

Sustainable supply chain clusters: An integrated framework

Mahmoud Ramadan Barakat

Logistics of International Trade Department, Arab Academy for Science Technology and Maritime Transport, College of International Transport and Logistics, Alexandria, Egypt

Nicoleta Tipi

Department of People and Organisations, The Open University Business School, Milton Keynes, UK,

Jialin (Snow) Wu

Department of Logistics, Marketing, Hospitality and Analytics, University of Huddersfield Business School, Huddersfield, UK

Abstract:

Purpose: This research aims to provide a conceptual framework with the scope to assist in establishing sustainable supply chain clusters (SCC) by providing an instrument for organisations to enhance the three sustainability dimensions in a dynamic environment.

Design/methodology/approach: This research proposes a conceptual framework to enhance sustainability and organisational performance through three theoretical lenses: systems theory, extended resource-based view and dynamic capabilities theory. This approach is carried out through a comprehensive review of the existing literature on SCCs.

Findings: Four main propositions are formulated and demonstrated using the developed framework, which expands the discussion about SCCs and their key characteristics in a dynamic environment. This is particularly relevant as it allows empirical testing of the theories in a SCC context.

Research implications: It can be noted that more extensive research is needed to further understand the issues faced in establishing sustainable clusters. Drawing on the theoretical lenses to establish the framework helps to enhance the understanding and operational capabilities of sustainable SCCs during and after disruptions, such as the global disruption created by COVID-19.

Practical implications: This research paves the way to help organisations improve their adaptability to the dynamic business environment by emphasizing the importance of clustering and linking it to sustainability through dynamic capabilities (DC) to establish a sustainable cluster.

Originality/value: This research aims to guide organisations' use of SCCs as tools to enhance sustainability in a dynamic environment, given that the relationship among supply chain cluster design characteristics (SCCDCs), DCs and sustainability remains unexplored. The combination of the three theoretical lenses in developing the proposed framework will assist in further understanding the applicability of these theories when they are considered together.

Keywords: Resilience, absorptive capacity, sustainability, supply chain cluster, organisational performance.

Paper type: Conceptual paper

1. Introduction

Supply chains' internationalization through the development of international trade allows domestic organisations to decrease their costs by participating in the global supply chain (Jenny, 2020). However, when trade restrictions occur due to disruptive events, (e.g. COVID-19, war, natural disasters, etc.), global supply chains are disturbed, leading to issues, such as product unavailability in local markets, great fluctuations in demand for products, job losses, health related issues, shortage on skills development and many others (Inoue and Todo, 2020, Cappelli and Cini, 2020). In some cases, relying on local suppliers can help overcome this problem by securing a steady flow of materials and eventually enhancing organisational financial and non-financial performance (e.g. quality control and sales growth inside organisations operating in a SCC (Huo *et al.*, 2014, Cappelli and Cini, 2020); however, this may not be the case when particular products and services are required. Forming supply chain clusters (SCCs) (Tolossa *et al.*, 2013b) can play a significant role in establishing secure, steady flows of resources and skills (Geng *et al.*, 2013a, Tolossa *et al.*, 2013b, Porter, 1998a). SCCs represent an integration of supply chain management practices and industrial clusters for organisations operating in the same geographical locations (Huang and Xue, 2012).

The connectedness and collaboration among SCCs members can play an important role to enhance productivity and problem solving (Lei and Huang, 2014), leading to stronger local networks (Tolossa *et al.*, 2013b) that can contribute in enhancing the efficient use of resources (Foghani *et al.*, 2017). This in turn is envisaged to enhance sustainability (e.g. decrease in purchasing and manufacturing cost (Ruiz-Benitez *et al.*, 2019), decline in toxic materials used and waste (Winston, 2014, Ruiz-Benitez *et al.*, 2019), and aim for achieving better work conditions (Govindan *et al.*, 2014, Grimstad and Burgess, 2014, Golicic *et al.*, 2017) and organisational performance (Albuquerque *et al.*, 2020). It should be noted that, in the long run, the frequent occurrence of disruptive events (e.g., pandemic disease and natural

disasters (Annarelli and Nonino, 2016)) can severely damage highly connected organisations within a SCC due to cascading failure (Geng *et al.*, 2013a). In order to support organisations' adaptability to the constantly changing business environment, dynamic capabilities are needed to enhance, expand and protect organisations' tangible and intangible (knowledge base) assets (Teece, 2007, Helfat *et al.*, 2007), as SCC members are highly interconnected and interdependent; therefore, a failure of one organisation, for example a delay in announcing information, will disrupt the operations of the whole SCC (Wang and Xiao, 2016b, Geng *et al.*, 2013a). Hence, in order to enhance sustainability (Golicic *et al.*, 2017) and organisational performance (Riikkinen *et al.*, 2017), it is imperative for SCC members to consider developing dynamic capabilities (DCs) (Golicic *et al.*, 2017) that will allow them to improve and protect their assets during disruptions (Teece, 2007, Kraaijenbrink *et al.*, 2010).

Furthermore, to combat the challenges arising from disruptive events, such as COVID-19 pandemic (Cappelli and Cini, 2020), organisations and supply chain practitioners must develop both dynamic capabilities as well as sustainability approaches. However, extant research on supply chain cluster either focuses on one aspect of dynamic capability (e.g. resilience, Chowdhury and Quaddus, 2017) or on one dimension of sustainability (e.g. environmental sustainability, Walton *et al.*, 2020). Comprehensive conceptualization of dynamic capability and sustainability as well as their interrelationships in the context of supply chain cluster are still aspects in the literature that require further attention.

Beyond that, to help supply chain practitioners better understand the complex cluster design, unbundling the structure of supply chain cluster design characteristics (SCCDCs) and understanding their relations to other factors is of utmost importance. According to (Golicic *et al.*, 2017), with the efficient use of SCCDCs, organisations could successfully enhance sustainability and performance, thereby manage challenges in business environment (Bag *et al.*, 2019, Golicic *et al.*, 2017).

In such a turbulent era, where COVID-19 and other disruptions keep posing challenges for business organisations, the way in which SCCDCs, DCs, sustainability and organisational performance can be linked to each other is a timely issue to delve into. However, there is a considerable limited understanding of how SCCDCs can affect organisations' performances through DCs and sustainability (Lis and Rozkwitalska, 2020, Golicic *et al.*, 2017). The main contribution of this research thus lies in alleviating this gap, by developing a conceptual framework to provide a more holistic picture. This research is among the first to integrate the three theoretical lenses - system theory (ST), extended resource-based view (ERBV) and dynamic capability (DC) theory, to provide a comprehensive conceptualization and analysis on the interrelationships between SCCDCs, DCs, sustainability and organisational performance. We have noted previous research that has focused on information and resources sharing in a SCC context (e.g. Ye et al. 2020, Popli et al. 2017) and has utilized RBV and/or DC theory; however, the research considered investigated only organisational performance, while other work (e.g. Gupta et al. 2019, Quaye and Mensah 2019) focused on information, resources sharing and performance; however, the focus was not specific to SCCs. Research that focused on RBV (e.g. Barakat et al. 2022) focused on investigating the relationships between information sharing and value creation, however not in the context of SCC and without the inclusion of DCs and sustainability. Researchers have also focused on the issues of sustainability/ corporate social responsibility and organisational performance (e.g. Bag et al. 2020a, Ni and Sun 2019, Al-Shammari et al. 2022, Jain et al. 2022, Asiaei et al., 2022), utilizing ST or ERBV/RBV; however, these studies were not within the context of supply chain clusters and DC. There is also research that has focused on aspects of DC and sustainability (e.g. Mousavi et al. 2018, Oliveira-Dias et al. 2022), though not capturing aspects of performance or SCCs. We also recognize work that utilized DC theory and focused on performance (e.g. Mota et al.

2022); however, only one aspect of DC was captured, still not in the context of SCC and sustainability.

This research posits that the three theories complement each other to establish a sustainable SCC, where sharing of resources can enhance sustainability and eventually lead to better performance (ERBV (Mathews, 2003)). Creating an infrastructure of resources facilitates resources extension and sharing (ST (Rigby *et al.*, 2000)). However, organisations need to protect and develop resources in a dynamic business environment through building dynamic capabilities (DC theory (Teece *et al.*, 1997)). In this sense the formation of SCCs can secure a steady flow of resources as they promote local network and collaboration among geographically concentrated organisations (Geng *et al.*, 2013b, Tolossa *et al.*, 2013a, Porter, 1998b). In addition, close proximity of SCCs' members (Lei and Huang, 2014) allows for quick and more frequent communications among members and efficient sharing of resources and information, which decreases transaction cost (Johansson and Quigley, 2004) and leads to enhancement of productivity and problem solving (Koren and Petó, 2020). However, forming clusters to sustain performance includes increasing connectedness in the process (Han, 2009b, Porter, 1998b, Geng *et al.*, 2013b), which can increase the occurrence of cascading failures (Geng *et al.*, 2013b, Wang and Xiao, 2016a, Del Rio-Chanona *et al.*, 2020). Disruptive events may negatively impact even highly connected organisations (Craighead *et al.*, 2007, Del Rio-Chanona *et al.*, 2020).

The failure of one organisation In the SCC to deliver materials and/or information on time will disrupt the operations of all other organisations in the SCC because they are interdependent and interconnected (Wang and Xiao, 2016a, Geng *et al.*, 2013b), which will lead to a decline of organisations' adaptability (Craighead *et al.*, 2007) since dynamic capabilities are needed to help organisations adapt and respond to market changes (Teece, 2016b, Teece, 2007), become more sustainable and ultimately improve their performance

(Zahra and George, 2002, Riikkinen *et al.*, 2017). In addition to the fact that organisations tend not to focus on sustainability during destructive or disruptive events (Mari *et al.*, 2016), dynamic capabilities (Teece, 2007), such as resilience and absorptive capacity (Shubham *et al.*, 2018, Brusset and Teller, 2017), are particularly important in helping organisations achieve long-term sustainability in constantly changing environments through modifying their environmental, social and economic sustainability processes whenever the market changes (Fiksel *et al.*, 2014).

Finally, it is very important to implement sustainable practices in supply chain clusters as the concentration of industrial and logistics activities such as transportation raise environmental issues and harm the surrounding communities (UNIDO, 2016b). In other words, the conceptual framework of this research can serve as a tool to help organizations identify areas that need specific improvement and manage SCCs in a more sustainable, efficient and productive way. In addition, it will support small and medium enterprises through clusters to enhance their global competitive position (Foghani *et al.*, 2017, Østergaard and Park, 2013). Finally, the proposed framework supports sustainability development in the post COVID-19 era, especially that the recession caused by COVID-19 forced some governments to neglect enforcing laws regulating sustainability practices implementation in order to make more rapid economic recovery (Sarkis, 2021). Therefore, this research presents the conceptual framework as a tool to manage SCC efficiently, in order to enhance value creation and eventually sustainability. This framework can also arguably help governments achieve sustainable development goals (SDGs) (UN, 2018a).

The findings of this particular research will benefit organization's decision makers who are operating in a supply chain cluster with knowledge of the elements required to ensure sustainability and performance as well as the strategies to overcome business vulnerabilities. Another contribution of this study is to unwind the impact of DCs on the three

dimensions of sustainability (economic, social and environmental dimensions) in an SCC context (Golicic et al., 2017, Albort-Morant et al., 2018, Aboelmaged and Hashem, 2019) as well as the impact of sustainability dimensions on organizational financial and non-financial performance (Das et al., 2019) which are limited in the existing supply chain management literature. The framework proposed in this study is expected to help organizations understand the interplay between DCs and performance with the three dimensions of sustainability, thus developing effective sustainability approaches through DCs for supply chain clusters. This study not only can assist industry practitioners in establishing sustainable clusters through implementation of sustainable practices in SCCs, but also highlight the importance of other stakeholders (e.g. government, universities and industrial associations) in supporting activities such as job creation, economic enhancement, and environmental and resource conservation within a supply chain cluster.

The remainder of this paper discusses the theoretical lenses that the framework will be built on. Then, it discusses the rationale for using these lenses that link SCCDCs, DCs (resilience and absorptive capacity), sustainability and organizational performance (financial and operational). A review of the literature is then presented, followed by a summary of the identified research gaps and the proposed conceptual framework. Then, the paper discusses the research model and propositions. Finally, theoretical and practical contributions and recommendations for future research are presented.

2. Theoretical foundation

2.1 Systems theory

System Theory focuses on coordinating subsystems to observe the performance of the entire system (Forrester, 1961), which can be applied in organisations by investigating individual parts to add value to an entire organisation (Emery and Trist, 1965). However, this theory can

be extended beyond individual firms' boundaries to reach their business partners within the supply chain (Rigby *et al.*, 2000, Fantazy *et al.*, 2016, Bag *et al.*, 2020a, Tipi, 2021), where individual organisations are coming together to form a system of analysis and adapt to their external dynamic environments to survive (Baier *et al.*, 2020, Bag *et al.*, 2020a). ST stresses on a holistic approach, where the focus moves from individual organisational performance (subsystem) to value creation for the whole supply chain (the whole system) (Fatorachian and Kazemi, 2021). Since the risk associated with market changes and uncertainty is the link that connects organisations (Peck, 2005), it can be argued that, under ST perspective, an organisation's interaction with the external environment (Baier *et al.*, 2020) can eventually help in enhancing its internal structure and functions to deal with the constantly changing business environment (Thompson and Valentinov, 2017), which could lead to an increase in the performance of the entire supply chain (Fatorachian and Kazemi, 2021).

In this sense, it is proposed that supply chain members should collaborate to enhance the value of the supply chain system under analysis; the focus should not only be on a subsystem within their boundaries (Cooper *et al.*, 1997), but it should be on the entire system (Tipi, 2021). System theory is associated with supply chain management (Fantazy *et al.*, 2016) because it promotes the efficient flow of information, materials and capital throughout the supply chain (Mentzer *et al.*, 2001) and encourages the analysis to be considered at system level, where all sets of flows and operations are taken into account (Hassan, 2006). The integration and collaboration of supply chain subsystems (supply chain members and their different functions) help enhance their performance and, eventually, the overall performance of a supply chain (Flynn *et al.*, 2010, Michalski *et al.*, 2018).

2.2 Extended resource-based view

The resource-based view (RBV) or resource-based theory focuses on how a firm can sustain a competitive advantage by achieving superior performance (Bag *et al.*, 2019, Xi *et al.*, 2014)

using internal resources and the factors that enable a firm to outperform its peers in the same industry (Kraaijenbrink *et al.*, 2010). Internal resources are unique to every firm and encompass tangible assets and intangible assets, such as the organisation's skills, information and knowledge. Organisations can control these resources to sustain their competitive advantage (Barney, 1991). RBV considers networking as a resource that can enhance organisational performance (Ye *et al.*, 2020), as networks allow organisations to have access to resources required to enhance their performance (Loi, 2016). This falls in line with the RBV supply chain approach as it assumes that the resources needed to enhance organisational performance are at the supply chain level, making the supply chain a competitive advantage tool (Ketchen and Hult, 2007).

This notion is discussed in the ERBV, which stresses the fact that organisations mine for resources that can be outside their boundaries to enhance their competitive advantages (Son *et al.*, 2014). The ERBV focuses on how organisations need to extend their resources through forming alliances with other entities, such as their suppliers (Popli *et al.*, 2017, Mishra *et al.*, 2019), governmental agencies and other entities inside the same geographical area or region (Mishra *et al.*, 2019).

