

Supply Chain Resilience Research: Review, Trends and Opportunities

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ABSTRACT

The purpose of this paper is to provide insights to academics and researchers on the research developments, gaps and opportunities for future research on the topic of supply chain resilience. A systematic review of the literature, published over a period of 15 years (2003 –2017), is conducted by employing two methods: first, keywords are used to collect relevant articles; second, the references of the articles collected in the first step are analysed to collect more data. As a result, 78 articles published in peer-reviewed journals are collected generated and analysed. The findings are summarised in the several key areas including definitions, methodological and theoretical perspectives, barriers and enablers to building resilience, and current research on small and medium sized enterprises.

Keywords: Supply chain, resilience, review, gaps, opportunities

1. INTRODUCTION

Firms in the supply chain face internal and external risks from technological changes, globalisation and a turbulent business environment (Ali, Nagalingam, & Gurd, 2017; Lavastre, Gunasekaran, & Spalanzani, 2014; Manuj & Mentzer, 2008). Given high levels of operational inter-dependencies (Christopher, Mena, Khan, & Yurt, 2011), the risks faced by an individual firm not only harm its own operations but can also negatively influence the operations of its supply chain partners (Anastasiadis, Poole, & Wagner, 2015; Chen, Sohal, & Prajogo, 2016). Disruptions to the flow of materials or information caused by a risk occurring can harm the financial, market and operational performance of firms within the supply chain as a whole (Ali & Shukran, 2016; Crum & Ireland, 2005; Wagner & Bode, 2008). To address the negative consequences of disruptions, research on building resilience within supply chains has received more attention in recent years.

The notion of resilience as a capability to adapt to and recover from disruption has been recognised since the late 1990s (Barnett & Pratt, 2000). However, within the context of supply chain management, the concept of resilience emerged in 2003 (Rice & Caniato, 2003). In 2004, Christopher and Peck (2004, p. 2) offered the first structured definition of resilience as ‘the capacity of a system [supply chain] to return to its original state or move to a new, more desirable state after being disturbed’. This definition

of supply chain resilience was a foundation for further research in this area. As such, a substantial amount of research on the definition and significance of resilience can be seen in the past decade. Despite several advances, there has been a lack of uniformity and clarity on the concept of supply chain resilience, thus highlighting the need for further research.

While some literature reviews, identifying the need for further research had been conducted in the recent past (Bhamra, Dani, & Burnard, 2011; Hohenstein, Feisel, Hartmann, & Giunipero, 2015; Tukamuhabwa, Stevenson, Busby, & Zorzini, 2015), there are still some potential gaps that motivated for this study. First, previous reviews cover only the articles that were published before 2014 and do not reflect recent developments in the literature. Second, a significant yet unexplored area in previous literature reviews is inadequate insight of the barriers in building resilience with the exception of Roberta Pereira, Christopher, and Lago Da Silva (2014), who identified some barriers but only for procurement activities and therefore lacks a holistic perspective. Third, none of the previous reviews offer classification on enablers of resilience as well as industry wise categorization which is presented in this study. Since the concept of supply chain resilience is emerged in 2003 (Bhamra et al., 2011), we provide a comprehensive review of the articles between 2003 to 2017 to identify the trends and gaps in the current literature of supply chain resilience. Clearly defined and informative research questions are the first step to a systematic review of the literature (Rousseau, Manning, & Denyer, 2008). As such, this paper builds on two main research questions:

RQ1. What is the current status and trend of the literature in supply chain resilience; and

RQ2. What are the potential research gaps and opportunities for future research, specifically in context of definitions, methodological and theoretical perspectives, barriers and enablers to building resilience, and current research on small and medium sized enterprises?

The rest of the paper is structured as follows. Section 2 demonstrates the literature review process. Section 3 presents results and interpretation of the existing literature. The paper is concluded with key findings and opportunities for future research in Section 4.

2. LITERATURE REVIEW PROCESS

A systematic literature review identifies, analyses and summarises previous research including research trend, focus and issues (Rousseau et al., 2008). A structured and complete review of the extant literature is important to identify the potential research gaps and opportunities for the future research (Tranfield, Denyer, & Smart, 2003). We follow Rousseau et al.'s (2008) four-step approach for a systematic review of the literature: (1) research question formulation; (2) identification of related research articles; (3) explanation and interpretation; and (4) synthesis of key findings – gaps and trends. The research question formulation is discussed in the introduction section. Steps 2 and 3 have been addressed in Section 3 and Step 4 in Section 4.

2.1 Articles Acquisition Process

To search and identify appropriate articles, the large repositories of research papers were used: EBSCOhost, ScienceDirect, EMERALD, Google Scholar, ProQuest, Scopus, Springer, Taylor & Francis and Wiley. Fischl, Scherrer-Rathje, and Friedli (2014) suggest that searching targeted journals ensures that the review of the literature maintains a certain level of quality. Consistent with this argument, the search for articles was confined to high quality peer-reviewed and extensively cited/impact factor journals (A*, A and B-ranked journals following the ABDC [Australian Business Deans Council] classification). Selection of high quality peer-reviewed journals is considered important for conducting the quality analysis (Ghadge, Dani, & Kalawsky, 2012; Tang & Nurmaya Musa, 2011).

The reviewed journals are related to the categories of operations management, supply chain management, business reviews, management science, and operations research. To achieve a high level of relevance and a better quality of the review, this research study excluded unpublished material, magazines, web pages, master and doctoral dissertation and news articles as of Ghadge, Dani, and Kalawsky (2012) and Ho, Zheng, Yildiz, and Talluri (2015).

A combination of multiple key words is crucial for deeper insights into the selected topics (Baker 2000). Accordingly, the articles were collected and sorted in two phases using multiple key

words. The key words used were: “supply chain”, “supply chain resilience”, “organisational resilience”, “enablers to resilience”, “barriers to resilience”, “supply chain disruption”, “supply chain uncertainty”, “resilience in small and medium enterprises” and “resilience in large organisations”.

In addition to a thorough search of diverse databases, forward and backwards searches were also conducted. A forward search involves the process of reviewing the articles that cited a particular work in a publication, while a backward search involves investigating references cited in a particular article (Baker, 2000). This analysis resulted in 78 quality articles on the topics of supply chain resilience definitions, methodological and theoretical perspectives, barriers and enablers to resilience, and research on resilience in small and medium enterprises (SMEs) and large organisations. The following section discusses the results of the literature review on the different topics of interest.

3. RESULTS AND DISCUSSION

3.1 Distribution of the Articles: time and journals

The review of the literature shows that the concept of supply chain resilience emerged in the literature in 2003 when Rice and Caniato (2003) offered first insights on resilience in the context of the supply chain. As shown in Figure 1, between the years 2003 and 2010 there has been a gradual increase in the number of articles in supply chain resilience with a significant increase since 2011. This increase shows the growing interest of academics in understanding supply chain resilience.

<Insert Figure 1 about here>

The analysis of distribution of the articles in Table 1 shows that the 78 reviewed articles on supply chain resilience have been published in a wide range of peer-reviewed journals. As evident in Table 1, the highest number of articles (23) have been published in the International Journal of Production Research. Further, more than half of the articles (49 out of 78) were published in the following six peer-reviewed journals: *International Journal of Physical Distribution and Logistics Management*; *International of Production Economics*; *International Journal of Production Research*;

Journal of Business Logistics; MIT Sloan Review; Supply chain Management: An International Journal. This diversity of journals clearly shows that supply chain resilience is a multidimensional topic and gaining increased attention from the diversified group of academics and researchers.

<Insert Table 1 about here>

3.2 Definition of Supply Chain Resilience

The extensive analysis of Table 2 indicates a lack of clear consensus and uniformity among researchers on the definition of supply chain resilience. Different researchers suggest various definitions of supply chain resilience and most of which are based on either review of the previous literature or their own perception of a particular phenomenon.

