Received 2 October 2020
Revised 15 November 2020
Accepted 15 November 2020

Dynamic capabilities in humanitarian supply chain management: a systematic literature review

Abdussamet Polater
A.C.Ç. School of Civil Aviation, Erzincan Binali Yildirim University, Erzincan, Turkey

Abstract

Purpose – The main purpose of this paper is to examine the extant literature of humanitarian supply chain management (HSCM) which specifically use dynamic capabilities (DCs) view. By this means, the objectives of this study are to identify and assess the DCs used in the HSCM context, the factors positively and negatively affecting the DCs and how the DCs affect humanitarian supply chain (HSC) operations. Furthermore, this research aims to give directions for future research in the field of HSCM.

Design/methodology/approach – This study adopts systematic literature review (SLR) approach proposed by Denyer and Tranfield (2009). Based on a SLR, this study synthesizes and compares the evidence, has a specific focus and research questions, has certain inclusion and exclusion criteria and provides evidence-based implications to the researchers and practitioners. This is a method which is replicable, transparent and auditable. The SLR methodology provides scholars and practitioners a basis for comprehending the current situation of relevant topic and taking correct steps in their future actions.

Findings – This SLR deduces that applying DCs view is still in its infancy in the HSCM literature. The result of this SLR reveals that supply chain agility (SCA), supply chain resilience (SCR), reconfiguration/transformation, integration, (short-term) collaboration, sustaining, sensing, seizing and knowledge access DCs have been used in the HSCM literature. In addition, it is determined that only one paper analyzed the influence of DCs on predisaster performance while rest of the papers focused on the postdisaster performance.

Originality/value – The result of the exhaustive literature search indicates that this is the first SLR that specifically analyzes the application of DCs view in the HSCM domain. This investigation determined the DCs used in HSCM and revealed the relations between the dependent and independent variables through the comprehensive model. In this way, this review provides a guidance to researchers in conduct their future investigations and practitioners to carry out supply chain (SC) operations by considering the factors affecting their operations.

Keywords Dynamic capabilities, Humanitarian supply chain management, Humanitarian logistics, Systematic literature review

Paper type Literature review

1. Introduction

Humanitarian supply chains (HSCs) are expected to be "*multiple, global, dynamic and temporary*" as they have to develop response capability for multiple interventions at different locations in the world (Van Wassenhove, 2006, p. 480), carry out diverse tasks such as response, recovery and development for different kinds of disasters (Kovács and Spens, 2007) and deal with the provision of various types of materials (Besiou *et al.*, 2014; Oloruntoba and Kovács, 2015). However, dynamically changing environment of humanitarian relief operations caused by unexpected situations such as damaged transportation infrastructures, custom-related problems, late shipments and demand variations increase the difficulty of managing HSC operations (Fikar *et al.*, 2018). On the other hand, the extent of damage caused by large-scale disasters makes the involvement of various actors inevitable in

Journal of Humanitarian Logistics and Supply Chain Management
Vol. 11 No. 1, 2021
pp. 46-80

2042-6747
DOI 10.1108/JHLSCM-10-2020-0089

The author has no conflict of interest to declare.

all phases of disaster management (Heaslip and Kovács, 2019; Matopoulos *et al.*, 2014; Rasouli, 2019). As a result, this situation leads to the emergence of ad hoc network structures. These structures are considered dynamic since the number and types of included organizations change in different stages of disasters and the coordination level between different networks may differ according to the changing circumstances. These factors entail constant adjustments in the network inconsistent with the formal plans. The ability of managing cooperation among different organizations and reconfiguration capabilities of actors for establishing new ties can increase the capacity of collaborative networks and effectiveness in the disaster recovery stage (Day, 2014; Noori and Weber, 2016). Furthermore, demand management is more challenging in HSCs than business supply chains (SCs). This is because the involvement of various stakeholders creates diverse source of information and consequently demand related information, which is obtained from a dynamically changing disaster environment, may not reflect the actual need of the victims. Information verification and the difficulty of using state-of-art technologies in the chaotic environment of surge operations can be counted as other challenges for achieving effective HSCM (Sheu, 2010).