2.3 Dynamic capabilities theory

Through the ERBV, organisations can create value—an important aim—by acquiring resources that exist outside their boundaries (Son *et al.*, 2014, Mishra *et al.*, 2019). Because the external environment of any organisation is extremely volatile (Ponomarov, 2012), organisations can only create value if they manage to integrate resources to seize opportunities and overcome uncertainties that present themselves in their surrounding dynamic environments (Barney, 1991, Chowdhury and Quaddus, 2017). Market uncertainties make it difficult for organisations to sustain a competitive advantage (Eisenhardt and Martin,

2000) and enhance organisational performance (Bag *et al.*, 2019, Xi *et al.*, 2014) because they need to focus on responding to unexpected fluctuations in demand and supply and not only to survive (Ponomarov, 2012).

However, organisations can still sustain their competitive advantages when they strategically apply DCs (Eisenhardt and Martin, 2000). These capabilities allow organisations to reconfigure their resources (Teece, 2019) to quickly adapt to market changes and leap in front of competitors (Eisenhardt and Martin, 2000). DC theory focuses on sustaining competitive advantage in a dynamic business environment (Bag *et al.*, 2020b) through building DCs that will allow organisations to reconfigure and reallocate their resources (Breidbach *et al.*, 2015). In addition, it is argued that DCs can enhance organisations' ability to create resources to enhance sustainability in a constantly changing environment (Bag *et al.*, 2019). This perspective encourages organisations within a supply chain network to strengthen their alliances in order to be more adaptable to the dynamic business environment (Piprani *et al.*, 2020). In a SCC context, the resources (tangible and intangible) shared among SCC members can be a tool for organisations to respond to market changes through building DCs (Ye *et al.*, 2020). Based on these three theories, the theoretical framework will be developed in the following section.

2.4 Theoretical framework

Based on the research presented above and the definition of the theories illustrated in subsections 2.1, 2.3 and 2.4, Figure 1 was formulated to present a corresponding theoretical framework.

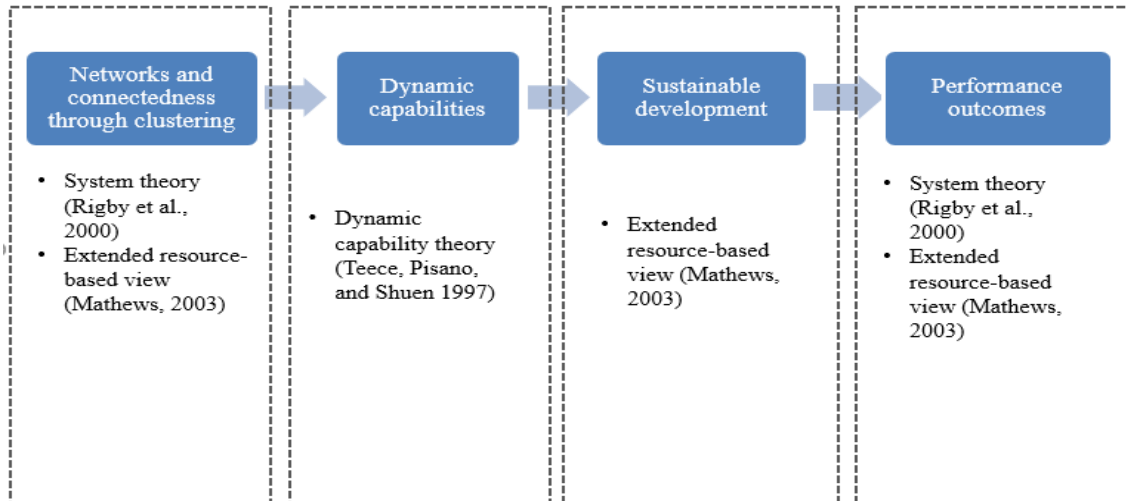


Figure 1: Theoretical framework

ERBV focuses on the notion that infrastructure of resources can be used to enhance sustainability (Al-Shammari *et al.*, 2022) and remove stakeholders pressure to focus on sustainability issues, which eventually enhances their satisfaction (Munir *et al.*, 2020). This enhanced sustainability (Albuquerque *et al.*, 2020), along with infrastructure of resources, organisations can increase their performance levels (Loi, 2016, Battisti *et al.*, 2022). RBV stresses on the fact that internal resources and capabilities of the organisations are essential for their sustainable competitive advantage (Hermundsdottir and Aspelund, 2022). Combining ST logic to the above argument, organisations can have access to infrastructure of resources available through the integration and collaboration of supply chain subsystems (supply chain members and their different functions), which helps in enhancing overall performance of the supply chain (Flynn *et al.*, 2010, Michalski *et al.*, 2018, Tipi, 2021). In addition, collaboration with entities, such as suppliers, governmental agencies and other entities in the same geographical area or region, can help in extending organisational resources (Popli *et al.*, 2017, Mishra *et al.*, 2019). In this sense, supply chains' integration helps members maximise their overall value through quick processing of information, joint learning and knowledge creation (Akande *et al.*, 2010, Fantazy *et al.*, 2016). However, for organisations to protect and develop their resources and maintain a high degree of

sustainability in a constantly changing environment, they need to build DCs (Teece *et al.*, 1997). This justifies the introduction of DC theory to the framework, as organisations will be able to enhance sustainability through developing, renewing and protecting their resources to cope with the disruptions in the market (Teece *et al.*, 1997, Teece, 2007) and their supply chain (Tipi, 2021). In return, high sustainability performance will give organisations a competitive edge and eventually enhance their performance (Munir *et al.*, 2022).

3. Literature review

3.1 SCCDCs

Clusters provide the environment that helps develop supply chains and increase their overall performance because supply chain members can cooperate in terms of capital and information flow when they form clusters (Han, 2009a). In return, supply chain management helps align SCC members' efforts and enhance their cooperation instead of only work for their own benefit or only compete destructively (Yan and Wang, 2008, Huang and Xue, 2012). In this sense, competitors, as well as business partners, work together to enhance overall cluster development (Xin and Li-ying, 2013). The importance of supply chain management to clusters and vice versa has pushed the integration and creation of SCCs (Huang and Xue, 2012, Geng *et al.*, 2013a).

Collaboration among competitors inside the same SCC is possible and beneficial (Porter, 1998a). Competitors can face similar operational issues in the surrounding environment (Hurmelinna - Laukkanen, 2012), such as common technological problems (Endres *et al.*, 2020); sharing selective knowledge among competitors can promote collaborative research and development (Hurmelinna - Laukkanen, 2012), which can then help in maintaining their performance (Hurmelinna - Laukkanen, 2012, Alves and Galina, 2021). However, there is a debate of how information sharing through networked

collaboration can affect organisational competitive advantage, as some organisations tend not to share valuable information in order to protect their comparative advantage (Dyer and Hatch, 2006, Lei and Huang, 2014). In addition, the cost of sharing information among competitors might outweigh its benefits, as illustrated through the empirical study of Yuan *et al.* (2021). Still, there is empirical evidence that supports the positive impact of networked collaboration on organisational performance in a supply SCC context (Ye *et al.*, 2020). It can be argued that using trust (Geng *et al.*, 2013a) to manage and promote competition as a win-win situation (Monteiro, 2016) can facilitate innovation and value creation (Mikhaylov, 2013, Lu and Shin, 2018). This can eventually lead to continuous cluster development (Xin and Li-ying, 2013, Dana *et al.*, 2013, Yuan *et al.*, 2021) and positively affect economic growth (Monteiro, 2016, Dong, 2011).

The importance of SCCs shifted the focus to their characteristics and design. Huang and Xue (2012) and Tolossa *et al.* (2013b) proposed three main characteristics: geographical concentration, networked collaboration and supporting services. Geographical concentration is very critical when creating a SCC because the close physical proximity of its members makes it possible to increase cost efficiency, competitive advantage, trust and innovation (He, 2016, Huang and Xue, 2012, Tolossa *et al.*, 2013b). Networked collaboration means that upstream and downstream vertical cooperation exists within the supply chain, and horizontal integration exists among different supply chains. This horizontal and vertical collaboration yields a competitive advantage and helps organisations achieve a higher degree of organisational performance that they could not reach on their own through interactive activities, such as sharing resources and information (Xue *et al.*, 2012). Supporting service systems are entities that enhance SCC members' collaboration by increasing coordination with related companies, facilitating access to information and increasing productivity (Huang and Xue, 2012, Tolossa *et al.*, 2013b). Geng *et al.* (2013a) argued that these characteristics

give an advantage to entities in SCCs, make them more adaptive to sudden changes in the market and provide international support to their competitive advantages, in addition to enhancing support among members. Thus, these characteristics can provide a fertile environment for improving sustainability (Grimstad and Burgess, 2014, Golicic *et al.*, 2017) because the coordination efforts among SCC members can help maintain significant sustainability (Lin *et al.*, 2020).

3.2 Sustainability

Market conditions are constantly changing, which leads to an inefficient use of resources and negative impact on sustainability activities' progress (Herstatt and Tiwari, 2020), as market volatility forces some organisations to focus on economic aspects at the expense of environmental and economic sustainability (Rajeev *et al.*, 2017). This emphasizes the fact that organisations need to embed their sustainability activities into their strategic plan (Sarkis, 2021) in order to gain a competitive edge (Ozturkoglu *et al.*, 2021), especially that governments, customers and other stakeholders are pressuring organisations and are willing to coordinate in order to support organisations focus on all aspects of sustainability issues (Munir *et al.*, 2020). This coordination of efforts can be facilitated through sustainable clusters because they primarily focus on the collaborative efforts among organisations, governments and communities to work together and promote the three aspects of sustainability (economic, social and environmental) (Hong and Gasparatos, 2020).

Economic sustainability focuses on efficient and effective use of resources, which means using the minimum amount of resources to achieve maximum output and using resources in the best way possible (Duflou *et al.*, 2012). This can be achieved by decreasing the energy use cost (Zhu *et al.*, 2008) and preserving renewable resources (Tam, 2018) through conservation of energy use (Bodhanwala and Bodhanwala, 2018). Economic sustainability also focuses on decreasing the operational cost that is associated with saving

resources and materials in short-term business operations (Zhu *et al.*, 2008, Azevedo *et al.*, 2012, Wang *et al.*, 2015, Lozano and Huisingh, 2011, Sezen *et al.*, 2012, Sajan *et al.*, 2017) and the logistics cost that focuses on cost reduction in activities, such as acquisition, collection, inspection, transportation of products, inventory and materials (Tajbakhsh and Hassini, 2015, Agrawal *et al.*, 2016, Azevedo *et al.*, 2012). Maintaining a low cost so that it does not exceed organisational revenue is essential for achieving long-term economic sustainability (Haugh and Talwar, 2010, Gotschol *et al.*, 2014).

Environmental sustainability revolves around avoiding damage to the nature in the surrounding environment as resources in the ecosystem are scarce and should be preserved (Wang *et al.*, 2015, Abidin and Pasquire, 2007). In order to preserve the environment, organisations need to focus on practices, such as the use of recyclable components and materials, and measure their green emission footprint (Zhu *et al.*, 2007, Zhao and Chen, 2011, Liao *et al.*, 2013, Abidin and Pasquire, 2007). These practices will not only save the environment but also contribute to the organisational financial performance (Zhu *et al.*, 2007, Zhao and Chen, 2011, Liao *et al.*, 2013). Environmental sustainability can be achieved through focusing on waste management, emission, saving energy consumption, resources, switching to renewable energy and complying with environmental standards (Hajmohammad *et al.*, 2013, Agrawal *et al.*, 2016, Duflou *et al.*, 2012, Hourneaux Jr *et al.*, 2018, Despeisse *et al.*, 2012, Wang *et al.*, 2015). The efficient use of resources in environmental sustainability context aims to secure the next generations' future (Wang *et al.*, 2015).

Social sustainability focuses on the responsibility of the organisation towards the community (improving relationships (Abdul-Rashid *et al.*, 2017, Hutchins and Sutherland, 2008) and life quality of the community (Abdul-Rashid *et al.*, 2017, Lozano and Huisingh, 2011) by promoting equality, social justice, customer safety and employees' benefits and stability (Workforce health and safety, (Agrawal *et al.*, 2016, Akenji, 2014). Social

sustainability revolves around effectively responding to society, workers and other stakeholders' (improving relationships with all stakeholders (Abdul-Rashid *et al.*, 2017, Hutchins and Sutherland, 2008)) needs (Abidin and Pasquire, 2007), in addition to giving future generations a chance to have more access to social aspects, such as human rights, health and safety (Tam, 2018). Achieving social sustainability will prevent degradation of the society as well as improve social gains for organisations (Tsai *et al.*, 2009) as it ensures quality of life improvements while giving proper attention to the environment (Yusuf *et al.*, 2013). It is considered that governments should contribute in creating sustainable clusters or developing already existing clusters through financial aid and advisory support and should expand, mandate and monitor policies related to social services for workers, environmental impact, uses of resources and impacts on the local community (Hong and Gasparatos, 2020, Lin *et al.*, 2020).

3.3 Sustainability and organisational performance

Researchers have highlighted that organisations should attempt to enhance their efforts to improve the local economy; efficiently use resources and decrease waste, water, and air pollution (Panyathanakun *et al.*, 2013) to reduce cost and energy consumption (Hollos *et al.*, 2012) and enhance operational (Reuter *et al.*, 2010, Carter and Liane Easton, 2011) and financial performance (Albuquerque *et al.*, 2020). Such measures are also expected to enhance job creation and better work conditions and generally improve a community's quality of life (Panyathanakun *et al.*, 2013). Furthermore, these effects are expected to contribute in increasing overall organisational performance and economic growth (Panyathanakun *et al.*, 2013). It is therefore relevant for individuals within the community to focus on investments that support environmental and social aspects, spread awareness, and apply pressure as customers on the public and private policy makers (UNIDO, 2016a). The overall organisational performance is divided into operational performance and financial

performance as the key performance measures (Ferreira and Otley, 2009). The focus of operational performance is on the quality enhancement, efficiency, productivity and customer satisfaction (Gligor and Holcomb, 2014, Huo *et al.*, 2014). Regarding for financial performance, it focuses on market share, sales and return on investment (Huo *et al.*, 2014, Li *et al.*, 2017).

3.4 DCs and sustainability

The requirements of adaptation to environmental uncertainty (Di Stefano *et al.*, 2014, Teece, 2016a, Chowdhury *et al.*, 2019) and the influence of sustainability on survival and growth (Kolk and Pinkse, 2008) urge organisations to develop sustainability (Chowdhury *et al.*, 2019, Teece, 2016a, Cao, 2011) through DCs (Di Stefano *et al.*, 2014, Teece, 2016a), such as resilience and absorptive capacity (Shubham *et al.*, 2018, Brusset and Teller, 2017), which allows them to seize opportunities in the market (Di Stefano *et al.*, 2014, Teece, 2014) and effectively align their strategies and capabilities to develop sustainability (Amui *et al.*, 2017), which falls in line with the achievement of (SDGs (UN, 2018a)). Absorptive capacity (AC) is considered to be playing an important role in enhancing sustainability (Chowdhury *et al.*, 2019) through collaborative practices (Kauppi *et al.*, 2013), as it incentivises organisations to share sustainability knowledge (Beske *et al.*, 2014, Sarkis, 2012). Therefore, absorptive capacity (AC) is needed to implement strategic proactive sustainability practices (Saenz *et al.*, 2014) as it allows organisations to identify and acquire knowledge-related sustainability, such as new environmental compliance requirements outside its boundaries, from regulators and research institutions (Shubham and Murty, 2018). The acquired knowledge from the external environment is exploited to refine sustainability practices within the organisation (Reuter *et al.*, 2010).

