

Conceptualising the relationship between green dynamic capability and SME sustainability performance: the role of green innovation, organisational creativity and agility

Green dynamic
capability

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Abstract

Purpose – The purpose of this paper is to propose a conceptual framework that establishes the linkages among green dynamic capability (GDC), green innovation (GI), organisational creativity (OC) and organisational agility (OA), which influence small and medium enterprises (SMEs) sustainability performance (SP) in trade and service sectors in Thailand.

Design/methodology/approach – This paper conducts a search of existing literature regarding SMEs SP. A conceptual framework is provided that can be used by SMEs to enhance their SP driving sustainable business growth.

Findings – A framework for SMEs sustainability is proposed, which demonstrates the connection between GDC and SME SP, with GI and OC as mediators and OA as a moderator.

Research limitations/implications – This paper is limited in terms of the scope of SME sustainability in the context of the trade and service sector. Future empirical study should be conducted to validate the proposed framework and hypotheses in this study.

Practical implications – This study forms the basis for the enhancement of SMEs SP in relation to boosting their GDC, GI, creativity and agility.

Originality/value – This paper presents a comprehensive framework that leads to the conceptualisation of SME SP. It will help practitioners and academics to better understand the causes of SMEs SP.

Keywords Green dynamic capability, Green innovation, Organisational creativity, Organisational agility, SMEs sustainability performance, Organizational performance, Small to medium-sized enterprises, Competitiveness, Sustainable development, Agility

Paper type Research paper



1. Introduction

Sustainability has become a major global concern due to increasing environmental issues, social inequality, poverty and rapid economic growth, which are becoming unsustainable (Lopez Gonzalez and Sorescu, 2019). These issues have pushed the need to transform both society and the economy into a more sustainable form. Sustainability has been adopted and

well-practiced by multi-national corporations. They have integrated sustainability activities as part of their business strategy to achieve long-term benefits (Das and Rangarajan, 2020). This has been prompted by sustainability initiatives and policies driven by government and non-government agencies, such as the Dow Jones Sustainability Index and the World and Global Reporting Initiative Guidelines, which have encouraged organisations to improve their sustainability (Das and Rangarajan, 2020). However, sustainability practices are not well understood and well adopted by small and medium enterprises (SMEs) due to the complexity of the sustainability issue, lack of understanding of the sustainability concept and resource constraints faced by SMEs (Das and Rangarajan, 2020). Therefore, the sustainability issue largely persists in SMEs and requires addressing due to SMEs' significance in economic development.

SMEs are a significant contributor to local, national and regional economies. They represent 18% of exports in developing countries (Lopez Gonzalez and Sorescu, 2019) and 98% of businesses in Asia-Pacific Economic Cooperation (APEC) economies (APEC, 2020). The wholesale and retail trade sector, followed by service sector industries, represents the highest share of total SMEs in APEC economies, contributing to more than 60% of total employment and 40%–60% of gross domestic product (GDP). In the Association of Southeast Asia Nations, SMEs represent 78%–90% of companies and most of the employment (OECD, 2018), driving job creation, income increase and poverty reduction, which leads to sustainability development (Lopes de Sousa Jabbour *et al.*, 2020).

While SMEs make significant contributions to economic development, they also create notable environmental problems. SMEs generate approximately 70% of global pollution (Malesios *et al.*, 2021). SMEs in Asia contribute to massive resource consumption and wastage, as well as contributing to environmental issues leading to climate change and more frequent natural disasters (Ndubisi *et al.*, 2021). Additionally, the amount of raw material used to produce one unit of GDP (Kilogram/US\$1,000 of GDP) in Asia is twice that of other regions. This causes significant environmental impacts and misutilisation of precious resources leading to scarcity (Lopes de Sousa Jabbour *et al.*, 2020). Therefore, SMEs must improve resource utilisation to ensure that economic development is in line with the preservation of the environment (Lopes de Sousa Jabbour *et al.*, 2020). For sustainability to take place, SMEs must take into consideration and adapt to environmental, social changes and customer demand for green products in the business environment. Green innovation (GI) is important for SMEs as it drives SMEs sustainability. GI assists SMEs in creating differentiated products and services so, adding customer value for sustainable development (Li, 2022). It also allows for efficient management of business processes and technology, leading to sustainable competitive advantage and delivery of social and environmental value to customers and suppliers (Lazaretti *et al.*, 2020). This is crucial for SMEs as it allows SMEs to develop efficiencies, provide new products and services catering to changing demands of consumers focus on environmental protection and respond to unpredictable business environments.

Thailand is a developing country in Asia in which SMEs play a significant role in economic development. Nearly 40% of Thailand's GDP, approximately US\$154bn, was generated from SMEs (OSMEP, 2020). Most SMEs are concentrated in the service and trade sectors, representing 41.10% and 40.09% of the total number of SMEs, respectively, and contribute 60.1% of total GDP. SMEs generated nearly 13 million jobs accounting for 72% of the total employment (OSMEP, 2020). According to Organisation for Economic Co-operation and Development (OECD), GI is measured by the share of environmental patents (in percentage) of all high-value patents. Thailand's GI score is 13.71% (OECD, 2022). Thailand's air pollution level also exceeded World Health Organisation Guideline by

3–5 times in 2021 (IQAir, 2022). The country ranked 26th in the world in terms of annual carbon dioxide (CO₂) emissions in 2021 (EnvilienceAsia, 2022). This clearly demonstrates sustainability problems in Thailand. Therefore, the country needs to address sustainability issues and promote sustainability development, particularly for SMEs in the trade and service sectors, as they represent the majority of SMEs and make up a large part of the economy.

Extensive research has been conducted on sustainability, focusing on large companies in developed countries (Singh *et al.*, 2020). However, there is limited research on sustainability focusing on SMEs and developing countries (Yacob *et al.*, 2019). Moreover, research on dynamic capability (DC) and sustainability in the perspective of green dynamic capability (GDC) is scarce (Li, 2022). Additionally, research on the relationships among GI, organisational creativity (OC) and organisational agility (OA) and sustainability performance (SP), all of which are interconnected, is underexplored and limited (Lazaretti *et al.*, 2020; Lopes de Sousa Jabbour *et al.*, 2020; Shahzad *et al.*, 2020; Souto, 2021). This paper aims to establish the linkages of variables that can improve SP of SMEs. This paper proposes a framework that explains the association of GI and SP using DC theory. OC and OA, which are closely linked to GI, will also be included in the framework. The study contributes to the literature on sustainability as it explores SP using the theory of DC, with an emphasis on GDC, which has not been largely examined, and is under-researched (Lopes de Sousa Jabbour *et al.*, 2020). The proposed conceptual framework can be used for a further empirical study on SMEs performance. This will provide an understanding of what drives SP in SMEs. This study will attempt to answer the two main research questions in which further empirical study can be conducted to substantiate the proposed model. These are:

RQ1. What is the linkage between GDC and SMEs SP?

RQ2. What are the relationships between GI, OC, OA and SMEs SP?

In Section 2, the research procedure for identifying key literature will be defined. Next, in Section 3, a relevant literature review on sustainability in SMEs will be conducted and presented. Then, in Section 4, a conceptual framework will be proposed that connects different variables with SP. After that, in Section 5, academic and practical implications of the study will be discussed. Finally, in Section 6, the conclusions and limitations of the study will be elaborated upon.

2. Research procedure

A search of the literature was conducted to identify key research relevant to variables investigated in this paper. These are SP, GDC, GI, OC and OA. An effective search strategy is required in a literature review, along with predefined criteria, to include or exclude studies (Atkinson and Cipriani, 2018). The research procedure used in this study is in line with the previous conceptual research (Ramakrishnan *et al.*, 2022; Shahid and Muchiri, 2019).

The first step involved developing a search strategy to identify appropriate sources and elicit the relevant information (Atkinson and Cipriani, 2018). Four prominent business databases were searched. They were Emerald, ProQuest, ScienceDirect and SpringerLink. To find specific models and dimensions for each variable, key terms such as “sustainability performance”, “sustainable performance”, “sustainable development”, “sustainability development” and “sustainable practice” were used to identify key concepts and models of SP. Similarly, “green dynamic capability”, “dynamic capability” and “strategic dynamic capability” were used to find models pertaining to GDC. For GI, terms such as “green innovation”, “eco-innovation” and “sustainable innovation” were used in the search. Key

concepts and models of OC were searched using keywords such as “organisational creativity”, “green creativity” and “group creativity”. For OA, the keywords used in the search were “organisational agility”, “firm agility” and “agile firm”. Only peer-reviewed English language studies relevant to the context of SMEs were included. After the screening process was completed, studies that were duplicated or found to be irrelevant as they were not focusing on the key concept, dimensions or model development were eliminated.

Next, relevant literature relating to the linkages among the key variables was identified to form the basis of conceptual model development. Different combinations of key terms for the key variables were entered in the four databases to search for relevant literature. Example combinations include “green dynamic capability and sustainability”, “green innovation and sustainability”, “green dynamic capability and green innovation and sustainability”, “green dynamic capability and organisational creativity”, “organisational creativity and sustainability”, “green dynamic capability and organisational creativity and sustainability”, “organisational agility and green innovation” and “organisational agility and sustainability”. In addition, dimensions of GDC constituting to the whole concept of GDC were searched and examined to establish linkages among key variables. Relevant studies were selected and used as the foundation for conceptual model development. In the literature review section, tables with the summary of relevant articles for key variables and dimensions are presented.

