MANAGING ORGANIZATIONAL DIGITAL ENTREPRENEURSHIP FOR BUSINESS OUTCOMES: A STRUCTURAL EQUATION ANALYSIS

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ABSTRACT

As the digital economy rapidly evolves, it becomes increasingly essential for organizations to effectively utilize digital platforms and tools to manage their stakeholders and business activities to improve their organizational performance. Practitioners and scholars have, therefore, paid considerable attention to understanding how digital entrepreneurship can contribute to business success within organizations. Nevertheless, there is still a need for systematic and rigorous empirical research that can demonstrate whether and how digital entrepreneurship can enhance business performance and improve stakeholder satisfaction.

This study addresses this need by investigating the role of digital entrepreneurship in enhancing organizational performance and uncovering the underlying mechanisms. Grounded in the Resource-Based View (RBV), Goal Setting Theory, and the Technology-Organization-Environment (TOE) framework on technology adoption, this research empirically examines the antecedents, practices, and outcomes associated with the adoption of digital entrepreneurship in organizations. Data were collected from more than two hundred employees from organizations across various industries. The findings reveal that digital entrepreneurship is significantly related to the observed business performance improvement in operational efficiency and marketing effectiveness, which in turn enhances reported satisfaction of key stakeholders, even though it does not directly relate to their satisfaction. Among the antecedents, the factors regarding strategic goals and internal and external pressures are the primary sources for current digital entrepreneurship engagement, whereas expected benefits, acquired organizational readiness, and perceived risks are not. Furthermore, current digital entrepreneurship practices and the observed business performance improvement strengthen company planning for future engagement with digital innovations.

Keywords: *Digital Entrepreneurship, Competitive Business Outcomes, Stakeholder Satisfaction, Performance Outcomes, Future Adoption*

INTRODUCTION

As digital technology advances, organizations increasingly shift from traditional to digital entrepreneurship (Nambisan, 2017; Steininger et al., 2022), which Sahut et al. (2021) referred to as the process of entrepreneurial creation of organizational value that uses various sociotechnical digital platforms and applications to support efficient and effective business acquisition, processing, distribution, and consumption of digital information. In this digital economic context, companies utilize different digital platforms, networks, and tools to manage their

operations and engage stakeholders across their supply chain. The rapid development of digital technologies, such as artificial intelligence, cloud computing, and big data analytics, enables entrepreneurs to create new business ventures and transform existing business processes. Thus, digital entrepreneurship provides a competitive advantage through organizations' effective use of various digital tools, platforms, and data-driven processes.

In a digital business environment, entrepreneurs and organizations rely on online platforms, social media, and mobile applications to identify opportunities, reach customers, and co-create value across geographical boundaries (Elia et al., 2020). For instance, the online platform Temu has disrupted the traditional business-to-customer model as well as the customer-to-customer model to a factory-to-customer model. The new model enables an extraordinary number of micro, small, and medium enterprises in China and many other Southeast Asian countries to reach countries in Europe and the Americas without significant physical investment (Becker, 2024; Daulay, 2025; Zhang, 2025). Similarly, companies in the United States have leveraged e-commerce platforms such as Shopify and Amazon to expand globally (Dushnitsky & Stroube, 2021; MacDonald, 2024; Rezvi et al., 2025). Furthermore, organizations have adopted a wide range of digital tools, such as online marketplaces, social media platforms, cloud computing providers, online decision systems, and AI applications, in order to support operations, marketing, services, product innovations, as well as business interactions among employees, customers, suppliers, and partners across all stages of the supply chain (Li et al., 2018).

As digital entrepreneurship evolves, a study focusing on how organizations can engage in it to achieve superior business performance and sustain continuous growth becomes increasingly important. Existing studies show that digital entrepreneurship can foster continuous innovation, data-driven decision-making, and collaboration with investors, suppliers, and partners (Antonizzi & Smuts, 2020; Prokhoruk et al., 2025). Both startups and established organizations are also found to leverage digital entrepreneurship to reach global customers, provide innovations, achieve business agility, and improve long-term performance (Antonizzi & Smuts, 2020; Paweehirunkrai & Pankham, 2025). Digital entrepreneurship, therefore, enhances operational efficiency and strengthens competitive advantage (Kraus et al., 2023). Nevertheless, the impact of digital entrepreneurship on business performance remains only partially revealed. Empirical research on digital entrepreneurship at the organizational level is still needed, since researchers have not adequately studied its impact on the concrete business outcomes or the motivational and strategic factors that shape it.

In this research, we extend the existing literature by examining how digital entrepreneurship contributes to corporate innovation, operational efficiency, and value co-creation with customers, employees, partners, and suppliers across organizational boundaries. Specifically, this study addresses three key questions at the organizational level through a proposed research model: (1) What are the internal and external motivations that drive organizations to engage in digital entrepreneurship? (2) What business outcomes result from the adoption and integration of digital entrepreneurial practices within organizations? (3) How does current engagement in digital entrepreneurship relate to the organizational plan for future digital entrepreneurship engagement?

While digital entrepreneurship and organizational digital transformation rapidly evolve, addressing these questions is crucial for both scholars and practitioners. Findings on the outcomes of digital entrepreneurship across the organizational supply chain that involves employees, partners, suppliers, and customers will provide valuable guidance for business practices and contribute to the academic understanding of digital transformation and innovation. Gaining insights into the factors that influence organizational engagement in digital entrepreneurship can help firms harness the potential of digital technologies across boundaries and develop strategies that foster innovation, collaboration, and sustainable competitive advantage. Such understanding will enable practitioners to implement and manage digital entrepreneurial initiatives more effectively within and across organizations in the broader digital ecosystem.

This study develops and validates a research model that identifies the key drivers, practices, and performance outcomes of digital entrepreneurship. Survey data from executives and managers across diverse industries reveal how organizations adopt digital entrepreneurial activities to enhance innovation, efficiency, and stakeholder engagement. The analysis confirms the model's robustness and yields several contributions: it empirically tests the antecedents and outcomes of organizational digital entrepreneurship, identifies the most influential motivating factors, and highlights underexplored organizational outcomes. The paper concludes with limitations and directions for future research on digital entrepreneurship within and across organizations.

DIFFUSION OF DIGITAL ENTREPRENEURSHIP AND THEORETICAL SUPPORT

This section reviews the relevant literature and establishes a theoretical and empirical foundation for the research model. The review first shows the rapid growth of digital entrepreneurship. It then reviews two categories of theories: The first category includes managerial theories that explain how firms leverage resources and strategic choices to gain competitive advantage, including the Resource-Based View (RBV) (Wernerfelt, 1984) and Strategic Choice Theory (SCT) (Child, 1972). The second category focuses on the Technology–Organization–Environment (TOE) framework (Chau & Hui, 2001; Zhu et al., 2004, 2006) that explains how technological, organizational, and environmental factors can shape the adoption and implementation of digital platforms and technology.

Digital Entrepreneurship in Organizations Across the Supply Chain

To respond to market demand effectively and efficiently in the global digital economy, companies must utilize various digital technologies and engage in digital initiatives. Digital entrepreneurship has emerged as a critical approach for organizations to innovate, create value, and improve business outcomes through supply chain integration and streamlining (Qi et al., 2022). Companies are increasingly investing in digital entrepreneurial initiatives to facilitate internal innovation, optimize operations, and strengthen collaboration with external stakeholders such as partners, suppliers, and customers (Antonizzi & Smuts, 2020). Digital entrepreneurship

practices have thus been implemented across multiple business functions (e.g., marketing, operations, and financing) and have been embedded in organizational activities along the supply chain.

Above all, digital entrepreneurship has been integrated into the organizational value chain to facilitate innovation, efficiency, and value creation across all functions (Kraus et al., 2019). It can help drive marketing innovation, product development, and operational improvements while reaching global customers and enhancing collaboration with partners and suppliers (Nambisan, 2017). Companies have leveraged digital platforms, analytics, and e-commerce tools to optimize research and development, streamline operations, and strengthen marketing and customer support functions. In doing so, they use digital entrepreneurship to support both primary business functions and organizational capabilities, thereby fostering sustainable competitive advantage (Qi et al., 2022; Sahut et al., 2021; Steininger, 2019). More importantly, organizations benefit from technology spillover and leverage a global knowledge source through network-centric strategies to accelerate product development, drive smarter, faster innovation, and support collaborative innovation and knowledge exchange among diverse stakeholders across countries and even reaching the most isolated rural areas (Bei et al., 2024; Huang et al., 2024; Xiong et al., 2024).

