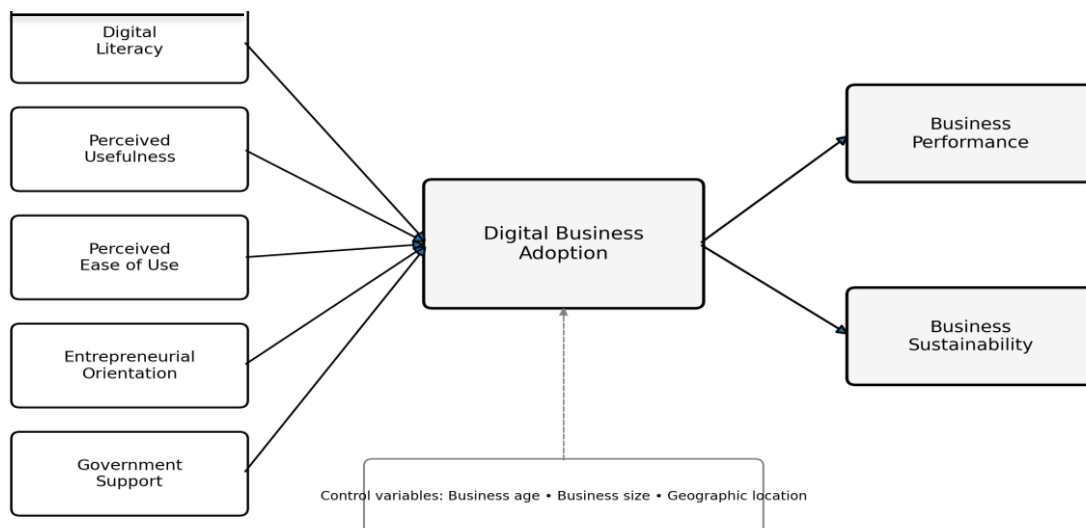


Figure 1. Proposed conceptual framework for digital business adoption among community entrepreneurs in Malaysia.

THEORETICAL JUSTIFICATION FOR THE MEDIATION PATHWAYS

The mediation logic is based on a capability-to-adoption-to-outcome sequence. Digital literacy, EO, and government support represent resources or enabling conditions that can make digitalisation possible, while perceived usefulness and perceived ease of use explain why entrepreneurs may accept and integrate particular digital technologies. Digital business adoption represents the behavioural and organisational mechanism through

which these antecedents are translated into actual business practices. This logic is consistent with TAM/UTAUT, which explain technology acceptance and use, and with RBV, which emphasises how capabilities can be deployed to create value. (Davis, 1989; Barney, 1991; Venkatesh et al., 2003)

The indirect effects are therefore theoretically distinct from simply asserting that each antecedent improves business outcomes. For example, digital literacy may not improve sales or sustainability merely because an entrepreneur possesses digital knowledge; its contribution should occur when that knowledge enables the entrepreneur to adopt and integrate digital practices. Similarly, government support is expected to generate downstream outcomes primarily when training, financial assistance, infrastructure, or advisory support results in actual adoption. This makes digital business adoption a plausible explanatory mechanism. (Davis, 1989; Barney, 1991; Raji et al., 2020)

However, because the proposed study uses a cross-sectional design, mediation results should be interpreted as evidence of statistical indirect association rather than definitive causal mediation. Temporal precedence cannot be established without longitudinal or experimental data. (Hair et al., 2019)

RESEARCH METHODOLOGY

Research Design

The study adopts a quantitative, cross-sectional survey design. A structured questionnaire is appropriate for collecting standardised responses from a geographically dispersed population and for testing a model containing multiple latent constructs and mediation pathways. The study is explanatory and hypothesis-driven rather than descriptive. (Hair et al., 2019)

Population, Sampling and Sample Size

The target population comprises Malaysian community entrepreneurs operating micro and small businesses, particularly those participating in entrepreneurship development programmes organised by agencies such as MARA, INSKEN, NADI, and Amanah Ikhtiar Malaysia (AIM). A stratified sampling approach will be used where a suitable sampling frame is available, with strata based on programme and/or geographic region. If a complete probability sampling frame cannot be obtained, the study will transparently report the resulting non-probability sampling approach and its implications.

Approximately 300–400 usable responses are targeted. Before data collection, an a priori statistical power analysis will be conducted based on the maximum number of predictors pointing to an endogenous construct, the anticipated effect size, significance level, and desired statistical power. The final sample will also account for incomplete responses and unusable questionnaires.