<Insert Table 2 about here>

Many researchers define supply chain resilience as a capability to react and adapt or withstand unforeseen incidents—a reactive approach (Pettit & Fiksel, 2010; Rice & Caniato, 2003; Williams, Ponder, & Autry, 2009; Wu, Huang, Blackhurst, Zhang, & Wang, 2013). On the other hand, some researchers conceptualise supply chain resilience as a capability to prepare in advance and avoid a disruption—a proactive phenomenon (Klibi, Martel, & Guitouni, 2010; Ponomarov & Holcomb, 2009; Priya Datta, Christopher, & Allen, 2007). One possible reason for this inconsistency (proactive vs. reactive) could be that research defining supply chain resilience is still at infancy; therefore, most researchers are building on previous definitions with minor changes in wording. In particular, the lack of empirical research on proposed definitions in this area could have hindered the development of a uniform definition. These discrepancies among the existing definitions of supply chain resilience can create ambiguity for decision-makers in proper deployment of critical resources. Also, without a concise definition, researchers could face problems in conducting empirical research and evaluating supply chain resilience. This gap in the current literature highlights the need for further research to obtain a clear and uniform definition of supply chain resilience.

3.3 Methodological Perspectives

The spread of papers across four broad categories of methods is shown in Table 3 and Figure 2: conceptual (24%), simulation/mathematical modelling (19%), qualitative case studies (31%) and survey-based research (19%). It is surprising that only 15 (19%) articles applied survey-based approach and of these 13 (87%) applied a single method approach, while only two articles adopted a mixed-method approach. Hence, the current literature in supply chain resilience is scarce in survey-based studies adopting a mixed-method approach. Nonetheless, a mixed method approach provides balance, informative, complete and very useful results (Creswell, 2013; Easterby-Smith, Thorpe, & Jackson, 2012). Owing to the existing research gap and its paramount importance, research using a mixed-methods approach could create further insight in the field of supply chain resilience. Specifically, it could help contribute methodological development in the field of supply chain resilience.

<Insert Table 3 about here>

<Insert Figure 2 about here>

3.4 Theoretical Perspectives

The analysis of Table 3 illustrates a scarcity of theory-based studies in the current literature with only 8 (10%) having an underpinning theory/theory. Predominantly cited theories include resource-based theory (Barratt & Oke, 2007); system theory and resource-based view (Blackhurst, Dunn, & Craighead, 2011); social capital theory (Johnson, Elliott, & Drake, 2013); relational view (Wieland & Wallenburg, 2013); contingent resource-based View (Brandon-Jones, Squire, Autry, & Petersen, 2014); complexity science theory (Day, 2014); and social exchange theory (Yilmaz Borekci, Rofcanin, & Gürbüz, 2015). This limited focus on a few theories highlights the need for more theoretical developments in this research area. A theory-based study has the tendency to confirm a theory, build a new theory (Chen & Paulraj, 2004; Dubey, Gunasekaran, Papadopoulos, & Childe, 2015) or to extend an existing theory (Aragon-Correa & Sharma, 2003; Brandon-Jones et al., 2014), thereby adding additional insights to the extant literature (Ketchen & Hult, 2007) in the field of supply chain resilience.

Particularly, most of the reviewed articles have used a single theoretical perspective. Given the multidimensional nature of supply chain challenges, a single theory often becomes insufficient to fully comprehend the phenomenon of risk and resilience in a supply chain (Bacharach, 1989; Chen, 1990; Ketchen & Hult, 2007). An integration of multiple relevant theories could better help in exploring multidimensional challenges in building supply chain resilience.

3.5 Barriers in building Resilience

Barriers refer to the forces that inhibit firms from accomplishing their long-term goals (Magnan & Fawcett, 2008; Park & Ungson, 2001). They can emanate from misalignment of objectives within an organisation or between alliance partners and, therefore, are considered a significant obstacle to success (Park & Ungson, 2001). Understanding and controlling for potential barriers are considered indispensable in achieving the firm's essential objectives (Fawcett, Magnan & McCarter 2008).

The review of the extant literature reveals that research on barriers to building resilience is in its infancy. Among the 78 reviewed journal articles, only 3 (4%) studies discussed barriers in building resilience (see Table 3). First, Blackhurst, Dunn, and Craighead (2011) explore resilience barrier (reducers) in global supply chain related to flow activities (port congestion, stringent regulations), flow units (product complexities), sources of flow units (volatility of supplier's location) and limitations on suppliers (labour availability). Second, Pal, Torstensson, and Mattila (2014) found resources scarcity, asset problems and cash flow to be the critical barriers to the success of SMEs in the Swedish textile sector. As their study was conducted in response to bankruptcy issues in the Sweden textile industry and the economic crises of the 1990s, most barriers that they identified were related to banking and finance. Third, Roberta Pereira et al. (2014) identified visibility, lack of collaboration, lack of trust and financial weakness as critical barriers to procurement activities, therefore, lacked a holistic perspective. Although barriers are recognised as possibly hindering business processes, the literature in the field of supply chain resilience lacks broad empirical evidence on potential barriers and their intervention in firms' efforts to build resilience. The existing gap of empirically-driven studies on barriers and their intervening effect on building resilience calls for further research in this area.

3.6 Research on Small and Medium-sized Enterprises

SMEs are pivotal to developed and developing economies and account for over 90% of all businesses in many countries (Ozgulbas, Koyuncugil & Yilmaz 2006; Sullivan-Taylor & Branicki 2011). Despite their prevalence, the inherent scarcity of resources makes SMEs more vulnerable to various internal and external risks (Sullivan-Taylor & Branicki 2011). Disruption to the flow of materials or information, caused by the inherent supply chain risks (Ali & Soosay, 2015), could have detrimental repercussions on their financial, market and operational performance (Pal, Torstensson & Mattila 2014), resulting in a declined productivity. Consequently, academics and practitioners over the past decade have increasingly been directing attention to research on creating supply chain resilience in small and medium-sized enterprises.

The review of the existing literature of supply chain resilience shows a lack of research on SMEs in the recent literature of supply chain resilience. Out of the 78 articles, only seven (9%) studies offered some insights on supply chain resilience in the context of SMEs (see Table 3). Ates and Bititci (2011) offer a conceptual framework establishing that SMEs create resilience in five steps: prepare, plan, implement, embed and review. Chan (2011) proposes a viable system model (VSM) and multi-criteria decision analysis (MCDA) as effective analytical tools to help SMEs to enhance resilience. Demmer, Vickery, and Calantone (2011) explore the key antecedents of resilience in large enterprises, finding that the resilience strategies of large organisations are also applicable to SMEs. Gunasekaran, Rai, and Griffin (2011) propose a framework for European SMEs' resilience and competitiveness. Their findings show that human resource development and knowledge management are important areas of concern for SMEs in developing resilience. Kumar and Sosnoski (2011) address the issues of taxation faced by SMEs. Sullivan-Taylor and Branicki (2011) identified that SMEs have the distinct perception to extreme events and resilience capabilities from large firms. Ismail, Poolton, and Sharifi (2011) examine the role of agile strategic capabilities in achieving resilience in manufacturing-based small companies. They ascertain that the lack of strategic planning and a short-term focus in decision making could adversely affect the SMEs' ability to respond to a disruptive event. In identifying the antecedents of resilience in SMEs in the Swedish textile industry, Pal et al. (2014), found that, during the economic

downturn, resourcefulness was the most important antecedent to build resilience. The key resourcefulness factors identified by their research included investment in finance and cash flow, material assets and networking, strategic and operational flexibility, and alternative leadership.

