

The Role of Creative Technologies and Innovation for Dynamic Sustainable Entrepreneurship of SMEs in China

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ABSTRACT

Despite two years of movement restrictions caused by an outbreak, China's economy has been operating at full capacity for several months. The COVID-19 tsunami had a huge impact on the growth of the digital economy in Southeast Asia. Since the reopening of borders, demand has been high, but the rising cost of raw materials, global economic insecurity, and most importantly, labour shortages have damaged businesses, particularly the expansion of small and medium-sized enterprises. In order to restore market share, the firm owners might consider making investments to meet customer demand. However, in the current business context, capital expenditures are rarely considered. The present study seeks to examine empirically the mediating role of creative technologies and the effect of innovation practices of Small Medium entrepreneur towards the dynamic sustainability of entrepreneurship by applying the conceptual theory of Dynamic Capabilities View and Diffusion of Innovation. The future respondents indicated as entrepreneur in the Small Medium industries in China focusing on service based. The study also evaluates the relationship between innovation practices towards dynamic sustainability of entrepreneurship mediates by creative technology. Four hypothesized relationships have been developed together with the conceptual framework.

Keywords: Dynamic Sustainability, Creative Technology, Innovation Practices, China

I. INTRODUCTION

Despite two years of movement restrictions caused by an outbreak, China's economy has been operating at full capacity for several months. The COVID-19 tsunami had a huge impact on the growth of the digital economy in Southeast Asia. Since the reopening of borders, demand has been high, but the rising cost of raw materials, global economic insecurity, and most importantly, labour shortages have damaged businesses, particularly the expansion

of small and medium-sized enterprises (Lee, 2022). In order to restore market share, the firm owners might consider making investments to meet customer demand. However, in the current business context, capital expenditures are rarely considered (Crecente, Sarabia & Del Val, 2021). Historically, the globalisation of the global economy necessitates a shift from resource-based to knowledge-based economic management. Resource-based economies necessitate the availability of vast natural resources, yet the world's natural resources are diminishing owing to environmental degradation and unfriendly management (ITS, 2015). One of the cornerstones to the formation of knowledge-based businesses is the merger of entrepreneurship with the use of technology, also known as technopreneurship, which is defined as a commercial activity that relies on creativity combined with technology (Sharin, Sentosa & Perumal, 2022). Innovation is essential for enhancing corporate performance. On the other hand, according to the United Nations, the impact of innovation on business entrepreneurship by Small and Medium Sized Enterprises (SMEs) varies depending on the entrepreneur's capability, and in some cases, the performance of entrepreneurship is merely a source of turbulence and resource deployment (Yusoff, 2022). An earlier study found that industrialised countries like those in Northern Europe and Japan have exceptionally advanced supply chain management practises (Muawanah et al., 2018). It won't be simple to get the market's pandemonium under control. It must be derived from adaptable skills and applied in tandem with an entrepreneurial mindset to support business success (Klofsten et al., 2020). Researchers and professionals in the industry are paying close attention to talks about company performance in order to provide the most modern framework for business strategies in order to meet these objectives.

Correspondingly, digitalization is the process of transforming a business model through the use of digital technologies in order to create new revenue and value-creating opportunities (Sentosa et al., 2017). This strategic direction supported by the practices of digital economy is a rapidly expanding sector with the potential to influence the whole economy through the application of digital technologies. Digital developments are transforming businesses and industries across the whole economy, influencing both the public and private sectors. The pervasive effects of digital disruption can be evident, for instance, in the banking and insurance industries, where online engagement has replaced in-person transactions and advice (Roomi, Saiz-Alvarez & Coduras, 2021). Another industry that has moved from local, dispersed activities to remote, autonomous operations enabled by sensing and analytics technologies is the industrial goods sector. Similarly, the retail industry has transitioned from physical locations to online stores and from in-store consultations to consumer evaluations (MCM, 2018). It should come as no surprise that e-proportion commerce's of total retail sales has been climbing steadily over the past few years, given the ever-increasing market share of online shopping. The creation of an e-marketplace for businesses, which is a form of electronic commerce that permits the online purchase and sale of physical goods and services (Sarango-Lalangui, 2022).

The involvement of technological prowess with entrepreneurial talent and abilities (Hossin, Ali & Sentosa, 2020) and the development of ICT facilities in China should be able to design action by introducing novel goods and services, developing fresh organisational structures, and making use of novel resources in an effort to upend the status quo of economics. Entrepreneurs are now associated with more opportunities and prospects. The extended

outbreak has exacerbated the financial flow constraints of a huge number of businesses. Consequently, the present study has emphasized the strategic direction of additional post-COVID-19 work through the technological strategy of dynamic sustainability models for Small medium Industries in China. By highlighting the importance of innovative technology and practices in the expansion of SMEs business performance, the development of a dynamic sustainability of entrepreneurship model for small and medium-sized businesses also makes a significant contribution to the conceptualization of SMEs advanced by earlier researchers.