It is argued that sustainability can also be achieved by implementing resilience practices, such as a flexible supply base, information control system, disaster recovery plan,

contingency planning, alternative transportation routing, connectedness and others (Ruiz-Benitez *et al.*, 2019). Resilience in the supply chain is seen as the capability of the system, and in this case the supply chain system, to recover to full operational capacity after disruptions (Tipi and Elgazzar, 2021). These practices could decrease purchasing and manufacturing costs, which eventually enhances economic sustainability (Ruiz-Benitez *et al.*, 2019). In addition, used toxic materials and wastes could decline, which directly enhances environmental sustainability. Finally, resilience practices help reduce the negative impact on society by allowing business partners to recover quickly using a well-established coordinated plan to ensure public safety and a healthy environment (Ruiz-Benitez *et al.*, 2019).

3.1 Research Gaps

3.1.1 Empirical

Previous literature on SCC has primarily focused on how firms in a cluster can develop DCs, such as resilience (Fagundes *et al.*, 2020) and absorptive capability (Chandrashekar and Mungila Hillemane, 2018, Presutti *et al.*, 2017). For example, Belso-Martínez *et al.* (2016) examined the relationship between network density, reciprocity and transitivity, and absorptive capacity. Lis and Rozkwitalska (2020) investigated how being in a cluster can affect organisational technological capability through accumulation of knowledge, which is facilitated by absorptive capacity. Lei and Huang (2014) focused on geographical concentration and knowledge sharing, while Presutti *et al.* (2017) focused on close proximity to customers and its impact on absorptive capacity. Other research studies focused on specific clusters to investigate how organisations' resilience or absorptive capacity can be affected when they are operating inside a cluster. In addition, organisations in these clusters were mostly operating in high-tech industries located in developed countries. For example, Belso-Martínez *et al.* (2016) and Martinez-Sanchez *et al.* (2019) conducted the research on high-

tech industrial cluster and absorptive capacity in Spain. The authors concluded that absorptive capacity can positively enhance innovative performance of organisations inside clusters, whereas Conz *et al.* (2017) investigated how organisations can enhance their resilience in wine clusters located in Europe. Golicic *et al.* (2017) also focused on wine clusters and resilience; however, the research scope was USA, Australia, Italy and New Zealand. Walton *et al.* (2020) focused on learning and knowledge sharing and green practices, while Riikkinen *et al.* (2017) focused on absorptive capacity and green purchasing practices.

Based on the above discussion, it can be concluded that previous research focused on the relationship between information sharing among SCC members and absorptive capacity (e.g. Belso-Martínez *et al.*, 2016) or close proximity to customers and absorptive capacity (e.g. Presutti *et al.*, 2017), in addition to the relationship between local networks and absorptive capacity (Wang *et al.*, 2018, Chandrashekar and Mungila Hillemane, 2018). Furthermore, researchers investigated how organisations operating in a cluster can develop resilience or absorptive capacity. However, the focus was on organisations; there was no investigation on how being in a cluster can affect their resilience or absorptive capacity (Taslimi *et al.*, 2020, Martinez-Sanchez *et al.*, 2019). In other words, the focus is mainly on organisations, and relatively less is known on how being in a cluster (i.e. SCCDCs) may affect the cluster members' DCs (Martinez-Sanchez *et al.*, 2019, Taslimi *et al.*, 2020). Finally, the impact of resilience on financial sustainability was investigated in wine industry, without including SCCDCs in the investigation (e.g. Golicic *et al.*, 2017).

In the supply chain management literature, there have been substantial research efforts on the relationship between DCs (resilience and absorptive capability) of organisations and their sustainability (Aboelmaged and Hashem, 2019, Albort-Morant *et al.*, 2018, Golicic *et al.*, 2017). The focus has been predominantly placed on environmental

sustainability (Walton *et al.*, 2020), while there is a lack of comprehension of the underlining dimensions of sustainability (i.e. economic, social and environmental) and how they are linked with DCs (Ruiz-Benitez *et al.*, 2019, Touboullic and Walker, 2015). Furthermore, emerging research argues that the relationships between sustainability dimensions and organisational performance remain ambiguous and controversial (Paulraj *et al.*, 2017). A more nuanced understanding of the impact of sustainability on organisational performance (including financial and non-financial measures) is thus needed, which is also called for by other scholars (Das *et al.*, 2019), especially that the relationship between sustainability and organisational performance in supply chain management literature is under debate (Paulraj *et al.*, 2017). In addition, research investigating the impact of sustainability and organisational performance focused on green practices and financial performance (Albuquerque *et al.*, 2020, Song and Choi, 2018).

3.1.2 Theoretical

Although there are fruitful studies on supply chain management and sustainability, these studies were either based on system theory, resource-based view (or extended resource based view) or DC theory (Fantazy *et al.*, 2016, Son *et al.*, 2014, Teece, 2019). However, research efforts combing these theories to develop a conceptual framework for a more holistic understanding of organisations in a SCC context are limited. For example, Ye *et al.* (2020) focused on resources sharing and collaboration among cluster members and their impact on members' performance through utilizing DC theory. Gupta *et al.* (2019) and Quaye and Mensah (2019) also utilized RBV and DC theory to investigate resources sharing and collaboration impact on organisational performance. However, there was no focus on SCCs or sustainability. While Al-Shammari *et al.* (2022) and Asiaei *et al.* (2022) utilized RBV to investigate the impact of CSR on performance, and Barakat *et al.* (2022) used RBV to test the impact of information sharing on value creation; however, the focus of this study was not on

SCCs context. Jain *et al.* (2022) also utilized RBV to investigate the impact of information and collaboration facilitation on CSR. ERBV was used by Popli *et al.* (2017) investigating the impact of networking on organisational performance. Bag *et al.* (2020a) investigated the impact of green practices on organisational performance using ST, while Ni and Sun (2019) used ERBV to investigate the impact of sustainability on organisational performance. Mousavi *et al.* (2018) and Oliveira-Dias *et al.* (2022) investigated the impact of DCs on sustainability using DC theory, while Mota *et al.* (2022) utilized DC theory to investigate the impact of resilience on performance.

Therefore, a holistic approach is needed to understand the impacts of DCs on sustainability, and of sustainability on financial and non-financial performance measures of an organisation (Das *et al.*, 2019), particularly in the context of SCCs (Das *et al.*, 2019, Golicic *et al.*, 2017). This is being approached with developing the theoretical framework presented in section 5.

4. Research methodology

This research focuses on constructing a framework that combines three theoretical lenses: systems theory, extended resource-based view and dynamic capabilities theory and brings empirical evidence from existing literature. In order to explain and establish the relationships between SCCDCs, DCs, three dimensions of sustainability and financial and non-financial performance, this framework introduces a novel approach where DCs is imbedded into SCCs to create a sustainable SCC. This can help in the prediction and explanation of the relationships among SCCDCs, DCs, sustainability and organisational performance. This can be done by linking DC to SCCDCs in order to be able to enhance sustainability and eventually enhance organisational performance. Based on the aim of this research, the model approach for the conceptual views proposed by Jaakkola (2020) will be adapted. The framework will illustrate how better outcomes (enhanced sustainability and performance) can

be achieved through specific antecedents (SCCDCs and DCs) with a logical causal linkages and mechanisms supported by empirical evidence and theoretical lenses (Bouzzine and Lueg, 2022). This will help in developing propositions that introduce new combinations of the relationships between these constructs in order to be empirically investigated in the future (Jaakkola, 2020). In addition, it will help in bridging the gap between the combination of the theoretical lenses ST, DC theory and ERBV and the combination of the research constructs SCCDCs, DCs, sustainability and organisational performance (Cornelissen, 2017).

5. Integrated framework

A corresponding conceptual framework is formulated on the basis of the previous discussion and is presented in Figure 2.

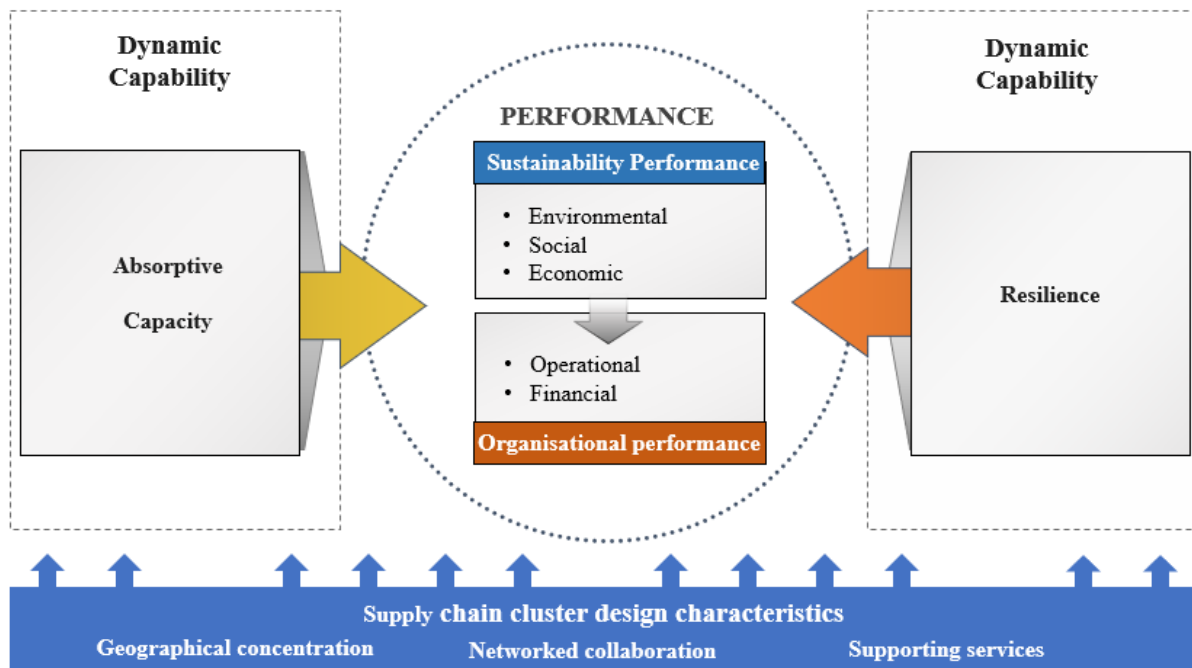


Figure 2: Research model– sustainable clusters– “The role of supply chain cluster design characteristics in sustaining organisational performance through dynamic capabilities”

Supply chains are considered to be systems with subsystems (supply chain members) that can collaborate to enhance their performance and that of the overall system (Flynn *et al.*, 2010, Michalski *et al.*, 2018). The collaboration established among subsystems also helps

them overcome market risks (Peck, 2005). Following the same logic, this research posits that SCCs represent systems in which the close proximity and connectedness among their members are the pillars that hold the systems together and facilitate collaboration and sharing information and resources to mitigate risk and enhance sustainability and organisational performance.

Based on previous studies presented, in addition to the benefits of SCCDCs mentioned in the previous sections, this research, arguably, presents SCCDCs as tools to maintain competitive advantages (Kraaijenbrink *et al.*, 2010) by increasing sustainability, thus improving organisational performance (Bag *et al.*, 2019, Xi *et al.*, 2014, Ali *et al.*, 2018). This notion is supported by ERBV because organisations can acquire the resources needed to enhance sustainability and, eventually, organisational performance by being engaged in links outside their boundaries (Xi *et al.*, 2014). In other words, ERBV argues that organisational competitive advantage can be achieved when organisations acquire resources from the external environment (Son *et al.*, 2014). In addition, empirical evidence suggests that organisations can perform better than their peers (Albuquerque *et al.*, 2020) if they were focusing on sustainability, as it increases customer loyalty, makes their products less price elastic and allows organisations to maintain their revenue growth (Albuquerque *et al.*, 2019). It can be argued that enhancing sustainability can lead to a better performance outcome (Albuquerque *et al.*, 2020) as sustainability gives organisations a competitive edge through enhancing customer loyalty and trust (Albuquerque *et al.*, 2019, Albuquerque *et al.*, 2020).

Drawing on ST and ERBV, in addition to the fact that supply chains contain the resources needed to sustain a competitive advantage (Ketchen and Hult, 2007), a unique bundle of resources can arguably be located on the SCC level. This argument is supported by the advantages that SCCs provide to organisations (Mitchell *et al.*, 2010, Grimstad and Burgess, 2014). However, because organisational environments are dynamic (Eisenhardt and

Martin, 2000, Bag *et al.*, 2020a), resources might become obsolete over time (Teece, 2007, Kraaijenbrink *et al.*, 2010). Therefore, organisations' reliance only on available resources will not be enough to maintain a competitive advantage (Kraaijenbrink *et al.*, 2010) because they need to develop their assets by developing DCs to manage a dynamic business environment (Teece, 2007, Kraaijenbrink *et al.*, 2010). This concept introduces DC theory (Teece *et al.*, 1997, Teece, 2007) to the integrated framework, given that this research proposes two DCs: resilience (Geng *et al.*, 2013a) and AC (Riikkinen *et al.*, 2017). Organisations can use these to manage a dynamic business environment and eventually sustain their competitive advantages (Bag *et al.*, 2019, Xi *et al.*, 2014, Teece, 2007) by increasing organisational performance (Bag *et al.*, 2019, Xi *et al.*, 2014). Therefore, the DC theory was proposed to help organisations maintain a competitive advantage in a dynamic business environment (Teece *et al.*, 1997, Teece, 2007).

This framework can help establish sustainable clusters by focusing on sustainability because it proposes that an SCC can be considered to be a system with subsystems (clusters members) that can form alliances by being interconnected in the same geographical location (ST (Rigby *et al.*, 2000)). The formation of an SCC can help organisations acquire a unique bundle of resources to enhance their sustainability (ERBV (Mathews, 2003)). This collaboration and availability of resources can help organisations eventually achieve desirable performance outcomes by enhancing sustainability (ST (Rigby *et al.*, 2000) and ERBV (Mathews, 2003)). However, to maintain sustainability development in a constantly changing environment, organisations need to protect and develop resources by developing DCs (DC theory (Teece *et al.*, 1997)).

The main focus of this research is to propose a conceptual framework derived by operationalising and measuring general concepts from the theories mentioned above through the specific constructs of SCCDCs, DCs, sustainability and organisational performance. The

following section illustrates additional details on the relationships among the research constructs.

6. Research Model and Propositions

This section discusses the proposed relationships illustrated in the conceptual framework (Figure 2). This section also formulates four main propositions (see Figure 3) on the impact of SCCDCs on AC and resilience, the impact of AC and resilience on sustainability, the impact of sustainability on financial and operational performance and the mediating role of AC and resilience between SCCDCs and sustainability.

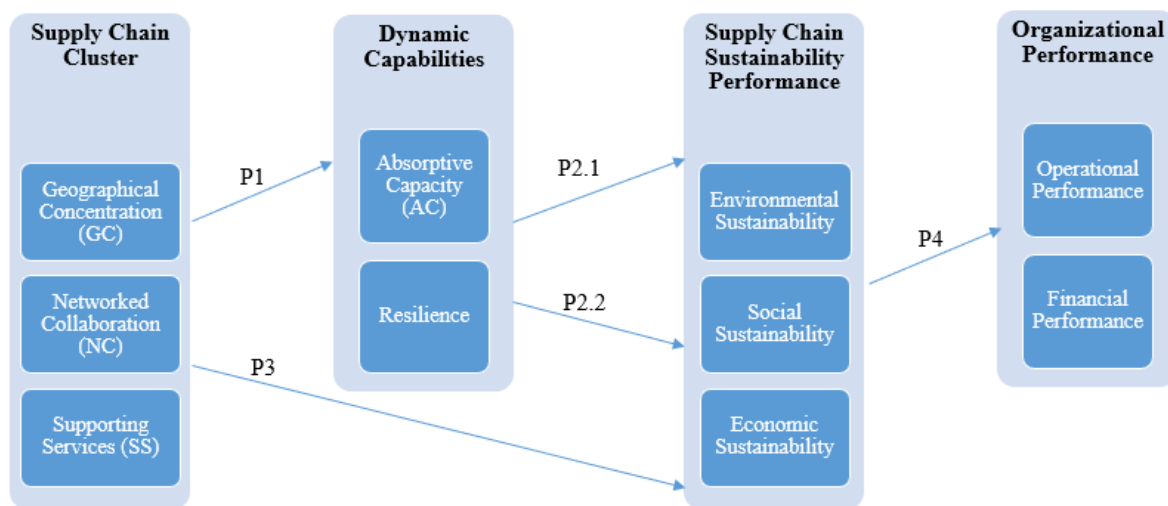


Figure 3: Research propositions

6.1 SCCDCs and DCs

Drawing on systems theory, organisations inside a system need to be interconnected to overcome the dynamic business environment (Tipu *et al.*, 2019). The integration and coordination of resources among a system's members are essential as they enhance organisations' capabilities (Fantazy *et al.*, 2016, Spekman *et al.*, 2002). In this sense, through introducing DC theory (Teece *et al.*, 1997), organisations will be able to use this advantage until they build DCs in order to renew and protect their resources to cope with the disruptions in the market (Teece, 2007, Helfat *et al.*, 2007). Based on this argument, this research posits

SCC as a system where its subsystems (cluster's members) can use the established alliances and availability of resources to cope with the business environment through building DCs.