Digital entrepreneurship can also facilitate relationship building both internally and externally. Internally, digital entrepreneurial initiatives foster collaboration among employees and improve knowledge sharing. It helps human resource management and boosts employee satisfaction through recruitment, talent evaluation, and workforce development (Abid & Polo, 2025; Steininger, 2019). Externally, it strengthens engagement with customers, partners, and suppliers, and enables personalized services, co-created solutions, and more responsive interactions. Most importantly, digital entrepreneurship ensures network building capability and resource integration capability beyond geographical and even cultural limitations (Bei et al., 2024; Hajli et al., 2025; M. Zhang & Li, 2025).

Management Theories Support for Digital Entrepreneurship

The paper reviews three major types of management theories that explain organizational transformation and the outcomes of digital entrepreneurship. First, the Resource-Based View (RBV) focuses on the importance of developing unique, inimitable, and heterogeneously distributed capabilities to achieve a competitive advantage (Barney, 1991). It is widely applied in organizational research to examine how organizational resources contribute to efficiency, innovation, and long-term performance outcomes (Amit & Schoemaker, 1993; Barney, 1991). Digital entrepreneurship can be considered an organizational movement to strategically acquire resources so that companies can increase their capabilities by utilizing digital platforms, data analytics, and technology-enabled business models (Ngoasong, 2018).

Similarly, resource dependence theory emphasizes the critical role of resources in organizational and individual development; organizations and individuals acquire such resources to gain competitive advantages (Drees & Heugens, 2013; Hillman et al., 2009). They depend on access to such resources to respond and adapt to internal and external challenges (Roundy &

Bayer, 2019). It is reasonable to propose that organizations engage in digital entrepreneurship to strengthen their strategic positioning and achieve superior competitive performance.

Strategic Choice Theory further addresses organizational decisions at both operational and strategic levels (Child, 1972). It suggests that companies make deliberate strategic choices to align resources, capabilities, and external opportunities. Digital entrepreneurship enables organizations to connect fragmented networks and enhance collaboration across departments and partner ecosystems, while enabling flexible responses to dynamic market conditions (Fauzi et al., 2020; Ngoasong, 2018). From a strategic perspective, digital entrepreneurial practices can serve as highly effective mechanisms to improve organizational capacity, facilitate proactive engagement, and support co-creation and innovation across networks (Li et al., 2018; Urban et al., 2025; Xiao et al., 2022). Therefore, it is sound to believe that organizations have made strategic choices when making decisions about digital transformation and entrepreneurship.

In addition to illuminating the potential value of digital entrepreneurship for organizations, they provide robust lenses to examine how digital entrepreneurship drives organizational innovation, performance, and stakeholder value creation by gaining a resource-based advantage and making strategic choices with high-level intentional decisions.

Technology Adoption Theories Support for Digital Entrepreneurship

The Technology–Organization–Environment (TOE) framework (Chau & Hui, 2001; Zhu et al., 2004, 2006) can be adopted to study the entrepreneurial practice of using digital tools within organizations as many information system (IS) studies have done. The TOE framework provides a useful perspective to examine the contextual factors that influence organizational decisions regarding adopting digital entrepreneurship initiatives. It identifies three dimensions that shape technology adoption decisions: technological, organizational, and environmental contexts (Chau & Hui, 2001; Zhu et al., 2004, 2006). Accordingly, this framework can examine the main factors driving the adoption and use of digital entrepreneurship in organizations from the three types of contextual factors.

The TOE framework suggests that specific factors may influence adoption decisions for digital entrepreneurship. First, organizations engaging in entrepreneurial initiatives may be more likely to adopt digital technologies when they perceive that they can provide various benefits (Nkwei et al., 2023; Rosin et al., 2020) and minimize risks and difficulty compared to not adopting (Sangosanya et al., 2025). Second, organizational factors, such as needed skills, knowledge, and other resource availability, and strategic alignment with organizational goals, may also play crucial roles. Finally, environmental pressures, such as competitive intensity, industry norms, and partner expectations, can also influence adoption and diffusion decisions (Sangosanya et al., 2025).

In sum, management theories and technology adoption TOE framework represent both constraints and opportunities for digital innovation, and they provide a theoretically grounded perspective for examining digital entrepreneurship at the organizational level. Therefore, this study conceptualizes that the adoption of digital entrepreneurship can be examined through the three types of TOE factors of the technology adoption theory, as well as the antecedents

highlighted by three management theories related to digital entrepreneurship adoption: (1) technological factors, including perceived/expected benefits and perceived risks/difficulty; (2) strategic choice, resource dependent, and organizational factors, including strategic goals and skills/knowledge resource availability; and (3) environmental factors, including internal and external pressures from needs of employees as well as demands by competitors and the industry. This study investigates each antecedent to better understand how organizations make strategic decisions to adopt and leverage digital entrepreneurship to connect, innovate, and collaborate across the supply chain.

HYPOTHESES DEVELOPMENT

This section reviewed the empirical literature on the main factors leading to digital entrepreneurship engagement and how such engagement can impact organizational performance, using the TOE framework of technological, organizational, and environmental factors, as well as insights from RBV and SCT.

Technological Factor 1: Expected Benefits and Digital Entrepreneurship

RBV and TOE suggest that organizations may use technological tools to acquire organizational resources to gain benefits and improve business practice. A review of existing literature seems to confirm this argument and shows that organizations increasingly adopt digital entrepreneurship initiatives with the expectation of enhancing operational efficiency and marketing effectiveness. Organizations intend to streamline their business processes, improve coordination, and strengthen connections with customers and partners through their strategic use of digital tools and platforms (Kraus et al., 2019, 2023; Nambisan, 2017). Martinez Dy et al. (2018) summarized the expected benefits of digital entrepreneurship as follows: Access to market research, business data and networks; wider reach and lower cost of client-facing operational functions (e.g., advertising, communications, distribution); lower cost of internal operational functions; digital value creation; customer relationship building through social media; use of existing sales channels; creation of new sales channels, new platform development, and existing platform transformation. These expected benefits could be categorized as internal and external benefits. Internally, digital tools and platforms are expected to improve workflow integration, product design and production, employee engagement, and decision-making efficiency (Baum & Rabl, 2019; Rabl et al., 2023; Wales, 2016). Externally, digital technologies enable global customer reach, better relationship-building with customers, partners, suppliers, and improve responsiveness to market dynamics (Muafi et al., 2023; O'Leary, 2012; M. Zhang & Li, 2025). Therefore, this study hypothesizes that the expected operational and marketing benefits of digital entrepreneurship positively influence the adoption and implementation of digital entrepreneurial practices within organizations.

Hypothesis 1 (H1): *The greater the expected benefits associated with digital entrepreneurship, the more likely an organization will implement digital entrepreneurial initiatives.*

Technological Factor 2: Perceived Risk/Difficulty and Digital Entrepreneurship

TOE on the technological factor points out that perceived risks can be major barriers to adopting new technology for digital entrepreneurship. This may be particularly true as organizations struggle to attract and retain employees with the necessary digital skills and knowledge. Empirical studies have shown that many firms may hesitate to invest in digital initiatives due to limited internal capabilities, resource constraints, and uncertainty about measurable outcomes (Cutolo & Kenney, 2021; Jagadeeswari et al., 2025). The literature review by Martinez Dy et al. (2018) summarizes relevant perceived risks, including information overload, lack of digital business knowledge, poor digital skills, high cost associated with resources, investment and skill requirements, and an inability to keep up with the dynamic technological environment. Small and medium-sized enterprises are especially disadvantaged when competition for digital talent is high and their resources are limited (Skandalis & Skandali, 2025). Additionally, legal, regulatory, and cybersecurity concerns can pose further challenges. In sum, shortages in talent, skills, knowledge, and resources along with other perceived risks and organizational capability constraints, become barriers preventing companies from taking full advantage of the potential of digital entrepreneurship (Biclesanu et al., 2021). Therefore, this study hypothesizes that perceived risks may deter organizations from adopting digital entrepreneurship initiatives.