The analysis (see Table 3) reveals two significant gaps in the existing literature on SMEs supply chain resilience. First, surprisingly, out of the seven existing studies on SMEs, six studies were conducted in 2011, while only one study appeared in 2014. Given the dynamic business environment and importance of SMEs for economic activity, there is room for more recent research on resources that are essential to building resilience in SMEs. Second, the existing articles on the resilience of SMEs continue to focus on non-perishable product supply chains and adopt a theory building approach. While perishable food industry plays a critical role in sustaining food supply and global economies, there is scarcity of large-scale empirical evidence on how SMEs of perishable product supply chains can enhance supply chain resilience.

3.7 Enablers/Elements of Resilience

Enablers, also termed elements, refer to the resources and capabilities attained by firms to gain resilience (Hohenstein et al., 2015). The identification and implementation of specific enablers are essential to prepare, adapt and recover from disruptive events (Hohenstein et al., 2015; Roberta Pereira et al., 2014). Several studies on supply chain resilience suggest numerous enablers to creating resilience. As indicated in Table 3 and Figure 3, among the 78 reviewed articles, 34 studies offer generic classification (not industry-specific) for enablers, which is based either on a review of current literature or authors own perception of a particular phenomenon. These include redundancy, flexibility, visibility, velocity and agility (e.g. Burnard & Bhamra, 2011; Christopher & Peck, 2004; Pettit, Croxton, & Fiksel, 2013; Roberta Pereira et al., 2014; Sheffi & Rice, 2005). Out of the total reviewed articles, 43 offer industry-specific classifications. However, the focus of these industry-specific articles primarily remained within the traditional manufacturing industry. Thus, the existing frameworks are either generic or primarily focus on non-perishable products. Surprisingly, only a single article by Leat and Revoredo-Giha (2013) undertakes a case study of a pork meat supply chain and explores a particular

class of risks related to pork meat quality. As such, broad empirical evidence on the phenomenon of risk and resilience in the perishable product supply chain is missing in the current literature.

<Insert Figure 3 about here>

4. Conclusion: Key Findings and Opportunities for Future Research

In this study, a comprehensive review of the existing literature in the area of supply chain resilience has been conducted, addressing two research questions (RQ1 and RQ2). Using a range of databases and keywords, 78 peer-reviewed quality journal articles have been identified within a 15 years' timeframe (2003-2017). Based on the trends of previous research, the main area of focus in this literature review was definitions, methodological and theoretical perspective, barriers and enablers and recent research on SMEs. Drawing upon the existing body of knowledge, the following seven major gaps have been identified which form the basis for future research in the area of supply chain resilience.

First, despite several contributions, the literature failed to suggest a unified definition of supply chain resilience. Some studies define resilience as a more reactive approach (Christopher & Peck 2004; Melnyk et al. 2014; Sheffi & Rice 2005). Others consider resilience as being a more proactive approach (Ponis & Koronis 2012; Scholten, Sharkey Scott & Fynes 2014). This lack of conceptual clarity calls for further research in in the area. Specifically, it should be empirically examined *whether proactive and reactive approaches can work in tandem or in some other ways in building supply chain resilience.*

Second, in a review of the literature, Bhamra et al. (2011) note that the majority of the literature focuses on the definition of supply chain resilience. Our findings show that the trend of research is now shifted from definition to the enablers of resilience. However, yet most studies on enablers for building resilience predominantly focus on non-perishable industries. Although perishable food industry (or agribusiness industry) plays an important role in global economies and employment opportunities, it is somewhat surprising that the enablers of resilience for firms in perishable product supply chains or agribusiness supply chain have not been systematically addressed yet. Building on this research gap,

we propose a research question on ‘*What are the specific enablers used to build resilience by firms in perishable product supply chains or agribusiness supply chain?*’ to be addressed by the future research:

Third, the research in the field of strategic management (Magnan & Fawcett 2008) and green supply chain management (Park & Ungson 2001) reveals that barriers create hindrance in achieving long-term objectives. However, this review of the literature shows that broad empirical evidence on potential barriers in building resilience is missing in this research area. This gap in research leads to the development of two more research questions: *What are the potential barriers to building supply chain resilience; and how do they influence the relationship between supply chain resilience and firm performance in a supply chain?*

Although SMEs constituted over 70 % of world's production compared to large firms (Burnard & Bhamra 2011), the review of the literature shows the scarcity of empirical studies on SMEs resilience. As such, two research questions (fourth and fifth) need more empirical and analytical research: *How SMEs create resilience among diverse risks?; and does firm size moderate the relationship between supply chain resilience and firm performance?*

Sixth, in a systematic review of the literature, Tukamuhabwa et al. (2015) revealed that most of the previous studies were conceptual. Our findings show an increasing interest in empirical work in recent years. Despite the substantial increase in a number of empirical studies, a thorough scanning of the literature revealed that most existing studies applied a single research method: only quantitative. Comparatively, very few studies (two) have been conducted using a mixed-methods approach. A mixed-methods approach provides a better understanding of problems through the triangulation of findings while eliminating the weaknesses inherent in a single method (Creswell 2013). Given the existing scarcity, we stress the need for more mix-methods research in the area of supply chain resilience

Seventh, most of the previous studies build on either conceptual or qualitative research and therefore lack broader perspectives of the findings. As such, we instigate the need for large-scale

survey-based research to generalise the findings and address the challenges of supply chain resilience more effectively and broadly. Finally, the existing scarcity of theory grounded research in the current literature calls for immediate attention of the researchers for more theoretical underpinned research in this area.

REFERENCES

- Ali, I., Nagalingam, S., & Gurd, B. (2017). Building resilience in SMEs of perishable product supply chains: enablers, barriers and risks. *Production Planning & Control*, 28(15), 1236-1250.
- Ali, I., & Shukran, K. (2016). Managing supply chain risks and vulnerabilities through collaboration: Present and future scope. *The Journal of Developing Areas*, 50(5), 335-342.
- Ali, I., & Soosay, C. (2015, 31 May - 2 June 2015). *Understanding risks in the Australian citrus supply chain*. Paper presented at the 13th ANZAM Operations, Supply Chain and Services Management Symposium, Melbourne, Australia.
- Akgün, A. E., & Keskin, H. (2014). Organisational resilience capacity and firm product innovativeness and performance. *International Journal of Production Research*, 52(23), 6918-6937.
- Ambulkar, S., Blackhurst, J., & Grawe, S. (2015). Firm's resilience to supply chain disruptions: Scale development and empirical examination. *Journal of Operations Management*, 33, 111-122.
- Anastasiadis, F., Poole, N., & Wagner, B. (2015). Emergent supply chains in the agrifood sector: insights from a whole chain approach. *Supply Chain Management: An International Journal*, 20(4), 353-368.
- Aragon-Correa, J., & Sharma, S. (2003). A contingent resource-based view of proactive corporate environmental strategy. *Academy of Management Review*, 28(1), 71-88.
- Ates, A., & Bititci, U. (2011). Change process: a key enabler for building resilient SMEs. *International Journal of Production Research*, 49(18), 5601-5618.
- Azadeh, A., Atrchin, N., Salehi, V., & Shojaei, H. (2014). Modelling and improvement of supply chain with imprecise transportation delays and resilience factors. *International Journal of Logistics Research and Applications*, 17(4), 269-282.
- Azevedo, S. G., Govindan, K., Carvalho, H., & Cruz-Machado, V. (2013). Ecosilient Index to assess the greenness and resilience of the upstream automotive supply chain. *Journal of Cleaner Production*, 56, 131-146.
- Bacharach, S. B. (1989). Organizational theories: Some criteria for evaluation. *Academy of Management Review*, 14(4), 496-515.
- Baker, M. J. (2000). Writing a literature review. *The Marketing Review*, 1(2), 219-247.
- Bakshi, N., & Kleindorfer, P. (2009). Co-opetition and investment for supply-chain resilience. *Production and Operations Management*, 18(6), 583-603.