The abovementioned factors increase the level of unpredictability in taking the right steps in the management of HSCs and necessitate to find dynamic solutions to supply chain management (SCM)-related problems. The increasing number and cost of humanitarian crisis put a spotlight on the need for well-functioning HSCs. This leads humanitarian organizations (HOs) to adopt the state-of-the-art business methods. In this sense, dynamic capabilities (DCs) view has recently gained attention of HSCM-focused investigations thanks to its facilitating function of creating new static capabilities or modifying the existing ones all along the SC partners (Defee and Fugate, 2010). As an extension of resource-based view, DCs view is believed to provide better solutions to the volatile environment of HSCs due to its strength to combine, transform and reconfigure the existing competencies and resources to *match the requirements of a changing environment* (Altay *et al.*, 2018; Prakash *et al.*, 2020; Tabaklar, 2017; Teece *et al.*, 1997, p. 515). For example, the positive and significant effect of supply chain agility (SCA) and supply chain resilience (SCR) DCs to the Indian humanitarian supply chain management (HSCM) in the disaster preparation and response phases is an evidence of the importance of using DCs view in HSCM (Altay *et al.*, 2018). The strategic-level agility capabilities of World Food Program and their impact on SC operations can be regarded as another solid proof for accomplishing HSC operations by applying DCs (L'Hermitte *et al.*, 2016). In addition, the case of humanitarian operations in Indonesia reveals how collaborative, transformation and integration DCs play a significant role in the SC operations of both super large and local HOs (Lu *et al.*, 2019).

Although the importance of DCs approach to generate dynamic solutions to HSCM problems by the HSCM literature is evident, the existing HSCM literature reviews (LRs) have not systematically investigated the HSCM studies that specifically applied DCs approach. The existing HSCM-oriented LRs have touched briefly on the importance of DCs in humanitarian context (Agarwal *et al.*, 2019; Behl and Dutta, 2019; Prakash *et al.*, 2020; Soosay and Hyland, 2015; Stechemesser *et al.*, 2015; Tabaklar *et al.*, 2015), yet they have not discussed the role of DCs systematically and in detail. In addition, when the author searched the literature with the combination of "dynamic capability/capabilities" and "literature review" keywords, it was observed that the dominant number of studies are organizational management focused and only 1 out of 45 papers investigated crisis response at organizational level (Adrot and Robey, 2008).

The increasing tendency of applying DCs as a result of its positive impact on the HSCM and absence of a literature review, which analyzes the studies used DCs within the context of HSCM, strongly manifest a strong need for investigating the current status of DCs approach in the HSCM literature and bringing the researchers' attention to the DCs view in managing HSCs. The result of the exhaustive literature search indicates that this is the first systematic

literature review (SLR) that particularly analyzes the use of DCs view in the HSCM domain. In this regard, the main purpose of this paper is to examine the extant literature of HSCM which specifically use DCs view. By this means, the objectives of this study are to identify and assess the DCs used in the HSCM context, the factors positively and negatively affecting the DCs and how the DCs affect HSC operations. Furthermore, this research aims to give directions for future research in the emerging field of HSCM. The study provides a comprehensive model as a result of synthesizing the findings. The aim of presenting the relationships through a comprehensive model is believed to be a guidance especially for humanitarian SC practitioners in their planning and response processes. Understanding the extant literature is important for theory extension and theory building. Thus, the results of this SLR can give new insights to researchers on the application of DCs in HSCM and to understand the relationships between DCs and HSC operations.

The article consists of seven sections and is organized as follows. The next section provides an overview of the literature base of DCs view, DCs in SCM and HSCM to facilitate reader understanding the main concepts. Section 3 presents the methodology used in the study. The findings of the SLR can be found in Section 4. This section presents the descriptive analysis and discuss the identified DCs used in HSCM. Section 5 constitutes the discussion part which synthesize the findings in three subsections. Section 6 presents the comprehensive model created as a result of analysis. Lastly, Section 7 includes the conclusion, limitations and recommendations for further research.

2. Literature

2.1 Dynamic capabilities view

Based on the idea of "*creative destruction of existing competences*", DCs, which are characterized as "*difficult-to-replicate enterprise capabilities*", are regarded as the antecedents of success at firm-level (Teece *et al.*, 1997, pp. 509–516). Teece *et al.* (1997) state that winning organizations are the ones that can timely respond and innovate rapidly and flexibly; not the ones that have large amount of technologies but do not have the capabilities to gain sustainable advantage by gaining benefit from them. For this purpose, they formulated DCs as "renewing competences (i.e. dynamism) + adaptation, integration, and reconfiguration (i.e. capabilities) of skills, resources and competences".

DCs are defined as integrating, building, and reconfiguring internal and external competencies to address rapidly changing environments (Teece *et al.*, 1997) and consists of specific routines (e.g. product development, resource allocation, knowledge creation, alliance and acquisition, exit routines) (Eisenhardt and Martin, 2000) which refers to the "*repetitive pattern of activity*" (Nelson and Winter, 1982, p. 97). DCs concept distinguishes the characteristics of routines for stable conditions from high-velocity ones. While routines are semi-structured, simple, experiential and based on situation-specific new knowledge in high-velocity conditions, they are considered as stable processes, which significantly rest on existing knowledge, in moderately dynamic conditions (Eisenhardt and Martin, 2000; Helfat and Peteraf, 2003). The characteristics of the former one is in line with the humanitarian setting. Simple routines allow for focusing on overall characteristics of the current system conditions, obtaining real-time information and new knowledge without locking decision-makers into the past experiences. (Altay *et al.*, 2018; Lee and Rha, 2016; Tabaklar *et al.*, 2015).