II. LITERATURE REVIEW

A. The Dynamic of Sustainable Entrepreneurship

How to address social and environmental concerns while pursuing commercial objectives has remained a conundrum for today's corporations. Recently, the business trends in western countries have begun to change from a solely profit-oriented business to a sustainable business. Consequently, it has been demonstrated that entrepreneurships are effective mechanisms for wealth creation and are regarded as drivers of change, innovation, and economic growth (Audretsch & Peña-Legazkue, 2012). These tools assist in understanding the magnitude and impact of sustainable entrepreneurship aligned with the SDGs and facilitates the design of regulations and public policies, both to promote eco-innovation and business sustainability as well as to increase the quality of entrepreneurship (Yusoff, 2022). Álvarez-García et al. (2018) note that, while several studies have been undertaken on entrepreneurship in this context, sustainable entrepreneurship is an emerging area of academic research. There is very little difference between traditional and sustainable entrepreneurship. The distinction between conventional and sustainable entrepreneurship is that conventional firms are profit-driven, whereas sustainable businesses are motivated by environmental and social sustainability issues (Kanayo, Agholor & Olamide, 2021). However, the prolonged epidemic has exacerbated the cash flow constraints of a significant number of businesses. The back-to-back severity of economic crises necessitates that entrepreneur, especially those operating small enterprises, be dynamic in order to remain competitive in the industry. Historically, the dynamic sustainability framework (DSF) was developed by Chambers, Glasgow, and Stange (2013). This framework requires constant learning and problem solving, continuing adaptation of initiatives with a large emphasis on appropriateness between initiatives and inter-settings, and ideas for continuous improvements as opposed to dramatically reduced consequences over the course of time. Whereas Klinga et al. (2016) stated that the requirement for ongoing review and decision-making, as well as the objective of achieving continuous improvement. In addition to this, it emphasizes the ever-present nature of change as well as the objective of continuously improving the alignment of multicomponent interventions with their respective environments. The DSF underlines that there are changes in the usage of interventions over time, the characteristics of practice settings, and the larger system that determines the business environment of delivery. The ability of interventions to be optimally utilized and sustained over time is impacted by change, as classical thought eloquently demonstrates. This dynamism exists in the evidence base for interventions that links causal factors to business outcomes, as evidenced by the constant flow of new publications in academic journals that add to the available evidence on the efficacy of interventions

and by the ongoing practice surveillance systems that capture intervention impact. The interventions that support the evidence acknowledge ad hoc modification and experimentation of evidence-based interventions, exhibiting dynamism. Moreover, it exists in a dynamic multi-level framework (McLaughlin & Kaluzny, 2004) both internal to the community setting and the larger system, whether it be an organisation, community, county, state, or country (Sentosa et al., 2017). To ensure the survival of the Small Medium industry, it is necessary to establish a programme of rehabilitation. Business models had to change to fit digitalization (Hassan, Ahmad, & Ramayah, 2020). The integrated model proposed by Sharin, Sentosa, and Perumal (2022) contributes to support the idea that the internal and external forces of businesses through digitization and the influence of technology usage interact in a complicated way to define the drivers of economic success. It demonstrates that business stakeholders like it or not, it must change.

B. Product Innovation

Product trends throughout the world are changing, expanding, and becoming more dynamic (Adam & Alarifi, 2021). It is critical for small and medium-sized businesses to keep up with the global community's changing trends and lifestyles. The need to innovate products or services is an important step in adapting to changing times. Entrepreneurs should begin conducting research and development in order to follow global product trends and not just national market tendencies (Crecente, Sarabia & Del Val, 2021). Product innovation is the introduction of entirely new goods or services, or the significant improvement of existing goods or services in terms of their functional characteristics or their use, improvements in technical specifications, components, and materials, user-friendliness, or other functional characteristics (OECD, 2005). This movement is the one of the most essential criteria for an organization's success and a crucial tactic for expanding market share and enhancing business performance (Hassan et al., 2013). Small and medium-sized industries (SMIs) must be able to compete in order to offer products or services that satisfy consumer needs. To be able to thrive in the age of competition, a business owner or manager must be able to respond to consumer wants and innovate in order to provide his company a competitive edge. Due to the variety of products that will be utilised, consumer preferences alter. To enter the crowd market and become market leaders, the innovation will be able to generate high value and become sustainable (Baek & Lee, 2018). Product innovation is needed so that market opportunities are not lost (Ismanu, Kusmintarti & Riwajanti, 2022). In this study, the indicators for measuring product innovation are 1) the ability to produce new products, 2) the modification of existing products, 3) the uniqueness of the products delivered relative to other products, and 4) the continuous improvement of the quality of the products offered (OECD, 2010).