- Barnett, C. K., & Pratt, M. G. (2000). From threat-rigidity to flexibility-toward a learning model of autogenic crisis in organizations. *Journal of Organizational Change Management*, 13(1), 74-88.
- Barratt, M., & Oke, A. (2007). Antecedents of supply chain visibility in retail supply chains: a resource-based theory perspective. *Journal of Operations Management*, 25(6), 1217-1233.
- Bhamra, R., Dani, S., & Burnard, K. (2011). Resilience: the concept, a literature review and future directions. *International Journal of Production Research*, 49(18), 5375-5393.
- Blackhurst, J., Craighead, C. W., Elkins, D., & Handfield, R. B. (2005). An empirically derived agenda of critical research issues for managing supply-chain disruptions. *International Journal of Production Research*, 43(19), 4067-4081.
- Blackhurst, J., Dunn, K. S., & Craighead, C. W. (2011). An Empirically Derived Framework of Global Supply Resiliency. *Journal of Business Logistics*, 32(4), 374-391.
- Boone, C. A., Craighead, C. W., Hanna, J. B., & Nair, A. (2013). Implementation of a system approach for enhanced supply chain continuity and resiliency: A longitudinal study. *Journal of Business Logistics*, 34(3), 222-235.
- Brandon-Jones, E., Squire, B., Autry, C. W., & Petersen, K. J. (2014). A Contingent Resource-Based Perspective of Supply Chain Resilience and Robustness. *Journal of Supply Chain Management*, 50(3), 55-73.
- Braunscheidel, M. J., & Suresh, N. C. (2009). The organizational antecedents of a firm's supply chain agility for risk mitigation and response. *Journal of Operations Management*, 27(2), 119-140.
- Brusset, X., & Teller, C. (2017). Supply chain capabilities, risks, and resilience. *International Journal of Production Economics*, 184, 59-68.
- Burnard, K., & Bhamra, R. (2011). Organisational resilience: development of a conceptual framework for organisational responses. *International Journal of Production Research*, 49(18), 5581-5599.
- Business Continuity Institute (BCI). (7 November 2013). Lack of supply chain visibility affecting business performance. Retrieved from <http://www.thebci.org/index.php/about/news-room-/pressreleases/lack-of-supply-chain-visibility-affecting-business-performance-926018>
- Cardoso, S. R., Barbosa-Póvoa, A. P., Relvas, S., & Novais, A. Q. (2015). Resilience metrics in the assessment of complex supply-chains performance operating under demand uncertainty. *Omega*, 56, 53-73.
- Chan, J. W. (2011). Enhancing organisational resilience: application of viable system model and MCDA in a small Hong Kong company. *International Journal of Production Research*, 49(18), 5545-5563.
- Chen, H. T. (1990). *Theory-driven evaluations*. UK: Sage Publications.
- Chen, I. J., & Paulraj, A. (2004). Towards a theory of supply chain management: the constructs and measurements. *Journal of Operations Management*, 22(2), 119-150. doi:10.1016/j.jom.2003.12.007

- Chen, J., Sohal, A. S., & Prajogo, D. I. (2016). Supply risk mitigation: a multi-theoretical perspective. *Production Planning & Control*, 27(10), 853-863.
- Chowdhury, M. M. H., & Quaddus, M. (2017). Supply chain resilience: Conceptualization and scale development using dynamic capability theory. *International Journal of Production Economics*, 188, 185-204.
- Christopher, M., Mena, C., Khan, O., & Yurt, O. (2011). Approaches to managing global sourcing risk. *Supply Chain Management: An International Journal*, 16(2), 67-81.
- Christopher, M., & Peck, H. (2004). Building the resilient supply chain. *The International Journal of Logistics Management*, 15(2), 1-14.
- Colicchia, C., Dallari, F., & Melacini, M. (2010). Increasing supply chain resilience in a global sourcing context. *Production Planning & Control*, 21(7), 680-694.
- Craighead, C. W., Blackhurst, J., Rungtusanatham, M. J., & Handfield, R. B. (2007). The severity of supply chain disruptions: design characteristics and mitigation capabilities. *Decision Sciences*, 38(1), 131-156.
- Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches*. London, UK: Sage publications.
- Crum, C., & Ireland, R. (2005). *Supply chain collaboration: how to implement CPFR and other best collaborative practices*. Florida, USA: J. Ross Publications.
- Crum, M., Poist, R., Christopher, M., & Holweg, M. (2011). "Supply Chain 2.0": managing supply chains in the era of turbulence. *International Journal of Physical Distribution & Logistics Management*, 41(1), 63-82.
- Das, K., & Lashkari, R. S. (2015). Risk readiness and resiliency planning for a supply chain. *International Journal of Production Research*, 53(22), 6752-6771.
- Day, J. M. (2014). Fostering emergent resilience: the complex adaptive supply network of disaster relief. *International Journal of Production Research*, 52(7), 1970-1988.
- Demmer, W. A., Vickery, S. K., & Calantone, R. (2011). Engendering resilience in small-and medium-sized enterprises (SMEs): a case study of Demmer Corporation. *International Journal of Production Research*, 49(18), 5395-5413.
- Dubey, R., Gunasekaran, A., Papadopoulos, T., & Childe, S. J. (2015). Green supply chain management enablers: Mixed methods research. *Sustainable Production and Consumption*, 4, 72-88.
- Easterby-Smith, M., Thorpe, R., & Jackson, P. R. (2012). *Management research*. London, UK: Sage Publications.
- Fang, L., Song, J. S., & Tong, J. D. (2016). Building supply chain resilience through virtual stockpile pooling. *Production and Operations Management*, 25(10), 1745-1762.
- Fiksel, J. (2006). Sustainability and resilience: toward a systems approach. *Sustainability: Science, Practice, & Policy*, 2(2).

- Fiksel, J., Polyviou, M., Croxton, K. L., & Pettit, T. J. (2015). From risk to resilience: learning to deal with disruption. *MIT Sloan Management Review*, 56(2), 79.
- Fischl, M., Scherrer-Rathje, M., & Friedli, T. (2014). Digging deeper into supply risk: a systematic literature review on price risks. *Supply Chain Management: An International Journal*, 19(5/6), 480-503.
- Gilly, J. P., Kechidi, M., & Talbot, D. (2014). Resilience of organisations and territories: The role of pivot firms. *European Management Journal*, 32(4), 596-602.
- Ghadge, A., Dani, S., & Kalawsky, R. (2012). Supply chain risk management: present and future scope. *International Journal of Logistics Management, The*, 23(3), 313-339.
- Gunasekaran, A., Rai, B. K., & Griffin, M. (2011). Resilience and competitiveness of small and medium size enterprises: an empirical research. *International Journal of Production Research*, 49(18), 5489-5509.
- Gunasekaran, A., Subramanian, N., & Rahman, S. (2015). Supply chain resilience: role of complexities and strategies. *International Journal of Production Research*, 53(22), 6809-6819.
- Hamel, G., & Valikangas, L. (2003). The quest for resilience. *Harvard Business Review*, 81(9), 52-65.
- Hasani, A., & Khosrojerdi, A. (2016). Robust global supply chain network design under disruption and uncertainty considering resilience strategies: A parallel memetic algorithm for a real-life case study. *Transportation Research Part E: Logistics and Transportation Review*, 87, 20-52.
- Hohenstein, N. O., Feisel, E., Hartmann, E., & Giunipero, L. (2015). Research on the phenomenon of supply chain resilience: A systematic review and paths for further investigation. *International Journal of Physical Distribution & Logistics Management*, 45(1/2), 90-117.
- Ho, W., Zheng, T., Yildiz, H., & Talluri, S. (2015). Supply chain risk management: a literature review. *International Journal of Production Research*, 53(16), 5031-5069.
- Ishfaq, R. (2012). Resilience through flexibility in transportation operations. *International Journal of Logistics: Research and Applications*, 15(4), 215-229.
- Ismail, H. S., Poolton, J., & Sharifi, H. (2011). The role of agile strategic capabilities in achieving resilience in manufacturing-based small companies. *International Journal of Production Research*, 49(18), 5469-5487.
- Ivanov, D., Sokolov, B., & Dolgui, A. (2014). The Ripple effect in supply chains: trade-off 'efficiency-flexibility-resilience' in disruption management. *International Journal of Production Research*, 52(7), 2154-2172.
- Johnson, N., Elliott, D., & Drake, P. (2013). Exploring the role of social capital in facilitating supply chain resilience. *Supply Chain Management: An International Journal*, 18(3), 324-336.
- Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research*, 1(2), 112-133.
- Jüttner, U., & Maklan, S. (2011). Supply chain resilience in the global financial crisis: an empirical study. *Supply Chain Management: An International Journal*, 16(4), 246-259.