Hypothesis 2 (H2): *The greater the perceived risks associated with digital entrepreneurship, the less likely an organization will implement digital entrepreneurial initiatives.*

Organizational Factor 1: Strategic Goals and Digital Entrepreneurship

Studies have shown that organizational engagement in digital entrepreneurship may be the result of their strategic decisions, as companies often establish initiatives to achieve strategic goals in pursuit of competitive advantage (Bala'wi et al., 2025). This finding is consistent with the key principles of SCT and the organizational factor in TOE framework that suggest companies may aim to accomplish strategic goals enabled by digital tools in pursuing digital engagement and initiatives. Digital entrepreneurship initiatives often evolve for two primary purposes: (1) to engage target markets via digital platforms, and (2) to advance relationship-building, organizational innovation, and brand positioning (Daulay, 2025; Martinez Dy et al., 2018; O'Leary, 2012; Zhao et al., 2021). These goals include enhancing communication and collaboration with stakeholders, reaching global customers and markets, and gaining faster and deeper access to skills, knowledge, and resources. For example, the research by Beliaeva et al. (2020) shows that companies adapt and create value by exploiting opportunities that enable the configuration of internal resources and external assets through strategic relationships. Therefore, these findings suggest that organizational strategic goals are closely associated with the adoption and utilization of digital entrepreneurship practices. Therefore, this study hypothesizes the following:

Hypothesis 3 (H3): *The greater an organization's focus on strategic goals across its network or supply chain, the more likely it is to implement digital entrepreneurial initiatives.*

Organizational factor 2: Organizational readiness for Skills/Knowledge/Resources and digital entrepreneurship

RBV and the organizational factors of the TOE framework would emphasize organizational pursuit of resources in skills, knowledge, and other resources to be ready for their activities. Similarly, prior empirical research identifies organizational readiness as a critical determinant of technology and innovation adoption (Dube et al., 2020; Oliveira & Martins, 2011). For digital entrepreneurship, studies have shown that organizational readiness related to skills, knowledge, and culture may shape managerial decisions regarding the adoption, scope, and implementation of digital initiatives, enabling organizations to be agile and responsive to market changes in the important environmental factors that are resulted from internal and external pressures (Zaini, 2025). Worldwide, companies often lack readiness when they do not possess the mindset, expertise, or experience required to support digital innovation. This is especially true at the operational level, where organizations are hindered by insufficient technical skills, limited technological infrastructure, and weak innovation processes (Van Welsum, 2016). Therefore, this study hypothesizes that organizational readiness positively influences the adoption and effective utilization of digital entrepreneurship initiatives.

Hypothesis 4 (H4): *The greater an organization's perceived internal readiness, the more likely it is to implement digital entrepreneurial initiatives.*

Environmental Factor: Environmental Pressures and Digital Entrepreneurship

TOE framework highlights the importance of the environmental factor from internal and external pressures in technology adoption, such as digital tools for digital entrepreneurship. Existing research also suggests that digital entrepreneurship initiatives create considerable pressures on organizations from three sources: customers, peers, and close stakeholders such as partners, suppliers, and current or potential employees (Hansen, 2019; Pillai et al., 2022; Wang et al., 2024). The adoption of digital tools and platforms is increasingly widespread across the supply chain, both locally and globally. Organizations face pressure to meet the expectations of digitally savvy customers, peers, and stakeholders because these groups rely on online channels for information, decision-making, operations, marketing, and purchasing (Hansen, 2019). Companies that fail to adopt digital entrepreneurial practices may risk losing relevance because stakeholders increasingly expect and depend on digital, innovative, and technology-enabled products, services, and interactions (Naudé, 2024). To stay competitive, companies often adopt digital entrepreneurial initiatives and leverage digital platforms, data analytics, and technology-driven business models. Organizations that do not engage in digital entrepreneurship may find it difficult to build strong partnerships or attract talent in technology-driven ecosystems (Pillai et al., 2022). As a result of these pressures, organizations are often compelled to utilize digital technology to restructure their business models, operational processes, and internal roles for

better performance and competitiveness (Prokhoruk et al., 2025). Therefore, this study hypothesizes that pressures from customers, competitors, and partners are positively associated with organizational adoption of digital entrepreneurship initiatives.

Hypothesis 5 (H5): *The greater pressures faced by an organization from its stakeholders and network, the more likely it is to implement digital entrepreneurial initiatives.*

Competitive Business Outcomes of Digital Entrepreneurship

Existing empirical research has identified two categories of business outcomes associated with digital entrepreneurship. First, digital entrepreneurship can lead to better performance outcomes in operations and marketing activities because digital engagement and initiatives may enhance internal and external operations and strengthen marketing effectiveness. These improvements further reduce operational costs, expand the market and customer base, and increase financial outcomes (Paweehirunkrai & Pankham, 2025). Qi et al. (2022) also found that digital transformation has significantly improved enterprise performance in China. Similarly, Muafi et al. (2023) show that digital entrepreneurship in Indonesian companies has a positive effect on the sustainable performance of small and medium enterprises. Li et al. (2018) found that entrepreneurs foster long-term adaptability and competitiveness by digital transformations, through managerial cognition renewal, managerial social capital development, business team building, and organizational capability building, and with the support from various digital platform services and providers.

Second, businesses that engage in different digital platforms and digital initiatives can help build better satisfaction by internal and external stakeholders, such as employees, customers, partners, and suppliers, about various business practices (Monnavarian & Ashena, 2009). For example, many social media platforms help stakeholders communicate with each other, which in turn can enhance collaboration and strengthen partnerships (Cao et al., 2018). Muafi et al. (2023)'s empirical study of 260 enterprises in Indonesia found that digital entrepreneurship has a significant positive effect on job satisfaction.

The two types of competitive business outcomes may be interconnected in digital entrepreneurship practice. As companies gain better performance in revenue growth, cost reduction, customer expansion, and marketing effectiveness in both the short-term and long-term, these enhanced performance outcomes may in turn reinforce satisfaction among key constituents (Paweehirunkrai & Pankham, 2025). Empirical research further shows that improved business performance can lead to higher satisfaction among customers, partners, suppliers, and employees, and such satisfaction can also reciprocally strengthen performance outcomes (Cao et al., 2018; Muafi et al., 2023).

In sum, digital entrepreneurial engagement not only generates direct performance outcomes but also strengthens relationships with key stakeholders. These improvements create a virtuous cycle that enhances long-term organizational competitiveness, as stronger performance reinforces stakeholder satisfaction. Therefore, this study hypothesizes the following:

Hypothesis 6 (H6): *The greater the organization's adoption and utilization of digital entrepreneurship initiatives, the higher the observed organizational performance outcomes, including operational, marketing, financial, as well as relationship and satisfaction performance.*

Hypothesis 7 (H7): *The greater the organization's adoption and utilization of digital entrepreneurship initiatives, the higher the reported stakeholder satisfaction with its business practices.*

Hypothesis 8 (H8): *The higher the organizational performance outcomes, the greater the reported satisfaction by stakeholders with various organizational business practices.*

Future Engagement in Digital Entrepreneurship with Current Digital Entrepreneurship and Its Business Outcomes

Several factors may influence a company's engagement in digital entrepreneurship. First, empirical research shows that current engagement in digital entrepreneurship prompts organizations to pursue additional digital initiatives and transformations over time. Early adoption and subsequent capacity building enable firms to better recognize and utilize digital tools (Nambisan, 2017). Furthermore, when digital entrepreneurship boosts both short-term and long-term business performance outcomes and stakeholder satisfaction (Paweehirunkrai & Pankham, 2025), the resulting performance improvement enhances organizational resilience. This resilience enables organizations to engage in new forms of digital collaboration and innovations to address the challenges of technological disruptions and gain access to the global market (Audretsch et al., 2024). Thus, current digital initiatives and their resulting outcomes reinforce future digital entrepreneurship engagement and improve firms' long-term ability to survive and grow. Therefore, this study hypothesizes the following:

Hypothesis 9 (H9): *The greater the organization's adoption and utilization of digital entrepreneurship initiatives, the greater the organization will continue such digital engagement in the future.*

Hypothesis 10 (H10): *The greater the business performance outcomes of digital entrepreneurship initiatives, the greater the organization will continue such digital engagement in the future.*

Hypothesis 11 (H11): *The greater the stakeholder satisfaction of digital entrepreneurship initiatives, the greater the organization will take on digital engagement in the future.*

RESEARCH DESIGN AND EXECUTION

Research Model and Survey Instruments

An Organizational Digital Entrepreneurship Antecedents and Outcomes Model is established based on 1) the examined supply chain and organizational theories about performance outcomes, 2) the Technology-Organization-Environment (TOE) framework regarding technology adoption factors, and 3) the empirical support for the hypotheses developed around digital entrepreneurship factors and outcomes (see Figure 1). Guided by a model proposed by Cao et al. (2018), this research model illustrates the relationships among digital entrepreneurship adoption, its antecedents, and its consequences. Specifically, the model shows that organizations engage in various forms of digital entrepreneurship and depicts the drivers (e.g., expected benefits, perceived risks, external pressures, and strategic goals), processes (e.g.,

digital entrepreneurship adoption and practices), and performance outcomes (e.g., stakeholder satisfaction and business outcomes). As the construct of business outcomes is the focus of this study, respondents were asked to reflect and distinguish between their observed improvement in business outcomes (designated as observed "performance outcomes") and their satisfaction with various business practices (reported "stakeholder satisfaction").