Questionnaire Development and Pilot Study

The questionnaire will be developed by adapting established measures and contextualising wording to the community-entrepreneurship setting. Content validity will be assessed by academic and practitioner reviewers with expertise in entrepreneurship, digital business, and quantitative research. A pilot study involving approximately 30–50 eligible community entrepreneurs, who will not be included in the final dataset, will then assess item clarity, completion time, response variability, and preliminary reliability. (Davis, 1989; van Laar et al., 2017; Covin & Slevin, 1989)

Pilot reliability will be examined using Cronbach's alpha as an initial diagnostic, while the final study will rely on composite reliability and construct validity assessments appropriate for PLS-SEM. Items that are ambiguous, redundant, or poorly understood will be revised before the main survey. The pilot is not intended to confirm the final structural hypotheses; rather, it is a quality-control stage for instrument clarity and feasibility. (Hair et al., 2019)

Measurement and Operationalisation

All latent constructs will be measured using multiple reflective indicators unless theoretical and empirical

assessment indicates otherwise. A five-point Likert scale will be used for attitudinal constructs, ranging from 1 = strongly disagree to 5 = strongly agree. Sample items below illustrate the intended operationalisation; final wording will be confirmed after expert review and pilot testing. The sources indicate the conceptual origins of the measures, while the items are adapted to the Malaysian community-entrepreneurship context. (Davis, 1989; Covin & Slevin, 1989; van Laar et al., 2017)

Construct	Operational definition	Sample items	Primary source(s)
Digital literacy	Ability to use digital tools for business tasks, manage digital information, communicate online, and solve routine digital problems.	I can use digital tools to manage my business activities; I can evaluate digital information relevant to my business; I can solve routine problems when using digital business tools.	van Laar et al. (2017); Ramdan et al. (2020)
Perceived usefulness	Belief that digital technologies improve business performance and effectiveness.	Using digital technologies improves my business productivity; digital tools help me reach more customers; digital technologies improve the effectiveness of my business activities.	Davis (1989)
Perceived ease of use	Belief that digital technologies are easy to learn and operate.	Learning to use digital business tools is easy for me; I find digital business tools easy to use; it is easy for me to become skilful at using digital business technologies.	Davis (1989)
Entrepreneurial orientation	Entrepreneurial posture reflected in innovativeness, proactiveness, and risk-taking.	My business frequently introduces new approaches; we proactively look for new opportunities; we are willing to take calculated risks to pursue opportunities.	Covin & Slevin (1989); Lumpkin & Dess (1996)
Construct	Operational definition	Sample items	Primary source(s)
Government support	Perceived availability and usefulness of public training, financial, advisory, infrastructure, and policy support for digitalisation.	Government programmes provide useful digital training; government support helps reduce the cost of digitalisation; I can access institutional advice or assistance when adopting digital tools.	OECD (2021)
Digital business adoption	Extent to which digital technologies are integrated into marketing, sales, communication, payments, administration, and business management.	My business regularly uses digital channels to market products/services; we use digital tools for customer communication and transactions; digital technologies are integrated into our routine business activities.	Ramdan et al. (2020); OECD (2020)
Business performance	Perceived financial and non-financial improvement in business outcomes.	Our sales have improved; our customer base has increased; our business operations have become more efficient; our business performs competitively compared with similar businesses.	Venkatraman & Ramanujam (1986); Roman & Rusu (2022)
Business sustainability	Ability to maintain business viability and create economic, social, and environmental value over time.	Our business is able to maintain operations over time; we can adapt to changes in the market; our business uses resources more efficiently; we maintain stable relationships with customers and the	Elkington (1997); Malesios et al. (2020)

community.

Control Variables

Three control variables will be included: business age, business size, and geographic location. Business age will be measured in years since establishment and may be grouped into meaningful categories for robustness analysis. Business size will be measured using the number of full-time employees, with annual sales optionally collected as a supplementary descriptive measure where respondents are willing to report it. Geographic location will be coded by state and/or broad region (e.g., Central, Northern, Southern, East Coast, Sabah, Sarawak) to account for possible differences in market access, infrastructure, and institutional exposure. These controls will be included because structural differences across firms and locations may otherwise be associated with digital adoption and business outcomes. (Shahadat et al., 2023)

Data Collection Procedure

Data collection will be conducted through a structured self-administered questionnaire distributed through entrepreneurship-development agencies, entrepreneur networks, programme organisers, and appropriate online channels. Respondents will receive an information statement explaining the purpose of the study, voluntary participation, confidentiality, and the approximate completion time. No personally identifying information required for the analysis will be collected.

Data Analysis

Data will first be screened for missing values, straight-lining, duplicate responses, and implausibly short completion times. Descriptive statistics will summarise respondent and business characteristics. PLS-SEM will then be used to assess the measurement and structural models. PLS-SEM is appropriate for a predictive, multi-construct model with mediation and a developing contextual framework; established guidance recommends reporting the measurement-model and structural-model assessment systematically. (Hair et al., 2019)

The measurement model will be assessed using indicator loadings, internal consistency reliability, convergent validity (including AVE), and discriminant validity (including HTMT where appropriate). The structural model will be assessed using collinearity diagnostics, path coefficients, bootstrapped confidence intervals, explained variance (R^2), effect sizes (f^2), and predictive assessment such as PLSpredict where feasible. Mediation will be tested through bootstrapped indirect effects rather than through a causal interpretation of a single cross-sectional coefficient. (Hair et al., 2019; Henseler et al., 2015)