- Kamalahmadi, M., & Parast, M. M. (2016). A review of the literature on the principles of enterprise and supply chain resilience: Major findings and directions for future research. *International Journal of Production Economics*, 171, 116-133.
- Ketchen, D. J., & Hult, G. T. M. (2007). Bridging organization theory and supply chain management: The case of best value supply chains. *Journal of Operations Management*, 25(2), 573-580.
- Khalili, S. M., Jolai, F., & Torabi, S. A. (2017). Integrated production–distribution planning in two-echelon systems: a resilience view. *International Journal of Production Research*, 55(4), 1040-1064.
- Klibi, W., & Martel, A. (2012). Modeling approaches for the design of resilient supply networks under disruptions. *International Journal of Production Economics*, 135(2), 882-898.
- Klibi, W., Martel, A., & Guitouni, A. (2010). The design of robust value-creating supply chain networks: a critical review. *European Journal of Operational Research*, 203(2), 283-293.
- Kumar, S., & Sosnoski, M. (2011). Decision framework for the analysis and selection of appropriate transfer pricing for a resilient global SME manufacturing operation—a business case. *International Journal of Production Research*, 49(18), 5431-5448.
- Lam, J. S. L., & Bai, X. (2016). A quality function deployment approach to improve maritime supply chain resilience. *Transportation Research Part E: Logistics and Transportation Review*, 92, 16-27.
- Lavastre, O., Gunasekaran, A., & Spalanzani, A. (2014). Effect of firm characteristics, supplier relationships and techniques used on Supply Chain Risk Management (SCRM): an empirical investigation on French industrial firms. *International Journal of Production Research*, 52(11), 3381-3403.
- Leat, P., & Revoredo-Giha, C. (2013). Risk and resilience in agri-food supply chains: the case of the ASDA PorkLink supply chain in Scotland. *Supply Chain Management: An International Journal*, 18(2), 219-231.
- Liu, C. L., Shang, K. C., Lirn, T.-C., Lai, K. H., & Lun, Y. V. (2017). Supply chain resilience, firm performance, and management policies in the liner shipping industry. *Transportation Research Part A: Policy and Practice*. In press
- Losada, C., Scaparra, M. P., & O'Hanley, J. R. (2012). Optimizing system resilience: a facility protection model with recovery time. *European Journal of Operational Research*, 217(3), 519-530.
- Magnan, G. M., & Fawcett, S. E. (2008). A three-stage implementation model for supply chain collaboration. *Journal of Business Logistics*, 29(1), 93-112.
- Mandal, S. (2012). An empirical investigation into supply chain resilience. *IUP Journal of Supply Chain Management*, 9(4), 46.
- Mandal, S., & Mandal, S. (2017). The influence of dynamic capabilities on hospital-supplier collaboration and hospital supply chain performance. *International Journal of Operations & Production Management*, 37(5), 664-684.

- Manopiniwes, W., & Irohara, T. (2017). Stochastic optimisation model for integrated decisions on relief supply chains: preparedness for disaster response. *International Journal of Production Research*, 55(4), 979-996.
- Manuj, I., & Mentzer, J. T. (2008). Global supply chain risk management strategies. *International Journal of Physical Distribution & Logistics Management*, 38(3), 192-223.
- Melnyk, S. A. (2014). Understanding supply chain resilience. *Supply Chain Management Review*, 18(1).
- Melnyk, S. A., Davis, E. W., Spekman, R. E., & Sandor, J. (2010). Outcome-driven supply chains. *MIT Sloan Management Review*, 51(2), 33.
- Munoz, A., & Dunbar, M. (2015). On the quantification of operational supply chain resilience. *International Journal of Production Research*, 53(22), 6736-6751.
- Pal, R., Torstensson, H., & Mattila, H. (2014). Antecedents of organizational resilience in economic crises—an empirical study of Swedish textile and clothing SMEs. *International Journal of Production Economics*, 147, 410-428.
- Park, S. H., & Ungson, G. R. (2001). Interfirm rivalry and managerial complexity: A conceptual framework of alliance failure. *Organization science*, 12(1), 37-53.
- Peck, H. (2005). Drivers of supply chain vulnerability: an integrated framework. *International Journal of Physical Distribution & Logistics Management*, 35(4), 210-232.
- Peck, H. (2006). Reconciling supply chain vulnerability, risk and supply chain management. *International Journal of Logistics: Research and Applications*, 9(2), 127-142.
- Pettit, T. J., Croxton, K. L., & Fiksel, J. (2013). Ensuring supply chain resilience: development and implementation of an assessment tool. *Journal of Business Logistics*, 34(1), 46-76.
- Pettit, T. J., & Fiksel, J. (2010). Ensuring supply chain resilience. *Journal of Business Logistics*, 31(1), 1-21.
- Pettit, T. J., Fiksel, J., & Croxton, K. L. (2010). Ensuring supply chain resilience: development of a conceptual framework. *Journal of Business Logistics*, 31(1), 1-21.
- Ponis, S. T., & Koronis, E. (2012). Supply chain resilience: definition of concept and its formative elements. *Journal of Applied Business Research*, 28(5), 921.
- Ponomarov, S. Y., & Holcomb, M. C. (2009). Understanding the concept of supply chain resilience. *The International Journal of Logistics Management*, 20(1), 124-143.
- Priya Datta, P., Christopher, M., & Allen, P. (2007). Agent-based modelling of complex production/distribution systems to improve resilience. *International Journal of Logistics: Research and Applications*, 10(3), 187-203.
- Reinmoeller, P., & Van Baardwijk, N. (2005). The link between diversity and resilience. *MIT Sloan Management Review*, 46(4), 61.
- Rice, J. B., & Caniato, F. (2003). Building a secure and resilient supply network. *Supply Chain Management Review*, 7(5), 22-30.