To collect data and test the research model along with the research hypotheses, a questionnaire survey was designed. In the questionnaire, the following applications were listed under digital technological tools:

1. Social media/social networking sites (such as LinkedIn, Facebook, YouTube, and Instagram)
2. Digital platforms (such as Amazon, eBay, and Alibaba)
3. Analytics and big data (such as Google Analytics, Tableau, and other business analytics)
4. Mobile (Mobile marketing, apps, and mobile banking)
5. Cloud and crowdsourcing/financing (Cloud computing and Dropbox)
6. Internet of Things (IoT)
7. AI (Artificial Intelligence or other Cognitive Technologies)
8. Virtual Reality (aka VR)
9. Additive manufacturing (aka 3D printing)
10. Blockchain or crypto technology

All constructs were measured using a 1-7 Likert scale. Their dimensions, key variables, definitions, supporting literature, means, and standard deviations for the questionnaire are summarized in Table 1. As depicted in Figure 1, the research model illustrates the drivers, practices, and outcomes of digital entrepreneurship adoption. The drivers were divided into five key variables: expected benefits, perceived risks, environmental pressures, strategic goals, and organizational readiness. Practices were measured by the extent of digital entrepreneurship engagement. Stakeholder reported satisfaction outcomes (reported by employees and maybe about partners, suppliers, customers, and more about business practices) and observed organizational performance outcomes (such as operational efficiency, market effectiveness, and revenue/sales) are used as key performance indicators for the business outcomes of digital entrepreneurship engagement. The supporting literature identifies the major scholarly articles used for reference purposes. The questionnaire was designed to capture information on the drivers, practices, and outcome variables, in addition to company and respondent profiles. The future digital entrepreneurship plan was measured by the organizational intention to adopt different digital applications.

Figure 1
MODEL FOR ORGANIZATIONAL DIGITAL ENTREPRENEURSHIP ANTECEDENTS AND OUTCOMES

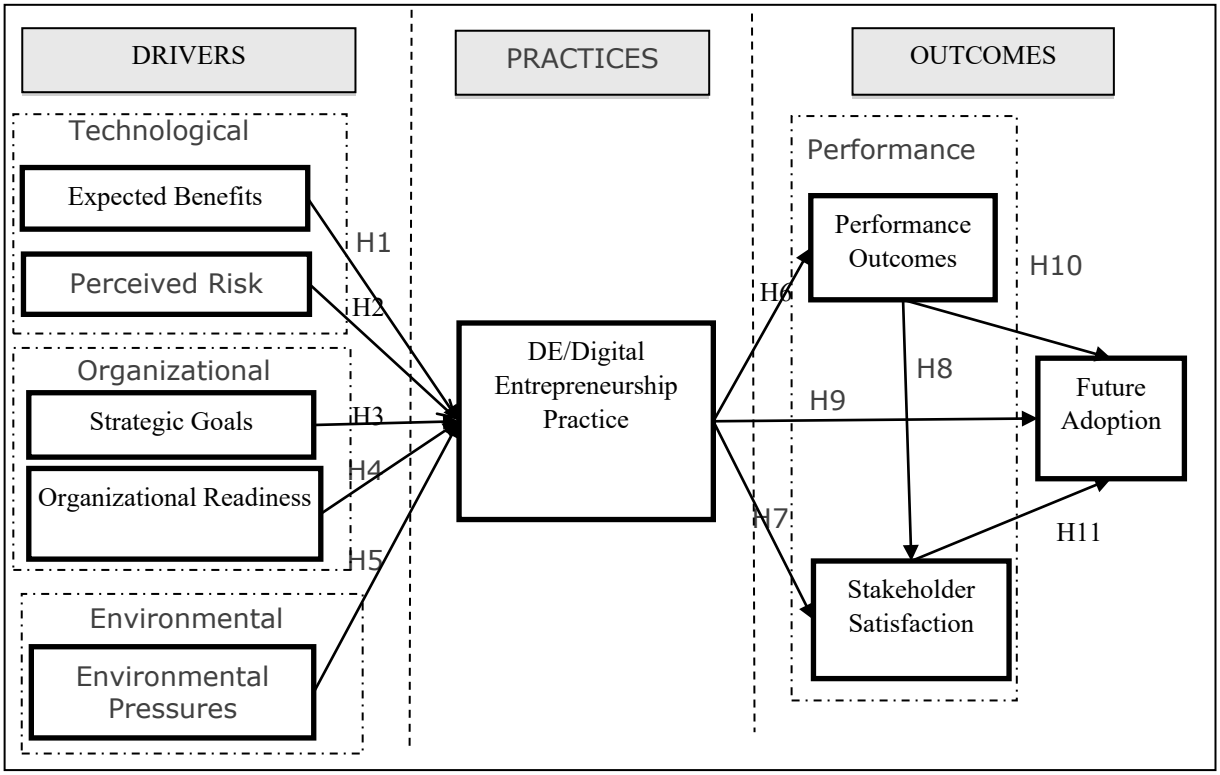


Table 1
CONSTRUCTS, VARIABLES, DEFINITION AND LITERATURE BASE

Constructs	Variables	Definition	Literature Base
Drivers	Expected Benefits	Organizational perceived advantage over current technological and relational practices in terms of anticipated positive influence on organizational members as well as business process details.	(Cao et al., 2018) (Qi et al., 2022; Sahut et al., 2021; Steininger, 2019)
	Perceived Risks	The extent of organizational loss potential about the additional use of digital entrepreneurship for organizational purpose.	(Cao et al., 2018) (Biclesanu et al., 2021)
	Strategic Goals	Organizational explicit and clear objectives in terms of sales, customer service-directed outcomes, operational performance, financial outcomes, and relationship building.	(Cao et al., 2018) (Martinez Dy et al., 2018; O'Leary, 2012; Zhao et al., 2021).
	Organizational Readiness	The extent of organizational potentials in skills, knowledge, and resources to adopt and use additional digital entrepreneurship initiatives for organizational purpose.	(Cao et al., 2018) (Dube et al., 2020; Oliveira & Martins, 2011)
	Environmental Pressures	The extent of organizational felt needs in the competitive market environment about the additional use of digital entrepreneurship for organizational competitiveness.	(Cao et al., 2018) (Hansen, 2019).
Practices	Current Digital Entrepreneurship Practice	The various types of digital tools/platforms and the extent of their use for both internal and external organizational purposes.	(Cao et al., 2018) (Sahut et al., 2021; Steininger, 2019).
Outcomes	Performance Outcomes	Observed, measurable tangible and intangible performance in terms of sales and profit as well as performance goals in the areas of enhancing the organizational brand awareness in the market	(Cao et al., 2018)
	Stakeholder Satisfaction	Satisfaction with products, services, relationships, operations, marketing and other business practices by organizational stakeholders.	(Cao et al., 2018)
	Future Adoption	The various types of digital tools/platforms and the likelihood of adopting them for both internal and external organizational purposes.	(Cao et al., 2018)

Data Collection Procedures

In the data collection process, this study targeted respondents who were directly involved in or had sufficient knowledge about the use of digital tools within their working companies. These people included executives and managers responsible for digital entrepreneurship initiatives, as well as those who had informed perspectives on their organizations' digital practices in the broader business ecosystem. Companies across Southern California were selected for this study with convenient sampling. In 2019, a group of 37 undergraduate and graduate

students were asked to help reach ten respondents working at different companies, and data were collected through a Qualtrics online survey, yielding 223 valid responses with a response rate of 60.3%. All respondents were adults (aged eighteen or older) and full-time employees, with a substantial portion consisting of business owners, executives, senior managers, and designated organizational representatives.

This study first split the sample into two groups to assess potential non-response bias, based on the half time period of survey return (early vs. late respondents). Independent t-tests were then conducted to compare the results of the two groups. The analysis of the results showed that there were no consistent statistically significant differences among the variables for the two halves of the sample. This finding indicates that non-response bias was unlikely to be a major concern for this study (Cao et al., 2018).

Sample Characteristics

Table 2 summarizes most of the demographic characteristics of the respondents for the questionnaire on digital entrepreneurship. By gender, male and female were 48.0% and 52.0%, respectively. For race/ethnicity, the percentage for White, Hispanic, Asian/Pacific Islander, African American, and Native American were 18.2%, 26.4%, 32.7%, 8.2%, and 1.8%, respectively. Almost 22% of the respondents were over 35 years old, and about 65% were under 35 years old (with 44.8% under 24). Regarding work experience, 45.6% of respondents had over 6 years. In terms of positions in their working organizations, 46.8% reported that they held managerial roles, including owners (20.9%), managers, presidents, supervisors, and officers, which indicates that a substantial portion of the respondents had sufficient knowledge of digital engagement and initiatives in their working organizations, and they provided informed responses for this study. A significant portion of the respondents (42.3%) had also founded or directly been involved in founding businesses.