3. Literature review

3.1 Small to medium enterprises and sustainability in Thailand

SMEs are described as independent companies without any subsidiaries that use a limited number of workers (OECD, 2005). The definition of SMEs varies largely between different countries. In the European Union, the number of employees within SMEs is set at 250, whereas in the USA, the number of employees in SMEs must not exceed 500. In general, small enterprises will have fewer than 50 employees and micro enterprises will have between 5 and 10 employees (OECD, 2005). In Thailand, SMEs are classified into three categories: micro, small and medium, and divided into two sectors which are the manufacturing and trade and service sectors. Table 1 presents the definition of SMEs in Thailand.

Sustainability is a concept that is based on the triple bottom line approach proposed by Elkington (1998). Sustainability encompasses the three key perspectives of environmental preservation, social equality and economic development (Ndubisi et al., 2021). Thailand has been committed to achieving sustainable development goals (SDGs) since the establishment

Sector	Size		
	Micro	Small	Medium
Manufacturing	Annual income	baht 1.8m (US\$58,000)	baht 1.8 to 100m (US\$58,000–3,226,000)
	No. of employees	Less than 5	5 to 50
Trade and service	Annual income	baht 1.8m (US\$ 58,000)	baht 1.8 to 50m (US\$58,000–1,613,000)
	No. of employees	Less than 5	5 to 30

Table 1.
Definition of SMEs in
Thailand

Source: OSMEP Annual Report 2018 (OSMEP, 2018)

of the United Nation (UN) Sustainable Development Agenda (UNSSC, 2021). Thailand's current National Strategy (2018–2037) places great focus on sustainability and includes SDGs in its main strategies (OSMEP, 2018). This is reflected in the key strategies, which focus on environmental preservation, eco-friendly development and sustainable agriculture, involving social and economic development, environmental protection, good governance and effective collaboration among government agencies (OSMEP, 2018).

According to Thailand's National Strategy (2018–2037), one of the principal strategies relevant to SMEs is developing smart entrepreneurs (OSMEP, 2018). The strategy places great importance on instilling entrepreneurial skills and passion, promoting innovation and the creation of differentiated products, environmentally friendly production and developing the essential skills and competencies of workers in terms of technology and new forms of business operations. From this strategy, it is apparent that SMEs development should incorporate all three dimensions of sustainability. However, the primary focus of office of small and medium enterprise promotion (OSMEP) in Thailand is largely that of economic development, aiming to enhance the competency of SMEs so driving exports and internationalisation. OSMEP's current strategy focuses on building SMEs competitive advantages and SMEs promotion. The strategy includes data integration, developing a mechanism to promote access to SMEs and driving SMEs to become higher-performance firms by increasing SMEs' capability and driving internationalization (OSMEP, 2020). This shows that sustainability development in SMEs is largely neglected.

3.2 *Green dynamic capability and green innovation*

DC is a development from a resource-based view (RBV). RBV states that a firm's resources and capabilities can be developed to improve the firm's performance (Peng, 2009). Various research has been conducted to examine SME performance in the context of RBV (Armstrong and Shimizu, 2007; Falahat *et al.*, 2020). However, the main criticism of the theory lies in a static view of resources and capability, as RBV does not take into consideration the external forces and changes in the business environment that may impact the performance of firms (Armstrong and Shimizu, 2007). Hence, DC bridged the major drawback of RBV by viewing resources and capability as dynamic and allowing for the consideration that they can be transformed to accommodate changes in the external environment. DC is defined as “appropriately adapting, integrating, and reconfiguring internal and external organisational skills, resources, and functional competences to match the requirements of a changing environment” (Teece *et al.*, 1997, p.515). DC explores how companies develop and reconfigure their acquired resources to adapt their organisational operation to fit with the changing external environment (Ferreira *et al.*, 2020). DC is closely associated with a competitive advantage. DC is gained when competitive advantage is attained and is crucial to managing effective business operations. Continuous learning in business operations and strategic management must be achieved so that firms can acquire crucial knowledge and fundamental resources such as key competencies (Teece and Pisano, 1994). DC is relevant to the context of SMEs as they are nimble and flexible. Due to SMEs' small size, they can quickly reconfigure and transform resources, capabilities and competencies to match changes in the business environment. Moreover, DC emphasises on effective management and value creation in organisation process rather than routinisation of business practices to achieve efficiency (Al-Shami and Rashid, 2022). Thus, DC is more suitably applied to flexible organisations, which are not bound by rigid structures or tight policies, which may be more common within large corporations. One critical aspect of DC is innovation. Innovation in DC is described as the capability to create and invent something new and different from the research and development (R&D) department of firms.

As environmental protection has become a major concern due to increasing pollution and climate change, there has been a shifting demand towards green and environmentally friendly products (Chen and Chang, 2013). Consumers have become more aware of the importance of environmental protection, and they now prefer to purchase green products (Lin and Chen, 2017). To respond to this, firms need to be able to adapt to the changing market focusing on environment protection. Adapting to changed market behaviour leads to GI and green product delivery, helping firms to grow their customer base and realise financial rewards (Lin and Chen, 2017). To achieve this, GDC is crucial. It allows the firm to react and adapt to the changing demand for green goods. Therefore, GDC is extended and deepened from the concept of DC. GDC can be defined as a firm's ability to use existing resources, knowledge and competences to build green organisational capabilities to adapt to a dynamic market and address green product innovation and design (Chen and Chang, 2013; Chen *et al.*, 2015; Lin and Chen, 2017). One significant aspect of GDC is the ability to innovate. Chen *et al.* (2015) stressed the importance of innovative capability when considering GI. Chen and Chang (2013) also investigated GDC in the aspects of the ability to use resources to develop GI and the ability to exploit knowledge and resources to build green organisational capabilities. These aspects are found to link to green product innovation and development. Additionally, Amui *et al.* (2017) stated that GI can be improved through GDC in terms of green R&D, green strategic management and green organisational practice. Singh *et al.* (2021) demonstrated that GDC influences GI by exploring GDC in the context of R&D, green innovative capability (GIC), green organisational strategic management capability (GOSMC) and green organisational management capability (GOMC), building on the work of Hung *et al.* (2010). Studies on GDC are limited, and there is no agreement on the connotations and dimensions used to measure GDC (Li, 2022). Therefore, in this study, GDC is investigated in the dimension of GIC, GOSMC and GOMC, building on the study of Singh *et al.* (2021). Table 2 shows sources of dimensions for GDC.

Innovation is described as a process that involves using new practices, approaches or strategies to create products and services (Lin and Chen, 2017). It can also be used to respond to changes in internal and external environments and used as a pre-emptive practice to prepare for the uncertainties in said environments (Lin and Chen, 2017). GI is a type of innovation that focuses on minimising harmful environmental impacts (Chen and Chang, 2013). It is a relatively new concept proposed by Fussler and James (1996), who examined various perspectives such as the concept, determinants, practice and performance of GI (Li, 2022). GI is often used interchangeably with “ecological innovation”, “eco-innovation”, “environmental innovation” and “sustainable innovation” (Shahzad, 2020; Li, 2022) and is generally defined as “innovation that results in a reduction of environmental impact, regardless of whether or not that effect is intended” (Huang and Li, 2017, *p* 311). GI is essential as it drives efficient business management (Chen and Chang, 2013). Efficient business management can result in value creation, competitive advantage development and improved firm performance (Albort-Morant *et al.*, 2016). For GI to take place, a high degree

Table 2.
Sources of
dimensions for green
dynamic capability

Dimension	Sources
Green innovative capability	Singh <i>et al.</i> (2021), Hung <i>et al.</i> (2010), Chen <i>et al.</i> (2015), Chen and Chang (2013), Li (2022), Lin and Chen (2017)
Green organisational strategic capability	Singh <i>et al.</i> (2021), Hung <i>et al.</i> (2010), Chen and Chang (2013), Li (2022), Lin and Chen (2017)
Green organisational capability	Singh <i>et al.</i> (2021), Hung <i>et al.</i> (2010), Chen and Chang (2013), Li (2022), Lin and Chen (2017)

of collaboration and integration across internal functions and external partners is required. Successful collaboration between internal and external parties leading to GI implementation can only be achieved if SMEs possess sufficient managerial skill and organisational capability to establish effective and efficient business practices (Chen and Chang, 2013).

GI is mainly viewed in terms of green product and green process innovation (GPRI), in which green products or green processes are created to alter existing product design to reduce negative environmental impacts (Huang and Li, 2017). Green production innovation (GPI) is described as the innovation of products that decrease negative environmental effects throughout the whole product life cycle (Huang and Chen, 2021). It is important for firms to develop GPI as it can help reduce costs through the use of inexpensive and environmentally friendly recycled materials (Singh *et al.*, 2020). It can also promote a positive image and create product differentiation, which, in turn, allows firms to capture premium pricing resulting in increased sales revenues (Huang and Chen, 2021). Therefore, it is beneficial for SMEs to integrate GPI into their practices as it improves corporate image and increases market competitiveness through the development of distinct and differentiated products. GPRI refers to the alteration of existing processes or systems or the development of new processes or systems to create energy savings, prevent or reduce pollution and promote waste recycling (Huang and Chen, 2021; Huang and Li, 2017). GPRI allows firms to find alternative energy resources, adopt resource recycling and enhance business processes, which improve energy utilisation efficiency and decrease waste generation so driving a firm's performance (Frare and Beuren, 2021). GPRI is beneficial for SMEs as it propels technological improvement, resulting in increased efficiency and minimising costs through the reduction of resources used (Li, 2022). In this study, GI is proposed in two dimensions. These are GPI, and GPRI, based on the work of Singh *et al.* (2021) and Chen *et al.* (2006). Table 3 presents the sources of dimensions for GI.