Common Method Bias

Because the study collects predictor, mediator, and outcome perceptions from the same respondent at one point in time, common method bias (CMB) is a relevant methodological concern. Podsakoff et al. (2003) identify procedural and statistical remedies for method bias. Accordingly, the study will reduce CMB procedurally by assuring anonymity, separating construct sections, using clear and neutral wording, reducing evaluation apprehension, and avoiding item wording that signals the expected relationship. Where feasible, item order will be varied across questionnaire sections. (Podsakoff et al., 2003)

Statistically, the study will examine collinearity diagnostics and may use the full-collinearity VIF approach as a supplementary CMB assessment. Kock (2015) proposes full-collinearity assessment as a practical diagnostic

in PLS-SEM. CMB will not be judged using a single test alone; evidence from procedural controls, measurement validity, and statistical diagnostics will be considered jointly. (Podsakoff et al., 2003; Kock, 2015)

EXPECTED THEORETICAL CONTRIBUTION

The revised framework contributes to theory in four ways. First, it extends TAM by moving beyond usefulness and ease of use to incorporate digital capability, entrepreneurial orientation, and external institutional support. Second, it applies RBV to explain why internal entrepreneurial capabilities may enable the conversion of digital

opportunities into actual adoption. Third, it uses UTAUT and DOI as complementary perspectives that position adoption within a broader technology-use and diffusion process rather than treating it as a purely individual attitude. Fourth, it proposes digital business adoption as a mediating mechanism that links antecedent conditions to both immediate business performance and longer-term sustainability.

The contribution is therefore not the introduction of an entirely new technology-acceptance theory, but the contextual integration of established perspectives in a population that is less visible in the digital entrepreneurship literature: Malaysian community-oriented micro and small businesses.

EXPECTED PRACTICAL IMPLICATIONS

If the proposed relationships are supported, the findings would help entrepreneurship-development agencies distinguish between access-oriented interventions and capability-oriented interventions. Training programmes could emphasise practical digital literacy and application rather than awareness alone. Interventions could also communicate clear business benefits and reduce complexity to strengthen perceived usefulness and ease of use. Government support could be designed to combine training, advisory assistance, infrastructure, and targeted financial mechanisms rather than treating these as separate initiatives.

For entrepreneurs, the framework highlights that digitalisation should be viewed as an integrated business capability involving skills, technology perceptions, entrepreneurial behaviour, and support conditions. For educators, the model provides a basis for designing entrepreneurship curricula that connect digital skills with opportunity recognition, experimentation, customer engagement, and business sustainability.

METHODOLOGICAL LIMITATIONS AND FUTURE RESEARCH

First, the proposed cross-sectional design limits temporal inference. Because predictor, mediator, and outcome data are collected at one point in time, the study cannot establish that digital literacy, government support, or technology perceptions preceded adoption and that adoption subsequently caused performance or sustainability changes. Longitudinal research would provide stronger evidence of temporal ordering.

Second, self-reported measures may introduce common method and social-desirability biases. The study therefore incorporates procedural and statistical remedies, but these cannot guarantee that all method bias is eliminated. Future studies could combine survey responses with objective sales records, platform-use data, digital-payment records, or assessments from programme providers.

Third, the proposed sample is focused on Malaysian community entrepreneurs accessible through entrepreneurship-development programmes. The results may not generalise to large firms, technology-intensive ventures, or entrepreneurs outside the programme ecosystem. Comparative studies across regions, sectors, business sizes, and countries would help establish boundary conditions.

Fourth, the framework does not include every possible determinant of adoption. Variables such as social influence, compatibility, trust, perceived cost, digital infrastructure quality, competitive pressure, and owner characteristics may explain additional variance. UTAUT and DOI are therefore used as complementary theoretical perspectives, while future studies can test extended models incorporating selected constructs when theoretically justified.

Finally, mediation evidence from cross-sectional PLS-SEM should be described as an indirect association rather than definitive causal mediation. Future research should use longitudinal designs or repeated measures to test whether antecedents predict changes in adoption and whether adoption subsequently predicts changes in performance and sustainability.

CONCLUSION

This revised paper develops a more explicit and testable framework for examining digital business adoption among community entrepreneurs in Malaysia. The framework identifies digital literacy, perceived usefulness, perceived ease of use, entrepreneurial orientation, and government support as antecedents of digital business

adoption, while positioning adoption as a mechanism associated with business performance and business sustainability. It also explicitly defines the target population, incorporates business age, business size, and geographic location as control variables, and provides operational definitions, sample measurement items, pilot-study procedures, validation criteria, and common-method-bias remedies.

By integrating TAM, RBV, institutional support, and complementary insights from UTAUT and DOI, the framework recognises that digital adoption is simultaneously a technology-acceptance issue, an organisational-capability issue, and an environmental-support issue. Empirical testing of the proposed hypotheses will allow the study to determine which mechanisms are most strongly associated with digital adoption and whether adoption is statistically linked to performance and sustainability outcomes.

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