Table 2
PROFILE OF RESPONDENTS AND THE REPORTED ORGANIZATIONS

Profile of Respondents (N=223)		%*			%*
Gender	Male	48.0	Marriage	Yes	27.7
	Female	52.0		No	72.3
Education	Associate degree or Lower	33.5	Business	Yes	42.3
	Bachelors' Degree or Higher	66.5	Founding	No	57.7
Age	18-24	44.8	Year	1). 1	10.4
	25-34	22.0	of	2). 1-5	44.1
	35-44	11.2	Work	3). 6-10	11.3
	45-54	13.5	Experience	4). 11-15	9.9
	55-64	7.2		5). 16-20	6.3
	Above 65	1.3		6). >20	18.0
Race	White	18.2	Position	1. Owner	20.9
	Hispanic	26.4	at	2. Top management	8.2
	Asian/Pacific Islander	32.7	Work	3. Middle management	17.7
	African American	8.2		4. Lower management	9.5
	Native American	1.8		5. Staff/Worker	34.5
	Other/Mixed	12.7		6. Other	9.1
Profile of Reported Organizations					
Industry	1. Education	11.4	Company	1. Fewer than 10	23.2
	2. Energy and Utilities	4.5	Size	2. 10-49	26.8
	3. Entertainment, Media and Publishing	9.1		3. 50-99	9.1
	4. Financial Services and Asse Management	7.3		4. 100-249	10.9
	6. Healthcare Services – Provider	14.1		5. 250-499	12.3
	7. IT and Technology	5.5		6. 500-999	7.3
	8. Manufacturing	6.4		7. 1000 or more	10.5
	9. Retail	19.1	Years	1). 0-1 Year	13.2
	10. Telecommunications Communications	1.4		2). 2-5 Years	17.4
	11. Professional Service	9.5	of Establishment	3). 6-10 Years	13.2
	12. Other B2C	8.6		4). 10-15 Years	11.0
	13. Other B2B	3.2		5). 15 Years or more	45.2

* Missing values are excluded.

Table 2 also reports on the characteristics of the organization that respondents worked for. In terms of company size, 59.1% of the companies were small (fewer than a hundred employees), 30.4% were medium-sized (100–999 employees), and 10.5% were large (1,000 or more employees). The companies that the respondents worked for also represented a variety of industries: 43.1% of respondents were in retail, while the remainder were similarly distributed

among many other industries, such as manufacturing, professional and financial services, higher education, communications, travel and hospitality, and government sectors.

DATA ANALYSIS AND RESULTS

PLS (Partial Least Squares)

Instead of the confirmatory structural equation modeling (SEM) methods such as LISREL or its SEM module in AMOS, this study is exploratory and thus Partial Least Squares (PLS) structural equation modeling analysis was used for the data analysis. Specifically, SmartPLS was utilized. The reasons are: PLS-SEM is a component-based statistical method and considered suitable for analyzing complex research models with a proposed framework that incorporates both relevant theories and empirical data (Cao et al., 2018); it is also less restrictive in its assumptions regarding measurement scales or sample size and distributional assumptions (Claassen et al., 2008; Ringle et al., 2015). Finally, the significance levels of the path coefficients indicate the soundness of the research model (Hair et al., 2019).

Measurement Model

For the measurement model, the common method variance (CMV) problem was first analyzed in this study. First, Harman's single factor method was used. SPSS exploratory factor analysis (EFA) resulted in nine factors, and the top factor only explained 42.7% of the variance, lower than the threshold of 50.0%. This analysis result shows that no single factor accounts for the majority of the variance and CMV is generally considered less of a concern (Podsakoff et al., 2003). Second, common latent factors were examined. Following Podsakoff et al. (2003)'s two-step Common Method Factor (CMF) procedure, each indicator was converted into a single indicator construct in PLS, and all major constructs were converted into second-order constructs. The analysis results indicated that (1) the factor loadings in the models (with and without CMF) were significant and (2) the direction and the p value level of the path coefficients remained the same. Third, full collinearity assessment of VIFs was performed. The VIFs of the inner model were between 1.00 and 2.52, lower than the threshold of 3.3, which indicates that no significant common method bias exists for this study (Kock, 2015). Fourth, marker variable technique was adopted by adding a random variable to further examine VIFs. The resulting VIFs were between 1.29 and 3.23, lower than the threshold 4, suggesting CMV may exist, but is not a major problem for this study. Therefore, the findings of this study were not significantly impacted by CMV problem.

Table 3
MEASUREMENT MODEL

Construct Name	Item	Mean	STD	OL*	OL SE	OL t-stat
Expected Benefits	Operations - 1.Increase innovation	5.27	1.75	0.80	0.03	26.59
	2.Develop new core business lines or products/services	5.09	1.75	0.81	0.03	26.76
	3.Improve customer experience and engagement	5.44	1.66	0.84	0.03	34.12
	4.Increase market share and sales	5.33	1.71	0.83	0.03	32.07
	5.Minimize the cost and Increase efficiency	5.35	1.64	0.75	0.04	20.28
	6. Transform and optimize business process	5.35	1.55	0.83	0.03	27.29
	Marketing - 1. Digital technology helps market growth	5.47	1.71	0.86	0.02	35.34
	2. Digital technology helps customer service	5.35	1.80	0.81	0.03	24.54
	3. Digital technology helps fast market access	5.51	1.63	0.83	0.03	27.95
	4. Digital technology helps to predict future market trends.	5.22	1.69	0.83	0.03	26.87
	5. Digital technology helps influence and engage customers.	5.47	1.66	0.80	0.04	22.49
	6. Help raise the search ranking/web traffic and reach huge customer bases	5.34	1.77	0.81	0.03	26.85
Perceived Risks	Our company has difficulty in - 1. building a significantly new or differer talent base	4.32	1.87	0.92	0.09	9.81
	2. Ensuring employees to gain knowledge/skillsets to use different digita technology	4.48	1.84	0.88	0.10	9.27
	3. Finding the right employees to engage with digital technological tools	4.62	1.78	0.87	0.10	9.13
Strategic Goals	Our company's primary strategy-1. Develop existing digital capabilities	4.56	1.82	0.82	0.03	29.92
	2. Contractors and consultants	4.49	1.78	0.68	0.06	12.36
	3. External relationships (e.g., partnerships/other external collaboration)	4.86	1.75	0.77	0.03	24.85
	4. Recruiting employees with digital talent	4.78	1.90	0.76	0.04	20.41
	Our company has clear digital strategic objectives to 5-optimize operations	4.87	1.83	0.84	0.02	35.80
	6. to improve efficiency	5.22	1.77	0.82	0.03	31.57
	7. to increase innovations	5.05	1.80	0.84	0.03	33.38
Org. Readiness	1. Our company provides me resources to develop skills to thrive in a digita economy	4.98	1.82	0.94	0.01	69.55
	2. In our company, I can develop the skills to thrive in a digital environment	4.93	1.74	0.96	0.01	74.70
Environmental Pressures	1 Digital technology is necessary for our company for pressure fror customers					
	1). Our customers are migrating to use digital technology	4.85	1.81	0.81	0.03	28.66
	2). Our customer prefers to use digital technology	4.95	1.65	0.85	0.02	37.61
	3). Our customers make purchasing decisions using digital technology	4.79	1.78	0.82	0.03	26.05
	2. Digital technology is necessary due to pressure from competitors an partners					
	1). Our competitors have adopted digital technology	4.87	1.86	0.84	0.02	35.38
	2). We need to keep up with our competitors	5.33	1.75	0.75	0.05	16.13
	3). Using digital technology is necessary to establish competitive advantages	5.32	1.72	0.84	0.03	31.07
	2). Out partners prefer to communicate with us using digital technology	5.02	1.76	0.82	0.03	27.79
	3). Our suppliers or contractors prefer us to use digital technologies	5.12	1.66	0.77	0.04	19.36
DE Practice	Our company has utilized digital technologies to - 1. create nev products/services	4.57	2.07	0.85	0.02	45.69
	2. have innovation	4.74	1.99	0.85	0.02	37.46
	3. Transform existing business	4.85	1.92	0.85	0.03	32.78
	4. Minimize the cost	5.03	1.86	0.79	0.04	21.34
	5. Increase the revenue	5.15	1.82	0.84	0.03	32.88
	6. helps business operations and logistics	5.07	1.85	0.84	0.03	29.66
Performance Outcomes	We have observed the outcomes with the use of digital technologies in ou organization - 1. Increase in revenue and profit	4.81	1.82	0.87	0.02	43.58
	2 Increase sales and/or market share	4.89	1.70	0.84	0.02	34.94
	3. Reduce communication/operation cost	4.89	1.70	0.81	0.03	27.17

