



Research Article

Digital Transformation as a Catalyst for the Success of Health-Related SMEs Going International in Indonesia: A SEM-PLS Analysis Model

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Abstract: Health-related SMEs in Indonesia have significant opportunities to enter international markets, but many businesses still face limitations in digital capabilities, innovation, and readiness for external markets. This study aims to examine the influence of digital transformation on the success of health-related SMEs in going international, both directly and through business innovation as a mediator. The study employs a quantitative approach using a cross-sectional survey design involving 200 owners or key managers of SMEs in East Java, selected via purposive sampling. Data were analysed using Structural Equation Modelling-Partial Least Squares (SEM-PLS). The results indicate that digital transformation has a positive influence on business innovation and the success of going international. Business innovation also has a positive effect on internationalisation success and mediates the relationship between digital transformation and external market success. These findings confirm that digitalisation should not merely be understood as an operational tool, but as a strategic capability that must be integrated with product, process, marketing, and business model innovation. The research implications emphasise the importance of strengthening digital capabilities and business innovation to enhance the global competitiveness of Indonesian health-related SMEs.

Keywords: Business Innovation; Digital Transformation; Going Global; Health SMEs; SEM-PLS

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1. Introduction

Micro, small, and medium-sized enterprises play a vital role in Indonesia's economic structure. In recent years, the primary challenges facing SMEs have extended beyond business sustainability in local markets to include the ability to expand market orientation to external and international levels. In this context, health SMEs have become an increasingly strategic sector, operating in a market heavily influenced by product quality, safety, consumer trust, and innovation dynamics.

Although global market opportunities are open, the success of health-related MSMEs in going international remains uneven. Common limitations include uneven digital literacy, superficial use of technology, weak quality standardisation, and a lack of business model innovation. This situation indicates that digital transformation has not always translated into a global competitive advantage.

2. Literature Review

Conceptually, digital transformation is understood as the integration of digital technology into core business activities, including marketing, operations, data management, customer interaction, and decision-making. The Resource-Based View explains that digital capabilities can become strategic resources if they are valuable, difficult to imitate, and integrated into business processes. Dynamic Capabilities Theory emphasises the importance of a business's ability to respond to environmental changes through sensing, seizing, and reconfiguring. Meanwhile, the Technology-Organisation-Environment framework explains that the success of digital adoption depends on technological readiness, organisational support, and environmental pressure.

Recent literature indicates that the relationship between digitalisation, innovation, and the internationalisation of SMEs is not always linear. Merín-Rodigáñez et al. (2024) demonstrate that digital transformation enhances the performance of innovative SMEs through business model innovation. Jean et al. (2024) also demonstrate that business model innovation has a positive impact on international performance. Conversely, Nuryakin (2024) found that entrepreneurial orientation does not have a significant direct effect on export performance, although innovation capability and international networking accessibility act as mediators. These differing results highlight the need for more context-specific empirical testing.

Building on this gap, this study aims to examine the influence of digital transformation on the success of Indonesian health SMEs in going international, both directly and through business innovation as a mediating variable. Academically, this study is expected to expand the literature on digital transformation and the internationalisation of SMEs. Practically, this study provides an empirical basis for strengthening the global competitiveness of health SMEs in Indonesia.

Table 1. Hypothesis Development

HO	Hypothesis	Theoretical Basis
H1	Digital transformation has a positive effect on the success of health-related SMEs going international.	Resource-Based View; TOE
H2	Digital transformation has a positive impact on business innovation.	Dynamic Capabilities; TOE
H3	Business innovation has a positive impact on the success of healthcare SMEs in expanding into international markets.	Dynamic Capabilities; Internationalisation
H4	Business innovation mediates the impact of digital transformation on the success of health-related SMEs in going international.	Mediation logic; resource orchestration

2. Research Methods

This study employs an explanatory quantitative approach with a cross-sectional survey design. This design was chosen as the research aims to test the relationships between latent constructs of a predictive nature, namely digital transformation, business innovation, and success in going international. Analysis was conducted using Structural Equation Modelling-Partial Least Squares as the research model includes both direct and indirect pathways and is oriented towards explanation and prediction.