Teece (2007) explained the subcomponents of DCs as sensing and shaping, seizing and reconfiguring. Sensing is identifying opportunities and threats by exploring the customer needs, structural changes in industries, technological developments, position of suppliers and competitors. In a nutshell, it is a continuous scanning and analysis of business ecosystem. Besides its mechanical side of making sense of the internal and external environment via using, i.e. information systems, individual capabilities such as having adequate knowledge,

creativeness, wisdom and ability to comprehend customer behavior are also prerequisite for effective use of sensing capability (Augier and Teece, 2009; Teece, 2007).

After an opportunity is sensed by an organization, this effort is expected to be transferred into a new product, process or service by utilizing the seizing capability (Augier and Teece, 2009; Teece, 2007). This requires investing in commercialization and development activities. However, there are some factors that impact the investment decisions such as existing routines, asset value, managerial consensus, organizational structure, risk taking attitude, established capabilities, path-dependent routines, managerial skills and project's financial issues. Besides establishing a suitable condition for investment decisions, determining a business model, which in turn affects investment priorities, is important. It includes the elements of choosing right technology, market segments, financial approaches, sales strategies and entails adopting soft factors such as being creative, a good understanding of customers, suppliers and competitors (Piening, 2013; Teece, 2007; Teece *et al.*, 1997). In order to have long-term competitive advantage it is not only enough to produce but also protect them against competition. Therefore, selecting enterprise boundaries by applying legal protection is vital for the competitiveness (Petricevic and Verbeke, 2019; Teece, 2018).

Reconfiguration can be described as the capability to "*escape from unfavorable path dependencies*" (Teece, 2007, p. 1335). This is achieved by reconfiguring the assets, business models, management of cospecialization, corporate governance, organizational structures and knowledge management routines as organizational size and the market characteristics change. Thus, it provides continuity of evolutionary fitness. Yet, speed of change depends on whether innovation is incremental or radical in nature (Augier and Teece, 2009; Teece, 2007; Teece *et al.*, 1997).

In the literature, there are certain ways for the stratification of capabilities. While some scholars classify them as zero, first and second-order capabilities (Winter, 2003), others adopt more general classification named as ordinary and DCs. Zero and first order (ordinary) capabilities are regarded static structurally and consist of skilled staff, facilities, equipment processes, operational and administrative tasks. They can be benchmarked to understand whether an organization has accomplished best practices and technical efficiency (Teece, 2014). Second-order (dynamic) capabilities represent the ability of changing organizational assets to respond to changing business environment. It should not be forgotten that even signature processes can be imitable eventuating in degradation into an ordinary capability and this requires the need of being updated in the course of time (Laaksonen and Peltoniemi, 2018; Zollo and Winter, 2002). This increases the importance of DCs in terms of continuously or semi-continuously reconfiguring even signature processes (Teece, 2014).

2.2 Dynamic capabilities in supply chain management

Today, SCs need to be more dynamic for responding to rapid change in technology and business ecosystem. This makes managing flow of required resources by adapting to the changes in marketplace a more challenging task for SC professionals (Yu *et al.*, 2019). Therefore, employing DCs view and building SC capabilities with the cooperation of SC partners in a business environment that SCs compete with each other has started to gain ground (Defee and Fugate, 2010). The empirical has supporting evidences between the relationships with dynamic SC capabilities, better performing SCs and competitive advantage (Cheng *et al.*, 2014; Nakano *et al.*, 2013; Sáenz *et al.*, 2014; Sangari and Razmi, 2015). The pioneering research studies of Beske (2012, 2014) also underlined the importance of the SC wide capability development efforts in sustainability setting. Partner development, knowledge sharing, reconceptualizing SCs by including other stakeholders, joint development of products and processes can be shown as examples for dynamic sustainable SCM (Beske, 2012; Beske *et al.*, 2014). Nevertheless, it is needed to mention

that DCs in the SC domain is a young topic when considered that one of the first papers was published in 2003 within the context of meat industry (Zylbersztajn and Filho, 2003) and the efforts to determine the elements of dynamic SC capabilities (DSCCs) is still evolving in a diverse range of contexts as it is presented below.