GI in enterprise relies on superior GDC in comparison to their competitors to adapt and mobilise resources and capabilities sensibly to provide value to customers and to capture the market (Singh *et al.*, 2021). GDC also focuses on the integration, development and reallocation of internal and external resources associated with environmental preservation, which drive green development (Li, 2022). Thus, GDC can drive GI. GDC helps firms sense and seize opportunities, then reconfigure existing resources and skills to respond to green markets and trends. Firms can adjust their resources and build necessary skills to cater to the growing demand for green goods, which leads to green products or processes that, in turn, promote GI (Huang and Li, 2017). Therefore, the first hypothesis is presented as:

H1. SMEs GDC influences SMEs GI.

3.3 Green dynamic capability and organisational creativity

According to Fetrati *et al.* (2022), creativity is defined as the ability to generate unconventional ideas by using past knowledge in a novel way. It requires the association of

Table 3.
Sources of
dimensions for green
innovation

Dimension	Source
Green product innovation	Chen <i>et al.</i> (2006), Singh <i>et al.</i> (2021), Huang and Chen (2021), Huang and Li (2017), Singh <i>et al.</i> (2020), Li (2022), Muangmee <i>et al.</i> (2021), Ullah <i>et al.</i> (2021)
Green process innovation	Chen <i>et al.</i> (2006), Singh <i>et al.</i> (2021), Huang and Li (2017), Singh <i>et al.</i> (2020), Li (2022), Frare and Beuren (2021), Muangmee <i>et al.</i> (2021), Ullah <i>et al.</i> (2021)

acquired knowledge and experience to create unconventional solutions to problems. Creativity requires divergent thinking, which allows possible solutions to be generated in problem-solving (Kraft, 2005). When a problem arises, an individual might approach it in a different way and adjust their course of action leading to various solutions. Creativity can be categorised as either individual or organisational (Fetrati *et al.*, 2022)

Individual creativity is defined as the ability to generate novel ideas leading to appropriate solutions or new business opportunities (Nayak, 2008). OC is described as:

A resource that reflects the creation of value, products, services, ideas, routines, and process and also reflects entrepreneurial abilities of individuals who work together in a complex social system to generate specific capabilities to deal with complex environments (De Vasconcellos *et al.*, 2019, p.440).

OC helps to create value for firms by building unique, rare and inimitable capabilities and resources (Gao *et al.*, 2021). It also promotes innovation leading to competitive advantage (Fang *et al.*, 2021). OC is essential for SMEs due to the dynamic business environment they operate in. To be able to respond in a timely manner to changing trends and gain a competitive advantage, SMEs need OC. This helps them to create new products and services catering to customer demand (Fang *et al.*, 2021). SMEs need to foster OC as it drives innovation, leading to improved performance and so ensuring their competitiveness and survival in the market (Ferreira *et al.*, 2020). Fetrati *et al.* (2022) conducted a bibliometric study on OC, which converges the similarity of different models of creativity and identifies key commonalities. From the research, it was found that OC, process, setting, structure and leadership are critical in developing OC. Hence, to achieve OC, the product development process, planning, goals, directions and promotion of new product ideas are essential (Chen and Chang, 2013).

There are various factors that contribute to OC (Fetrati *et al.*, 2022). One of the key factors is organisational process (OP). OP relates to participation, which is defined as the extent to which the employees perceive they have control within the team and organisation, such as goal setting, planning, work processes and job role (Axtell *et al.*, 2000). OP in the aspect of participation is important in OC. This is because it allows employees to have a certain freedom and power to control their own work and processes and to assign tasks to team members without being restricted by job role. This enables them to develop new ideas and solutions within the scope of their work and their team (Axtell *et al.*, 2000). Idea management systems can be used to support OP and encourage creativity which can be simple innovation handbooks that can guide employees on innovation processes (Amabile and Pratt, 2016).

Organisational setting and structure can affect OC. Organisational structure can be defined in two aspects which are centralisation and formalisation (Bucic and Gudergan, 2004). Centralisation is described as “the governing of organisational decision making” (Bucic and Gudergan, 2004, p.261). Organisations with low-level of centralisation encourage employees to express their opinions and share information freely, which leads to the generation of creative ideas and perspectives (Amason *et al.*, 1995). Organisations with low-level of centralisation also tend to foster creativity (Leenders *et al.*, 2003). Another aspect of organisational structure is formalisation which is a mechanistic orientation in organisations and is depicted by formal guidelines intended to cultivate conformity among employees, policies and processes (Bucic and Gudergan, 2004). Organisations with high levels of formalisation are ineffective due to their inflexibility and excessive control, which hampers creativity (Bonner *et al.*, 2002). Bucic and Gudergan (2004) found that a high-level of centralisation in organisations leads to a low level of creativity. Mainemelis and Ronson (2006) also suggested that organisational structure can hinder creativity development if

employees are bound by convention, structural obligation and functional constraints. Organisational structure needs to be redesigned with high levels of autonomy, skill variety, purpose and open communication to improve OC (Fetrati *et al.*, 2022).

Not only is organisational structure important in achieving OC, but leadership is also important. A study by Fetrati *et al.* (2022) pinpointed that leadership is essential in fostering OC. Zhou and George (2003) explored the concept of leadership in terms of leaders' emotional intelligence and its association with creativity, proving that leaders' emotional intelligence is vital for them to manage the work climate and culture and deal with conflicts and tensions effectively so encouraging employees to propose new ideas and innovative solutions. Leader support is another aspect of leadership that influences OC. Axtell *et al.* (2000) identified that organisational and management support through participation in innovation and organisational climate and environment facilitated OC. Transformational leadership can impact OC (Gumusluoglu and Ilsev (2009). Transformational leaders encourage creative solutions and problem-solving by employees and nurture creativity in employees by coaching and consulting (Chen and Chang, 2013). They communicate a clear vision and inspire employees to develop creativity by prompting them to express new perspectives and supporting their initiatives. In the study, OC is divided into three dimensions, OP, organisational setting and structure and leadership. Table 4 provides sources of these dimensions for OC.

From the concept of OC, it can be seen that OC requires organisational and strategic management to allow individuals to collaborate effectively to create novel ideas to deal with the complex and dynamic business environment. Therefore, DC, in terms of organisational management and strategic management, plays a significant role in driving OC. Gao *et al.* (2021) posited that organisational management capability, particularly through transformational leadership, leads to OC. Chen and Chang (2013) also found that GDC in the aspect of green organisational management and green human resource management (HRM) can lead to OC. Moreover, Zhang *et al.* (2020) found that GDC, in regards to green transformational leadership, stimulates OC and that green strategic management strengthens OC. Thus, the second hypothesis is presented as:

H2. SMEs GDC influences SMEs OC.

3.4 Green dynamic capability and small to medium enterprises sustainability performance

Corporate sustainability is a concept that is expanded from the triple bottom line approach. It includes the key dimensions of environmental protection, social equity and economic development (Das and Rangarajan, 2020; Ndubisi *et al.*, 2021). SP encompasses a firm's environmental, social and financial performance (Ndubisi *et al.*, 2021). A firm's performance can be evaluated in terms of profit, return on investment or shareholder value (Savitz and Weber, 2014). Social performance relates to a firm's obligations towards the labour force, the

Dimension	Source
Organisational process	Fetrati <i>et al.</i> (2022), Gao <i>et al.</i> (2021), Axtell <i>et al.</i> (2000), Amabile and Pratt (2016)
Organisational setting and structure	Fetrati <i>et al.</i> (2022), Gao <i>et al.</i> (2021), Bucic and Gudergan (2004), Mainemelis and Ronson (2006)
Leadership	Fetrati <i>et al.</i> (2022), Gao <i>et al.</i> (2021), Chen and Chang (2013), Gumusluoglu and Ilsev (2009)

Table 4.
Sources of
dimensions for
organisational
creativity

surrounding community and other societal issues falling within its scope of operations. Social performance is commonly assessed in terms of workforce diversity, pay equality, health and safety impact, community effect and human rights (Ndubisi *et al.*, 2021). Environmental performance concerns the environmental impact of a firm's operation. It involves environmental resource consumption, water and air pollution, carbon footprint, greenhouse gas emissions and waste management and recycling (Ndubisi *et al.*, 2021; Savitz and Weber, 2014).

Economic development has remained the primary concern of corporate sustainability, whereas the other two dimensions are often ignored as their immediate financial benefits may be unrealised as many SMEs do not grasp the full concept of corporate sustainability (Das and Rangarajan, 2020). This is due to their lack of knowledge of quantifying the impacts of their business activities on the environment and society and how to address these issues. The lack of an appropriate sustainability framework and tools to implement sustainability practices is another key challenge in achieving corporate sustainability (Das and Rangarajan, 2020). SMEs view sustainability as a balancing act of social, economic and environmental demands. They do not regard it as an important part of their strategy for achieving long-term profit. Therefore, they do not incorporate sustainability into their strategic management (Souto, 2021). Furthermore, SMEs have limited resources and financial capacity to implement sustainability practices in their operation. Thus, they put sustainability practices as their last priority as business benefits are not seen (Das and Rangarajan, 2020). For sustainability to be achieved, SMEs must understand the concept and its importance. They should also have sufficient capability and resources to carry out sustainability practices. SMEs must also consider the full cost of their business operation by measuring their financial, social and environmental performance. Sustainability is attained only when a positive return on investment in the three performance dimensions is realised (Ndubisi *et al.*, 2021). In this study, SP is presented in three dimensions which are social, environmental and financial performance (Table 5).