Because SCCDCs can help organisations acquire resources and collaborate, forming clusters can arguably help organisations build sustainability (Mitchell *et al.*, 2010, Grimstad and Burgess, 2014). Geographical concentration and networked collaboration allow members to focus on specialisation because they can rely on each other through cooperation and facilitate the optimal flow of information and skilled labor (Tolossa *et al.*, 2013b), which builds trust and allows them to be more flexible in adapting to dramatic changes in the dynamic business environment (Geng *et al.*, 2013a). The close proximity also allows for an easy access to resources and information (Tolossa *et al.*, 2013b), including skilled employees and reliable suppliers, thus increasing their productivity (Patti, 2006).

Networked collaboration creates synergies by allowing members to use their collective skills and resources in harmony (Porter, 1998a), enhancing the ability to face risks and limiting the impact of shocks (Chowdhury and Quaddus, 2017). A high collaboration level among organisations inside SCC does not only allow for an easier access for information (Tolossa *et al.*, 2013b), but it also reduces the cost of obtaining information and limits the disorientation of information (Wang and Sun, 2020). Clusters also give their members access to public institutions (Patti, 2006), which provide managerial knowledge, training and specialized training (Porter, 1998a). Research institutions and universities provide knowledge that can uniquely help organisations to quickly update their products and services to cope with the volatile demand change (Ind *et al.*, 2017).

Trust, collaboration, the availability of skilled labor, knowledge, training and support from the government, research institutions and industry associations enhance organisations' ability to adapt to changes and seize opportunities, in turn helping organisations facilitate AC (Elbaz *et al.*, 2018), build resilience (Golicic *et al.*, 2017) and eventually enhance

organisational performance (Lin, 2018). SCCDCs provide organisations with increased accessibility to resources (Evaldo Fensterseifer, 2007, Niu, 2010) and facilitation of vertical and horizontal integration among clusters' members (Wang and Xiao, 2016b), which enhances their resilience (Ye *et al.*, 2020). In addition, it promotes knowledge creation and sharing (Hurmelinna-Laukkanen, 2012, Mitchell *et al.*, 2010, Grimstad and Burgess, 2014, Niu, 2010), which eventually leads to a better absorptive capacity (Naqshbandi, 2016).

Recent empirical studies utilized DC theory and ST to explain the benefits of networking and collaboration (sharing of resources and information). For example Ye *et al.* (2020) used DC theory to explain how networking can lead to a better allocation of resources and eventually performance in a supply chain cluster context. Tipu *et al.* (2019) also focused on networking between supply chain members and its impact on performance through utilizing ST. Wang and Sun (2020) also utilize ST to explain how collaboration can lead to an enhanced AC and eventually better performance. Ye *et al.* (2020), Wang and Sun (2020) and Tipu *et al.* (2019) explained that collaboration leads to exchange of information and resources and allow organisations to acquire external knowledge, which enhances speed of adaptation to market changes and eventually performance. Through extending previous research work and its conceptualizations of ST and DC theory along with the benefits of SCCDCs discussed above, it can be argued that combining systems theory and DC theory can support the notion that SCCDCs can facilitate the development of DC (Golicic *et al.*, 2017). Organisations inside a system can enhance their capabilities through integrating their resources (Fantazy *et al.*, 2016); therefore, the shared infrastructure and resources among SCC members (Tolossa *et al.*, 2013b, Lis and Rozkwitalska, 2020, Lei and Huang, 2014) allow organisations to have access to resources that can be used to cope with the dynamic business environment (Lei and Huang, 2014) and hence develop their DCs (Golicic *et al.*, 2017).

P1. *When geographically concentrated organisations maintain horizontal and vertical collaboration and receive support from organisations, such as governmental institutions, universities and research institutions, and trade/industry associations, they can thrive in a dynamic business environment by enhancing their resilience and AC.*

6.2 Dynamic capabilities and sustainability

DCs allow organisations to cope with the constantly changing environment through acquiring, reconfiguring, integrating and releasing resources (Vanpoucke *et al.*, 2014). By using and having access to control resources, organisations have a better opportunity to create new resources (Helfat *et al.*, 2007, Vanpoucke *et al.*, 2014), in addition to recombining resources owned by them to enhance their competitiveness (Vanpoucke *et al.*, 2014). DCs allow organisations to acquire knowledge, anticipate market changes and seize opportunities in the market, which helps them in enhancing their sustainability (Song and Choi, 2018). Previous research utilized DC theory to explain how DCs can enhance sustainability. For example, Mousavi *et al.* (2018) and Oliveira-Dias *et al.* (2022) used DC theory to explain how DCs can enhance sustainability. While Mota *et al.* (2022) used the theory to explain how DCs can enhance organisational responsiveness to market changes. In the studies from Mousavi *et al.* (2018), Oliveira-Dias *et al.* (2022) and Mota *et al.* (2022), the main idea was that DCs allow organisations to reconfigure resources and competence; in return, this allows organisations to cope with market changes and enhance sustainability levels, which will eventually give organisations a competitive edge. Therefore, drawing on the results of previous studies and following the logic of DC theory, organisations can use DCs to create and develop new resources that can help enhance sustainability.

6.2.1 AC and sustainability

To develop sustainability, organisations may need to change some of their business processes (Delmas *et al.*, 2011, Riikkinen *et al.*, 2017). Acquiring external knowledge and being in a position to assess this knowledge form a part of absorptive capacity (Shubham and Murty, 2018, Zahra and George, 2002). Sustainability adaptation needs a high level of absorptive capacity (Riikkinen *et al.*, 2017) in order to exploit sustainability related knowledge and information (Abareshi and Molla, 2013, Haugh and Talwar, 2010). This means that absorptive capacity facilitates the implementation of sustainability practices (Delmas *et al.*, 2011, Kauppi *et al.*, 2013, Schiele, 2007).

Sustainability adaptation requires a high level of AC to exploit sustainability-related knowledge and information. The manner in which organisations search for and acquire knowledge allows them to understand stakeholders' demands regarding sustainability and customers' expectations regarding the service and/or product (Riikkinen *et al.*, 2017). Organisations might not own the sustainability-related knowledge needed to enhance sustainability, which pushes organisations to enhance their AC to acquire the missing knowledge to enhance sustainability (Pace, 2016). Sustainability-related information could be new standards, certificates, materials, and environmentally friendly resources (Riikkinen *et al.*, 2017) and new requirements for corporate social responsibility (Boyd *et al.*, 2007). AC is considered to be an antecedent for green practices because it allows information about the product's life cycle to flow smoothly among supply chain members (Riikkinen *et al.*, 2017). In addition, AC helps organisations collect sustainability-related information from trade/industry associations/and third-party organisations (Boyd *et al.*, 2007).

DC theory and absorptive capacity give organisations the ability to combine acquired information from external sources with existing knowledge effectively (Albort-Morant *et al.*, 2018) and allows them to use this combined knowledge to enhance sustainability and spread

it within and across organisations (Upstill-Goddard *et al.*, 2016). Therefore, it can be argued that developing absorptive capacity can enhance sustainability (Lee *et al.*, 2014, Pagell *et al.*, 2010).

P2.1. *Once organisations develop the ability to reconfigure their resources and augment their capabilities to cope with the constantly changing environment through enhancing AC, they will be able to increase the three dimensions of sustainability.*

6.2.2 Resilience and sustainability

In order to enhance sustainability and maintain sustainable activities during disruptions, resilience is needed as it allows organisations to proactively cope with market changes (Winnard, 2014). In other words, as any system is vulnerable and unable to maintain long-run sustainability, organisation must focus on building resilience (Anderies *et al.*, 2013). It is important to strategically enhance resilience in order to protect the process, activities and resources that help in increasing sustainable activities during disruptions (Marchese *et al.*, 2018). In this sense, resilience is needed to maintain organisations' and their supply chains' sustainability before (Loh Hui *et al.*, 2017), during and after disruptions (Park *et al.*, 2013). This can be achieved through incorporating sustainability practices into resilience capabilities (Winnard *et al.*, 2018). Because organisations struggle to sustain their operations, resilience can allow a solution to adapt to the business environment (Golicic *et al.*, 2017, Barakat *et al.*, 2020). For example, labor strikes create the inability to fulfill delivery commitments, and organisations become unable to meet their contractual agreements (Blackhurst *et al.*, 2005). Implementing resilience could help organisations keep original production schedules at the lowest cost possible (Tang, 2006), while reducing waste and emissions by establishing strategies, such as a recovery plan and sharing of information and resources (Eshetu *et al.*, 2017). The flexibility that resilience offers to organisations, such as flexible transportation (Golicic *et al.*, 2010) and flexible sourcing (Stevenson and Spring, 2007), enhances the

transportation network quality, which decreases costs, enhances economic sustainability (Golicic *et al.*, 2010) and reduces CO₂ emissions, which increases environmental sustainability (Christopher *et al.*, 2011). Flexibility can enhance organisational ability to reconfigure resources to cope with demand changes with the lowest cost possible (Ullah and Narain (2020). In addition, it eliminates waste, which decreases the negative impact on society and the environment, and improves social conditions (Ruiz-Benitez *et al.*, 2019). All of these benefits of building resilience help organisations achieve their main goal of enhancing sustainability (economic, environmental, and social) (Anderies *et al.*, 2013, Golicic *et al.*, 2017). Based on the empirical evidence illustrated above, in addition to the underlying logic of DC theory, it can be argued that developing resilience can lead to enhanced sustainability (Anderies *et al.*, 2013, Golicic *et al.*, 2017).

P2.2. Once organisations develop the ability to reconfigure their resources and augment their capabilities to cope with the constantly changing environment through enhancing resilience, they will be able to increase the three dimensions of sustainability.

6.3 Relationship between SCCDCs and sustainability through DCs

Because SCCs promote working toward common goals and sharing information through networked collaboration (Hoof, 2014), supporting services (government, universities, and industrial associations) (Grimstad and Burgess, 2014) and geographical concentration (Grimstad and Burgess, 2014, Mitchell *et al.*, 2010), working inside a cluster can arguably help organisations maintain their operations (Grimstad and Burgess, 2014). These characteristics allow for easier access to resources, information (Tolossa *et al.*, 2013b, Grimstad and Burgess, 2014) and knowledge generation (Lei and Huang, 2014, Mitchell *et al.*, 2010). Because SCCDCs are also related to DCs (Golicic *et al.*, 2017) as organisations seek to join a SCC to manage constantly changing market needs (Huang and Xue, 2012),

arguably, the creation of SCCs allows organisations to maintain their performance during and after crises (Geng *et al.*, 2013a). Therefore, building DCs through SCCDCs can help organisations develop sustainability (Golicic *et al.*, 2017) and promote sustainability practices, policies and regulations (Grimstad and Burgess, 2014). DCs are essential for sustainability because they help facilitate sustainability practices (Zahra and George, 2002, Riikkinen *et al.*, 2017, Teece, 2007). They are also important in realising the full potential of collaboration (Agostini and Nosella, 2020) in an SCC context (Golicic *et al.*, 2017). AC helps organisations acquire new knowledge and integrate it with existing knowledge (Wang and Sun, 2020). AC can help organisations transform combined knowledge to implement new technologies (Agostini and Nosella, 2020), promote innovation (Huang *et al.*, 2018), (Agostini and Nosella, 2020) and creativity (Fong *et al.*, 2018), through enhancing their business activities (Cozza and Zanfei, 2016) to develop sustainability (Riikkinen *et al.*, 2017). AC does not only enhance knowledge acquisition but it also helps organisations create new useful knowledge (Khan *et al.*, 2020) that promotes sustainable activities (Riikkinen *et al.*, 2017). In other words, in order to strategically implement sustainability (Saenz *et al.*, 2014), AC is needed as it helps organisations implement necessary strategic developments (Khan *et al.*, 2020). Resilience is also related to sustainability as it promotes flexible supply base and contingency planning, which allow organisations to maintain sustainability (Ruiz-Benitez *et al.*, 2019). Resilience helps a system capability retain its full operational capacity after disruptions (Tipi and Elgazzar, 2021). The total cost reduction, transportation flexibility and quick recovery eventually enhance economic as well as social and environmental sustainability (Ruiz-Benitez *et al.*, 2019).

As mentioned earlier, Popli *et al.* (2017) investigated the impact of networking on organisational performance through utilizing ERBV, where organisations gain access to unique access of resources through networking that can be used to enhance their

competitiveness. While Ye *et al.* (2020) utilized DC theory to explain how clusters can facilitate resources sharing in order to better allocate resources, which enhance organisations' ability to cope with the dynamic business environment. Based on the fact that DC theory is presented as an extension for RBV (Teece *et al.*, 1997, Barney, 1991), it can be argued that through ERBV, organisations can acquire resources from the external environment, which can be suppliers, governmental agencies and other entities in the same geographical area or region (Popli *et al.*, 2017). While DCs can allow organisations to reconfigure these acquired resources to cope with market changes and enhance sustainability levels (Oliveira-Dias *et al.*, 2022). In this sense, SCCDCs can give organisations access to resources that enhance their DCs (Golicic *et al.*, 2017). In return, the enhanced DCs can be used to develop sustainability, as AC facilitates acquiring and developing of necessary knowledge (Kim and Park, 2017) in a cluster (Ferrás-Hernández and Nylund, 2019) to enhance sustainability (Sirilertsuwan *et al.*, 2018). In addition, resilience also facilitates networks' collaboration (Randolph, 2016) to develop sustainability (Park *et al.*, 2013) because without resilience, risk leads to fragile sustainability (Anderies *et al.*, 2013).

P3. Utilizing SCCDCs (geographical concentration, networked collaboration, and supporting services) can help organisations enhance the three dimensions of sustainability by developing DC. Doing so will allow organisations to maintain and increase the degree of sustainability during and after a crisis.

6.4 Sustainability and organisational performance

Reaching high levels of sustainability can be achieved through collaborative efforts, as customers hold organisations responsible for not abiding by sustainable standards, even if the problem originated from the supplier (Paulraj *et al.*, 2017). This means that supply chain members need to help each other and work jointly to achieve high levels of sustainability (Luzzini *et al.*, 2015, Gimenez and Sierra, 2012). Sustainability development through

collaborative activities will eventually lead to better organisational performance (Xi *et al.*, 2014) as they create value to the customers and increase their willingness to pay (Priem *et al.*, 2012). In other words, organisations need to seek alliances to acquire resources outside their boundaries in order to enhance their sustainability (Miemczyk and Luzzini, 2019) and eventually achieve higher organisational performance (Ni and Sun, 2019). This notion is discussed in systems theory and extended resource-based view as systems theory emphasises the integration and collaboration among organisations to enhance their performance (Flynn *et al.*, 2010, Michalski *et al.*, 2018). Regarding extended resource-based view, it can be argued that a higher organisational performance can be achieved when combining acquired external resources with organisational internal resources (Yang *et al.*, 2019). The combination of external resources acquired through collaboration and internal resources can help in enhancing sustainability, which creates value to the customer and eventually leads to higher organisational performance (Ni and Sun, 2019).