Globalization, digitization, faster product introduction and disasters are counted among the factors that create dynamic business environment and force SCs to have higher level of capabilities (Hong *et al.*, 2018). In order to be resilient to disruptions and to increase firm performance, approaching SC visibility, agility and flexibility from DC perspective is important. With this regard, SC visibility (sensing capability) makes it possible to follow shifts stemming from upstream and downstream sides of SCs. After detecting the market changes, SCA (seizing capability) provides adaptability to increase operational performance and have sustainable competitive advantage in the changing business environment (Blome *et al.*, 2013; Lee and Rha, 2016). However, all these efforts cannot be fulfilled without the necessary reconfigurations in SC strategies, resources and operational processes. Restructuring SC resources and operations can be achieved by SC flexibility that results in gaining intended operational outputs and organizational performance (Lee and Rha, 2016). Another study conducted by Aslam *et al.* (2018) determined market sensing (sensing), SC agility (seizing) and SC adaptability (transforming) as DSCCs. The investigation revealed that SCA and adaptability significantly and simultaneously affect SC efficiency and SC responsiveness (SC ambidexterity) (Aslam *et al.*, 2018). On the other hand, Defee *et al.* (2010) defined DSCCs for the first time and introduced the knowledge accessing and co-evolving capabilities. Knowledge accessing refers to knowing about the capabilities of SC partners so that it will be possible to make best use of those capabilities rather than absorbing or duplicating them. Secondly, co-evolving promotes the developing new capabilities with the joint efforts of SC members. These two DCs are regarded as antecedents of efficient use of static capabilities, developing new effective capabilities, temporary competitive advantage and consequently sustainable competitive advantage (Defee and Fugate, 2010).

SC resilience, defined as rebounding from an unexpected event, is regarded as a dynamic SC capability (Brusset and Teller, 2017; Golgeci and Ponomarov, 2013) and an antecedent of firm performance (Chowdhury and Quaddus, 2017; Irfan *et al.*, 2020; Yu *et al.*, 2019). The previous studies, which used DCs theory, show the impact of firm innovativeness, IT systems, SC disruption orientation, SC dynamism and logistics capabilities on SC resilience (Golgeci and Ponomarov, 2013; Irfan *et al.*, 2020; Mandal *et al.*, 2017a, b; Parast, 2020; Sabahi and Parast, 2020; Yu *et al.*, 2019). On the other hand, the study of Hendry *et al.* (2019) investigated the relationship between DCs (sensing, seizing, transforming) on SC resilience instead of considering SC resiliency as a dynamic capability (Hendry *et al.*, 2019).

As an important factor to improve operational routines, logistical business continuity planning increases financial performance through logistics competitive capability (Ojha *et al.*, 2013). Another dynamic logistics capability is 3PL management capability which aims to establish long-term relations with logistics service providers in such a way that creates mutual benefits out of contractual arrangements. The empirical finding exhibits that 3PL management capability plays an important role on a firm's logistics outsourcing decisions (Wan *et al.*, 2019). Similarly, Brekalo *et al.* (2013) proposed logistics alliance management capabilities and investigated its effect on logistics alliance performance (Brekalo *et al.*, 2013).

As it is mentioned above the topic has been evolving over the last decade and using DCs view in SCM field is not limited by abovementioned capabilities and studies. SC management skills (Tatham *et al.*, 2017), strategic purchasing (Brandon-Jones and Knoppen, 2018), dynamic collaboration capabilities (Allred *et al.*, 2011), supplier integration (Vanpoucke *et al.*, 2014), SC integration (Vickery *et al.*, 2013), supply management alignment (Handfield *et al.*, 2015) and

demand planning (Swierczek, 2020) are among the other dynamic SC capabilities have been discussed in the literature.

2.3 Humanitarian supply chains

Compared to commercial SCs, HSCs are considered more instable due to the uncertainty that disasters bring and their unique SC formation (Charles *et al.*, 2010). For example, disasters' speed of manifestation can pose more challenges to accomplish 3R principle (right time, right place and right material) in sudden-onset disasters than slow-onset disasters (Antai *et al.*, 2015). Another issue is the position of the donors HSCs. Although the main aim of disaster operations is to serve victims as the "end customers" in the chain, the expectations, terms and conditions of donors from humanitarian agencies affects the regular flow of funds for the flawless management of HSCs (Oloruntoba and Gray, 2006; Oloruntoba and Kovács, 2015). Additionally, using media to get information from the disaster zone can mislead decision-makers to give correct SCM decisions. Furthermore, country-specific conditions such as civil unrest, socio-political conjuncture, security problems and damaged logistics infrastructure are among the other factors of unstable humanitarian SCM (Oloruntoba and Kovács, 2015).