C. Process Innovation

Businesses can continue to pursue innovative solutions and product development enhancements. In the period of the COVID-19 epidemic, innovations in small and medium-sized businesses can still influence company performance, suggesting that the appropriate innovation in unfavorable conditions is extremely significant in enhancing the performance of small medium enterprises (Pham & Quddus, 2021). The product improvements that have been implemented have resulted in a level of efficiency and effectiveness in the manufacturing process,

allowing the selling price to be competitive with that of other enterprises in a comparable industry (Ismanu, Kusmintarti & Riwijanti, 2022). Similarly, the process improvements that the SMEs will implement will enable them to build a production process that is quick, efficient, and on-time (Rosli & Sidek, 2013). Process innovation is the implementation of completely new or significantly improved production or delivery methods including significant changes in techniques, equipment and/or software, delivery methods in terms of enterprise logistics and includes equipment, software and techniques for input sources, allocating supply within the company, or delivery of the final product (OECD, 2005). The indicators for measuring process innovation are: 1) utilizing the latest methods for business, 2) using the latest tools/machines to facilitate production, 3) and always updating the working mechanism for the better (OECD, 2010). Latterly, Suwignjo et al. (2022) found that there are 28 criteria contributes to the development of frameworks for the successful implementation of process innovation. Human resources and organizational characteristics, such as leadership, issue comprehension, strategy, and culture, had a greater impact on the success of process innovation while company's research and development budget, support, and commitment contributes to the minimal impact. However, Lampe (2017) argue that in prior study that cost effectiveness was the primary factor motivating businesses to implement process innovation. Along with, the other success factors also including inputs, process (concept generation, idea selection, and idea implementation), outputs and results, diffusion and push and pull variables (Roša & Lace, 2021).

D. Marketing Innovation

According to Maier and Dan (2018), marketing innovation is described as the strategy for incorporating innovations in science, technology, or engineering to improve marketing efficiency and effectiveness in order to achieve a competitive edge and raise the value of actions. It also refers to discussions about how to improve business operations, strategy, research, communications, operations, and data analysis. The marketing intelligence is the importance process involve internally and externally (Kotler & Keller, 2016). Whereas OECD (2005) is defined the marketing innovation is the implementation of a new marketing method in terms of product design, placement and promotion as well as pricing. In terms of product design, what has changed is the form and appearance, not its functions and characteristics. The goal of distribution innovation is to increase sales, market share and open new markets. As entrepreneurs, market demand is required as a guide to develop products and services for production (Gaynor, 2002). This statement is supported by Ismanu et al. (2022), which emphasise that small-medium industries' innovation should be observing the market conditions and changes in consumer behaviour in the midst of the COVID-19 pandemic. Additionally, digital marketing must also be carried out effectively. The indicators for measuring marketing innovation in this study are: 1) using new marketing methods when the old methods no longer encourage sales, 2) making wider distribution than before, 3) providing safe and attractive packaging for products, 4) and following exhibition event as a product distribution strategy.

E. Creative Technology

Creative Technology combines various fields, namely technology, design, and business. Art is seen as both a source of inspiration and a testing ground. A tenet of Creative Technology is that the potential of present

technology has not been completely explored. This promise resides in the novel use and integration of existing technology into innovative new applications and products (Mader & Dertien, 2014). Li Hua and Lu (2013) examine the critical challenges surrounding the management of technology as a fundamental function in international business, as well as the strong relationship between technology strategy and business sustainability. It illustrates the Chinese business model from "imitation to innovation" and how Chinese high-tech companies developed their core competencies. This study strengthens the new insights needed for gaining a competitive edge through the formulation of a suitable technology strategy. In the initial phase, Avent (2010) identifies creative technology as the process of understanding the business of advertising, marketing, and branding, taking a creative, strategic, and people-centric perspective on how to connect people and brands, and understanding the types of mediating technologies that can be most effectively used to create those engaging experiences where the connection occurs. However, Flores (2017) argues that creative technologies are an indispensable link between developers and designers. Flores's response to the role of creative technology will vary on the field in question. Motion sensors, large-format display hardware, generative design tools, interactive screens and surfaces, virtual and augmented reality, and data platforms are essential components for everyone involved in the creative technology. Similarly, Hammond (2016) draws parallels between creative technologies and the maker movement by noting that these two groups allow people build skills and exchange knowledge across disciplines by connecting and collaborating with persons from similar backgrounds. This brief literature review is not thorough, but it is adequate to suggest that further research is required into the nature of Creative Technologies in three distinct dimensions. First, is there evidence to support the argument that the field is intrinsically interdisciplinary? Second, what areas or topics make up the field of Creative Technologies? Thirdly, is there proof that Creative Technologists operate as connections between other individuals, technology, or groups, as is generally believed? (Connor, 2020). Therefore, the present study evaluates the relationship between innovative methods, creative technology, and the long-term viability of entrepreneurs in a changing business setting.