- Richey, G., Stewart, G. T., Kolluru, R., & Smith, M. (2009). Leveraging public-private partnerships to improve community resilience in times of disaster. *International Journal of Physical Distribution & Logistics Management*, 39(5), 343-364.
- Roberta Pereira, C., Christopher, M., & Lago Da Silva, A. (2014). Achieving supply chain resilience: the role of procurement. *Supply Chain Management: An International Journal*, 19(5/6), 626-642.
- Rousseau, D. M., Manning, J., & Denyer, D. (2008). Evidence in management and organizational science: Assembling the field's full weight of scientific knowledge through syntheses. *The Academy of Management Annals*, 2 (1): 475-515, 2008. *Marketing Letters*, 21, 6581.
- Sáenz, M., & Revilla, E. (2014). Creating More Resilient Supply Chains. *MIT Sloan Management Review*, 55(4), 22-24.
- Saunders, M. N. (2011). *Research methods for business students*. India: Pearson Education.
- Sawik, T. (2013). Selection of resilient supply portfolio under disruption risks. *Omega*, 41(2), 259-269.
- Scholten, K., Scott, P. S., & Fynes, B. (2014). Mitigation processes – antecedents for building supply chain resilience. *Supply Chain Management: An International Journal*, 19(2), 211-228.
- Sheffi, Y., & Rice, J. B. (2005). A Supply Chain View of the Resilient Enterprise. *MIT Sloan Management Review*, 47(1), 41-48.
- Spiegler, V., Potter, A. T., Naim, M., & Towill, D. R. (2016). The value of nonlinear control theory in investigating the underlying dynamics and resilience of a grocery supply chain. *International Journal of Production Research*, 54(1), 265-286.
- Spiegler, V. L., Naim, M. M., & Wikner, J. (2012). A control engineering approach to the assessment of supply chain resilience. *International Journal of Production Research*, 50(21), 6162-6187.
- Stevenson, M., & Spring, M. (2007). Flexibility from a supply chain perspective: definition and review. *International Journal of Operations & Production Management*, 27(7), 685-713.
- Sullivan-Taylor, B., & Branicki, L. (2011). Creating resilient SMEs: why one size might not fit all. *International Journal of Production Research*, 49(18), 5565-5579.
- Tang, C., & Nurmaya Musa, S. (2011). Identifying risk issues and research advancements in supply chain risk management. *International Journal of Production Economics*, 133(1), 25-34.
- Thomas, A., Pham, D. T., Francis, M., & Fisher, R. (2015). Creating resilient and sustainable manufacturing businesses—a conceptual fitness model. *International Journal of Production Research*, 53(13), 3934-3946.
- Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management*, 14(3), 207-222.
- Tukamuhabwa, B. R., Stevenson, M., Busby, J., & Zorzini, M. (2015). Supply chain resilience: definition, review and theoretical foundations for further study. *International Journal of Production Research*, 53(18), 5592-5623.

- Urciuoli, L., Mohanty, S., Hintsä, J., & Gerine Boekesteijn, E. (2014). The resilience of energy supply chains: a multiple case study approach on oil and gas supply chains to Europe. *Supply Chain Management: An International Journal*, 19(1), 46-63.
- Wagner, S. M., & Bode, C. (2008). An empirical examination of supply chain performance along several dimensions of risk. *Journal of Business Logistics*, 29(1), 307-325.
- Wieland, A., & Wallenburg, C. M. (2013). The influence of relational competencies on supply chain resilience: a relational view. *International Journal of Physical Distribution & Logistics Management*, 43(4), 300-319.
- Williams, Z., Ponder, N., & Autry, C. W. (2009). Supply chain security culture: measure development and validation. *The International Journal of Logistics Management*, 20(2), 243-260.
- Winston, A. (2014). Resilience in a hotter world. *Harvard Business Review*, 92(4), 56-64, 132.
- Yang, B., & Yang, Y. (2010). Postponement in supply chain risk management. *International Journal of Production Research*, 48(7/8), 1901-1912.
- Yilmaz Borekci, D., Rofcanin, Y., & Gürbüz, H. (2015). Organisational resilience and relational dynamics in triadic networks: a multiple case analysis. *International Journal of Production Research*, 53(22), 6839-6867.
- Zsidisin, G. A., & Wagner, S. M. (2010). Do perceptions become reality? The moderating role of supply chain resiliency on disruption occurrence. *Journal of Business Logistics*, 31(2), 1-20.

Table 1: Journal-wise Articles Distribution

Journal title	Acronym	Number of paper
Decision Sciences	DS	1
European Journal of Operational Research	EJOR	2
Harvard Business Review	HBR	1
International Journal of Logistics: Research and Application	IJLM-RA	4
International Journal of Operations & Production Management	IJOPM	2
International Journal of Physical Distribution & Logistics Management	IJPDLM	5
International Journal of Production Economics	IJPE	5
International Journal of Production Research	IJPR	23
Journal of Business Logistics	JBL	5
Journal of Cleaner Production	JCP	1
Journal of Operations Management	JOM	3
Journal of Supply Chain Management	JSCM	2
Management Science	MS	1
MIT Sloan Management Review	MIT Sloan	5
Omega	Omega	2

Journal title	Acronym	Number of paper
Production and Operations Management	POM	2
Supply Chain Management: An International Journal	SCM-IJ	6
Supply chain management review	SCMR	2
The International Journal of Logistics Management	IJLM	3
Transportation Research: Part A	TR-A	1
Transportation Research: Part E	TR-E	2

Table 2: Existing Definitions of Resilience

Author (year)	Definition
Kamalahmadi and Parast (2016, p. 121)	‘The adaptive capability of a supply chain to the probability of facing sudden disturbances, resist the spread of disturbances by maintaining control over structure and functions and recover and respond by immediate and effective reactive plans to transcend the disturbance and restore the supply chain to a robust state of operations’.
Gilly, Kechidi, and Talbot (2014, p. 597)	‘Resilience is a double capacity of resistance and adaptation opening the way for new pathways. These pathways indicate the capacity of an organisation to find novel responses to new questions and not simply reproduce previously used organisational responses’.
Winston (2014, p. 64)	‘An ability not just to recover from hits but to avoid problems altogether’.
Johnson et al. (2013, p. 325)	‘Resilience is considered to develop over time, enabling an organisation or network to survive and thrive in the face of diversity and to further strength its capacity to make future adjustment’.
Pettit et al. (2013, p. 46)	‘The capacity of an organisation to survive, adapt, and grow in the face of change and uncertainty’.
Sawik (2013, p. 260)	‘Resiliency refers to firm’s capacity to survive, adapt and grow in the face of change and uncertainty’.

Author (year)	Definition
Ponis and Koronis (2012, p. 925)	‘The ability to proactively plan and design the supply chain network for anticipating unexpected disruptive (negative) events, respond adaptively to disruptions while maintaining control over structure and function and transcending to a post-event robust state of operations, if possible, more favorable than the one prior to the event, thus gaining competitive advantage’.
Ates and Bititci (2011, p. 5601)	‘The capacity of an organisation to survive, adapt and sustain the business in the face of turbulent change’.
Burnard and Bhamra (2011, p. 5586)	‘The emergent property of organisational systems that relates to the inherent and adaptive qualities and capabilities that enable an organisation’s adaptive capacity during turbulent period. The mechanism of organisation resilience thereby strive to improve an organisation’s situational awareness, reduce organisational vulnerabilities to systematic risk environments and restore efficacy following the events of a disruption’.
Klibi et al. (2010, p. 287 and 291)	‘Resilience is the capability of a supply chain network to avoid disruptions or quickly recover from failures. The capacity of a system to survive, adapt, and grow in the face of unforeseen changes, even catastrophic incidents’.
Yang and Yang (2010, p. 1903)	‘In the literature, the term “resilience” is also borrowed from other disciplines to characterise an organisation’s

Author (year)	Definition
	capability to recover to the original operating status before a disruption’.
Ponomarov and Holcomb (2009, p. 131)	‘The adaptive capability of the supply chain to prepare for unexpected events, respond to disruption and recover from them by maintaining continuity of operations at the desired level of connectedness and control over structure and function’.
Richey, Stewart, Kolluru, and Smith (2009, p. 349)	‘A process linking a set of adaptive capabilities to a positive trajectory of functioning and adaptation after a disturbance’.
Williams et al. (2009, p. 253)	‘The ability to react to unexpected disruption and restore normal supply network operations’.
Priya Datta et al. (2007, p. 189)	‘Supply chain resilience is defined as not only the ability to maintain control over performance variability in the face of disturbance, but also a property of being adaptive and capable of sustained response to sudden and significant shifts in the environment in the form of uncertain demand’.
Fiksel (2006, p. 16)	‘The capacity of an enterprise to survive, adapt, and grow in the face of turbulent changes’.
Peck (2006, p. 132)	‘The ability of a system to return to its original or desired state after being disturbed’.
Sheffi and Rice (2005, p. 41)	‘The ability to bounce back from a disruption’.