This unpredictable and unique environment of disasters leads HSCs to apply some commercial SCM concepts. In this sense, SCA is relevant for satisfying the need of stakeholders while accomplishing effective and efficient SC operations (Oloruntoba and Kovács, 2015; Scholten *et al.*, 2010). In addition, the inherently resource-light nature of HSCs is a factor that encourage to benefit from commercial SCA principles (Kovács and Tatham, 2009; Oloruntoba and Kovács, 2015). Benefited from SCM literature, Charles *et al.* (2010) developed the house of SCA framework to evaluate and improve the capabilities of humanitarian SCs. In order to assess the level of agility, flexibility (mix, volume, product and delivery flexibility), effectiveness (completeness and reliability) and responsiveness (velocity, reactivity and visibility) components need to be measured concurrently. The result of measurement exhibits how much a humanitarian SC can provide a quick and sufficient response to short-term changes (Charles *et al.*, 2010). On the other hand, agility in HSCs is needed to build resilient SCs (Dubey *et al.*, 2014) and it is a significant factor for the performance of postdisaster phase (Oloruntoba and Kovács, 2015). Resilience refers to the capability of surviving in the face of disasters and regaining back its original state (Ivanov, 2020). This can be accomplished by obtaining government support, having proper capacity planning, establishing a strong collaboration and coordination among SC members and providing agility (Singh *et al.*, 2018).

The impact of SC coordination and collaboration capabilities for a successful disaster operation is significant given the fact that hundreds of organizations are involved and operate jointly in disaster operations as in the case of 2004 Asian tsunami (Wankmüller and Reiner, 2019). Despite the importance of these capabilities, low number of successful cases shows that collaboration and coordination efforts are found difficult to accomplish and are among the primary weaknesses in humanitarian operations (Rey, 2017). Balcik *et al.* (2010) identified that the number and diversity of actors, donor expectations and funding structure, competition for funding, the effects of the media, unpredictability, resource scarcity or oversupply and cost of coordination affect adversely coordination efforts in humanitarian relief chains (Balcik *et al.*, 2010). Nevertheless, humanitarian sector tries to find new methods such as establishing public–private partnerships (David Swanson and Smith, 2013; Van Wassenhove, 2006), improving SC visibility (Maghsoudi and Pazirandeh, 2016), utilizing cloud computing (Schniederjans *et al.*, 2016) and big data analytics (Dubey *et al.*, 2019a, b, c) to overcome the current problems of developing relationships in humanitarian SCM. Furthermore, as an evolving field, HSCM is open to learn and use methods and approaches from the management research. As discussed in the following sections in

detail, DCs view has gained attention in the field of HSCM, which is depicted as "*locked in vocabulary of static state*", in recent years by applying agile, resiliency and flexibility principles of SCM (L'Hermitte *et al.*, 2015; Tabaklar *et al.*, 2015, p. 292).

3. Method

This study adopts SLR approach proposed by Denyer and Tranfield (2009) to identify "*key scientific contributions*", analyze, synthesize and report the extant literature of HSCM that uses DCs view. The SLR is a common methodology applied in the HSCM literature (Abidi *et al.*, 2014; Akter and Wamba, 2019; Banomyong *et al.*, 2019; Gupta *et al.*, 2019; Nurmala *et al.*, 2017; Rasouli, 2019). The SLR methodology provides scholars and practitioners a basis for comprehending the current situation of relevant topic and taking correct steps in their future actions. This is a method which is replicable, transparent and auditable. In this paper, the formalized procedure is followed: (1) Formulate research questions; (2) Locating the research; (3) Determine selection and evaluation criteria; (4) Data analysis and synthesis; (5) Report and discuss the results (Denyer and Tranfield, 2009). Because this study synthesizes and compares the evidence, has a specific focus and research questions, has certain inclusion and exclusion criteria and provides evidence-based implications to the researchers and practitioners, this study is referred as SLR.

3.1 Question formulation

Determining the focus and scope of a SLR has the foremost importance since it affects the subsequent steps of the review such as determining inclusion criteria and data to be extracted from the relevant papers (Booth *et al.*, 2012; Tranfield *et al.*, 2003). In this sense, it is critical to create clear and well-defined research questions which develop the knowledge base of the paper to avoid ambiguity (Denyer and Tranfield, 2009). Considering the fact that the main focus of this study is to understand how the DCs view has been discussed in the HSCM literature by this time, the main research question of this study is determined as: What is the current status of literature with regard to applying DCs approach in HSCM research? The following subresearch questions were also formulated to give more insight to the SLR:

(1) What are the DCs used in the HSCM context?

(2) What are the main factors that positively and negatively affect DCs?

(3) What are the positive and negative impacts of DCs on HSC operations?