Ferreira *et al.* (2020) and Hung *et al.* (2010) demonstrated that DC improves a firm's performance, a key dimension of sustainability and influence competitive advantage. Wu *et al.* (2013) also identified that DC can drive SP, which results in long-term sustainability development. Various studies have been conducted to show that GDC contributes to SP (Singh *et al.*, 2020; Al-Shami and Rashid, 2022; Hung *et al.*, 2010). A study by Singh *et al.* (2020) revealed that GDC, in terms of innovative capability, influences a firm's performance, which is an aspect of SP. It is also argued that when SMEs perceive they have sufficient capability to carry out green business practices and sustainability practices, doing so will lead to SP (Wu *et al.*, 2013). Therefore, the third hypothesis is stated as:

H3. SMEs GDC influences SMEs SP.

Table 5.
Sources of
dimensions for
sustainability
performance

Dimension	Sources
Financial performance	Muangmee <i>et al.</i> (2021), Zailani <i>et al.</i> (2015), Souto (2021), Das and Rangarajan (2020), Shahzad <i>et al.</i> (2020), Afum <i>et al.</i> (2021)
Social performance	Muangmee <i>et al.</i> (2021), Zailani <i>et al.</i> (2015), Souto (2021), Das and Rangarajan (2020), Shahzad <i>et al.</i> (2020), Afum <i>et al.</i> (2021)
Environmental performance	Muangmee <i>et al.</i> (2021), Zailani <i>et al.</i> (2015), Souto (2021), Das and Rangarajan (2020), Shahzad <i>et al.</i> (2020), Afum <i>et al.</i> (2021)

3.5 Green innovation and small to medium enterprises sustainability performance

As mentioned above, GI can be specified in two aspects. These are GPI and GPRI. These aspects of GI can drive sustainability in all aspects of SP. GPI and GPRI are found to have positive effects on environmental and firm's financial performance (Huang and Li, 2017; Frare and Beuren, 2021). Andersén (2021) demonstrated that GI brings about differentiation advantages, and so improving a firm's performance. GI that focuses on green strategy and management development can also lead to SP (Muangmee *et al.*, 2021; Wang and Yang, 2021). Moreover, Yacob *et al.* (2019) found that GI, in terms of green initiatives, influences sustainability practices resulting in SP. Furthermore, Muangmee *et al.* (2021) showed that GI has positive effects on SMEs financial, social and environmental performance. Consequently, the fourth hypothesis is established as:

H4. SMEs GI influences SMEs SP.

3.6 Organisational creativity and small to medium enterprises sustainability performance

Sustainability is a complex issue that requires creative thinking and solutions (Awan *et al.*, 2019). The complexity of interconnected environmental problems, social issues and economic development concerns need to be addressed and solved using creative perspectives, ideas and solutions. Creativity could be the key driver in generating unconventional ideas and solutions to solve these critical issues. Various research has been conducted to indicate a link between creativity and SP (Przychodzen *et al.*, 2016; Awan *et al.*, 2019; Souto, 2021). Creativity can drive innovation resulting in an increase in SP (Przychodzen *et al.*, 2016; Souto, 2021). Ferreira *et al.* (2020) stated that creativity influences innovative capability, which improves a firm's performance, which, in turn, is a key dimension of SP. Fang *et al.* (2021) also posited that creativity is crucial in developing GI, which can help to achieve sustainable development. Furthermore, it has been found that OC affects economic, social and environmental performance (Przychodzen *et al.*, 2016; Awan *et al.*, 2019; Souto, 2021). Therefore, the fifth hypothesis is formed as:

H5. SMEs OC influences SMEs SP.

3.7 Green dynamic capability, green innovation, organisational creativity and SMEs sustainability performance

GDC is associated with GI (Singh *et al.*, 2021). One of the key dimensions of GDC is GIC and can be defined as the ability to use the knowledge acquired in creating green processes, systems and products that benefit firms and stakeholders. (Singh *et al.*, 2021). GIC is multi-dimensional. It can be viewed from the perspective of green strategy, green product or process, green HRM or green business management (Lopes de Sousa Jabbour *et al.*, 2020; Chen and Chang, 2013) and so can be applied to organisational strategic management and behaviour (Zhou *et al.*, 2018). GIC significantly influences GI. Huang and Li (2017) demonstrated that GIC influences GI performance. Chang and Gotcher (2020) also proved that innovation ambidexterity leads to eco-innovation.

Achieving sustainability is a significant challenge and a complicated process. Novel and innovative solutions and practices are necessary to attain sustainability (Awan *et al.*, 2019). GI can enhance environmental and social performance leading to SP (Lopes de Sousa Jabbour *et al.*, 2020; Souto, 2021). Singh *et al.* (2021) indicated that GI mediates the relationship between GDC and a firm's performance. Furthermore, Al-Shami and Rashid (2022)

showed that DC affects sustainable development, enhancing SP through eco-innovation. Therefore, it can be posited that GDC can influence sustainability through GI.

GDC can influence OC. It was found that GDC, in terms of organisational management capability, exploration and exploitation capability, induces OC (Ferreira *et al.*, 2020; Gao *et al.*, 2021). OC can also drive sustainability. It has been suggested that a combination of creativity and innovation can contribute to sustainability (Malesios *et al.*, 2021). Chen *et al.* (2015) and Chen *et al.* (2016) showed that OC enhances organisational performance through GI driving sustainable development. Chen and Chang (2013) also found that OC enhances SP through GI. Therefore, it is proposed that GDC can influence SP through OC. Table 6 summarises the key studies illustrating the linkages between GDC, GI, OC and SMEs SP. The sixth and seven hypotheses are presented below as:

H6. SMEs GI mediates the relationship between SMEs GDC and SMEs SP.

H7. SMEs OC mediates the relationship between SMEs GDCs and SMEs SP.

3.8 Organisational agility, green dynamic capability, green innovation and sustainability performance

OA is derived from the concept of agility. The concept of agility became prominent in software engineering in the early 2000s (Baškarada and Koronios, 2018). Agility can be generally described as “organisational systems that thrive in unpredictable or rapidly changing environments” (Chatwani, 2019, p.3). OA is defined as the ability to adapt to dynamic changes rapidly, continuously and systematically, establishing entrepreneurial innovation intended to acquire competitive advantage (Baškarada and Koronios, 2018). OA is closely linked to DC and innovation. DC is regarded as a combination of process, routine, practice, knowledge and entrepreneurial capability to respond to a rapidly changing market in an innovative and timely manner (Ajgaonkar *et al.*, 2021; Walter, 2021). However, the aspect of routines does not align with the current dynamic business environment as routines are sticky and are adapted slowly. Therefore, DC is appropriate in the context of OA as it allows firms to identify and spot imminent trends and opportunities in the market and to react to them acutely (Walter, 2021). Furthermore, firms with high DC recognise the importance of OA and adopt it smoothly and without losing efficiency (Walter, 2021). In the current business market, which places emphasis on environmental protection and sustainability development, GDC can be implemented in organisations that increase OA, helping them to adapt to the green market.

When firms spot lucrative opportunities in the market, they adapt and seize the opportunities by swiftly providing new products and services to capture the market. Thus, OA contributes towards innovation by allowing firms to promptly react to the fast-changing market by offering innovative products, services and solutions fulfilling customer demand (Shahzad *et al.*, 2020). OA is divided into the two aspects of market capitalising agility (MCA) and operational adjustment agility (OAA) (Lu and Ramamurthy, 2011). MCA focuses on the capacity that enhances products and services, which react to change in consumer needs and demand by continuously detecting and capitalising upon opportunities appearing in the market (Mikalef and Pateli, 2017). OAA primarily engages with internal business processes and practices, which may be quickly adapted in response to the market and other stimulators for innovation (Mikalef and Pateli, 2017). These two aspects of OA induce innovation and validate the idea that OA drives innovation (Hoonsopon and Puriwat, 2021) and improve business performance (Walter, 2021). Additionally, when OA is adopted in response to environmental changes and consumer green demand, firms must focus on GI,

			Green dynamic capability
No.	Source	Description	Key variables
1	Singh <i>et al.</i> (2021)	Study of the effects of stakeholder pressure, green dynamic capability, green innovation on firm performance	Stakeholder pressure, green dynamic capability, green innovation and firm performance
2	Li (2022)	Study of the influences of green dynamic capability and green innovation on firm performance	Green dynamic capability, green innovation and firm performance
3	Chen and Chang (2013)	Study of the effects of green transformational leadership, green dynamic capability and green creativity on green product performance	Green transformational leadership, green dynamic capability, green creativity and green product performance
4	Lin and Chen (2017)	Evaluation of the effects of green knowledge sharing, green dynamic capabilities and green service innovation on green competitive advantage	Green knowledge sharing, green dynamic capabilities, green service innovation and green competitive advantage
5	Souto (2021)	Study of the relationships between organisational creativity, sustainable-oriented innovation and sustainability performance	Organisational creativity, sustainable-oriented innovation and sustainability performance
6	Al-Shami and Rashid (2022)	Assessment of the relationships between dynamic capability, eco-innovation and sustainable development	Dynamic capability, eco-innovation and sustainable development
7	Chen <i>et al.</i> (2015)	Evaluation of the association between green absorptive capacity, green dynamic capacities, green service innovation and firm performance	Green absorptive capacity, green dynamic capacities, green service innovation and firm performance
8	Muangmee <i>et al.</i> (2021)	Study of the effects of green entrepreneurial orientation and green innovation on sustainability performance	Green entrepreneurial orientation, green innovation and sustainability performance
9	Zailani <i>et al.</i> (2015)	Evaluation of the links between environmental regulations, market demand, firm internal initiatives, green innovation and sustainability performance	Environmental regulations, market demand, firm internal initiatives, green innovation and sustainability performance
10	Wang and Yang (2021)	Assessment of the relationship between green innovation and sustainability performance	Green innovation and sustainability performance
11	Ferreira <i>et al.</i> (2020)	Evaluation of the impact of dynamic capabilities, creativity and innovation capability on competitive advantage and firm performance	Dynamic capabilities, creativity, innovation capability, competitive advantage and firm performance
12	Przychodzen <i>et al.</i> (2016)	Study of the link between organisational creativity and sustainability	Organisational creativity and sustainability

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Table 6.
Key studies illustrating the linkages among green dynamic capability, green innovation, organisational creativity and SMEs sustainability performance

which influences environmental performance and sustainable development ([Shahzad *et al.*, 2020](#)), which drives SP ([Ashrafi *et al.*, 2019](#)).