Author (year)	Definition
Christopher and Peck (2004, p. 2)	‘The ability of a system to return to its original state or move to a new, more desirable state after being’.
Rice and Caniato (2003, p. 25)	‘In today’s business environment, resilience is widely used to characterize an organization’s ability to react to an unexpected disruption, such as one caused by a terrorist attack or a natural disaster, and restore normal operations’.

Table 3: Methods, Context and Theories Applied in the Previous Studies

Parameter	Number of papers (%)	Author (year)
Methodological perspectives		
Conceptual/theoretical	20 (29%)	Hamel and Valikangas (2003), Rice and Caniato (2003), Christopher and Peck (2004), Peck (2005), Peck (2006), Stevenson and Spring (2007), Ponomarov and Holcomb (2009), Richey et al. (2009), Melnyk, Davis, Spekman, and Sandor (2010), Bhamra et al. (2011), Burnard and Bhamra (2011), Spiegler, Naim, and Wikner (2012), Day (2014), Melnyk (2014), Roberta Pereira et al. (2014), Sáenz and Revilla (2014), Hohenstein et al. (2015), Tukamuhabwa et al. (2015), Gunasekaran, Subramanian, and Rahman (2015), Kamalahmadi and Parast (2016).
Simulation/modelling	19 (25%)	Priya Datta et al. (2007), Bakshi and Kleindorfer (2009), Colicchia, Dallari, and Melacini (2010), Klibi et al. (2010), Chan (2011), Kumar and Sosnoski (2011), Ishfaq (2012), Klibi and Martel (2012), Losada, Scaparra, and O’Hanley (2012), Azevedo, Govindan, Carvalho, and Cruz-Machado (2013), Sawik (2013), Azadeh,

Parameter	Number of papers (%)	Author (year)
		Atrchin, Salehi, and Shojaei (2014), Ivanov, Sokolov, and Dolgui (2014), Cardoso, Barbosa-Póvoa, Relvas, and Novais (2015), Munoz and Dunbar (2015), Fang, Song, and Tong (2016), Hasani and Khosrojerdi (2016), V. Spiegler, Potter, Naim, and Towill (2016), Khalili, Jolai, and Torabi (2017).
Case studies	24 (28%)	Blackhurst, Craighead, Elkins, and Handfield (2005), Reinmoeller and Van Baardwijk (2005), Sheffi and Rice (2005), Barratt and Oke (2007), Craighead, Blackhurst, Rungtusanatham, and Handfield (2007), Pettit, Fiksel, and Croxton (2010), Ates and Bititci (2011), Blackhurst et al. (2011), Demmer et al. (2011), Gunasekaran et al. (2011), Ismail et al. (2011), Jüttner and Maklan (2011), M. Crum, Poist, Christopher, and Holweg (2011), Sullivan-Taylor and Branicki (2011), Boone, Craighead, Hanna, and Nair (2013), Johnson et al. (2013), Leat and Revoredo-Giha (2013), Pal et al. (2014), Scholten, Scott, and Fynes (2014), Urciuoli, Mohanty, Hintsa, and Gerine Boekesteijn (2014), Fiksel et al. (2015), Yilmaz Borekci et al. (2015), Lam and Bai (2016), Manopiniwes and Irohara (2017).
Survey (15)	Single method:13 (87%)	Braunscheidel and Suresh (2009), Williams et al. (2009), Zsidisin and Wagner (2010), Mandal (2012), Wieland and Wallenburg (2013), Akgün and Keskin (2014), Brandon-Jones et al. (2014), Ambulkar, Blackhurst, and Grawe (2015), Das and Lashkari (2015), Thomas, Pham, Francis, and Fisher (2015), Brusset and Teller (2017), Liu, Shang, Lirn, Lai, and Lun (2017), Mandal and Mandal (2017).

Parameter	Number of papers (%)	Author (year)
	Mixed method: 2 (13%)	Pettit et al. (2013), Chowdhury and Quaddus (2017).
Theoretical perspectives		
Theory-based studies	8 (10%)	Barratt and Oke (2007), Blackhurst et al. (2011), Johnson et al. (2013), Wieland and Wallenburg (2013), Brandon-Jones et al. (2014), Day (2014), Fiksel, Polyviou, Croxton, and Pettit (2015), Yilmaz Borekci et al. (2015).
Barriers in building resilience		
Barriers investigation	3 (4%)	Blackhurst, Dunn, and Craighead (2011), Pal et al. (2014), Roberta Pereira et al. (2014).
Research on SMEs resilience		
Small and medium enterprises (SMEs) investigation	7 (9%)	Ates and Bititci (2011), Chan (2011), Gunasekaran et al. (2011), Ismail et al. (2011), Kumar and Sosnoski (2011), Sullivan-Taylor and Branicki (2011), Pal et al. (2014).
Enablers/elements in building resilience		
Generic: non-industry specific	34 (44%)	Hamel and Valikangas (2003), Rice and Caniato (2003), Christopher and Peck (2004), Peck (2005), Sheffi and Rice (2005), Peck (2006), Stevenson and Spring (2007), Bakshi and Kleindorfer (2009), Ponomarov and Holcomb (2009), Richey et al. (2009), Williams et al. (2009), Klibi et al. (2010), Melnyk et al. (2010), Bhamra et al. (2011), Burnard and Bhamra (2011), Losada et al. (2012), Spiegler et al. (2012), Pettit et al. (2013), Sawik (2013), Azadeh et al. (2014), Day (2014), Ivanov et al. (2014), Roberta Pereira et al. (2014), Das and Lashkari (2015), Gunasekaran et al. (2015), Hohenstein et al. (2015), Melnyk (2014), Munoz and Dunbar (2015), Tukamuhabwa et al. (2015), Hasani and Khosrojerdi (2016), Kamalahmadi and Parast (2016), Chowdhury and Quaddus

Parameter	Number of papers (%)	Author (year)
		(2017), Khalili et al. (2017), Manopiniwes and Irohara (2017).
Industry-specific: Traditional manufacturing industry	43 (55%)	Blackhurst et al. (2005), Reinmoeller and Van Baardwijk (2005), Barratt and Oke (2007), Craighead et al. (2007), Priya Datta et al. (2007), Colicchia et al. (2010), Pettit et al. (2010), Braunscheidel and Suresh (2009), Zsidisin and Wagner (2010), Ates and Bititci (2011), Blackhurst et al. (2011), Chan (2011), M. Crum et al. (2011), Demmer et al. (2011), Gunasekaran et al. (2011), Ismail et al. (2011), Jüttner and Maklan (2011), Kumar and Sosnoski (2011), Sullivan-Taylor and Branicki (2011), Ishfaq (2012), Klibi and Martel (2012), Azevedo et al. (2013), Boone et al. (2013), Wieland and Wallenburg (2013), N. Johnson et al. (2013), Akgün and Keskin (2014); Brandon-Jones et al. (2014), Pal et al. (2014), Sáenz and Revilla (2014), Scholten et al. (2014), Ambulkar et al. (2015), Cardoso et al. (2015), Fiksel et al. (2015), Thomas et al. (2015), Urciuoli et al. (2014), Yilmaz Borekci et al. (2015), Fang et al. (2016), Lam and Bai (2016), Spiegler et al. (2016), Brusset and Teller (2017), Liu et al. (2017), Mandal (2012), Mandal and Mandal (2017).
Perishable products industry	1 (1%)	Leat and Revoredo-Giha (2013).