3.2 Locating studies

This phase of the SLR aims to determine locations where all relevant evidence can be aggregated. Because the HSCM is a multidisciplinary research area, this study considered operations management journals, general management journals, disaster and humanitarian management journals to assure the reliability and intactness of database sources which encompass a broad range of journals and papers. In order to collect the papers, Web of Science, SCOPUS, EBSCOHOST and ABI Inform electronic databases were selected. These databases are considered prevalent and have been benefited by the previous studies (Abidi *et al.*, 2014; Altay and Narayanan, 2020; Banomyong *et al.*, 2019; Behl and Dutta, 2019; Gossler *et al.*, 2020; Nurmala *et al.*, 2017).

Three categories of structured keywords were determined in accordance with the scope of the research and based on the research questions. As the focus of the study is to understand how DCs approach has been discussed and implemented within the HSCM context, keywords, which fall under the definition of SCM and humanitarian, were used.

The keywords of "dynamic capabilities" or "dynamic capability" were used because some papers preferred to use singular form of DCs for the reason that they focused on only one type of dynamic capability.

(1) Keywords related to humanitarian and disaster: "disaster*", "emergenc*", "humanitarian", "relief", "extreme event", "catastroph*". The asterisk means that the extension of these words is also used in searching papers: e. g. disaster, disastrous, emergency, emergencies.

(2) Keywords related to dynamic capabilities: "dynamic capability", "dynamic capabilities".

(3) Keywords related to supply chain: "supply", "supply chain", "supplier", "logistics", "supply chain management", operation.

In this study, all possible combinations of keywords were applied by using the Boolean connectors (AND/OR) in the "title", "keywords", "abstract" and subsequently "all fields" search was conducted: disaster* OR "emergenc*" OR "humanitarian" OR "relief" OR "extreme event", "catastroph*" AND "dynamic capability" OR "dynamic capabilities" AND "supply" OR "supply chain" OR "supplier" OR "logistics" OR "supply chain management" OR "operation". The date of publication was not restricted in this SLR to increase the possibility of finding more articles. Although time limit was not set on the date range, no paper was found before 2012. The literature search was completed in September 2020.

3.3 Study selection and evaluation

In this study, a set of explicit selection criteria was used in order to maintain transparency, evaluate the relevance of each paper to the research question, provide a basis of updating the SLR and inclusion and exclusion choice, as summarized in Table 1 (Booth *et al.*, 2012; Denyer and Tranfield, 2009). In this SLR, only peer-reviewed articles were selected due to their high-quality and books, conference papers, book chapters were excluded due to their ambiguity in the peer-review process. Another criterion is related to language limitation. Because English is considered as the prominent language of science, papers written only in English were included. Furthermore, this study included qualitative, quantitative and also mixed method research, which have empirical and theoretical perspectives, in order to analyze the literature from a broader perspective. Lastly, this study only included the studies discussing SCM from DCs view in the humanitarian industry. That is, studies examining the for-profit SCM (i.e. hotel, textile, electronic, automobile industries) and DCs were excluded.

As a result of initial screening, which consist of only reading title, abstract and keywords sections, 257 papers were collected (Table 2), and information related to the papers were accessed in an electronic spreadsheet and after duplicates were removed 46 papers remained (Figure 1). Next, abstract, title and keyword (plus) sections of the articles were analyzed and

Inclusion criteria	Exclusion criteria
(1) Papers written in English language	(1) Papers written in languages other than English
(2) Papers used qualitative, quantitative and triangulated data	(2) HSCM papers which do not use DCs view explicitly
(3) Papers published in peer-reviewed journals	(3) Papers not related to natural, man-made disasters and humanitarian operations
(4) Empirical and conceptual papers	(4) Papers published as editorials, letters to the editor, conference proceedings, books, book chapters and gray literature
(5) Papers investigating HSCM by using DCs view	