Different studies show the linkage between OA and GDC ([Baškarada and Koronios, 2018](#); [Rabal-Conesa *et al.*, 2021](#); [Arora *et al.*, 2020](#)). A study by [Rabal-Conesa *et al.* \(2021\)](#) showed a

strong linkage between OA and GDC in the aspect of environmental knowledge. A study by [Arora et al. \(2020\)](#) also identified an association between GDC and OA and its effect on green goods growth. OA is also associated with GI. [Werder et al. \(2021\)](#) illustrated through case studies that OA propels innovation, and firms need OA to create products and services catering to the current green preference of consumers. When innovation is achieved through OA, it can lead to sustainability. [Shahzad et al. \(2020\)](#) demonstrated that OA enhances GI-inducing corporate sustainable performance. [Table 7](#) presents the key studies illustrating the linkages between GDC, GI, OA and SMEs SP. The eighth (a) and eighth (b) hypotheses are proposed below as:

- H8a.* SMEs OA moderates the relationship between SMEs GDC and SMEs GI.
- H8b.* SMEs OA moderates the relationship between SMEs GI and SMEs SP.

4. Proposed small to medium enterprises sustainability framework

This study proposes eight hypotheses along with a framework derived and expanded from the literature relevant to SMEs and sustainability. The framework as shown in [Figure 1](#), presents SMEs SP as a dependent variable and SMEs GDC as an independent variable. OC and GI are included as mediators and OA as a moderator. Control variables consist of SMEs

Table 7.
Key studies illustrating the linkages among green dynamic capability, green innovation, organisational agility and SMEs sustainability performance

No.	Source	Description	Key variables
1	Rabal-Conesa et al. (2021)	Study into the effects of organisational agility, environmental knowledge on green product success	Organisational agility, environmental knowledge and green product success
2	Hoonsopon and Puriwat (2021)	Evaluation of the influences of organisational agility and innovation on new product performance	Organisational agility, innovation and new product performance
3	Baškarada and Koronios (2018)	Identification of the link between organisational agility and dynamic capability	Organisational agility and dynamic capability
4	Ashrafi et al. (2019)	Study on the impact of business analytics, information quality, innovative capability and firm agility on firm performance	Business analytics, information quality, innovative capability, firm agility and firm performance
5	Mikalef and Pateli (2017)	Assessment of the relationships between dynamic capability, organisational agility and competitive performance	Dynamic capability, organisational agility and competitive performance
6	Shahzad et al. (2020)	Assessment of the relationships between knowledge process management, green innovation, organisational agility and sustainable performance	Knowledge process management, green innovation, organisational agility and sustainable performance
7	Arora et al. (2020)	Identification of the association of green dynamic capability and organisational agility and its influence on green goods growth	Green dynamic capability, organisational agility and green goods growth
8	Werder et al. (2021)	Identification of the link between organisational agility and innovation	Organisational agility and innovation

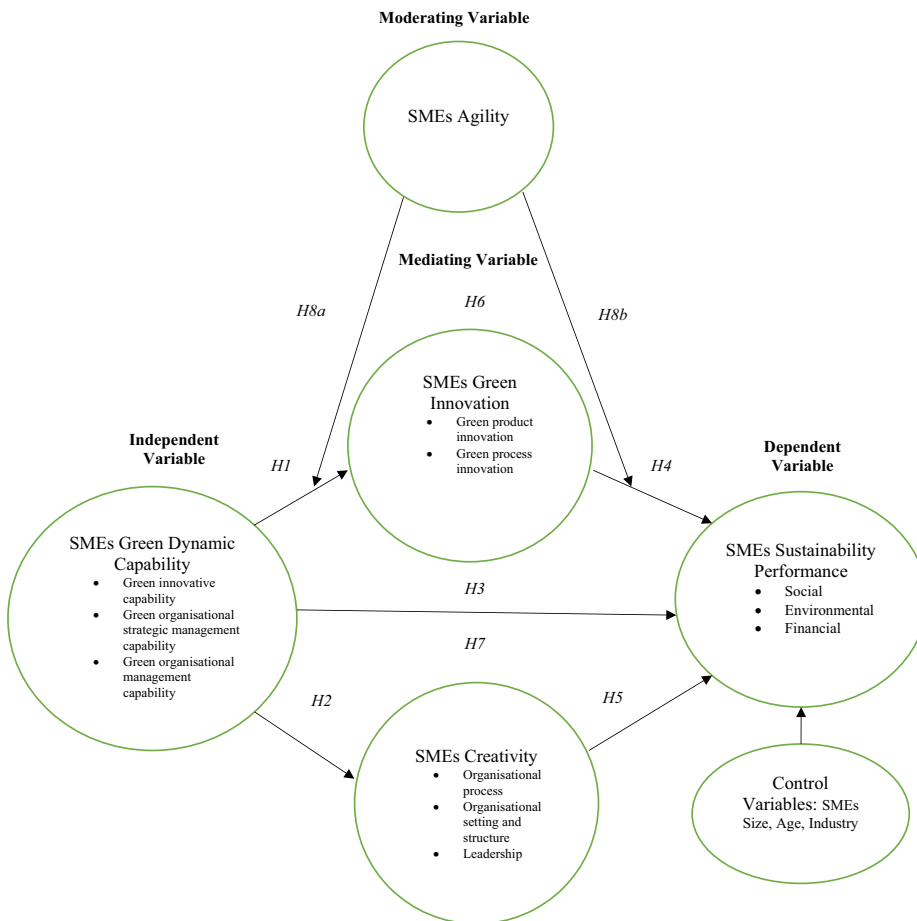


Figure 1.
Proposed framework

size, age and industry, as these could potentially affect SMEs SP. The control variables are selected based on the literature review and previously conducted similar studies (Danso *et al.*, 2020; Huang and Li, 2017). SMEs size considers the number of employees (Danso *et al.*, 2020; Huang and Li, 2017; OSMEP, 2020). SMEs age is determined based on the number of years the SME has been in operation since its establishment (Danso *et al.*, 2020; Huang and Li, 2017). The industry is defined as the manufacturing or trade and service sector as defined by OSMEP's categorisation of the SMEs industry (Danso *et al.*, 2020; OSMEP, 2020). A dummy variable is used to indicate the industry, with "1" referring to the trade and service sector and "2" referring to "otherwise" (Danso *et al.*, 2020).

Sustainability is a critical issue that requires massive effort to resolve. As SMEs contribute to tremendous resource consumption, wastage and environmental problems, SP in SMEs needs to be studied to assist with their sustainability development (Lopes de Sousa Jabbour *et al.*, 2020). As such, it is important to explore different factors which can influence SMEs sustainability. DC is the underlying theory for this conceptual model. GDC is expanded from DC and is a significant factor that drives GI. It contributes to SP by adapting

and orchestrating resources and capabilities to create green products and services satisfying customer green demand (Awan *et al.*, 2019). GDC influences OC leading to SP by improving organisational and strategic management so, allowing employees to collaborate effectively to create new products and services (Singh *et al.*, 2020; Souto, 2021). OA affects GDC and GI by stimulating SP by sensing and seizing foreseeable changes and needs in green products and solutions and sustainable development, prompting the delivery of GI and sustainable outcomes (Shahzad *et al.*, 2020). As this study proposes a conceptual framework, which forms connections among GDC, GI, OC and OA influencing SMEs SP, further empirical studies need to be conducted to validate these relationships with SMEs sustainability. This will increase understanding of sustainable development and SP in SMEs, facilitating social improvement, environmental preservation and sustainable economic growth.

5. Implications of the study

This study intends to help expand the body of knowledge in the field of SMEs sustainability by providing SMEs with literature on SP and its contributors, which can be used to improve sustainability development. It also highlights new areas regarding SMEs' sustainability for further studies and investigation. This study may provide the following directions for future research, practical implications and academic implications.

5.1 Practical implications

- Clear strategies, goals and guidelines, in line with sustainability development goals and frameworks, can be established to help SMEs improve GDC.
- Create organisational structure, culture and practices focusing on flexibility which can improve SMEs agility, enhancing GDC and GI.
- Enhance SMEs GDC through green knowledge building and green organisational and managerial skill development leading to increased GI and OC.
- Improve SME SP through identifying weak aspects of SP and providing skill and resource development intended to drive sustainability development.