	4. Increase in revenue and profit	5.01	1.64	0.87	0.02	43.58
	5. Better customer satisfaction	5.01	1.64	0.80	0.03	23.81
	6. Better relationships with external partners/suppliers	5.03	1.79	0.84	0.03	31.42
	7. More or higher employee satisfaction and engagement	5.18	1.60	0.82	0.03	28.12
Stakeholder Satisfaction	I am satisfied with the company in: 1. Quality of product/service	5.34	1.59	0.82	0.03	28.28
	2. Customer service	5.44	1.50	0.85	0.02	35.15
	3. Profitability	5.07	1.67	0.83	0.03	31.99
	4. Pace of product development	4.94	1.62	0.82	0.03	25.35
	5. Customer satisfaction	5.51	1.49	0.85	0.03	31.84
Future Adoption	1. Social media	5.08	2.09	0.73	0.03	21.39
	2. Digital platforms	4.15	2.23	0.73	0.04	17.60
	3. Analytics and big data	4.89	1.92	0.81	0.03	28.40
	4. Mobile	5.04	2.05	0.77	0.04	22.11
	5. Cloud and crowdsourcing/financing	4.45	2.05	0.80	0.03	29.27
	6. Internet of Things	4.81	2.01	0.76	0.03	22.92
	7. Cognitive technologies (aka artificial intelligence or "AI")	3.79	2.15	0.74	0.04	20.69
	8. Virtual reality (aka VR)	3.41	2.16	0.71	0.04	18.43
	**OL: Outer Loading*					

Table 4
INTER-CONSTRUCT CORRELATIONS, DISCRIMINANT, AND CONVERGENT VALIDITY

	1	2	3	4	5	6	7	8	9
Correlations									
1Expected Benefit									
2Perceived Risk	0.339								
3Strategic Goals	0.556	0.151							
4Org. Readiness	0.491	0.078	0.683						
5Environmt Pressures	0.704	0.463	0.561	0.475					
6Current DE Practice	0.461	0.103	0.758	0.548	0.525				
7Stakeholder Satisfaction	0.596	0.289	0.541	0.504	0.659	0.514			
8Outcomes	0.457	0.165	0.383	0.407	0.513	0.366	0.677		
9Future Adoption	0.425	0.095	0.768	0.518	0.457	0.614	0.482	0.327	
Reliability Analysis									
Cronbach's alpha	0.949	0.874	0.893	0.882	0.914	0.912	0.915	0.882	0.896
Composite reliability (rho_a)	0.952	0.971	0.896	0.918	0.918	0.914	0.916	0.883	0.905
Composite reliability (rho_c)	0.955	0.919	0.916	0.944	0.93	0.932	0.933	0.913	0.915
Average variance extracted (AVE)	0.639	0.791	0.611	0.893	0.626	0.696	0.664	0.679	0.545
AVE SQRT	0.799	0.889	0.782	0.945	0.791	0.834	0.815	0.824	0.738
R^2						0.596	0.265	0.459	0.415
Q^2						0.561	0.306	0.158	0.488

[a] All of the correlations are significant at p<0.01

A two-step approach was used to interpret the PLS results for the measurement model and the structural model. Similar to Cao et al. (2018), the validity (e.g., convergent and

discriminant validity) and reliability of the items in the measurement model were first assessed. Three criteria are used for assessing the convergent validity of the measurement model: (1) the significance level of the outer loading (see Table 3) for each item on the constructs shows that all the items load significantly on their proposed constructs; (2) the average variance extracted (AVE) in Table 4 for all constructs is higher than the 0.50 threshold, which suggests that the convergent validity for each construct is sound. (3) The composite reliability of all constructs shown in Table 4 indicates that all constructs of this study display composite reliabilities of 0.88 or higher, compared with a threshold value of 0.70.

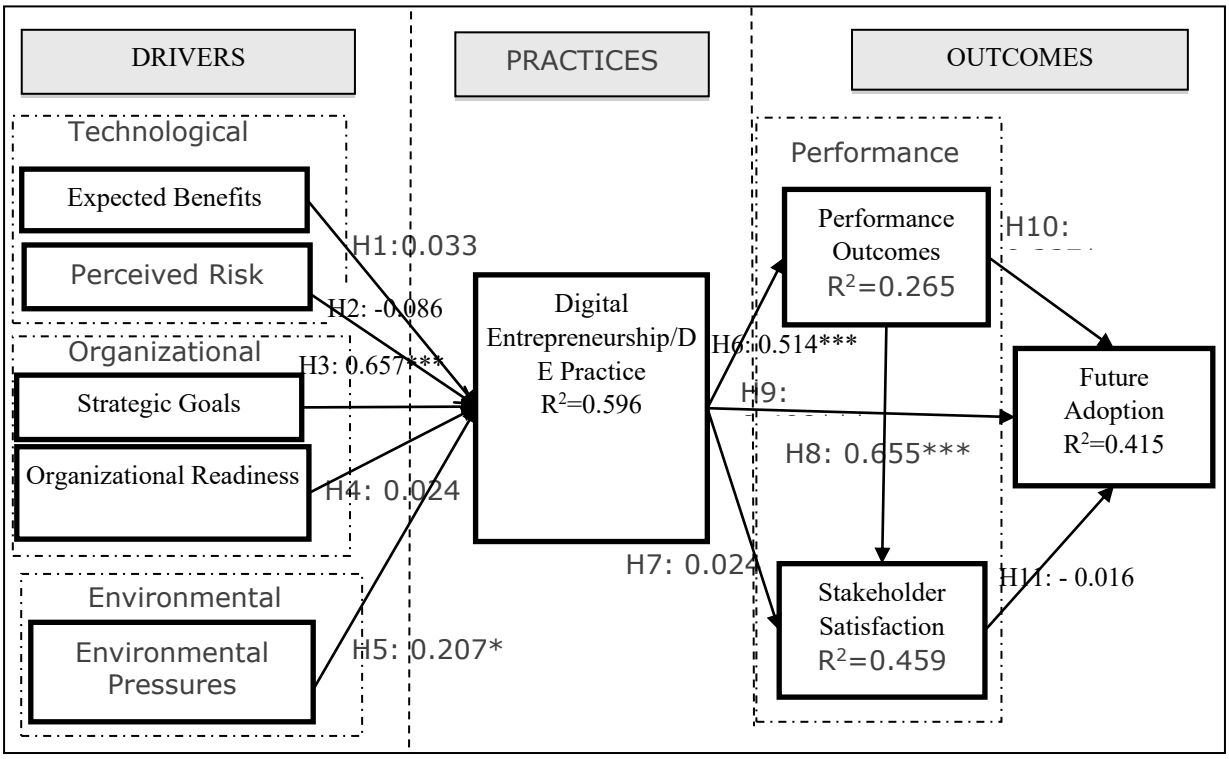
This study analyzes the discriminant validity and reliability of the measurement model (Cao et al., 2018). The analysis results in Table 4 show that the square roots of the AVEs of the items of the constructs are greater than the average shared variance between two constructs (as shown in correlation coefficients). Thus, this indicates that all the constructs used had adequate discriminant validity. This study also examined the values of Cronbach's alpha and composite reliability for construct reliability. The analysis results were ~~all~~ above 0.88 (threshold value of 0.70) and thus indicated that the internal consistency of the constructs was adequate.

Structural Model Results

This study evaluated the hypotheses and the structural model in the second step of data analysis. Using SmartPLS and its PLS algorithm, blindfolding, and bootstrap functions, the path model was assessed with a resampling method of 10,000 samples (Calantone et al., 1998; Chin, 1998b). The resulting path coefficients of the structural model, along with their significance levels, are presented in Figure 2 below. Among the antecedent factors, only two factors, organizational strategic goal and internal/external norms/pressures, have a significant and positive relationship with current digital entrepreneurship practice (coefficient = 0.657, $p<0.001$; coefficient = 0.207, $p<0.05$ respectively), indicating that H3 and H5 are supported. All other path coefficients are not statistically significant: Expected benefit, perceived risk, and skills/resources do not have a significant relationship with current digital entrepreneurship practice, indicating that H1, H2, and H4 are not supported.

Among the outcomes, all the proposed constructs were significantly related in one way or another, except constituent satisfaction. Specifically, current digital entrepreneurship practice has a significant positive relationship with operational/marketing business performance (coefficient = 0.514, $p<0.001$) and is also positively related to future digital entrepreneurship engagement (coefficient = 0.498, $p<0.001$), which means that the findings supported H6 and H9. However, it does not have a significant relationship with constituent satisfaction (coefficient = 0.024, $p>0.05$), indicating that H7 was not supported. In addition, this study finds that business performance outcomes are positively related to organizations' future digital entrepreneurship engagement (coefficient = 0.237, $p<0.05$) and lead to significant stakeholder satisfaction (coefficient = 0.665, $p<0.001$), thus supporting H8 and H10. Interestingly, stakeholder satisfaction does not significantly lead to future digital entrepreneurship engagement (coefficient = 0.004, $p>0.05$) and H11 is thus not supported.