Table 1. Inclusion and exclusion criteria

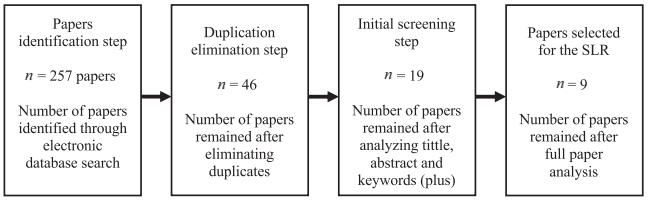
Table 2.
Initial search results

Keywords	WOS						SCOPUS						EBSCOHOST						ABI INFORM					
Humanitarian AND "dynamic capabilit*" AND supply OR "supply chain" OR supplier OR logistics OR "supply chain management" OR operation	6	6	1	6	3	4	2	2	1	2	0	2	1	1	1	1	0	1	3	3	1	2	2	3
Disaster* AND "dynamic capabilit*" AND supply OR "supply chain" OR supplier OR logistics OR "supply chain management" OR operation	11	10	1	5	3	7	3	3	1	1	0	1	2	2	1	1	0	2	5	4	1	3	0	4
Emergenc* AND "dynamic capabilit*" AND supply OR "supply chain" OR supplier OR logistics OR "supply chain management" OR operation	9	9	4	7	5	9	2	2	2	3	1	8	1	1	2	0	1	3	2	2	3	2	2	5
Relief AND "dynamic capabilit*" AND supply OR "supply chain" OR supplier OR logistics OR "supply chain management" OR operation	3	3	1	4	2	3	0	0	1	1	0	1	0	0	1	1	0	1	1	1	1	1	1	1
"Extreme event" AND "dynamic capabilit*" AND supply OR "supply chain" OR supplier OR logistics OR "supply chain management" OR operation	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Catastroph*AND "dynamic capabilit*" AND supply OR "supply chain" OR supplier OR logistics OR "supply chain management" OR operation	1	1	1	0	0	1	1	1	1	0	0	1	1	1	1	0	0	0	1	1	1	0	0	1

the 19 papers, which did not include the predetermined keywords, were eliminated. Then, all sections of the remaining papers were read exhaustively, and nine papers were decided to be included to this SLR. The accepted papers are in line with the inclusion and exclusion criteria and were published in the leading operations and SCM journals (see Table 3–5).

3.4 Data analysis

Following the selection and evaluation step, a data extraction form was prepared by using Microsoft Excel for aggregating and analyzing structured and categorical data such as DCs used in the papers, disaster type, title, journal, location and year. The author read the introduction, findings, quotes, methodology, discussion and conclusion sections meticulously and repeatedly to be sure that there is no any missing point. The information gained as a



Source(s): Modified from (Gimenez and Tachizawa, 2012)

Figure 1.
Paper screening process

	Category	Information
Descriptive analysis	Author	The first author
	Year	Year of publication
	Publication source	Journals in which the articles published
	DCs name	DC(s) used in each paper
	Location	The geographical dispersion of the disaster effected countries and regions
	Research method	Classification of methods used (mathematical modeling, survey, case studies, literature review, etc.)
	Data type	Classification of data type (qualitative, quantitative and mixed method)
	Disaster type	The type of disaster(s) investigated
Content analysis	Research aim	The intention of the paper
	Key findings	The conclusions derived from the papers
	Research interests	The SCM research area used in each paper
	Independent variables affecting DCs	The enablers, moderators, mediators affecting DC
	Dependent variables affecting DCs	The dependent variable in the study
	Additional theory used in papers	The additional theories applied in each paper

Table 3.
Coding scheme for the papers

Disaster types	Investigated country/region	Frequency
Earthquake	Haiti (1), Nepal (1) and N/S (1)	3
General	India (1) and N/S (4)	5
Common natural disasters	Indonesia (1)	1

Table 4.
Disaster types

Table 5.
DCs, influencing factors, dependent variables and additional theories

Paper	Dynamic capability in HLSCM	Variables effecting DC	Dependent variable(s)	Additional theory
Altay *et al.* (2018)	SC agility	(1) Organizational culture (flexibility and control orientation) [Moderators of DC] (2) Temporal orientation; Interdependency perception [Control variables of DC]	Pre- and postdisaster performance	–
Lu *et al.* (2019)	Transformation; integration collaboration	(1) People, processes, technology and collaboration [Enablers of DC] (2) Risks and opportunities [Drivers of DC] (3) HO size [Control variables of DC]	Post-disaster performance (Supply chain agility)	Resource dependency
L'Hermitte *et al.* (2015)	SC agility	(1) People, processes and technology [Enablers of DC] (2) Risks and opportunities (demand, supply, process and environmental related) [Drivers of DC]	Postdisaster performance (Supply chain agility)	–
L'Hermitte *et al.* (2016)	SC agility	(1) People, processes and technology [Enablers of DC] (2) Risks and opportunities [Drivers of DC]	Postdisaster performance (Supply chain agility)	–
Gabler *et al.* (2017)	SC resilience; short-term collaboration; reconfiguration	(1) Stakeholders' commitment of resources [Moderators of DC] (2) Short-term collaboration [Mediator of DC] (3) External environment, scope of the disaster, characteristics of the relationship (Indirect effect through collaboration) [Antecedents of DC]	Postdisaster performance (Supply chain resilience)	Resource-based view; competing values; supply chain governance
Altay *et al.* (2018)	SC resilience	(1) Organizational culture (flexibility and control orientation) [Moderators of DC] (2) Temporal orientation; interdependency perception [Control variables of DC]	Pre- and postdisaster performance	–
Mishra *et al.* (2020)	Sustaining	(1) Continuous learning process [Antecedent of DC] (2) Lean thinking culture [Moderator of DC]	Postdisaster performance (HSC effectiveness and waste reduction)	Theory of constraints
Mishra *et al.* (2020)	Sensing and seizing	(1) Fluid information; technology; coordination; contingency planning [Antecedents of DC] (2) Lean thinking culture [Moderator of DC]	Postdisaster performance (HSC effectiveness and waste reduction)	Theory of constraints