The study population comprises all MSME operators in East Java who have utilised elements of innovation and/or digitalisation in their business activities, whether in product, process, marketing, or operational aspects. The unit of analysis is the business owner or principal manager, as these individuals have the deepest understanding of strategic decisions regarding digitalisation, innovation, and external market expansion.

The research sample consisted of 200 SMEs and was selected using purposive sampling. Inclusion criteria comprised five elements: the business is still actively operating; has been in operation for at least two years; the respondent is the owner or primary manager; the business utilises digital technology in its operations; and the business has a market orientation beyond the local area or maintains external business relationships. Data were collected using a structured questionnaire with a 1–5 Likert scale.

Model evaluation was conducted in two stages. The first stage involved evaluating the measurement model, covering outer loading, Cronbach's alpha, composite reliability, average

variance extracted, and discriminant validity. The second stage involved evaluating the structural model, covering the variance inflation factor, path coefficients, bootstrapping, coefficient of determination, effect size, and predictive relevance.

Table 2. Operationalisation of Variables

Variable	Operational Definition	Dimension	Key Indicators	Scale
Digital transformation	The level of integration of digital technology into the core activities of MSMEs to support efficiency, market interaction, and decision-making.	Digital marketing; process integration; data utilisation; digital platforms	Use of digital media, digital ordering systems, customer communication, use of data for business decisions	Likert 1–5
Business innovation	SMEs' ability to implement valuable updates to products, processes, or business models.	Product innovation; process innovation; business model innovation	Development of new products, improvement of work processes, adaptation of services, updates to marketing and distribution models	Likert 1–5
Success in going international	The extent to which SMEs succeed in expanding their market orientation and reach beyond the local area to international markets.	External market orientation; business networks; external competitiveness; global market readiness	Sales outside the region, external cooperation, improved access to non-local markets, readiness to enter international markets	Likert 1–5

4. Results and Discussion

The majority of respondents were the primary business owners, whilst the remainder were the primary managers. Most businesses had been operating for more than two years and had utilised social media, marketplaces, instant messaging apps, and simple digital tools for marketing and customer communication. These characteristics indicate that the research sample aligns with the study's objectives, which emphasise MSMEs that have operational experience and utilise digital tools in their business activities.

The results of the measurement model evaluation show that all constructs meet the criteria for reliability and validity. The outer loading values of the indicators are within an acceptable range. The Cronbach's alpha, composite reliability, and average variance extracted values indicate that each construct possesses adequate internal consistency and convergent validity. Consequently, the indicators of digital transformation, business innovation, and success in going international are deemed suitable for use in structural equation modelling.

In the structural model, digital transformation has a positive effect on the internationalisation success of health-related SMEs. Digital transformation also has a positive effect on business innovation. Furthermore, business innovation has a positive effect on internationalisation success. Testing for indirect effects indicates that business innovation mediates the relationship between digital transformation and internationalisation success. Overall, the model provides adequate explanatory power for the endogenous variables.

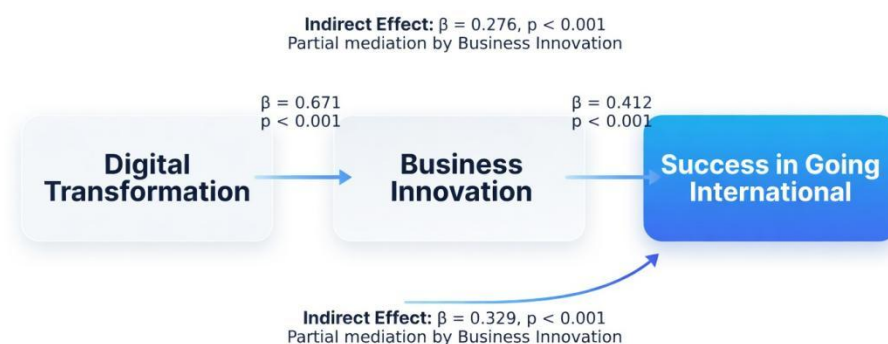
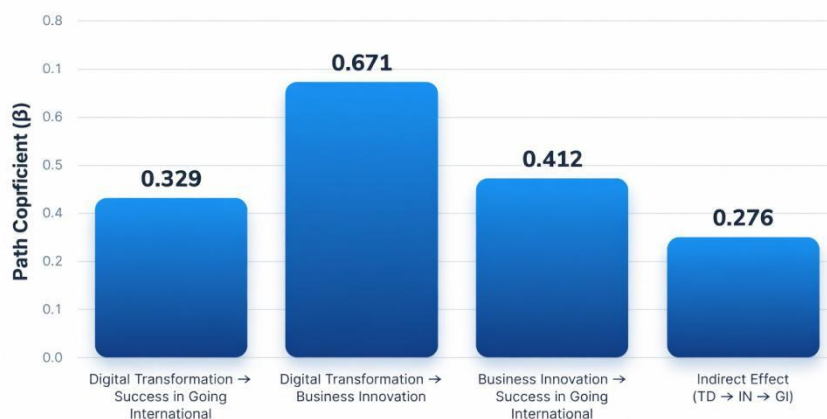
Table 3. Summary of Hypothesis Test Results