5.2 Academic implications

- Expand the knowledge of SMEs sustainability through the application of the interlinked theories of DC, GDC and OA.
- Establish linkages and relationships between the variables affecting SMEs sustainability so, enhancing the knowledge of business management in the aspect of sustainability.
- Study and validate the associations between variables shown in the framework, which can help SMEs in forming strategies to improve their SP.
- Undertake further studies on SMEs sustainability which include the determinants and impacts of SMEs sustainability.

6. Conclusion

This paper proposes a conceptual framework for SMEs SP by demonstrating the relationship between SMEs GDC and SMEs SP, with GI and OC as mediators and OA as a moderator. SMEs sustainability is critical for economic growth, social development and environmental conservation. Therefore, it is important to understand what contributes to SMEs sustainability. However, studies of SMEs sustainability are rare, especially in the context of SMEs in developing countries, yet these can be used by SMEs to help develop

sustainable practices prompting SP. The SMEs sustainability model presented in this study can help solve the complex problem of sustainability and support improving SMEs SP, particularly in the trade and service sector. It can also help SMEs understand the drivers of SMEs sustainability and identify interventions and practices that can improve SP. Additionally, the study contributes to the body of knowledge on SMEs sustainability as it uses the concept of GDC and OA, which are rarely studied. As the study is conceptual, empirical research on the model must be conducted to prove its validity. The practical implications of this study may help SMEs improve their GDC leading to better SP through an improved understanding of the relationship of variables affecting SP. This will lead to the creation of suitable strategies, policies and capability development for SMEs driving GI, OC and OA, resulting in SMEs sustainability.

References

- Afum, E., Sun, Z., Agyabeng-Mensah, Y. and Baah, C. (2021), "Lean production systems, social sustainability performance and green competitiveness: the mediating roles of green technology adoption and green product innovation", *Journal of Engineering, Design and Technology*, doi: [10.1108/JEDT-02-2021-0099](https://doi.org/10.1108/JEDT-02-2021-0099).
- Ajgaonkar, S., Neelam, N.G. and Wiemann, J. (2021), "Drivers of workforce agility: a dynamic capability perspective", *International Journal of Organizational Analysis*, Vol. 30 No. 4, pp. 951-982, doi: [10.1108/IJOA-11-2020-2507](https://doi.org/10.1108/IJOA-11-2020-2507).
- Albort-Morant, G., Leal-Millán, A. and Cepeda-Carrión, G. (2016), "The antecedents of green innovation performance: a model of learning and capabilities", *Journal of Business Research*, Vol. 69 No. 11, pp. 4912-4917, doi: [10.1016/j.jbusres.2016.04.052](https://doi.org/10.1016/j.jbusres.2016.04.052).
- Al-Shami, S. and Rashid, N. (2022), "A holistic model of dynamic capabilities and environment management system towards eco-product innovation and sustainability in automobile firms", *Journal of Business and Industrial Marketing*, Vol. 37 No. 2, pp. 402-416, doi: [10.1108/JBIM-04-2020-0217](https://doi.org/10.1108/JBIM-04-2020-0217).
- Amabile, T.M. and Pratt, M.G. (2016), "The dynamic componential model of creativity and innovation in organizations: making progress, making meaning", *Research in Organizational Behavior*, Vol. 36, pp. 157-183, doi: [10.1016/j.riob.2016.10.001](https://doi.org/10.1016/j.riob.2016.10.001).
- Amazon, A.C., Thompson, K.R., Hochwarter, W.A. and Harrison, A.W. (1995), "Conflict: an important dimension in successful management teams", *Organizational Dynamics*, Vol. 24 No. 2, pp. 20-35, doi: [10.1016/0090-2616\(95\)90069-1](https://doi.org/10.1016/0090-2616(95)90069-1).
- Amui, L.B.L., Jabbour, C.J.C., de Sousa Jabbour, A.B.L. and Kannan, D. (2017), "Sustainability as a dynamic organizational capability: a systematic review and a future agenda toward a sustainable transition", *Journal of Cleaner Production*, Vol. 142, pp. 308-322, doi: [10.1016/j.jclepro.2016.07.103](https://doi.org/10.1016/j.jclepro.2016.07.103).
- Andersén, J. (2021), "A relational natural-resource-based view on product innovation: the influence of green product innovation and green suppliers on differentiation advantage in small manufacturing firms", *Technovation*, Vol. 104, p. 102254, doi: [10.1016/J.TECHNOVATION.2021.102254](https://doi.org/10.1016/J.TECHNOVATION.2021.102254).
- APEC (2020), "Overview of the SME sector in the APEC region: key issues on market access and internationalization", available at: www.apec.org/docs/default-source/Publications/2020/4/Overview-of-the-SME-Sector-in-the-APEC-Region-Key-Issues-on-Market-Access-and-Internationalization/220_PSU_SME-Market-Access-and-Internalization.pdf (accessed 21 March 2022).
- Armstrong, C.E. and Shimizu, K. (2007), "A review of approaches to empirical research on the resource-based view of the firm", *Journal of Management*, Vol. 33 No. 6, pp. 959-986, available at: <https://journals.sagepub.com/doi/abs/10.1177/0149206307307645>

- Arora, S.K., Li, Y., Youtie, J. and Shapira, P. (2020), "Measuring dynamic capabilities in new ventures: exploring strategic change in US green goods manufacturing using website data", *The Journal of Technology Transfer*, Vol. 45 No. 5, pp. 1451-1480, doi: [10.1007/s10961-019-09751-y](https://doi.org/10.1007/s10961-019-09751-y).
- Ashrafi, A., Ravasan, A.Z., Trkman, P. and Afshari, S. (2019), "The role of business analytics capabilities in bolstering firms' agility and performance", *International Journal of Information Management*, Vol. 47, pp. 1-15, doi: [10.1016/j.ijinfomgt.2018.12.005](https://doi.org/10.1016/j.ijinfomgt.2018.12.005).
- Atkinson, L.Z. and Cipriani, A. (2018), "How to carry out a literature search for a systematic review: a practical guide", *BJPsych Advances*, Vol. 24 No. 2, pp. 74-82, doi: [10.1192/bja.2017.3](https://doi.org/10.1192/bja.2017.3).
- Awan, U., Sroufe, R. and Kraslawski, A. (2019), "Creativity enables sustainable development: supplier engagement as a boundary condition for the positive effect on green innovation", *Journal of Cleaner Production*, Vol. 226, pp. 172-185, doi: [10.1016/j.jclepro.2019.03.308](https://doi.org/10.1016/j.jclepro.2019.03.308).
- Axtell, C.M., Holman, D.J., Unsworth, K.L., Wall, T.D., Waterson, P.E. and Harrington, E. (2000), "Shopfloor innovation: Facilitating the suggestion and implementation of ideas", *Journal of Occupational and Organizational Psychology*, Vol. 73 No. 3, pp. 265-285, doi: [10.1348/096317900167029](https://doi.org/10.1348/096317900167029).
- Başkarada, S. and Koronios, A. (2018), "The 5S organizational agility framework: a dynamic capabilities perspective", *International Journal of Organizational Analysis*, Vol. 26 No. 2, pp. 331-342, doi: [10.1108/IJOA-05-2017-1163](https://doi.org/10.1108/IJOA-05-2017-1163).
- Bonner, J.M., Ruekert, R.W. and Walker, O.C. Jr. (2002), "Upper management control of new product development projects and project performance", *Journal of Product Innovation Management*, Vol. 19 No. 3, pp. 233-245, doi: [10.1111/1540-5885.1930233](https://doi.org/10.1111/1540-5885.1930233).
- Bucic, T. and Gudergan, S.P. (2004), "The impact of organizational settings on creativity and learning in alliances", *M@n@gement*, Vol. 7 No. 3, pp. 257-273, doi: [10.3917/mana.073.0257](https://doi.org/10.3917/mana.073.0257).
- Chang, K.H. and Gotcher, D.F. (2020), "How and when does co-production facilitate eco-innovation in international buyer-supplier relationships? The role of environmental innovation ambidexterity and institutional pressures", *International Business Review*, Vol. 29 No. 5, p. 101731, doi: [10.1016/J.IBUSREV.2020.101731](https://doi.org/10.1016/J.IBUSREV.2020.101731).
- Chatwani, N. (2019), *Organisational Agility: Exploring the Impact of Identity on Knowledge Management*, Springer, Switzerland, doi: [10.1007/978-3-030-17249-7_1](https://doi.org/10.1007/978-3-030-17249-7_1)
- Chen, Y.S. and Chang, C.H. (2013), "The determinants of green product development performance: green dynamic capabilities, green transformational leadership, and green creativity", *Journal of Business Ethics*, Vol. 116 No. 1, pp. 107-119, doi: [10.1007/s10551-012-1452-x](https://doi.org/10.1007/s10551-012-1452-x).
- Chen, Y.S., Chang, T.W., Lin, C.Y., Lai, P.Y. and Wang, K.H. (2016), "The influence of proactive green innovation and reactive green innovation on green product development performance: the mediation role of green creativity", *Sustainability*, Vol. 8 No. 10, p. 966, doi: [10.3390/su8100966](https://doi.org/10.3390/su8100966).
- Chen, Y.S., Lai, S.B. and Wen, C.T. (2006), "The influence of green innovation performance on corporate advantage in Taiwan", *Journal of Business Ethics*, Vol. 67 No. 4, pp. 331-339, doi: [10.1007/s10551-006-9025-5](https://doi.org/10.1007/s10551-006-9025-5).
- Chen, Y.S., Lin, Y.H., Lin, C.Y. and Chang, C.W. (2015), "Enhancing green absorptive capacity, green dynamic capacities, and green service innovation to improve firm performance: an analysis of structural equation modeling (SEM)", *Sustainability*, Vol. 7 No. 11, pp. 15674-15692, doi: [10.3390/su71115674](https://doi.org/10.3390/su71115674).
- Danso, A., Adomako, S., Lartey, T., Amankwah-Amoah, J. and Owusu-Yirenkyi, D. (2020), "Stakeholder integration, environmental sustainability orientation and financial performance", *Journal of Business Research*, Vol. 119, pp. 652-662, doi: [10.1016/j.jbusres.2019.02.038](https://doi.org/10.1016/j.jbusres.2019.02.038).
- Das, M. and Rangarajan, K. (2020), "Impact of policy initiatives and collaborative synergy on sustainability and business growth of Indian SMEs", *Indian Growth and Development Review*, Vol. 13 No. 3, pp. 607-627, doi: [10.1108/IGDR-09-2019-0095](https://doi.org/10.1108/IGDR-09-2019-0095).