The relationship between sustainability and organisational performance in a SCC context is supported through the combination of the theoretical lenses, systems theory (Rigby *et al.*, 2000) and ERBV (Mathews, 2003), especially that these theories were utilized by Ni and Sun (2019) and Bag *et al.* (2020a) to explain the relationship between sustainability and performance, as the collaboration and availability of resources achieved through clustering can help in increasing organisational performance through enhancing sustainability. The fact that operational performance is related to quality enhancement, efficiency and productivity (Gligor and Holcomb, 2014, Huo *et al.*, 2014) and financial performance is related to market share, sales and return on investment (Huo *et al.*, 2014, Li *et al.*, 2017), rationalise the positive impact of sustainability on enhancing operational (Reuter *et al.*, 2010, Carter and Liane Easton, 2011) and financial performance (Albuquerque *et al.*, 2020). Economic sustainability focuses on decreasing operational (Zhu *et al.*, 2008, Azevedo *et al.*, 2012,

Wang *et al.*, 2015, Lozano and Huisingh, 2011, Sezen *et al.*, 2012, Sajan *et al.*, 2017) and logistics cost (Tajbakhsh and Hassini, 2015, Agrawal *et al.*, 2016, Azevedo *et al.*, 2012). Environmental sustainability focuses on recycling (Zhu *et al.*, 2007, Zhao and Chen, 2011, Liao *et al.*, 2013, Abidin and Pasquire, 2007), waste management and renewable energy (Hajmohammad *et al.*, 2013, Agrawal *et al.*, 2016, Duflou *et al.*, 2012, Hourneaux Jr *et al.*, 2018, Despeisse *et al.*, 2012, Wang *et al.*, 2015). While social sustainability focuses on promoting equality, social justice, customer safety and employees' benefits and stability (Workforce health and safety (Agrawal *et al.*, 2016, Akenji, 2014) .

In general, sustainability enhances the organisational image (Reuter *et al.*, 2010) because it allows organisations to focus on environmental and social aspects and not only economic aspects (Bag *et al.*, 2019). Such a focus has a positive impact on organisations' financial performance as they gain investors' trust and attract more investments (Albuquerque *et al.*, 2019, Albuquerque *et al.*, 2020). In addition, sustainability increases customer loyalty, which secures a steady flow of revenue due to the low price of demand elasticity (Albuquerque *et al.*, 2019). Monitoring operational performance is also important because the overall financial performance measure is not enough, given that it is influenced by other factors (Pettit *et al.*, 2019). Investing in enhancing sustainability also enhances operational performance (Reuter *et al.*, 2010, Carter and Liane Easton, 2011) by focusing on increased productivity with lower costs, energy and resources and a longer product lifespan (Holloos *et al.*, 2012).

P4. Organisations that focus on economic, social and environmental sustainability can have higher levels of financial and operational performance and, thus, be more competitive.

7. Conclusion and future research

This paper introduced a conceptual framework that provides organisations with a guide to establish sustainable clusters through the efficient reliance on local networks and resources to sustain their organisational performance by developing DCs to thrive in a dynamic business environment. The developed framework presents a novel approach that creates the foundation for the abstract ideas combined in ST, ERBV and DC theory by conceptualizing them using research constructs that will help extend their views by combining them in a SCC context. This was discussed in relation with previous work on how these three theories have been implemented. DC theory is an extension of RBV, where DCs protect and reconfigure acquired resources to enhance sustainability (Teece *et al.*, 1997, Barney, 1991). ERBV focuses on acquiring resources from the external environment (Popli *et al.*, 2017), and this can be facilitated through the infrastructure of resources created in a system (supply chain system) (Flynn *et al.*, 2010, Michalski *et al.*, 2018). Since SCCDCs enhance collaboration and sharing of resources, the framework developed in this study promotes SCC as a system in which its sub-elements (clusters members) can form links and depend on each other to create a pool of resources (ST focuses on collaboration (Cooper *et al.*, 1997)). This pool of resources can be combined with organisations' internal resources to create a unique bundle of resources required to enhance sustainability, thus leading to improved organisational performance (ERBV (Mishra *et al.*, 2019)). However, as organisations operate in a constantly changing environment, they need to take advantage of the availability of resources to build DCs. These capabilities can help organisations enhance sustainability and increase organisational performance by protecting and developing organisational resources (DC theory (Xi *et al.*, 2014)). Forming alliances and creating a pool of shared resources will allow organisations to combine external and internal resources to create DCs and extend these

capabilities across their boundaries (Huo *et al.*, 2014, Yu and Huo, 2019). The results of this research make a number of theoretical and practical contributions.

7.1 Theoretical implications

Empirical studies used ST, ERBV and DC theory (e.g., Bag *et al.*, 2019, Chen *et al.*, 2019, Hong *et al.*, 2018, Bag *et al.*, 2020) but did not combine them. Combining these theories, particularly in an SCC context, can potentially extend their understanding and applications by applying them in an SCC context. This research demonstrates that organisations can take advantage of being in an SCC system and use resource availability to enhance organisational performance by building DCs and developing these resources to maintain the desirable sustainability. This conceptual study also addresses the lack of theoretical understanding of how being in a cluster (i.e. SCCDCs) may affect the cluster members' DCs (Martinez-Sanchez *et al.*, 2019, Taslimi *et al.*, 2020). The proposed conceptual framework prompts industry practitioners and policy makers to the idea that an effective design of SCC with appropriate geographical concentration, networked collaboration and necessary supporting services can help cluster members to enhance their DCs, thus improving organisational performance.

Another contribution of this conceptual study is to advance the knowledge of sustainability dimensions and how economic, social and environmental sustainability can be enhanced through DCs (Ruiz-Benitez, López, & Real, 2019; Touboulic & Walker, 2015). In addition, it illustrates how the three sustainability dimensions can positively affect organisational performances (Das, Rangarajan, & Dutta, 2019). Previous studies have a predominant focus on environmental sustainability (Walton *et al.*, 2020), a gap has been identified that highlights a need for further comprehension of the underlining dimensions of sustainability (i.e. economic, social and environmental) and how they link with DCs (Ruiz-Benitez *et al.*, 2019, Touboulic and Walker, 2015) and organisational performance (Paulraj *et*

al., 2017, Das *et al.*, 2019). This also contributes to the debate in literature regarding the relationship between sustainability and organisational performance in supply chain management literature (Paulraj *et al.*, 2017).

This study highlights that by nurturing DCs (resilience and absorptive capability), not only the economic sustainability of a firm but also the environmental and social sustainability can be enhanced. Also, all the three dimensions of sustainability could have an influence on organisational performance in a SCC context, especially that further attention is needed to investigate the impact of DCs on sustainability (Pettit *et al.*, 2019, Golicic *et al.*, 2017, Aboelmaged and Hashem, 2019) and eventually organisational performance (Pettit *et al.*, 2019), in addition to the impact of the three dimensions of sustainability on organisational performance (Croom *et al.*, 2018, Das *et al.*, 2019, Ni and Sun, 2019). Testing these relationships, especially in an SCC context, reveals the answer to the call from Das *et al.* (2019), Golicic *et al.* (2017), and Lis and Rozkwitalska (2020) regarding investigating the impact of clustering on AC and resilience. Furthermore, such a test contributes to the link between SCCDCs and DCs because it will pave the way to investigating their relationships. Empirically testing these relations will theoretically contribute to the literature gap highlighted by (Lis and Rozkwitalska, 2020, Golicic *et al.*, 2017), especially that there is relatively less known on how being in a cluster (i.e. SCCDCs) may affect the cluster members' DCs (Martinez-Sanchez *et al.*, 2019, Taslimi *et al.*, 2020).

7.2 Practical implications

The findings of this research are particularly important for managers who operate in a SCC to nurture not just the economic sustainability of a firm, but also social and economic sustainability under market disruptions. This will give organizations a competitive edge and eventually increase their performance especially in the post COVID-19 era. During this period some governments suspended sustainability related laws and regulations to achieve a

quick economic recovery (Sarkis, 2021). In this sense, the conceptual framework and its propositions can assist policy makers in the improvement of SCC design and management, with considerations of DCs and sustainability.

The developed framework can help governments develop clusters continuously (Xin and Li-ying, 2013, Dana et al., 2013, Yuan et al., 2021) as DCs can help organisations overcome the trade-off between connectedness and adaptability (Geng *et al.*, 2013b, Simmie and Martin, 2010), which will eventually help in achieving SDGs (UN, 2018b) and enhance economic growth (Monteiro, 2016, Dong, 2011, Panyathanakun et al., 2013). The framework shows the importance of developing DCs for SCC members to enhance sustainability, in addition, it incentivises them through linking it to their performance (Esfahbodi et al., 2016). Therefore, the framework provides practitioners and decision makers with a holistic approach to enhance sustainability by highlighting the benefits of enhancing sustainability to performance. In addition, it illustrates how stakeholders' collaboration and support helps in job creation, improving community's quality of life (Panyathanakun *et al.*, 2013) and enhances value creation through innovation (Mikhaylov, 2013, Lu and Shin, 2018). Especially, that cluster activities raise environmental issues and harm the surrounding communities (UNIDO, 2016b), in addition, stakeholders are pressuring organizations to focus and sustainability issues (Munir *et al.*, 2020). This means that enhancing sustainability will give organizations a competitive edge (U-Dominic *et al.*, 2021), even under a volatile market changes as organizations that focus on sustainability issues gain customer and investors trust and loyalty (Albuquerque *et al.*, 2019, Albuquerque *et al.*, 2020).

Notably, the developed framework in this research has significant practical implications, as it helps managers increase their organizations' efficiency, sustainability and global competitiveness in a dynamic business environment through identifying areas that need specific improvement. Especially that collaboration enhances enhancement of

technology and timely and efficient flow of information (Wang and Sun, 2020). This can be achieved through promoting local networking, and the use of local knowledge, materials and resources (Porter, 1998a), which can help organizations overcome disruptions caused by events such as COVID-19 (Cappelli and Cini, 2020). The quick spread of COVID-19 required trade restrictions which caused fluctuations in demand and supply and global supply chain disruptions (Cappelli and Cini, 2020). Arguably this emphasizes the importance of SCCDCs to improve collaboration between organizations and the local government to establish a sustainable clusters (Hong and Gasparatos, 2020).

7.3 Further Research

The proposed framework needs to be investigated in developing and developed countries, in addition to different regions and industries (Lis and Rozkwitalska, 2020, Golicic *et al.*, 2017) because previous studies focused on wine and high-tech industries. Future research can use simulation/ different scenarios to test the propositions. Testing this framework can also rebrand SCCs as tools to enhance organisations' sustainability by increasing their adaptability in a dynamic business environment. In addition, this framework is expected to help develop the theories (ST, ERBV, and DC theory) by testing their applicability during disruptions, such as COVID-19, in an SCC context.

References

- Abareshi, A. and Molla, A. (2013), "Greening logistics and its impact on environmental performance: an absorptive capacity perspective". *International Journal of Logistics Research and Applications*, Vol.16. No.3. pp.209-226.
- Abdul-Rashid, S. H., Sakundarini, N., Raja Ghazilla, R. A. and Thurasamy, R. (2017), "The impact of sustainable manufacturing practices on sustainability performance: Empirical evidence from Malaysia". *International Journal of Operations & Production Management*, Vol.37. No.2. pp.182-204.doi:10.1108/IJOPM-04-2015-0223.
- Abidin, N. Z. and Pasquire, C. L. (2007), "Revolutionize value management: A mode towards sustainability". *International Journal of Project Management*, Vol.25. No.3. pp.275-282.

- Aboelmaged, M. and Hashem, G. (2019), "Absorptive capacity and green innovation adoption in SMEs: the mediating effects of sustainable organisational capabilities". *Journal of Cleaner Production*, Vol.220. No.2019. pp.853-863.
- Agostini, L. and Nosella, A. (2020), "The adoption of Industry 4.0 technologies in SMEs: results of an international study". *Management Decision*, Vol.58. No.4. pp.625-643.
- Agrawal, S., Singh, R. K. and Murtaza, Q. (2016), "Triple bottom line performance evaluation of reverse logistics". *Competitiveness Review*, Vol.26. No.3. pp.289-310.
- Akande, W. A., Adetoun, B. E., Tserere, M. M., Adewuyi, M. F. and Akande, E. T. (2010), "Should we put locals in charge? Managing relationships within prospective us – South African joint ventures". *Journal of Business Economics and Management*, Vol.11. No.4. pp.550-575.
- Akenji, L. (2014), "Consumer scapegoatism and limits to green consumerism". *Journal of Cleaner Production*, Vol.63. pp.13-23.
- Al-Shammari, M. A., Banerjee, S. N. and Rasheed, A. A. (2022), "Corporate social responsibility and firm performance: a theory of dual responsibility". *Management Decision*, Vol.60. No.6. pp.1513-1540.10.1108/MD-12-2020-1584.
- Albort-Morant, G., Leal-Rodríguez, A. L. and De Marchi, V. (2018), "Absorptive capacity and relationship learning mechanisms as complementary drivers of green innovation performance". *Journal of Knowledge Management*, Vol.22. No.2. pp.432-452.
- Albuquerque, R., Koskinen, Y. and Zhang, C. (2019), "Corporate social responsibility and firm risk: theory and empirical evidence". *Management Science*, Vol.65. No.10. pp.4451-4469.
- Albuquerque, R. A., Koskinen, Y. J., Yang, S. and Zhang, C. (2020), "Resiliency of Environmental and Social Stocks: an Analysis of the Exogenous COVID-19 Market Crash". *The Review of Corporate Finance Studies*, Vol.3. No.1. pp.593-621.
- Ali, A. H., Zalavadiya, S., Barakat, M. R. and Eid, A. (2018), "The Role Of Sustainability In Reverse Logistics For Returns And Recycling". *Archives of Business Research*, Vol.6. No.7. pp.12-33.
- Alves, M. F. R. and Galina, S. V. R. (2021), "Measuring dynamic absorptive capacity in national innovation surveys". *Management Decision*, Vol.59. No.2. pp.463-477.
- 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. No.2017. pp.308-322.
- Anderies, J., Folke, C., Walker, B. and Ostrom, E. (2013), "Aligning key concepts for global change policy: robustness, resilience, and sustainability". *Ecology and society*, Vol.18. No.2. pp.45-61.
- Annarelli, A. and Nonino, F. (2016), "Strategic and operational management of organizational resilience: Current state of research and future directions". *Omega*, Vol.62. pp.1-18.10.1016/j.omega.2015.08.004.
- Asiaei, K., Bontis, N., Barani, O., Moghaddam, M. and Sidhu, J. (2022), "The role of sustainability control systems in translating CSR into performance in Iran". *Management Decision*, Vol.60. No.5. pp.1438-1468.10.1108/MD-11-2020-1510.
- Azevedo, S. G., Carvalho, H., Duarte, S. and Cruz-Machado, V. (2012), "Influence of green and lean upstream supply chain management practices on business sustainability". *IEEE Transactions on Engineering Management*, Vol.59. No.4. pp.753-765.
- Bag, S., Gupta, S. and Foropon, C. (2019), "Examining the role of dynamic remanufacturing capability on supply chain resilience in circular economy". *Management Decision*, Vol.57. No.4. pp.863-885.