III. CONCEPTUAL DEVELOPMENT

This research utilized two major theories, namely the Dynamic Capabilities View and the Theory of Diffusion of Innovation (DOI), to develop a conceptual model for this study. The dynamic capabilities theory was propounded by Teece, Pisano and Shuen (1997), empowered through the efforts of Prahalad and Hamel (1990). Teece (2017) noted that ordinary capabilities are mostly about businesses doing the right thing, while dynamic capabilities were about doing the thing right in terms of new product (and system) growth, unique management orchestration process, change-oriented organisational culture, and accurate assessment of business climate and technology trends at the right time. Dynamic capabilities have gained significant prominence in strategic management research (Rashidirad & Salimian, 2020). Therefore, strong, dynamic capabilities are indeed owned by few, not by many (Teece, 2017). Dynamic capabilities and strategic management examine how the firm can go beyond sustainable competitive advantages (Wu, 2017). Fortunately, dynamic capabilities do not emerge from nothing, but are usually indicative of organisational experience and exposure (Kuuluvainen, 2012). With rapid innovation

and unique business models, a business with high dynamic capabilities could indeed stay ahead (Cuervo-Cazurra et al., 2020). Since the world economy has become much more accessible and the characteristics of innovation and production have become much more diversified, geographically and organisationally, the relevance of dynamic capabilities has been reinforced in recent times (Kuuluvainen, 2012). The second theory called as Diffusion of Innovations (DOI) theory, which was created by Rogers (1995) from the standpoint of innovation and technology direction to explain how inventions can be communicated across a large number of people over time and through a variety of channels. Rogers' theory serves as a foundation for many studies on a wide range of topics. The claim made by Rogers has received widespread support from the theoretical foundations of the disciplines of technology adoption and innovation dissemination. Utilizing Rogers' innovation growth theory, it may be possible to better understand the technological orientation of small and medium-sized businesses and perceptual ecosystems (Li & Asim, 2019). According to Price, Stoica, and Boncella (2013), small and medium-sized industries' primary drivers of sustainability, strategic edge, and performance are the adoption of new technology and non-technology innovation. Innovation research is essential, especially in the field of small and medium-sized industry, due to the originality of the processes and activities carried out by businesses and their need to innovate (Jia, Tang, & Kan, 2020), which promotes sustainability, economic success, and inclusive growth.