Figure 1: Year-wise Articles Distribution

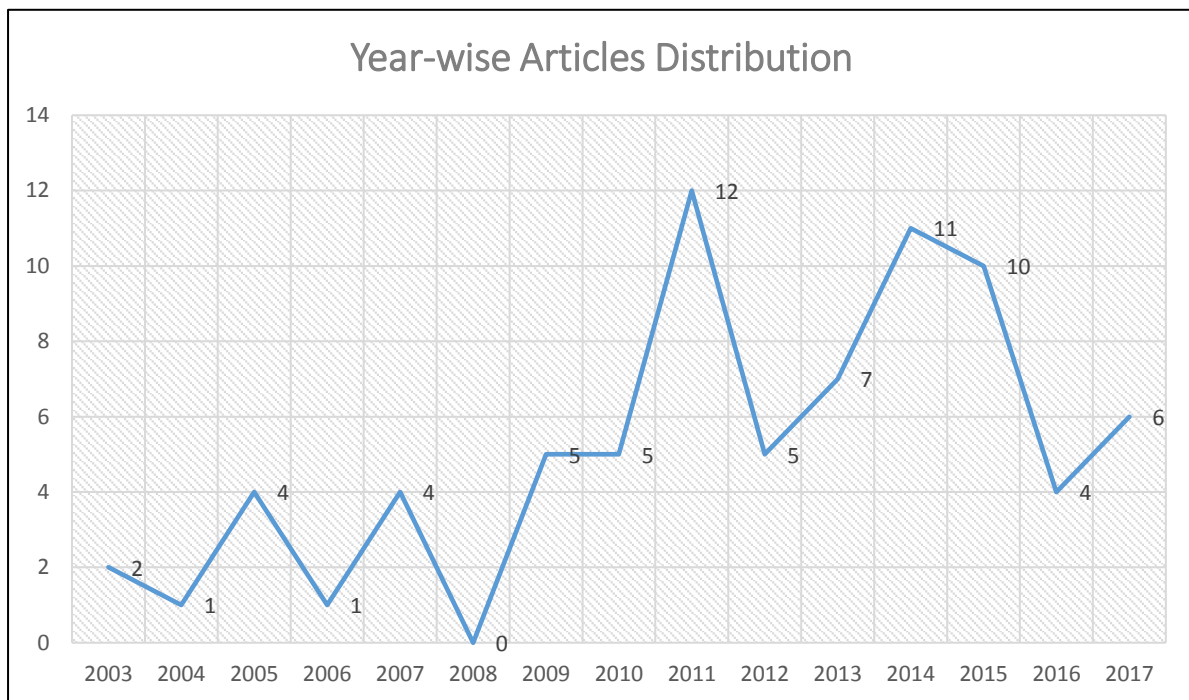


Figure 2: Methodological Perspectives of the Current Research Studies

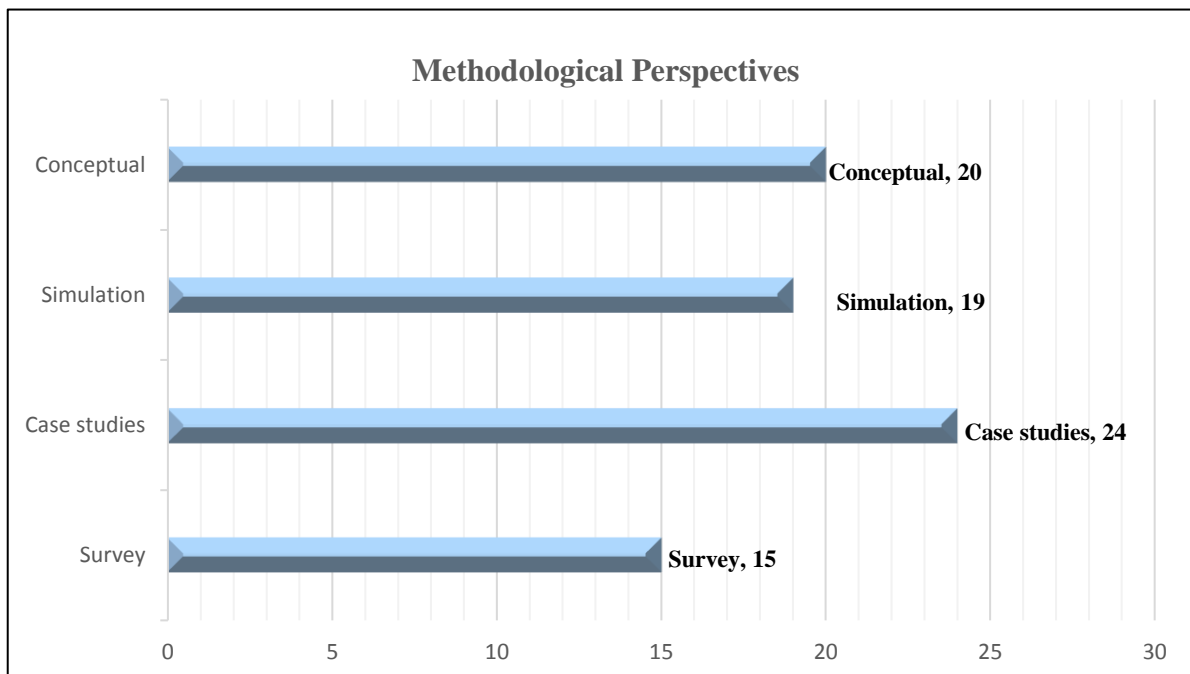
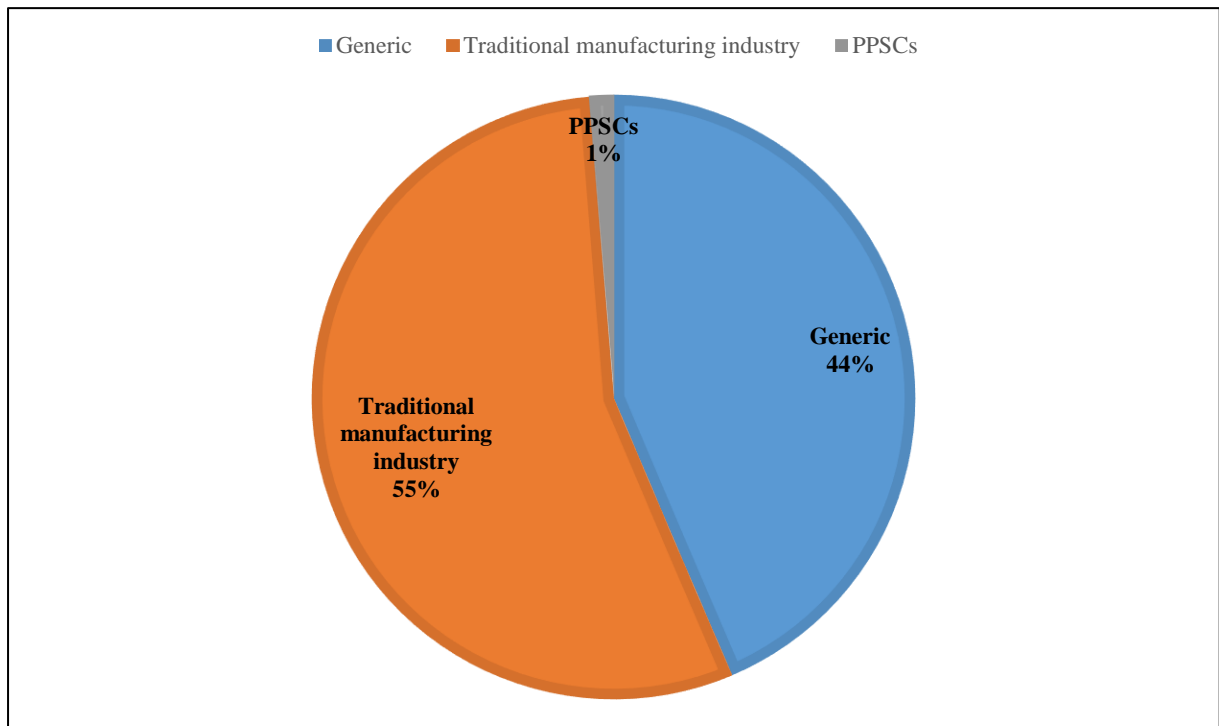


Figure 3: Enablers in Building Resilience



Note: PPSCs—perishable product supply chains