- Bag, S., Gupta, S., Kumar, S. and Sivarajah, U. (2020a), "Role of technological dimensions of green supply chain management practices on firm performance". *Journal of Enterprise Information Management*, Vol.34. No.1. pp.1-27.
- Bag, S., Wood, L. C., Mangla, S. K. and Luthra, S. (2020b), "Procurement 4.0 and its implications on business process performance in a circular economy". *Resources, Conservation and Recycling*, Vol.152. No.2020. p.104502.
- Baier, C., Beckmann, M. and Heidingsfelder, J. (2020), "Hidden allies for value chain responsibility? A system theory perspective on aligning sustainable supply chain management and trade compliance". *International Journal of Physical Distribution & Logistics Management*, Vol.50. No.4. pp.439-456.
- Barakat, M., Ali, A., AbdELBary, I. and Mai, H. (2020), "The Impact of Supply Chain Integration on Operational Performance through resilience under COVID-19 Pandemic". ICAMS 2020 – 8 th International Conference on Advanced Materials and Systems, Bucharest, Romania, 257-262.
- Barakat, S. R., Boaventura, J. M. G. and Gabriel, M. L. D. S. (2022), "Organizational capabilities and value creation for stakeholders: evidence from publicly traded companies". *Management Decision*, Vol.60. No.8. pp.2311-2330.10.1108/MD-05-2021-0576.
- Barney, J. B. (1991), "Firm Resources and Sustained Competitive Advantage". *Journal of Management*, Vol.17. No.1. pp.99-120.
- Battisti, E., Nirino, N., Leonidou, E. and Thrassou, A. (2022), "Corporate venture capital and CSR performance: An extended resource based view's perspective". *Journal of Business Research*, Vol.139. pp.1058-1066.<https://doi.org/10.1016/j.jbusres.2021.10.054>.
- Belso-Martínez, J.-A., Expósito-Langa, M. and Tomás-Miquel, J.-V. (2016), "Knowledge network dynamics in clusters: past performance and absorptive capacity". *Baltic Journal of Management*, Vol.11. No.3. pp.310-327.
- Beske, P., Land, A. and Seuring, S. (2014), "Sustainable supply chain management practices and dynamic capabilities in the food industry: a critical analysis of the literature". *International Journal of Production Economics*, Vol.152. No.2014. pp.131-143.
- Blackhurst, J., Craighead, C. W., Elkins, D. and Handfield, R. B. (2005), "An empirically derived agenda of critical research issues for managing supply-chain disruptions". *International journal of production research*, Vol.43. No.19. pp.4067-4081.
- Bodhanwala, S. and Bodhanwala, R. (2018), "Does corporate sustainability impact firm profitability? Evidence from India". *Management Decision*, Vol.56. No.8. pp.1734-1747.
- Bouzzine, Y. D. and Lueg, R. (2022), "CSR, moral licensing and organizational misconduct: a conceptual review". *Organization Management Journal*, Vol.ahead-of-print. No.ahead-of-print. 10.1108/OMJ-09-2021-1355.
- Boyd, D. E., Spekman, R. E., Kamauff, J. W. and Werhane, P. (2007), "Corporate Social Responsibility in Global Supply Chains: a Procedural Justice Perspective". *Long Range Planning*, Vol.40. No.3. pp.341-356.
- Breidbach, C. F., Reefke, H. and Wood, L. C. (2015), "Investigating the formation of service supply chains". *The Service Industries Journal*, Vol.35. No.1-2. pp.5-23.
- Brusset, X. and Teller, C. (2017), "Supply chain capabilities, risks, and resilience". *International Journal of Production Economics*, Vol.184. pp.59-68.10.1016/j.ijpe.2016.09.008.
- Cao, L. (2011), "Dynamic capabilities in a turbulent market environment: empirical evidence from international retailers in China". *Journal of Strategic Marketing*, Vol.19. No.5. pp.455-469.

- Cappelli, A. and Cini, E. (2020), "Will the COVID-19 pandemic make us reconsider the relevance of short food supply chains and local productions?". *Trends in Food Science & Technology*, Vol.99. No.2020. pp.566–567.
- Carter, C. R. and Liane Easton, P. (2011), "Sustainable supply chain management: evolution and future directions". *International Journal of Physical Distribution & Logistics Management*, Vol.41. No.1. pp.46-62.
- Chandrashekar, D. and Mungila Hillemane, B. S. (2018), "Absorptive capacity, cluster linkages, and innovation: An evidence from Bengaluru high-tech manufacturing cluster". *Journal of Manufacturing Technology Management*, Vol.29. No.1. pp.121-148.
- Chen, L., Tang, O. and Jia, F. (2019), "The moderating role of supplier involvement in achieving sustainability". *Journal of Cleaner Production*, Vol.235. No.2019. pp.245-258.
- Chowdhury, M. M. H., Agarwal, R. and Quaddus, M. (2019), "Dynamic capabilities for meeting stakeholders' sustainability requirements in supply chain". *Journal of cleaner production*, Vol.215. No.2019. pp.34-45.
- Chowdhury, M. M. H. and Quaddus, M. (2017), "Supply chain resilience: conceptualization and scale development using dynamic capability theory". *International Journal of Production Economics*, Vol.188. No.2017. pp.185-204.
- Christopher, M., Mena, C., Khan, O. and Yurt, O. (2011), "Approaches to managing global sourcing risk". *Supply Chain Management: An International Journal*, Vol.16. No.2. pp.67-81.
- Conz, E., Denicolai, S. and Zucchella, A. (2017), "The resilience strategies of SMEs in mature clusters". *Journal of Enterprising Communities: People and Places in the Global Economy*, Vol.11. No.1. pp.186-210.
- Cooper, M. C., Lambert, D. M. and Pagh, J. D. (1997), "Supply Chain Management: more Than a New Name for Logistics". *The International Journal of Logistics Management*, Vol.8. No.1. pp.1-14.
- Cornelissen, J. (2017), "Editor's Comments: Developing Propositions, a Process Model, or a Typology? Addressing the Challenges of Writing Theory Without a Boilerplate". *Academy of Management Review*, Vol.42. No.1. pp.1-9.10.5465/amr.2016.0196.
- Cozza, C. and Zanfei, A. (2016), "Firm heterogeneity, absorptive capacity and technical linkages with external parties in Italy". *The Journal of Technology Transfer*, Vol.41. No.4. pp.872-890.
- Craighead, C. W., Blackhurst, J., Rungtusanatham, M. J. and Handfield, R. B. (2007), "The Severity of Supply Chain Disruptions: Design Characteristics and Mitigation Capabilities". *Decision Sciences*, Vol.38. No.1. pp.131-156.10.1111/j.1540-5915.2007.00151.x.
- Croom, S., Vidal, N., Spetic, W., Marshall, D. and McCarthy, L. (2018), "Impact of social sustainability orientation and supply chain practices on operational performance". *International Journal of Operations & Production Management*, Vol.38. No.12. pp.2344-2366.
- Dana, L.-P., Granata, J., Lasch, F. and Carnaby, A. (2013), "The evolution of co-opetition in the Waipara wine cluster of New Zealand". *Wine Economics and Policy*, Vol.2. No.1. pp.42-49.
- Das, M., Rangarajan, K. and Dutta, G. (2019), "Corporate sustainability in small and medium-sized enterprises: a literature analysis and road ahead". *Journal of Indian Business Research*, Vol.12. No.2. pp.271-300.

- Del Rio-Chanona, R. M., Mealy, P., Pichler, A., Lafond, F. and Farmer, D. (2020), "Supply and demand shocks in the COVID-19 pandemic: An industry and occupation perspective". *Covid Economics: Vetted and Real-Time Papers*, No.6.
- Delmas, M., Hoffmann, V. H. and Kuss, M. (2011), "Under the tip of the iceberg: Absorptive capacity, environmental strategy, and competitive advantage". *Business & Society*, Vol.50. No.1. pp.116-154.
- Despeisse, M., Mbaye, F., Ball, P. D. and Levers, A. (2012), "The emergence of sustainable manufacturing practices". *Production Planning & Control*, Vol.23. No.5. pp.354-376.
- Di Stefano, G., Peteraf, M. and Verona, G. (2014), "The Organizational Drivetrain: a road to integration of Dynamic Capabilities research". *Academy of Management Perspectives*, Vol.28. No.4. pp.307-327.
- Dong, G. (2011), "Evolutionary game of co-opetition strategy among port cluster". 2011 International Conference on E-Business and E-Government (ICEE): IEEE, 1-4.
- Duflou, J. R., Sutherland, J. W., Dornfeld, D., Herrmann, C., Jeswiet, J., Kara, S., Hauschild, M. and Kellens, K. (2012), "Towards energy and resource efficient manufacturing: A processes and systems approach". *CIRP Annals*, Vol.61. No.2. pp.587-609.
- Dyer, J. H. and Hatch, N. W. (2006), "Relation - specific capabilities and barriers to knowledge transfers: creating advantage through network relationships". *Strategic management journal*, Vol.27. No.8. pp.701-719.
- Eisenhardt, K. M. and Martin, J. A. (2000), "Dynamic Capabilities: what Are They?". *Strategic Management Journal*, Vol.21. No.10/11. pp.1105-1121.
- Elbaz, A. M., Agag, G. M. and Alkathiri, N. A. (2018), "How ability, motivation and opportunity influence travel agents performance: the moderating role of absorptive capacity". *Journal of Knowledge Management*, Vol.22. No.1. pp.119-141.
- Emery, F. E. and Trist, E. L. (1965), "The causal texture of organizational environments". *Human relations*, Vol.18. No.1. pp.21-32.
- Endres, H., Helm, R. and Dowling, M. (2020), "Linking the types of market knowledge sourcing with sensing capability and revenue growth: Evidence from industrial firms". *Industrial Marketing Management*, Vol.90. No.2020. pp.30-43.
- Esfahbodi, A., Zhang, Y. and Watson, G. (2016), "Sustainable supply chain management in emerging economies: trade-offs between environmental and cost performance". *International Journal of Production Economics*, Vol.181. No.2016. pp.350-366.
- Eshetu, B. S., Paolo, T. and Pablo, F. C. (2017), "Effectiveness of resilience capabilities in mitigating disruptions: leveraging on supply chain structural complexity". *Supply Chain Management: An International Journal*, Vol.22. No.6. pp.506-521.
- Evaldo Fensterseifer, J. (2007), "The emerging Brazilian wine industry: challenges and prospects for the Serra Gaúcha wine cluster". *International journal of wine business research*, Vol.19. No.3. pp.187-206.
- Fagundes, M. V. C., Teles, E. O., Vieira de Melo, S. A. B. and Freires, F. G. M. (2020), "Decision-making models and support systems for supply chain risk: literature mapping and future research agenda". *European Research on Management and Business Economics*, Vol.26. No.2. pp.63-70.
- Fantasy, K. A., Tipu, S. A. A. and Kumar, V. (2016), "Conceptualizing the relative openness of supply chain and its impact on organizational performance". *Benchmarking: An International Journal*, Vol.23. No.5. pp.1264-1285.
- Fatorachian, H. and Kazemi, H. (2021), "Impact of Industry 4.0 on supply chain performance". *Production Planning & Control*, Vol.32. No.1. pp.63-81.
- Ferras-Hernandez, X. and Nylund, P. A. (2019), "Clusters as Innovation Engines: The Accelerating Strengths of Proximity". *European Management Review*, Vol.16. No.1. pp.37-53.

- Ferreira, A. and Otley, D. (2009), "The design and use of performance management systems: An extended framework for analysis". *Management Accounting Research*, Vol.20. No.4. pp.263-282. <https://doi.org/10.1016/j.mar.2009.07.003>.
- Fiksel, J., Bruins, R., Gatchett, A., Gilliland, A. and Ten Brink, M. (2014), "The triple value model: a systems approach to sustainable solutions". *Clean Technologies and Environmental Policy*, Vol.16. No.4. pp.691-702.
- Flynn, B. B., Huo, B. and Zhao, X. (2010), "The impact of supply chain integration on performance: a contingency and configuration approach". *Journal of operations management*, Vol.28. No.1. pp.58-71.
- Foghani, S., Mahadi, B. and Omar, R. (2017), "Promoting Clusters and Networks for Small and Medium Enterprises to Economic Development in the Globalization Era". *SAGE Open*, Vol.7. No.1. pp.1-9.
- Fong, P. S. W., Men, C., Luo, J. and Jia, R. (2018), "Knowledge hiding and team creativity: the contingent role of task interdependence". *Management Decision*, Vol.56. No.2. pp.329-343.
- Forrester, J. W. (1961), *Industrial dynamics*, M.I.T. Press, London; Cambridge.
- Geng, L., Xiao, R. and Xie, S. (2013a), "Research on Self-Organization in Resilient Recovery of Cluster Supply Chains". *Discrete Dynamics in Nature and Society*, Vol.2013. No.2013. pp.1-11.
- Geng, L., Xiao, R. and Xie, S. (2013b), "Research on Self-Organization in Resilient Recovery of Cluster Supply Chains". *Discrete Dynamics in Nature and Society*, Vol.2013. pp.1-11.10.1155/2013/758967.
- Gimenez, C. and Sierra, V. (2012), "Sustainable Supply Chains: Governance Mechanisms to Greening Suppliers". *Journal of business ethics*, Vol.116. No.1. pp.189-203.
- Gligor, D. M. and Holcomb, M. C. (2014), "Antecedents and consequences of integrating logistics capabilities across the supply chain". *Transportation Journal*, Vol.53. No.2. pp.211-234.
- Golicic, S., Boerstler, C. and Ellram, L. (2010), "'Greening' the Transportation in Your Supply Chain". *MIT Sloan Management Review*, Vol.51. No.2. pp.47-56.
- Golicic, S. L., Flint, D. J. and Signori, P. (2017), "Building business sustainability through resilience in the wine industry". *International Journal of Wine Business Research*, Vol.29. No.1. pp.74-97.
- Gotschol, A., De Giovanni, P. and Vinzi, V. E. (2014), "Is environmental management an economically sustainable business?". *Journal of environmental management*, Vol.144. pp.73-82.
- Govindan, K., Azevedo, S. G., Carvalho, H. and Cruz-Machado, V. (2014), "Impact of supply chain management practices on sustainability". *Journal of Cleaner Production*, Vol.85. pp.212-225.
- Grimstad, S. and Burgess, J. (2014), "Environmental sustainability and competitive advantage in a wine tourism micro-cluster". *Management Research Review*, Vol.37. No.6. pp.553-573.
- Gupta, S., Qian, X., Bhushan, B. and Luo, Z. (2019), "Role of cloud ERP and big data on firm performance: a dynamic capability view theory perspective". *Management Decision*, Vol.57. No.8. pp.1857-1882.10.1108/MD-06-2018-0633.
- Hajmohammad, S., Vachon, S., Klassen, R. D. and Gavronski, I. (2013), "Lean management and supply management: their role in green practices and performance". *Journal of Cleaner Production*, Vol.39. pp.312-320.
- Han, X. (2009a), "Research on relevance of supply chain and industry cluster". *International Journal of marketing studies*, Vol.1. No.2. pp.127-130.