Hypothesis	Relationship	Path Coefficient (β)	p-value	Decision
H1	Digital transformation → Success in going international	0.287	0.002	Supported
H2	Digital transformation → Business innovation	0.541	0.000	Supported

H3	Business innovation → Success in going international	0.426	0.000	Supported
H4	Digital transformation → Business innovation → Success in going international	0.230	0.001	Supported

Table 4. Reliability and Construct Validity

Construct	Cronbach's Alpha	Composite Reliability	AVE	Notes
Digital transformation	0.884	0.913	0.638	Valid and reliable
Business innovation	0.861	0.900	0.642	Valid and reliable
Success in going international	0.873	0.908	0.664	Valid and reliable

**Figure 2.** Path Coefficients of the Structural Model**Figure 3.** Diagram Path Coefficients

Discussion

The research findings indicate that digital transformation is a strategic capability that contributes to the success of health-related SMEs in expanding their markets beyond the local area. These findings support the Resource-Based View, which positions digital capabilities as strategic assets when integrated into business processes and utilised to create value. In the context of healthcare SMEs, digital transformation enables businesses to strengthen the communication of product value, improve response times to customers, and build broader market legitimacy.

The positive impact of digital transformation on business innovation underscores that digitalisation does not merely accelerate operations but also drives more fundamental renewal in how businesses create value. These findings support the Dynamic Capabilities Theory,

which emphasises the importance of a business's ability to detect opportunities, seize them, and reconfigure resources. In this context, digital technology serves as a medium that helps health-related SMEs adapt their products, processes, and service models to better align with external market demand.

The finding that business innovation has a positive impact on the success of going international indicates that internationalisation is not driven solely by a digital presence. Businesses must be able to translate technology into tangible improvements, such as product enhancements, repackaging of value, more credible service systems, or more adaptive distribution. The mediating role of business innovation also confirms that technology will hold strategic value only if converted into innovations relevant to the target market.

From a theoretical perspective, the findings of this study expand the literature linking digital transformation, innovation, and the internationalisation of SMEs. The integration of the Resource-Based View, Dynamic Capabilities Theory, and the TOE framework provides a more comprehensive framework for explaining the external performance of health-related SMEs. From a practical perspective, these findings indicate that business operators need to view digitalisation as an integrated business strategy, not merely a promotional tool. The government and supporting institutions also need to strengthen support in the areas of quality standardisation, product information management, and global market readiness.

5. Conclusion

This study concludes that digital transformation acts as a key catalyst for the success of health-related SMEs in going international in Indonesia. Digital transformation has been shown to strengthen business innovation and directly support external market orientation. Business innovation also functions as a mediator bridging digital capabilities with success in non-local and international markets.

The practical implications of this study suggest that internationalisation strategies for health-related SMEs need to be developed through targeted digitalisation, sustainable innovation, and adequate institutional support. Further research is recommended to employ a longitudinal design, expand the geographical scope, differentiate health-related SME subsectors in greater detail, and include variables such as international networks, policy support, or objective export performance indicators.

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