-
- De Vasconcellos, S.L., Garrido, I.L. and Parente, R.C. (2019), "Organizational creativity as a crucial resource for building international business competence", *International Business Review*, Vol. 28 No. 3, pp. 438-449, doi: [10.1016/j.ibusrev.2018.11.003](https://doi.org/10.1016/j.ibusrev.2018.11.003).
- Elkington, J. (1998), *Cannibals with Forks – The Triple Bottom Line of 21st Century Business*, New Society Publishers, Oxford.
- EnvilienceASIA (2022), "Outlook on Thailand's activities on GHG emission reduction", available at: [https://envilience.com/regions/southeast-asia/th/th-ghg#:~:text=Although%2C%20currently%20in%202021%2C%20Thailand,year%20\(MtCO2e\)](https://envilience.com/regions/southeast-asia/th/th-ghg#:~:text=Although%2C%20currently%20in%202021%2C%20Thailand,year%20(MtCO2e)) (accessed 21 March 2022).
- Falahat, M., Ramayah, T., Soto-Acosta, P. and Lee, Y.Y. (2020), "SMEs internationalization: the role of product innovation, market intelligence, pricing, and marketing communication capabilities as drivers of SMEs' international performance", *Technological Forecasting and Social Change*, Vol. 152, p. 119908, doi: [10.1016/j.techfore.2020.119908](https://doi.org/10.1016/j.techfore.2020.119908).
- Fang, W., Wu, T.H., Chang, T.W. and Hung, C.Z. (2021), "What could entrepreneurial vision do for sustainable development? Explore the cross-level impact of organizational members' green shared vision on green creativity", *Sustainability*, Vol. 13 No. 10, pp. 5364, doi: [10.3390/su13105364](https://doi.org/10.3390/su13105364).
- Ferreira, J., Coelho, A. and Moutinho, L. (2020), "Dynamic capabilities, creativity and innovation capability and their impact on competitive advantage and firm performance: the moderating role of entrepreneurial orientation", *Technovation*, Vol. 92-93, p. 102061, doi: [10.1016/j.technovation.2018.11.004](https://doi.org/10.1016/j.technovation.2018.11.004).
- Petrati, M.A., Hansen, D. and Akhavan, P. (2022), "How to manage creativity in organizations: connecting the literature on organizational creativity through bibliometric research", *Technovation*, Vol. 115, p. 102473, doi: [10.1016/j.technovation.2022.102473](https://doi.org/10.1016/j.technovation.2022.102473).
- Frare, A.B. and Beuren, I.M. (2021), "The role of green process innovation translating green entrepreneurial orientation and proactive sustainability strategy into environmental performance", *Journal of Small Business and Enterprise Development*, Vol. ahead-of-print No. ahead-of-print, doi: [10.1108/JSBED-10-2021-0402](https://doi.org/10.1108/JSBED-10-2021-0402).
- Fussler, C. and James, P. (1996), *Driving Eco-Innovation: A Breakthrough Discipline for Innovation and Sustainability*, Financial Times/Prentice Hall.
- Gao, Y., Zhao, X., Xu, X. and Ma, F. (2021), "A study on the cross-level transformation from individual creativity to organizational creativity", *Technological Forecasting and Social Change*, Vol. 171, p. 120958, doi: [10.1016/j.techfore.2021.120958](https://doi.org/10.1016/j.techfore.2021.120958).
- Gumusluoglu, L. and Ilsev, A. (2009), "Transformational leadership, creativity, and organizational innovation", *Journal of Business Research*, Vol. 62 No. 4, pp. 461-473, doi: [10.1016/j.jbusres.2007.07.032](https://doi.org/10.1016/j.jbusres.2007.07.032).
- Hoonsopon, D. and Puriwat, W. (2021), "Organizational agility: key to the success of new product development", *IEEE Transactions on Engineering Management*, Vol. 68 No. 6, pp. 1722-1733, doi: [10.1109/TEM.2019.2929500](https://doi.org/10.1109/TEM.2019.2929500).
- Huang, Y.C. and Chen, C.T. (2021), "Institutional pressure, firm's green resources and green product innovation: evidence from Taiwan's electrical and electronics sector", *European Journal of Innovation Management*, doi: [10.1108/EJIM-04-2021-0217](https://doi.org/10.1108/EJIM-04-2021-0217).
- Huang, J.W. and Li, Y.H. (2017), "Green innovation and performance: the view of organizational capability and social reciprocity", *Journal of Business Ethics*, Vol. 145 No. 2, pp. 309-324, doi: [10.1007/s10551-015-2903-y](https://doi.org/10.1007/s10551-015-2903-y).
- Hung, R.Y.Y., Yang, B., Lien, B.Y.H., McLean, G.N. and Kuo, Y.M. (2010), "Dynamic capability: impact of process alignment and organizational learning culture on performance", *Journal of World Business*, Vol. 45 No. 3, pp. 285-294, doi: [10.1016/j.jwb.2009.09.003](https://doi.org/10.1016/j.jwb.2009.09.003).
- IQAir (2022), "Air quality in Thailand", available at: www.iqair.com/th-en/thailand (accessed 22 March 2022).

- Kraft, U. (2005), "Unleashing creativity", *Scientific American Mind*, Vol. 16 No. 1, pp. 16-23, available at: www.jstor.org/stable/24997593
- Lazaretti, K., Giotto, O.T., Sehnem, S. and Bencke, F.F. (2020), "Building sustainability and innovation in organizations", *Benchmarking: An International Journal*, Vol. 27 No. 7, pp. 2166-2188, doi: [10.1108/BIJ-08-2018-0254](https://doi.org/10.1108/BIJ-08-2018-0254).
- Leenders, R.T.A., Van Engelen, J.M. and Kratzer, J. (2003), "Virtuality, communication, and new product team creativity: a social network perspective", *Journal of Engineering and Technology Management*, Vol. 20 Nos 1/2, pp. 69-92, doi: [10.1016/S0923-4748\(03\)00005-5](https://doi.org/10.1016/S0923-4748(03)00005-5).
- Li, H. (2022), "Green innovation, green dynamic capability, and enterprise performance: evidence from heavy polluting manufacturing enterprises in China", *Complexity*, Vol. 2022, pp. 1-13, doi: [10.1155/2022/7755964](https://doi.org/10.1155/2022/7755964).
- Lin, Y.H. and Chen, Y.S. (2017), "Determinants of green competitive advantage: the roles of green knowledge sharing, green dynamic capabilities, and green service innovation", *Quality and Quantity*, Vol. 51 No. 4, pp. 1663-1685, doi: [10.1007/s1135-016-0358-6](https://doi.org/10.1007/s1135-016-0358-6).
- Lopes de Sousa Jabbour, A.B., Ndubisi, N.O. and Roman Pais Seles, B.M. (2020), "Sustainable development in Asian manufacturing SMEs: Progress and directions", *International Journal of Production Economics*, Vol. 225, p. 107567, doi: [10.1016/j.iipe.2019.107567](https://doi.org/10.1016/j.iipe.2019.107567).
- Lopez Gonzalez, J. and Sorescu, S. (2019), "Helping SMEs internationalise through trade facilitation", doi: [10.1787/2050e6b0-en](https://doi.org/10.1787/2050e6b0-en). (accessed 23 March 2022).
- Lu, Y. and Ramamurthy, K. (2011), "Understanding the link between information technology capability and organizational agility: an empirical examination", *MIS Quarterly*, Vol. 35 No. 4, pp. 931-954, doi: [10.2307/41409967](https://doi.org/10.2307/41409967).
- Mainemelis, C. and Ronson, S. (2006), "Ideas are born in fields of play: towards a theory of play and creativity in organizational settings", *Research in Organizational Behavior*, Vol. 27, pp. 81-131, doi: [10.1016/S0191-3085\(06\)27003-5](https://doi.org/10.1016/S0191-3085(06)27003-5).
- Malesios, C., De, D., Moursellas, A., Dey, P.K. and Evangelinos, K. (2021), "Sustainability performance analysis of small and medium sized enterprises: criteria, methods, and framework", *Socio-Economic Planning Sciences*, Vol. 75, p. 100993, doi: [10.1016/j.seps.2020.100993](https://doi.org/10.1016/j.seps.2020.100993).
- Mikalef, P. and Pateli, A. (2017), "Information technology-enabled dynamic capabilities and their indirect effect on competitive performance: findings from PLS-SEM and fsQCA", *Journal of Business Research*, Vol. 70, pp. 1-16, doi: [10.1016/j.jbusres.2016.09.004](https://doi.org/10.1016/j.jbusres.2016.09.004).
- Muangmee, C., Dacko-Pikiewicz, Z., Meekaewkunchorn, N., Kassakorn, N. and Khalid, B. (2021), "Green entrepreneurial orientation and green innovation in small and medium-sized enterprises (SMES)", *Social Sciences*, Vol. 10 No. 4, p. 136, doi: [10.3390/socsci10040136](https://doi.org/10.3390/socsci10040136).
- Nayak, A. (2008), "Experiencing creativity in organisations: a practice approach", *Long Range Planning*, Vol. 41 No. 4, pp. 420-439, doi: [10.1016/j.lrp.2008.05.001](https://doi.org/10.1016/j.lrp.2008.05.001).
- Ndubisi, N.O., Zhai, X. and Amy Lai, K.H. (2021), "Small and medium manufacturing enterprises and Asia's sustainable economic development", *International Journal of Production Economics*, Vol. 233, p. 107971, doi: [10.1016/j.IJPE.2020.107971](https://doi.org/10.1016/j.IJPE.2020.107971).
- OECD (2005), *OECD SME and Entrepreneurship Outlook: 2005*, OECD, Paris.
- OECD (2018), "Good Regulatory Practices to Support Small and Medium Enterprises in Southeast Asia", OECD, Paris, doi: [10.1787/9789264305434-en](https://doi.org/10.1787/9789264305434-en) (accessed 23 March 2022).
- OECD (2022), *Green Growth Indicators*, Organisation for Economic Co-operation and Development, Paris, available at: www.compareyourcountry.org/green-growth-indicators/en/3/all/default (accessed 23 June 2022).
- OSMEP (2018), "20-Year national strategy (2017-2036)", available at: www.sme.go.th/upload/mod_download/download-20201012111719.pdf (accessed 23 March 2022).
- OSMEP (2020), "OSMEP annual report 2020", available at: www.sme.go.th/upload/mod_download/download-2020110153118.pdf (accessed 23 March 2022).