- Han, X. (2009b), "Research on relevance of supply chain and industry cluster". *International Journal of marketing studies*, Vol.1. No.2. pp.127.
- Hassan, M. M. (2006), "Engineering supply chains as systems". *Systems Engineering*, Vol.9. No.1. pp.73-89.
- Haugh, H. M. and Talwar, A. (2010), "How Do Corporations Embed Sustainability Across the Organization?". *Academy of Management Learning & Education*, Vol.9. No.3. pp.384-396.
- He, B. (2016), "The Features and Evolution of Cluster Supply Chain Network". *Open Journal of Business and Management*, Vol.4. No.04. pp.751.
- Helfat, C. E., Finkelstein, S., Mitchell, W., Peteraf, M., Singh, H., Teece, D. and Winter, S. G. (2007). "Managers, Markets, and Dynamic Capabilities". In Helfat, C. E., Finkelstein, S., Mitchell, W., Peteraf, M., Singh, H., Teece, D. and Winter, S. G. (Eds.), *Dynamic capabilities: Understanding strategic change in organizations*. United Kingdom: John Wiley & Sons, pp. 19-29.
- Hermundsdottir, F. and Aspelund, A. (2022), "Competitive sustainable manufacturing - Sustainability strategies, environmental and social innovations, and their effects on firm performance". *Journal of Cleaner Production*, Vol.370. pp.133474.<https://doi.org/10.1016/j.jclepro.2022.133474>.
- Herstatt, C. and Tiwari, R. (2020), "Opportunities of frugality in the post-corona era". *International Journal of Technology Management*, Vol.83. No.1. pp.15-33.
- Hollos, D., Blome, C. and Foerstl, K. (2012), "Does sustainable supplier co-operation affect performance? Examining implications for the triple bottom line". *International Journal of Production Research*, Vol.50. No.11. pp.2968-2986.
- Hong, H. and Gasparatos, A. (2020), "Eco-industrial parks in China: key institutional aspects, sustainability impacts, and implementation challenges". *Journal of Cleaner Production*, Vol.274. No.2020. pp.1-17.
- Hong, J., Zhang, Y. and Ding, M. (2018), "Sustainable supply chain management practices, supply chain dynamic capabilities, and enterprise performance". *Journal of Cleaner Production*, Vol.172. No.2018. pp.3508-3519.
- Hoof, B. v. (2014), "Organizational learning in cleaner production among Mexican supply networks". *Journal of Cleaner Production*, Vol.64. No.2014. pp.115-124.
- Hourneaux Jr, F., Gabriel, M. L. d. S. and Gallardo-Vázquez, D. A. (2018), "Triple bottom line and sustainable performance measurement in industrial companies". *Revista de Gestão*, Vol.25. No.4. pp.413-429.
- Huang, B. and Xue, X. (2012), "An application analysis of cluster supply chain: a case study of JCH". *Kybernetes*, Vol.41. No.1/2. pp.254-280.
- Huang, D., Chen, S., Zhang, G. and Ye, J. (2018), "Organizational forgetting, absorptive capacity, and innovation performance". *Management Decision*, Vol.56. No.1. pp.87-104.
- Huo, B., Qi, Y., Wang, Z. and Zhao, X. (2014), "The impact of supply chain integration on firm performance: the moderating role of competitive strategy". *Supply Chain Management: An International Journal*, Vol.19. No.4. pp.369-384.
- Hurmelinna - Laukkanen, P. (2012), "Constituents and outcomes of absorptive capacity - appropriability regime changing the game". *Management Decision*, Vol.50. No.7. pp.1178-1199.
- Hutchins, M. J. and Sutherland, J. W. (2008), "An exploration of measures of social sustainability and their application to supply chain decisions". *Journal of cleaner production*, Vol.16. No.15. pp.1688-1698.

- Ind, N., Iglesias, O. and Markovic, S. (2017), "The co-creation continuum: from tactical market research tool to strategic collaborative innovation method". *Journal of Brand Management*, Vol.24. No.4. pp.310-321.
- Inoue, H. and Todo, Y. (2020), "The propagation of the economic impact through supply chains: The case of a mega-city lockdown against the spread of COVID-19". *COVID Economics: Vetted and real-time papers*, Vol.1. No.1. pp.43-59.
- Jaakkola, E. (2020), "Designing conceptual articles: four approaches". *AMS Review*, Vol.10. No.1. pp.18-26.10.1007/s13162-020-00161-0.
- Jain, N., Thomas, A., Gupta, V., Ossorio, M. and Porcheddu, D. (2022), "Stimulating CSR learning collaboration by the mentor universities with digital tools and technologies – an empirical study during the COVID-19 pandemic". *Management Decision*, Vol. ahead-of-print. No. ahead-of-print. 10.1108/MD-12-2021-1679.
- Jenny, F. (2020), "Economic Resilience, Globalization and Market Governance: Facing the Covid-19 Test". *COVID Economics: Vetted and real-time papers*, Vol.1. No.1. pp.64-78.
- Johansson, B. and Quigley, J. M. (2004), "Agglomeration and networks in spatial economics". *Papers in Regional Science*, Vol.83. No.1. pp.165-176.
- Kauppi, K., Brandon-Jones, A., Ronchi, S. and Van Raaij, E. M. (2013), "Tools without skills: Exploring the moderating effect of absorptive capacity on the relationship between e - purchasing tools and category performance". *International Journal of Operations & Production Management*, Vol.33. No.7. pp.828-857.
- Ketchen, D. J. and Hult, G. T. M. (2007), "Bridging organization theory and supply chain management: the case of best value supply chains". *Journal of Operations Management*, Vol.25. No.2. pp.573-580.
- Khan, S. H., Majid, A. and Yasir, M. (2020), "Strategic renewal of SMEs: the impact of social capital, strategic agility and absorptive capacity". *Management Decision*, Vol. ahead-of-print. No. ahead-of-print.
- Kim, C.-H. and Park, B. I. (2017), "Knowledge spillovers from inward foreign direct investment in the banking industry". *Management Decision*, Vol.55. No.9. pp.2053-2072.
- Kolk, A. and Pinkse, J. (2008), "A perspective on multinational enterprises and climate change: learning from "an inconvenient truth"?". *Journal of International Business Studies*, Vol.39. No.8. pp.1359-1378.
- Koren, M. and Petó, R. (2020), "Business disruptions from social distancing". *arXiv preprint arXiv:2003.13983*,
- Kraaijenbrink, J., Spender, J. C. and Groen, A. J. (2010), "The Resource-Based View: a Review and Assessment of its Critiques". *Journal of Management*, Vol.36. No.1. pp.349-372.
- Lee, S.-Y., Klassen, R. D., Furlan, A. and Vinelli, A. (2014), "The green bullwhip effect: Transferring environmental requirements along a supply chain". *International Journal of Production Economics*, Vol.156. No.2014. pp.39-51.
- Lei, H.-S. and Huang, C.-H. (2014), "Geographic clustering, network relationships and competitive advantage: two industrial clusters in Taiwan". *Management Decision*, Vol.52. No.5. pp.852-871.
- Li, X., Wu, Q., Holsapple, C. W. and Goldsby, T. (2017), "An Empirical Examination of Firm Financial Performance along Dimensions of Supply Chain Resilience". *Management Research Review*, Vol.40. No.3. pp.254-269.
- Liao, K., Deng, X. and Marsillac, E. (2013), "Factors that influence Chinese automotive suppliers' mass customization capabilities". *International Journal of Production Economics*, Vol.146. No.1. pp.25-36.

- Lin, J.-Y. (2018), "How does collaboration between universities and R&D firms influence performance?". *Management Decision*, Vol.57. No.9. pp.2436-2476.
- Lin, Y., Liu, Z., Liu, R., Yu, X. and Zhang, L. (2020), "Uncovering driving forces of co-benefits achieved by eco-industrial development strategies at the scale of industrial park". *Energy & Environment*, Vol.31. No.2. pp.275-290.
- Lis, A. M. and Rozkwitalska, M. (2020), "Technological capability dynamics through cluster organizations". *Baltic Journal of Management*, Vol.15. No.4. pp.587-606.
- Loh Hui, S., Vinh Van, T., Yiik Dieu, W., Kum Fai, Y. and Qingji, Z. (2017), "Portfolio of port-centric supply chain disruption threats". *The International Journal of Logistics Management*, Vol.28. No.4. pp.1368-1386.
- Loi, T. H. (2016), "Stakeholder management: a case of its related capability and performance". *Management Decision*, Vol.54. No.1. pp.148-173.10.1108/MD-06-2015-0244.
- Lozano, R. and Huisingh, D. (2011), "Inter-linking issues and dimensions in sustainability reporting". *Journal of cleaner production*, Vol.19. No.2-3. pp.99-107.
- Lu, M. Y. and Shin, J. (2018), "A model of two-sided costly communication for building new product category demand". *Marketing Science*, Vol.37. No.3. pp.382-402.
- Luzzini, D., Brandon-Jones, E., Brandon-Jones, A. and Spina, G. (2015), "From sustainability commitment to performance: The role of intra- and inter-firm collaborative capabilities in the upstream supply chain". *International journal of production economics*, Vol.165. No.2015. pp.51-63.
- Marchese, D., Reynolds, E., Bates, M. E., Morgan, H., Clark, S. S. and Linkov, I. (2018), "Resilience and sustainability: Similarities and differences in environmental management applications". *Science of the Total Environment*, Vol.613. No.2018. pp.1275-1283.
- Mari, S., Lee, Y. and Memon, M. (2016), "Sustainable and resilient garment supply chain network design with fuzzy multi-objectives under uncertainty". *Sustainability*, Vol.8. No.10. pp.1038.
- Martinez-Sanchez, A., Perez-Perez, M. and Vicente-Oliva, S. (2019), "Absorptive capacity and technology: influences on innovative firms". *Management Research: Journal of the Iberoamerican Academy of Management*, Vol.17. No.3. pp.250-265.
- Mathews, J. A. (2003), "Competitive dynamics and economic learning: an extended resource-based view". *Industrial and corporate change*, Vol.12. No.1. pp.115-145.
- Mentzer, J. T., DeWitt, W., Keebler, J. S., Min, S., Nix, N. W., Smith, C. D. and Zacharia, Z. G. (2001), "Defining supply chain management". *Journal of Business logistics*, Vol.22. No.2. pp.1-25.
- Michalski, M., Montes-Botella, J.-L. and Narasimhan, R. (2018), "The impact of asymmetry on performance in different collaboration and integration environments in supply chain management". *Supply Chain Management: An International Journal*, Vol.23. No.1. pp.33-49.
- Miemyczyk, J. and Luzzini, D. (2019), "Achieving triple bottom line sustainability in supply chains: The role of environmental, social and risk assessment practices". *International Journal of Operations & Production Management*, Vol.39. No.2. pp.238-259.
- Mikhaylov, A. (2013), "Case study on the structural transformation of an international cluster: European perspective". *Modern applied science*, Vol.7. No.12. pp.1-8.
- Mishra, B. K., Rolland, E., Satpathy, A. and Moore, M. (2019), "A framework for enterprise risk identification and management: the resource-based view". *Managerial Auditing Journal*, Vol.34. No.2. pp.162-188.
- Mitchell, R., Burgess, J. and Waterhouse, J. (2010), "Proximity and knowledge sharing in clustered firms". *Int. J. Globalisation and Small Business*, Vol.4. No.1. pp.5-24.

- Monteiro, P. V. (2016), "The Role of knowledge-intensive service activities on inducing innovation in co-opetition strategies: Lessons from the maritime cluster of the Algarve region". *International Journal of Management and Enterprise Development*, Vol.15. No.1. pp.78-95.
- Mota, R. d. O., Bueno, A., Gonella, J. d. S. L., Ganga, G. M. D., Godinho Filho, M. and Latan, H. (2022), "The effects of the COVID-19 crisis on startups' performance: the role of resilience". *Management Decision*, Vol.ahead-of-print. No.ahead-of-print. 10.1108/MD-07-2021-0998.
- Mousavi, S., Bossink, B. and van Vliet, M. (2018), "Dynamic capabilities and organizational routines for managing innovation towards sustainability". *Journal of Cleaner Production*, Vol.203. No.2018. pp.224-239.
- Munir, M., Jajja, M. S. S., Chatha, K. A. and Farooq, S. (2020), "Supply chain risk management and operational performance: The enabling role of supply chain integration". *International Journal of Production Economics*, Vol.227. No.2020. p.107667.
- Naqshbandi, M. M. (2016), "Managerial ties and open innovation: examining the role of absorptive capacity". *Management Decision*, Vol.54. No.9. pp.2256-2276.
- Ni, W. and Sun, H. (2019), "The effect of sustainable supply chain management on business performance: Implications for integrating the entire supply chain in the Chinese manufacturing sector". *Journal of Cleaner Production*, Vol.232. No.2019. pp.1176-1186.
- Niu, K.-H. (2010), "Organizational trust and knowledge obtaining in industrial clusters". *Journal of Knowledge Management*, Vol.14. No.1. pp.141-155.
- Oliveira-Dias, D., Kneipp, J. M., Bichueti, R. S. and Gomes, C. M. (2022), "Fostering business model innovation for sustainability: a dynamic capabilities perspective". *Management Decision*, Vol.60. No.13. pp.105-129.10.1108/MD-05-2021-0590.
- Østergaard, C. R. and Park, E. K. (2013), "Cluster decline and resilience-The case of the wireless communication cluster in North Jutland, Denmark". *Social Science Research Network*,
- Ozturkoglu, Y., Sari, F. O. and Saygili, E. (2021), "A new holistic conceptual framework for sustainability oriented hospitality innovation with triple bottom line perspective". *Journal of Hospitality and Tourism Technology*, Vol.12. No.1. pp.39-57.10.1108/JHTT-02-2019-0022.
- Pace, L. A. (2016), "How do tourism firms innovate for sustainable energy consumption? A capabilities perspective on the adoption of energy efficiency in tourism accommodation establishments". *Journal of Cleaner Production*, Vol.111. No.2016. pp.409-420.
- Pagell, M., Wu, Z. and Wasserman, M. E. (2010), "Thinking differently about purchasing portfolios: an assessment of sustainable sourcing". *Journal of Supply Chain Management*, Vol.46. No.1. pp.57.
- Panyathanakun, V., Tantayanon, S., Tingsabhat, C. and Charmondusit, K. (2013), "Development of eco-industrial estates in Thailand: initiatives in the northern region community-based eco-industrial estate". *Journal of Cleaner Production*, Vol.51. No.2013. pp.71-79.
- Park, J., Seager, T. P., Rao, P. S. C., Convertino, M. and Linkov, I. (2013), "Integrating risk and resilience approaches to catastrophe management in engineering systems". *Risk Analysis*, Vol.33. No.3. pp.356-367.
- Patti, A. L. (2006), "Economic clusters and the supply chain: a case study". *Supply Chain Management: An International Journal*, Vol.11. No.3. pp.266-270.