Figure 2
MODEL FOR ORGANIZATIONAL DIGITAL ENTREPRENEURSHIP RESULTS



This study mainly used R^2 and Q2 to examine the explained variability and predictive relevance of the structural model and model fit (for relevant statistics, see Table 4). The R^2 values for its endogenous variables are 0.596 for digital entrepreneurship practice, 0.459 for stakeholder satisfaction, 0.265 for operational/marketing performance outcomes, and 0.415 for future digital entrepreneurship engagement, indicating that the structural model explains the relationships among the factors to a considerable extent (Cao et al., 2018). For predictive relevance (redundancy), the study used Q^2 test to examine the structural model. The resulting Q^2 values of the PLS-SEM analysis are 0.561 for digital entrepreneurship practice, 0.306 for operational/marketing performance outcomes, 0.488 for future adoption of digital entrepreneurship, and 0.158 for stakeholder satisfaction. These statistics for Q^2 are all positive, indicating that the model has predictive relevance. In addition, SRMR (Standardized Root Mean Square Residual) is 0.071, lower than the threshold of 0.08, indicating good fit of the research model (Hu & Bentler, 1998). In sum, the R^2, Q^2, and SRMR values all suggest that the observed values may be well reproduced by the research model and its parameter estimates (Cao et al., 2018; Hair et al., 2019).

DISCUSSIONS OF THE RESULTS

This study measured digital entrepreneurial practice with six items. Respondents were asked to report on a 1-7 Likert scale about the extent to which their working companies had utilized digital technologies in response to digital trends: 1) to create new venture or products/services (mean = 4.57), 2) to engage in innovation (mean = 4.74), 3) to transform existing business (mean = 4.85), 4) to minimize cost (mean = 5.03), 5) to increase revenue (mean = 5.15), and 6) to help business operations and logistics (mean = 5.07) (see Table 3). As the use of digital entrepreneurship in organizations and across the supply chain has dramatically increased, the PLS-SEM analysis of this study reveals various relationships among antecedents and consequences of current digital entrepreneurship practice. It demonstrates that the proposed Model of Organizational Digital Entrepreneurship Antecedents and Outcomes (as shown in Figure 1) is mostly sound.

Technological Factors (Expected Benefit and Perceived Risks) and Organizational Digital Entrepreneurship Use (H1 and H2)

The results of PLS-SEM analysis indicate that technological factors are not related to organizational digital entrepreneurship use. The first two hypotheses, H1 regarding the positive relationship of expected benefits and H2 regarding the negative relationship of perceived risks with current digital entrepreneurship practice, were not supported.

Expected benefit was not found by this research to be a significant factor leading companies to engage in digital entrepreneurship (coefficient = 0.033, $p>0.05$). This finding differs from what others have reported regarding various expected efficiency and effectiveness benefits related to customers, market, products, agility, and relationship-building (Muafi et al., 2023; O'Leary, 2012; M. Zhang & Li, 2025). One possible explanation is that other factors may mediate the relationship between expected benefits and current digital entrepreneurship practice, as Cao et al. (2013) found in their study on utilizing social media for college teaching. Another reason may be that the benefits from digital platforms and tools have been so widely accepted and expected that organizations nowadays no longer consider them as differentiated organizational behavior. This normalization may have reduced the variability of expected benefit as a motivating factor in this study. Certainly, the other two motivating factors, strategic goals and external pressure may become dominant reasons that organizations may feel they must strategically adopt digital tools to meet external pressures and gain competitive advantage, regardless of expected benefits.

Like expected benefits, the second technological factor regarding perceived risk/difficulty in this model does not appear to be an inhibitor for organizational digital entrepreneurship engagement (coefficient = -0.086, $p>0.05$). This finding also differs from many studies (Cutolo & Kenney, 2021; Jagadeeswari et al., 2025), but aligns with the findings of Cao et al.'s study

regarding the use of social media for college teaching (2013). There could be several explanations: on one hand, other factors play more significant roles and consequently mask the effect of perceived risk, such as strategic goals and external/internal pressures. It is reasonable to believe that companies may view those risks and difficulties as important, yet they are still compelled to proactively pursue their goals and meet challenging pressures through digital entrepreneurship practices. On the other hand, it is possible that these companies have found, or believe that they can find, ways to control those risks, solve difficulties, and mitigate potential damage. They may also have access to relevant digital platforms and tools for business or security at low cost or no cost, or low risk, compared to traditional practices in running their business, which have outweighed perceived risks. Additionally, in a rapidly changing digital age, risk is unavoidable and part of normal business, which is especially true when digital technology is currently widely accepted, and the risks are relatively well-known. Organizations may accept the associated risks as normal and do not let perceived risks deter their adoption of new digital technologies.

Therefore, this study finds that factors related to expected technological benefits and relevant perceived risks do not play a significant role in the digital entrepreneurship model.

Organizational Factors (Organizational Readiness and Strategic Goals) and Digital Entrepreneurship Use (H3 and H4)

Regarding the two organizational factors, the structural equation analysis indicates that the hypothesis one strategic goals (H3) is supported (coefficient= 0.657, $p<0.001$) while the hypothesis on organizational readiness in skills/resources (H4) is not supported (coefficient= 0.024, $p>0.05$)

The factor regarding strategic goals has the highest coefficients among all antecedents and is the only antecedent that shows significant relationship with current digital entrepreneurship practice (coefficient = 0.657, $p<0.001$).This result suggests that companies are more likely to engage in digital entrepreneurship when they have explicitly incorporated the use of digital tools into their strategic planning to achieve their goals. This finding aligns with prior studies showing that companies engage in digital entrepreneurship to achieve many goals, including global market and customer reach, relationship-building with stakeholders along the supply chain, operations and production process improvement, and teamwork and organizational collaborations (Daulay, 2025; Martinez Dy et al., 2018; O'Leary, 2012; Zhao et al., 2021). It is possible that executives may increasingly recognize the potential of digital platforms and tools in sustaining their profitability and maintaining market leadership (Jain & Munoz, 2023).

The data analysis does not support H4, which suggests that companies' engagement in digital entrepreneurship business practice is not significantly related to their level of organizational readiness in skills, knowledge, and resources. In other words, companies appear willing to pursue digital transformation regardless of whether they possess the right skills, knowledge, culture, or resources. This finding contradicts the findings of Zaini (2025) and (Van Welsum, 2016). One possible explanation is that companies may have easy access to hundreds of low-cost and simple-to-adopt digital tools, which encourages them to follow the broader market

trends and integrate digital solutions into their business practices despite insufficient organizational readiness. Organizations may also find it easy to access the needed skills, knowledge, and resources in one way or another when options are plenty, when outsourcing reduces internal readiness. It is possible that many digital practices are simple enough not to require special skills. Of course, other factors, such as strategic goals and environmental pressures, matter more in their adoption and utilization, regardless of their organizational readiness. Moreover, organizational readiness may be important at initial evaluation, adoption, and utilization stages, but not for actual digital entrepreneurship engagement. This can be especially true as digital entrepreneurship practice has existed for a couple of decades while strategic pursuits and environmental pressures become increasingly influential. Finally, because there are so many digital applications with a wide range of complexity, organizations may not know whether they are ready regarding the needed skills, knowledge, and resources. They may in turn pursue digital initiatives regardless of their organizational readiness.

Environmental Factor (Norms/Pressures) and Digital Entrepreneurship Use (H5)

The structural equation analysis shows that the relationship between organizational pressures and current digital entrepreneurship practice is significant (coefficient =0.207, $p<0.05$). Therefore, H5 is supported.

This research suggests that companies engage in digital entrepreneurship because they feel pressures from competitors, customers, partners, suppliers, employees, or other stakeholders. This finding is consistent with what many other studies have reported that companies feel pressured to adopt digital entrepreneurship across the supply chain and to stay connected with different constituents (Hansen, 2019; Pillai et al., 2022; Wang et al., 2024). Under a fast paced, changing digital economy, executives, managers, and other employees alike choose digital entrepreneurship because they are consistently under internal and external pressures to gain business intelligence and competitive advantages. This is especially true as stakeholders along the supply chain independently adopt a variety of digital tools as digital applications such as social media and even AI have become widespread and embedded in everyday life. Organizations now must follow and abide by digital practices to respond to the external and internal ecosystem.

Digital Entrepreneurship and Business Performance Outcomes (H6, H7, and H8)

The relationships between current digital entrepreneurship and the two major types of business performance outcomes are complicated. The structural equation analysis supported H6, indicating that current organizational engagement in digital entrepreneurship leads to improved and observed business performance outcomes in marketing and operations as well as relationship building. The strong support of H6 (coefficient =0.514, $p<0.001$) aligns with previous research showing that digital entrepreneurship enhances business performance through global customer reach, sales and revenue increases, visibility and reputation improvement, and many other

outcomes related to operations, marketing, and relationship building (Paweehirunkrai & Pankham, 2025; Qi et al., 2022).