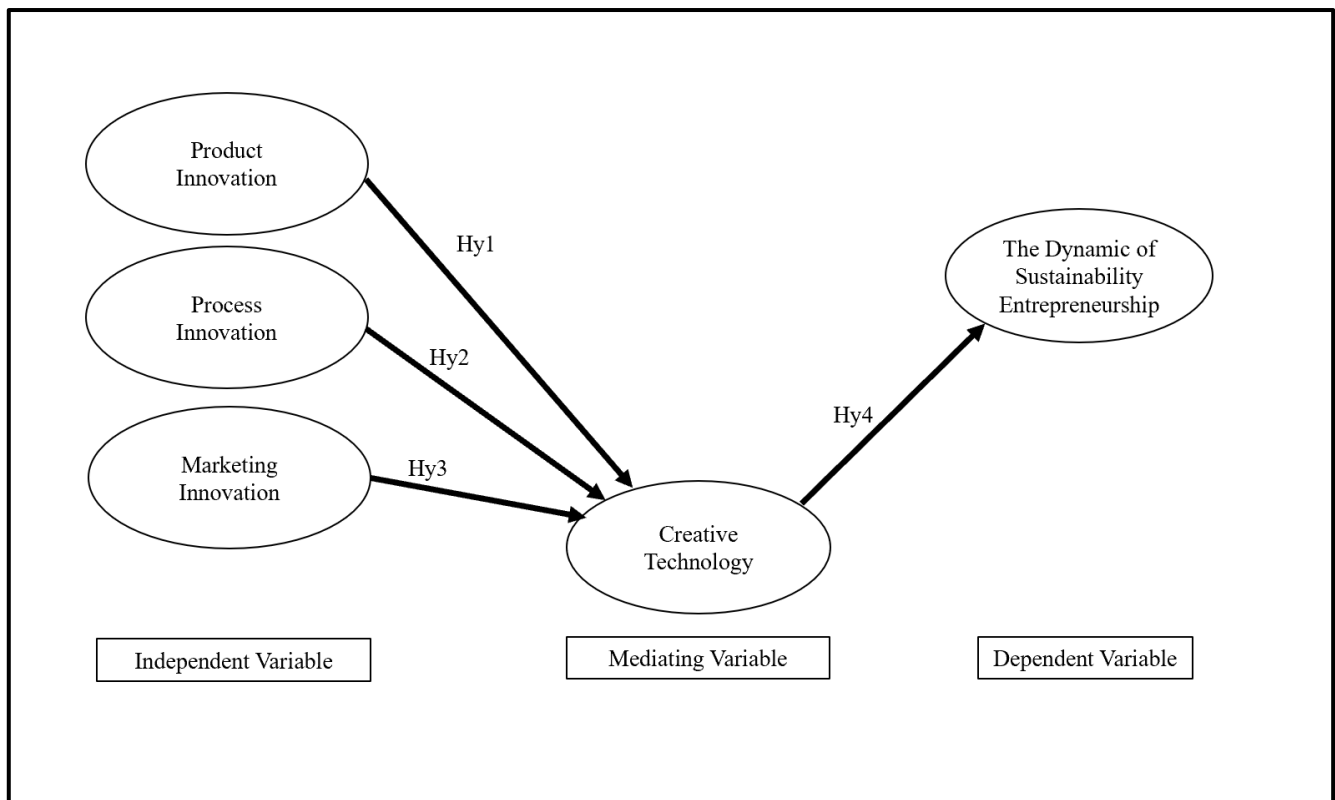


Figure 1: Research framework

Figure 1 illustrates that the study will investigate the correlation between independent variables (product innovation, process innovation, and marketing innovation) and the dynamics of Sustainable Entrepreneurship, which is influenced by creative technology. Based on the literature, four hypotheses have been developed

H1: There is a positive relationship between product innovation and dynamic sustainability entrepreneurship mediated by creative technology.

H2: There is a positive relationship between process innovation and dynamic sustainability entrepreneurship mediated by creative technology.

H3: There is a positive relationship between marketing innovation and dynamic sustainability entrepreneurship mediated by creative technology.

H4: There is a direct positive relationship between creative technology and dynamic sustainability entrepreneurship.

In order to conduct a more in-depth analysis, the researcher will specifically gather data from owners or managers of small and medium-sized enterprises that primarily provide service-based offerings. The data will be gathered through an online survey utilising a straightforward random sampling technique. The demographic information of the participants serves as the basis for distributing surveys via online platforms. The poll was distributed using widely utilised methods of instant messaging and in-person interactions, such as the messaging platform WhatsApp. Subsequently, questionnaires will be distributed to colleagues who possess similar attributes.

IV. CONCLUSIONS AND RECOMMENDATIONS

In order to maintain long-term viability, it is imperative for small and medium-sized enterprises to embrace an innovation strategy as a means of safeguarding themselves in the ever-changing business environment and to incorporate a digitalization approach. Nevertheless, the diffusion of innovation necessitates the cultivation of cultural characteristics that enhance the efficacy of innovation as a competitive advantage and promote the sustained expansion of small and medium-sized enterprises (Nimfa, Latiff & Wahab, 2021). Ultimately, it indirectly aids in the accomplishment of economic obligations as outlined in Agenda 2030 and the Sustainable Development Goals of the United Nations (Francke & Alexander, 2019). This study aims to empirically investigate the mediating role of creative technologies and the impact of innovation practices of Small Medium entrepreneurs on the dynamic sustainability of entrepreneurship. The study applies the conceptual theories of Dynamic Capabilities View and Diffusion of Innovation. The conceptual framework (Figure 1) facilitates the investigation of the correlation between innovation practices and the dynamic sustainability of entrepreneurship. This correlation is mediated by creative technology among entrepreneurs in the service-based Small Medium enterprises in China. The study has focused on the strategic direction of post-COVID-19 work by using dynamic sustainability models to support technology strategies for Small and Medium Industries in China. The significance of innovative technology and practices in enhancing the business performance of SMEs is emphasised. The development of a

dynamic sustainability of entrepreneurship model for small and medium-sized businesses also contributes significantly to the conceptualization of SMEs as advanced by previous researchers.

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