- Peng, M.W. (2009), *Global Strategy*, 2nd ed., South-Western Cengage Learning, Mason, OH.
- Przychodzen, W., Przychodzen, J. and Lerner, D.A. (2016), "Critical factors for transforming creativity into sustainability", *Journal of Cleaner Production*, Vol. 135, pp. 1514-1523, doi: [10.1016/j.jclepro.2016.04.102](https://doi.org/10.1016/j.jclepro.2016.04.102).
- Rabal-Conesa, J., Jiménez-Jiménez, D. and Martínez-Costa, M. (2021), "Organisational agility, environmental knowledge, and green product success", *Journal of Knowledge Management*, doi: [10.1108/JKM-06-2021-0486](https://doi.org/10.1108/JKM-06-2021-0486).
- Ramakrishnan, S., Wong, M.S., Chit, M.M. and Mutum, D.S. (2022), "A conceptual model of the relationship between organisational intelligence traits and digital government service quality: the role of occupational stress", *International Journal of Quality and Reliability Management*, Vol. 39 No. 6, pp. 1429-1452, doi: [10.1108/IJQRM-10-2021-0371](https://doi.org/10.1108/IJQRM-10-2021-0371).
- Savitz, A.W. and Weber, K. (2014), *The Triple Bottom Line: How Today's Best-Run Companies Are Achieving Economic, Social, and Environmental Success-A and How You Can Too*, Jossey-Bass, San Francisco, CA.
- Shahid, S. and Muchiri, M.K. (2019), "Positivity at the workplace: conceptualising the relationships between authentic leadership, psychological capital, organisational virtuousness, thriving and job performance", *International Journal of Organizational Analysis*, Vol. 27 No. 3, pp. 494-523, doi: [10.1108/IJOA-05-2017-1167](https://doi.org/10.1108/IJOA-05-2017-1167).
- Shahzad, M., Qu, Y., Zafar, A.U., Rehman, S.U. and Islam, T. (2020), "Exploring the influence of knowledge management process on corporate sustainable performance through green innovation", *Journal of Knowledge Management*, Vol. 24 No. 9, pp. 2079-2106, doi: [10.1108/JKM-11-2019-0624](https://doi.org/10.1108/JKM-11-2019-0624).
- Singh, S.K., Del Giudice, M., Chiappetta Jabbour, C.J., Latan, H. and Sohal, A.S. (2021), "Stakeholder pressure, green innovation, and performance in small and medium-sized enterprises: the role of green dynamic capabilities", *Business Strategy and the Environment*, Vol. 31 No. 1, pp. 501-513, doi: [10.1002/bse.2906](https://doi.org/10.1002/bse.2906).
- Singh, S.K., Giudice, M., Del, Chierici, R. and Graziano, D. (2020), "Green innovation and environmental performance: the role of green transformational leadership and green human resource management", *Technological Forecasting and Social Change*, Vol. 150, p. 119762, doi: [10.1016/j.techfore.2019.119762](https://doi.org/10.1016/j.techfore.2019.119762).
- Souto, J.E. (2021), "Organizational creativity and sustainability-oriented innovation as drivers of sustainable development: overcoming firms' economic, environmental, and social sustainability challenges", *Journal of Manufacturing Technology Management*, Vol. 33 No. 4, pp. 805-826, doi: [10.1108/JMTM-01-2021-0018](https://doi.org/10.1108/JMTM-01-2021-0018).
- Teece, D. and Pisano, G. (1994), "The dynamic capabilities of firms: an introduction", working paper, International Institute for Applied Systems Analysis, Laxenburg, available at: www.sietmanagement.fr/wp-content/uploads/2018/02/Teece.pdf
- Teece, D.J., Pisano, G. and Shuen, A. (1997), "Dynamic capabilities and strategic management", *Strategic Management Journal*, Vol. 18 No. 7, pp. 509-533, doi: [10.1002/\(SICI\)1097-0266\(199708\)18:7%3C509::AID-SMJ882%3E3.0.CO;2-Z](https://doi.org/10.1002/(SICI)1097-0266(199708)18:7%3C509::AID-SMJ882%3E3.0.CO;2-Z).
- Ullah, R., Ahmad, H., Rehman, F.U. and Fawad, A. (2021), "Green innovation and sustainable development goals in SMEs: the moderating role of government incentives", *Journal of Economic and Administrative Sciences*, doi: [10.1108/jeas-07-2021-0122](https://doi.org/10.1108/jeas-07-2021-0122).
- UNSSC (2021), "The 2030 agenda for sustainable development", available at: www.unssc.org/sites/default/files/2030_agenda_for_sustainable_development_kcsd_primer_en.pdf (accessed 23 March 2022).
- Walter, A.T. (2021), "Organizational agility: ill-defined and somewhat confusing? A systematic literature review and conceptualization", *Management Review Quarterly*, Vol. 71 No. 2, pp. 343-391, doi: [10.1007/s11301-020-00186-6](https://doi.org/10.1007/s11301-020-00186-6).
- Wang, Y. and Yang, Y. (2021), "Analysing the green innovation practices based on sustainability performance indicators: a Chinese manufacturing industry case", *Environmental Science and Pollution Research*, Vol. 28 No. 1, pp. 1181-1203, doi: [10.1007/s11356-020-10531-7](https://doi.org/10.1007/s11356-020-10531-7).

- Werder, K., Richter, J., Hennel, P., Dreesen, T., Fischer, M. and Weingarth, J. (2021), "A Three-pronged view on organizational agility", *IT Professional*, Vol. 23 No. 2, pp. 89-95, doi: [10.1109/MITP.2020.3016488](https://doi.org/10.1109/MITP.2020.3016488).
- Wu, Q., He, Q. and Duan, Y. (2013), "Explicating dynamic capabilities for corporate sustainability", *EuroMed Journal of Business*, Vol. 8 No. 3, pp. 255-275, doi: [10.1108/EMJB-05-2013-0025](https://doi.org/10.1108/EMJB-05-2013-0025).
- Yacob, P., Wong, L.S. and Khor, S.C. (2019), "An empirical investigation of green initiatives and environmental sustainability for manufacturing SMEs", *Journal of Manufacturing Technology Management*, Vol. 30 No. 1, pp. 2-25, doi: [10.1108/JMTM-08-2017-0153](https://doi.org/10.1108/JMTM-08-2017-0153).
- Zailani, S., Govindan, K., Iranmanesh, M., Shaharudin, M.R. and Chong, Y.S. (2015), "Green innovation adoption in automotive supply chain: the Malaysian case", *Journal of Cleaner Production*, Vol. 108, pp. 1115-1122, doi: [10.1016/j.jclepro.2015.06.039](https://doi.org/10.1016/j.jclepro.2015.06.039).
- Zhang, W., Xu, F. and Wang, X. (2020), "Organizational agility: ill-defined and somewhat confusing? A systematic literature review and conceptualization", *Sustainability*, Vol. 12 No. 9, p. 3841, doi: [10.3390/su12093841](https://doi.org/10.3390/su12093841).
- Zhou, J. and George, J.M. (2003), "Awakening employee creativity: the role of leader emotional intelligence", *The Leadership Quarterly*, Vol. 14 Nos 4/5, pp. 545-568, doi: [10.1016/S1048-9843\(03\)00051-1](https://doi.org/10.1016/S1048-9843(03)00051-1).
- Zhou, Y., Hong, J., Zhu, K., Yang, Y. and Zhao, D. (2018), "Dynamic capability matters: uncovering its fundamental role in decision making of environmental innovation", *Journal of Cleaner Production*, Vol. 177, pp. 516-526, doi: [10.1016/j.jclepro.2017.12.208](https://doi.org/10.1016/j.jclepro.2017.12.208).

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