On the contrary, the results show that digital entrepreneurship engagement does not relate to reported satisfaction by respondents with the quality of products/services, customer service, profitability, product development of the company as well as customer satisfaction. H7 is thus not supported (coefficient = 0.024, $p>0.05$). This finding differs from those reported in prior studies (Malkawi et al., 2024; Muafi et al., 2023). One possible explanation is that business performance may fully mediate the relationship between digital entrepreneurship and perceived satisfaction with various business practices. In support of this possibility, the PLS-SEM analysis confirms H8, showing that business performance has a strong relationship with reported satisfaction by respondents (coefficient = 0.655, $p<0.001$). Together with the negligible effect of current digital entrepreneurship engagement, business performance explains 45.9% of the variance in reported constituent/employee satisfaction.

Future Digital Entrepreneurship Engagement with Current Digital Entrepreneurship Engagement and Business Performance Outcomes (H9, H10, and H11)

The structural equation modeling analysis shows that current digital entrepreneurship engagement is strongly related to organizational plans for future digital entrepreneurship initiatives (coefficient = 0.498, $p<0.001$), thus supporting H9. This strong relationship suggests that companies that strategically utilized digital tools and platforms in their current business practice are likely to continue adopting new digital initiatives. This finding aligns with the results of Nambisan (2017).

This study also finds that the observed and improved business outcomes regarding efficiency, productivity, and innovation in the workplace, resulting from the adoption of various digital technologies, lead to a higher likelihood of pursuing new digital initiatives (coefficient = 0.237, $p<0.05$). Therefore, H10 is supported. This finding is consistent with other empirical research (Audretsch et al., 2024; Koch & Windsperger, 2017; Paweehirunkrai & Pankham, 2025). This finding suggests that companies experiencing improved performance through digital entrepreneurship are encouraged to pursue more innovative and new emerging digital technologies and initiatives.

The data analysis of this study also shows that reported satisfaction with business practices and customer satisfaction is unlikely to have a relationship with future engagement in digital entrepreneurship. The coefficient is -0.016 ($p>0.05$), and thus H11 is not supported. This finding contrasts with past research that reported a strong relationship between user satisfaction and technology adoption, including digital entrepreneurship adoption (Muafi et al., 2023; Paweehirunkrai & Pankham, 2025). A possible explanation is that organizations act rationally when taking on digital initiatives that require considerable resources; they only pursue digital initiatives that they have experienced, observed, or believe can transform their business and generate measurable results, such as increases in revenue, sales, customers, market share, or profits.

CONCLUSION

In conclusion, this empirical study establishes a comprehensive model that delineates both antecedent and outcome measures for organizational engagement in digital entrepreneurship practices. The findings indicate that strategic goals and organizational pressures are the only two antecedent factors that significantly influence organizations to adopt and utilize digital platforms and tools in their business practices. Other technological, organizational, and environmental antecedents (for example, expected benefits, perceived risks and difficulty, and organizational readiness in resources, skills, knowledge) do not significantly motivate or prohibit organizations from engaging in digital entrepreneurship. Importantly, this study provides empirical evidence on the outcomes of organizational digital entrepreneurship, highlighting its positive impact on overall organizational business performance, though not on reported employee satisfaction with business practices including customer service. Furthermore, the empirical results show that organizations' plans for future digital entrepreneurship are related to their current digital entrepreneurship engagement and actual observed business outcomes but not related to reported satisfaction. These findings extend the existing literature by offering a more systematic understanding of both the drivers and consequences of digital entrepreneurship in organizational contexts.

CONTRIBUTIONS, IMPLICATIONS, LIMITATIONS, AND FUTURE RESEARCH

This study makes meaningful contributions to both theory and practice in organizational digital entrepreneurship, despite some unsupported relationship hypotheses and limitations. It enriches business literature in several important ways.

Theoretical Contributions

First, this study represents a large-scale empirical investigation of organizational digital entrepreneurship engagement aimed at achieving competitive business outcomes. It incorporates both driving factors and the perspectives of multiple stakeholders across the supply chain. Unlike prior studies that often focus narrowly on marketing or anecdotal operational outcomes, this research simultaneously examines both drivers and outcomes, capturing observed business outcomes and insights from reported satisfaction of employees about customers and various business practices. The findings confirm that organizations adopt digital entrepreneurship for two main reasons and that its effective use can enhance market competitiveness. Although broad generalization may be an issue, this work points out directions for information systems (IS) research by providing empirical evidence of digital entrepreneurship's role in shaping competitive outcomes across organizational boundaries, and it enriches organizational behavior

literature by offering a nuanced understanding of digital entrepreneurship's impact on performance outcomes, but not on stakeholder satisfaction outcomes.

Second, the study develops and validates main parts of the Model for Digital Entrepreneurship Antecedents and Outcomes at the organizational level. Drawing on a diverse sample of businesses across industries, the model identifies two key predictors of digital entrepreneurship use and two major associated outcomes, as well as plans for future digital entrepreneurship. The results indicate that strategic goals and internal/external pressures are the two factors that significantly drive digital entrepreneurship engagement, while current digital entrepreneurship engagement leads to observed operational and marketing business outcomes, which in turn impact reported stakeholder satisfaction with various business practices. In addition, organizational plans for future digital entrepreneurship engagement are influenced by current digital initiatives as well as their operational and marketing outcomes, but not by reported satisfaction. To our knowledge, this study is among the few studies that systematically define outcomes as both observed performance and reported satisfaction indicators, differentiate technological, organizational, and environmental factors shaping adoption, and incorporate future digital entrepreneurship plans, despite limitations in generalization due to convenience sampling in a regional context and cross-sectional research design. Moreover, this study did not find the roles of technology adoption factors around expected benefits, perceived risks, and organizational readiness to be significant in current digital entrepreneurship practice. This finding could potentially enrich IS literature about the different roles of technological and organizational factors: they can be important at the initial technology adoption and development stage, but not as important at mainstream utilization and mature stages when strategic and environmental factors become increasingly prominent.

Practical Implications

As organizations increasingly rely on communication and collaboration technologies to interact with different stakeholders along the supply chain, effectively leveraging digital entrepreneurship can enhance operational and marketing performance outcomes and indirectly improve stakeholder satisfaction through better business performance. Executives should consider adopting and actively utilizing digital entrepreneurship as a strategic tool to boost both overall business performance and stakeholder satisfaction. Strategic goals play a crucial role in guiding the use of digital entrepreneurship within organizations. Moreover, managers should recognize that digital entrepreneurship adoption is not deterred by perceived environmental risks, nor do they yield to internal and external pressures from competitors, customers, partners, suppliers, and employees. Interestingly, expected benefits alone do not motivate organizations to engage with digital platforms and tools. More importantly, managers should understand that successful future adoption of new digital technologies depends on current digital initiatives and the actual business performance resulting from digital entrepreneurship, regardless of stakeholder satisfaction.

Limitations

This study has several limitations despite its contributions. First, data were collected from a single respondent per organization. Although tests for common method bias indicated no significant issues, obtaining multiple respondents and employing varied data collection methods could enhance the robustness of the findings. Second, the study used convenience sampling limited to Southern California, which reduces the generalizability of the results to other regions, industries, or organizational types. Third, the focus of this study was limited to establishing the organizational digital entrepreneurship model and examining performance outcomes; other perspectives, such as organizational characteristics (e.g., size, sector, industry) and group differences, remain unexplored. Additionally, this study used a cross-sectional survey design and SmartPLS analysis techniques. While SEM analysis suggests the existence of various relationships, it cannot reveal true causality. Other research methodologies, such as qualitative and experimental designs, can be more informative and appropriate. Finally, although careful procedures were used to develop a reliable survey instrument, some respondents may have experienced confusion regarding specific survey terms. Certain constructs can be refined with better-tested measurement items that reflect all dimensions of the constructs.

Future Research

The limitations and interesting findings of this research suggest several directions for future studies. First, future research should expand sampling to include companies from diverse geographic regions and countries, using refined survey instruments. Data collection could incorporate multiple quantitative and qualitative methods, such as in-depth case studies and longitudinal surveys. Importantly, as digital tools and platforms continue to develop and permeate all levels of organizational structures, input should be gathered from senior leadership, middle-level managers, and employees across different functional units. Research focusing on group comparisons and organizational characteristics would deepen the understanding of digital entrepreneurship practice patterns. Additionally, exploring the nuances of different types of outcomes and their effects on future digital entrepreneurship engagement plans would provide richer insights. As digital entrepreneurship research matures, further studies are expected to identify effective adoption practices and utilization strategies for organizations seeking to achieve their missions and strategic goals across the supply chain.

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