- Paulraj, A., Chen, I. J. and Blome, C. (2017), "Motives and performance outcomes of sustainable supply chain management practices: A multi-theoretical perspective". *Journal of Business Ethics*, Vol.145. No.2. pp.239-258.
- Peck, H. (2005), "Drivers of supply chain vulnerability: an integrated framework". *International Journal of Physical Distribution & Logistics Management*, Vol.35. No.4. pp.210-232.
- Pettit, T. J., Croxton, K. L. and Fiksel, J. (2019), "The Evolution of Resilience in Supply Chain Management: a Retrospective on Ensuring Supply Chain Resilience". *Journal of Business Logistics*, Vol.40. No.1. pp.56-65.
- Piprani, A. Z., Mohezar, S. and Jaafar, N. I. (2020), "Supply chain integration and supply chain performance: The mediating role of supply chain resilience". *Int J Supply Chain Manage*, Vol.9. No.3. pp.58-73.
- Ponomarov, S. Y. (2012), Antecedents and consequences of supply chain resilience: a dynamic capabilities perspective. PhD, University of Tennessee, Knoxville, Tennessee.
- Popli, M., Ladkani, R. M. and Gaur, A. S. (2017), "Business group affiliation and post-acquisition performance: an extended resource-based view". *Journal of Business Research*, Vol.81. No.2017. pp.21-30.
- Porter, M., E. (1998a), "Cluster and the new economics of competition". *Harvard business review*, Vol.76. pp.77-90.
- Porter, M., E. (1998b), "Cluster and the new economics of competition". *Harvard business review*, p.77. pp.13.
- Presutti, M., Boari, C., Majocchi, A. and Molina - Morales, X. (2017), "Distance to Customers, Absorptive Capacity, and Innovation in High - Tech Firms: The Dark Face of Geographical Proximity". *Journal of Small Business Management*, Vol.57. No.2. pp.343-361.
- Priem, R. L., Li, S. and Carr, J. C. (2012), "Insights and New Directions from Demand-Side Approaches to Technology Innovation, Entrepreneurship, and Strategic Management Research". *Journal of management*, Vol.38. No.1. pp.346-374.
- Quaye, D. and Mensah, I. (2019), "Marketing innovation and sustainable competitive advantage of manufacturing SMEs in Ghana". *Management Decision*, Vol.57. No.7. pp.1535-1553.10.1108/MD-08-2017-0784.
- Rajeev, A., Pati, R. K., Padhi, S. S. and Govindan, K. (2017), "Evolution of sustainability in supply chain management: A literature review". *Journal of Cleaner Production*, Vol.162. No.2017. pp.299-314.
- Randolph, R. V. d. G. (2016), "A multilevel study of structural resilience in interfirm collaboration". *Management Decision*, Vol.54. No.1. pp.248-266.
- Reuter, C., Foerstl, K., Hartmann, E. and Blome, C. (2010), "Sustainable global supplier management: the role of dynamic capabilities in achieving competitive advantage". *Journal of Supply Chain Management*, Vol.46. No.2. pp.45-63.
- Rigby, C., Day, M., Forrester, P. and Burnett, J. (2000), "Agile supply: rethinking systems thinking, systems practice". *International Journal of Agile Management Systems*, Vol.2. No.3. pp.178-186.
- Riikkinen, R., Kauppi, K. and Salmi, A. (2017), "Learning Sustainability? Absorptive capacities as drivers of sustainability in MNCs' purchasing". *International Business Review*, Vol.26. No.6. pp.1075-1087.
- Ruiz-Benitez, R., López, C. and Real, J. (2019), "Achieving sustainability through the lean and resilient management of the supply chain". *International Journal of Physical Distribution & Logistics Management*, Vol.49. No.2. pp.122-155.

- Saenz, M. J., Revilla, E. and Knoppen, D. (2014), "Absorptive capacity in buyer–supplier relationships: empirical evidence of its mediating role". *Journal of Supply Chain Management*, Vol.50. No.2. pp.18-40.
- Sajan, M. P., Shalij, P. R., Ramesh, A. and Biju, A. P. (2017), "Lean manufacturing practices in Indian manufacturing SMEs and their effect on sustainability performance". *Journal of Manufacturing Technology Management*, Vol.28. No.6. pp.772-793.doi:10.1108/JMTM-12-2016-0188.
- Sarkis, J. (2012), "A boundaries and flows perspective of green supply chain management". *Supply chain management: an international journal*, Vol.17. No.2. pp.202-216.
- Sarkis, J. (2021), "Supply chain sustainability: learning from the COVID-19 pandemic". *International Journal of Operations & Production Management*, Vol.41. No.1. pp.63-73.
- Schiele, H. (2007), "Supply-management maturity, cost savings and purchasing absorptive capacity: Testing the procurement–performance link". *Journal of Purchasing and Supply Management*, Vol.13. No.4. pp.274-293.
- Sezen, B., Karakadilar, I. S. and Buyukozkan, G. (2012), "Proposition of a model for measuring adherence to lean practices: applied to Turkish automotive part suppliers". *International Journal of Production Research*, Vol.50. No.14. pp.3878-3894.
- Shubham, Charan, P. and Murty, L. S. (2018), "Institutional pressure and the implementation of corporate environment practices: examining the mediating role of absorptive capacity". *Journal of Knowledge Management*, Vol.22. No.7. pp.1591-1613.doi:10.1108/JKM-12-2016-0531.
- Shubham, C., P and Murty, L. S. (2018), "Institutional pressure and the implementation of corporate environment practices: examining the mediating role of absorptive capacity". *Journal of Knowledge Management*, Vol.22. No.7. pp.1591-1613.
- Simmie, J. and Martin, R. (2010), "The economic resilience of regions: towards an evolutionary approach". *Cambridge Journal of Regions, Economy and Society*, Vol.3. No.1. pp.27-43.10.1093/cjres/rsp029.
- Sirilertsuwan, P., Ekwall, D. and Hjelmgren, D. (2018), "Proximity manufacturing for enhancing clothing supply chain sustainability". *The International Journal of Logistics Management*, Vol.29. No.4. pp.1346-1378.
- Son, I., Lee, D., Lee, J.-N. and Chang, Y. B. (2014), "Market perception on cloud computing initiatives in organizations: an extended resource-based view". *Information & Management*, Vol.51. No.6. pp.653-669.
- Song, B. and Choi, D. (2018), "Dynamic Capability of the Firm as Driver of Green Supply Chain Management Implementation". *Sustainability*, Vol.10. No.7. p.2539.
- Spekman, R. E., Spear, J. and Kamauff, J. (2002), "Supply chain competency: learning as a key component". *Supply Chain Management: An International Journal*, Vol.7. No.1. pp.41-55.
- Stevenson, M. and Spring, M. (2007), "Flexibility from a supply chain perspective: definition and review". *International Journal of Operations & Production Management*, Vol.27. No.7. pp.685-713.
- Tajbakhsh, A. and Hassini, E. (2015), "Performance measurement of sustainable supply chains: a review and research questions". *International Journal of Productivity and Performance Management*, Vol.64. No.6. pp.744-783.
- Tam, G. C. K. (2018), *Managing Project Sustainability: A Study of the Construction Industry in Hong Kong*. London South Bank University.
- Tang, C. (2006), "Robust strategies for mitigating supply chain disruptions". *International Journal of Logistics Research and Applications*, Vol.9. No.1. pp.33-45.

- Taslimi, M. S., Azimi, A. and Nazari, M. (2020), "Resilience to economic sanctions; case study: hospital equipment cluster of Tehran (HECT)". *International Journal of Disaster Resilience in the Built Environment*, Vol.12. No.1. pp.13-28.
- Teece, D. (2016a), "Dynamic capabilities and entrepreneurial management in large organizations: toward a theory of the (entrepreneurial) firm". *European Economic Review*, Vol.86. No.2016. pp.202-216.
- Teece, D. (2016b), "Dynamic capabilities and entrepreneurial management in large organizations: Toward a theory of the (entrepreneurial) firm". *European Economic Review*, Vol.86. pp.202-216.10.1016/j.euroecorev.2015.11.006.
- Teece, D. J. (2007), "Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance". *Strategic management journal*, Vol.28. No.13. pp.1319-1350.
- Teece, D. J. (2014), "The Foundations of Enterprise Performance: dynamic and ordinary capabilities in an (Economic) theory of Firms". *The Academy of Management Perspectives*, Vol.28. No.4. pp.328-352.
- Teece, D. J. (2019), "A capability theory of the firm: an economics and (Strategic) management perspective". *New Zealand Economic Papers*, Vol.53. No.1. pp.1-43.
- Teece, D. J., Pisano, G. and Shuen, A. (1997), "Dynamic Capabilities and Strategic Management". *Strategic Management Journal*, Vol.18. No.7. pp.509-533.
- Thompson, S. and Valentinov, V. (2017), "The neglect of society in the theory of the firm: a systems-theory perspective". *Cambridge Journal of Economics*, Vol.41. No.4. pp.1061-1085.
- Tipi, N. (2021), *Supply chain analytics and modelling: Quantitative tools and applications*, Kogan Page Publishers, UK.
- Tipi, N. S. and Elgazzar, S. (2021), "Considerations Towards a Sustainable and Resilient Supply Chain: A Modelling Perspective". *International Business Logistics Journal*, Vol.1. No.1. pp.6-13.
- Tipu, S. A. A., Fantazy, K. and Kumar, V. (2019), "An empirical examination of the effects of the attributes of supply chain openness on organizational performance". *Benchmarking: An International Journal*, Vol.26. No.3. pp.788-814.
- Tolossa, N. J., Beshah, B., Kitaw, D., Mangano, G. and De Marco, A. (2013a), "A review on the integration of supply chain management and industrial cluster". *International Journal of Marketing Studies*, Vol.5. No.6. pp.164.
- Tolossa, N. J., Beshah, B., Kitaw, D., Mangano, G. and De Marco, A. (2013b), "A review on the integration of supply chain management and industrial cluster". *International Journal of Marketing Studies*, Vol.5. No.6. pp.164-174.
- Touboulic, A. and Walker, H. (2015), "Theories in sustainable supply chain management: a structured literature review". *International Journal of Physical Distribution & Logistics Management*, Vol.45. No.1/2. pp.16-42.
- Tsai, W.-H., Chou, W.-C. and Hsu, W. (2009), "The sustainability balanced scorecard as a framework for selecting socially responsible investment: an effective MCDM model". *Journal of the Operational Research Society*, Vol.60. No.10. pp.1396-1410.
- U-Dominic, C. M., Orji, I. J. and Okwu, M. (2021), "Analyzing the Barriers to Reverse Logistics (RL) Implementation: A Hybrid Model Based on IF-DEMATEL-EDAS". *Sustainability*, Vol.13. No.19. pp.10876.
- Ullah, I. and Narain, R. (2020), "Achieving mass customization capability: the roles of flexible manufacturing competence and workforce management practices". *Journal of Advances in Management Research*, Vol.18. No.2. pp.273-296.
- UN. (2018a), About the sustainable development goals [Online]. United Nations: United Nations, New York, NY. available at:

- www.un.org/sustainabledevelopment/sustainable-development-goals/ (Accessed) April 2021.
- UN. (2018b), About the sustainable development goals [Online]. United Nations: United Nations, New York, NY. available at: www.un.org/sustainabledevelopment/sustainable-development-goals/ (Accessed) 10/08/2022.
- UNIDO. (2016a), Global assessment of eco-industrial parks in developing and emerging countries [Online]. available at: <https://www.unido.org/unido-industrial-parks> (Accessed) 15/04/2021.
- UNIDO. (2016b), GLOBAL ASSESSMENT OF ECOINDUSTRIAL PARKS IN DEVELOPING AND EMERGING COUNTRIES. available at: <https://www.unido.org/unido-industrial-parks>.
- Upstill-Goddard, J., Glass, J., Dainty, A. and Nicholson, I. (2016), "Implementing sustainability in small and medium-sized construction firms: the role of absorptive capacity". *Engineering, Construction and Architectural Management*, Vol.23. No.4. pp.407-427.
- Vanpoucke, E., Vereecke, A. and Wetzels, M. (2014), "Developing supplier integration capabilities for sustainable competitive advantage: A dynamic capabilities approach". *Journal of Operations Management*, Vol.32. No.7-8. pp.446-461.
- Walton, S., Zhang, A. and O'Kane, C. (2020), "Energy eco-innovations for sustainable development: Exploring organizational strategic capabilities through an energy cultures framework". *Business Strategy and the Environment*, Vol.29. No.3. pp.812-826.
- Wang, H. and Sun, B. (2020), "Firm heterogeneity and innovation diffusion performance: absorptive capacities". *Management Decision*, Vol.58. No.4. pp.725-742.
- Wang, L., Li, J. and Huang, S. (2018), "The asymmetric effects of local and global network ties on firms' innovation performance". *Journal of Business & Industrial Marketing*, Vol.33. No.3. pp.377-389.
- Wang, Y. and Xiao, R. (2016a), "An ant colony based resilience approach to cascading failures in cluster supply network". *Physica A: Statistical Mechanics and its Applications*, Vol.462. pp.150-166. <http://dx.doi.org/10.1016/j.physa.2016.06.058>.
- Wang, Y. and Xiao, R. (2016b), "An ant colony based resilience approach to cascading failures in cluster supply network". *Physica A: Statistical Mechanics and its Applications*, Vol.462. No.2016. pp.150-166.
- Wang, Z., Subramanian, N., Gunasekaran, A., Abdulrahman, M. D. and Liu, C. (2015), "Composite sustainable manufacturing practice and performance framework: Chinese auto-parts suppliers' perspective". *International Journal of Production Economics*, Vol.170. pp.219-233.
- Winnard, J. (2014), "Surviving or flourishing? Integrating business resilience and sustainability". *Journal of Strategy and Management*, Vol.7. No.3. pp.303-315.
- Winnard, J., Lee, J. and Skipp, D. (2018), "Putting resilient sustainability into strategy decisions – case studies". *Management Decision*, Vol.56. No.7. pp.1598-1612.
- Winston, A. (2014), "Resilience in a Hotter World. (cover story)". *Harvard Business Review*, Vol.92. No.4. pp.56-64.
- Xi, D., Huo, B. and Sun, L. (2014), "Relationships between intra-organizational resources, supply chain integration and business performance: an extended resource-based view". *Industrial Management & Data Systems*, Vol.114. No.8. pp.1186-1206.
- Xin, T. and Li-ying, Y. (2013), "Evolutionary game analysis on the co-opetition of enterprise innovation in hi-tech industry cluster". 2013 International Conference on

- Management Science and Engineering 20th Annual Conference Proceedings: IEEE, 1955-1961.
- Xue, X., Wei, Z. and Zeng, Z. (2012), "Framework of analyzing service-centric cluster supply chain: a case study of collaborative procurement". *Journal of software*, Vol.7. No.4. pp.733-740.
- Yan, B. and Wang, L. (2008), "Supply Chain Management and Clusters--A Case Study on Guangdong Automobile Clusters". Business and Information Management ISBIM., Austria: IEEE, 364-367.
- Yang, Y., Jia, F. and Xu, Z. (2019), "Towards an integrated conceptual model of supply chain learning: an extended resource-based view". *Supply Chain Management: An International Journal*, Vol.24. No.2. pp.189-214.
- Ye, D., Wu, Y. J. and Goh, M. (2020), "Hub firm transformation and industry cluster upgrading: innovation network perspective". *Management Decision*, Vol.58. No.7. pp.1425-1448.
- Yu, Y. and Huo, B. (2019), "The impact of relational capital on supplier quality integration and operational performance". *Total Quality Management & Business Excellence*, Vol.30. No.11-12. pp.1282-1301.
- Yuan, X., Dai, T., Chen, L. G. and Gavirneni, S. (2021), "Co-opetition in service clusters with waiting-area entertainment". *Manufacturing & Service Operations Management*, Vol.23. No.1. pp.106-122.
- Yusuf, Y. Y., Gunasekaran, A., Musa, A., El-Berishy, N. M., Abubakar, T. and Ambursa, H. M. (2013), "The UK oil and gas supply chains: An empirical analysis of adoption of sustainable measures and performance outcomes". *International Journal of Production Economics*, Vol.146. No.2. pp.501-514.
- Zahra, S. A. and George, G. (2002), "Absorptive capacity: A review, reconceptualization, and extension". *Academy of management review*, Vol.27. No.2. pp.185-203.
- Zhao, Q. and Chen, M. (2011), "A comparison of ELV recycling system in China and Japan and China's strategies". *Resources, Conservation & Recycling*, Vol.57. pp.15-21.10.1016/j.resconrec.2011.09.010.
- Zhu, Q., Sarkis, J. and Lai, K.-h. (2007), "Green supply chain management: pressures, practices and performance within the Chinese automobile industry". *Journal of Cleaner Production*, Vol.15. No.11. pp.1041-1052.
- Zhu, Q., Sarkis, J. and Lai, K.-h. (2008), "Confirmation of a measurement model for green supply chain management practices implementation". *International journal of production economics*, Vol.111. No.2. pp.261-273.