(*continued*)

Paper	Dynamic capability in HLSCM	Variables effecting DC	Dependent variable(s)	Additional theory
Gralla *et al.* (2016)	Sensing	(1) Information scarcity [Constraint of DC]	Postdisaster performance (Humanitarian logistics performance)	Sensemaking theory
Vaillancourt *et al.* (2017)	Knowledge access; reconfiguring	(1) Knowledge; partnership [Antecedents of DC]	Postdisaster performance (Procurement management)	–
Mishra *et al.* (2020)	Reconfiguring	(1) Technology; collaboration [Antecedents of DC] (2) Lean thinking culture [Moderator of DC]	Postdisaster performance (HSC effectiveness and waste reduction)	Theory of constraints
Kovács *et al.* (2012)	N/S	(1) Skill [Antecedent of DC]	Logistics and SC performance	Resource-based view

Table 5.

result of analyzing papers were accessed into the data extraction form simultaneously. Thus, the extracted data provided a complete summary of the literature that facilitates the classification of all related information and synthesizing. Secondly, synthesis was carried out to make associations between the elements identified in each article. This is important because it offers a research-specific arrangement of all included papers and presents a holistic view to readers. In this way, it was possible to engage in rigorous reflection on research findings and draw conclusion out of the analysis (Denyer and Tranfield, 2009).

4. Findings

4.1 Descriptive results

4.1.1 Distributions of the papers by publication source and year. Figure 2 presents the number of papers published in each journal and their year of publication. The findings reveal that nine articles were published in six different journals. The first paper, which is suitable to the inclusion criteria, was published in 2012 and it offers solutions for logistics management skills on empirical basis. This is the first empirical investigation to analyze the required skills of logisticians within the framework of DCs (Kovács *et al.*, 2012). As it can be seen in Figure 2, while *Journal of Business Logistics*, *Journal of Humanitarian Logistics and Supply Chain Management*, *Production Planning and Control* published more than one paper, rest of the journals published only one article each. When we look at the profile of these journals, we can observe that most of them are leading SCM, operations management and humanitarian SCM journals.

4.1.2 Methodological categorization and data type. The results obtained after the spreadsheet analysis shows that qualitative research with six papers is observed as the dominant method among nine papers. These investigations have case study and conceptual methodological basis and made proposals as a result of interviews and theoretical discussions. There are two papers applied triangulated data. They both used secondary data in addition to interview and observation methods to analyze the topic from different perspectives. The findings indicate that there is only one quantitative research using survey method. It is understood that qualitative research methods have been used to explore the young research interest of analyzing HSCM using DCs theory (see Figure 3).

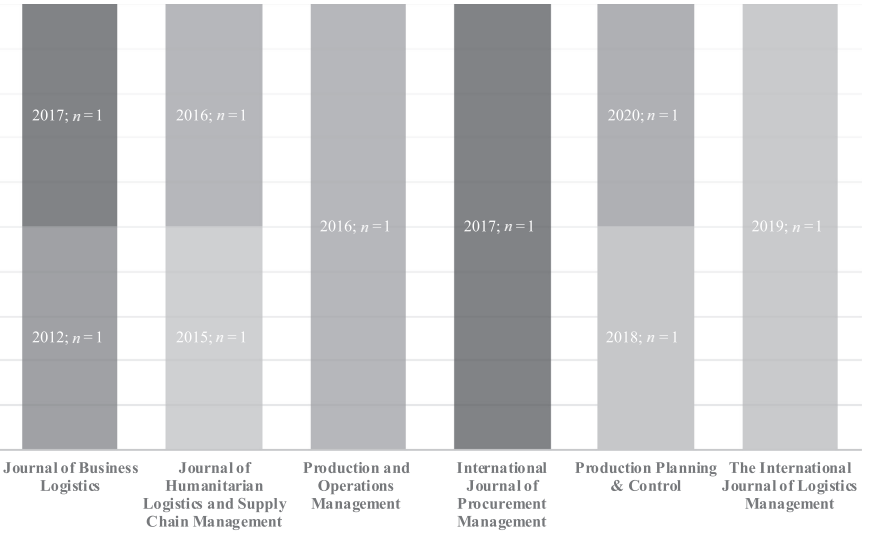


Figure 2.
Number of papers, publication sources and year of publication

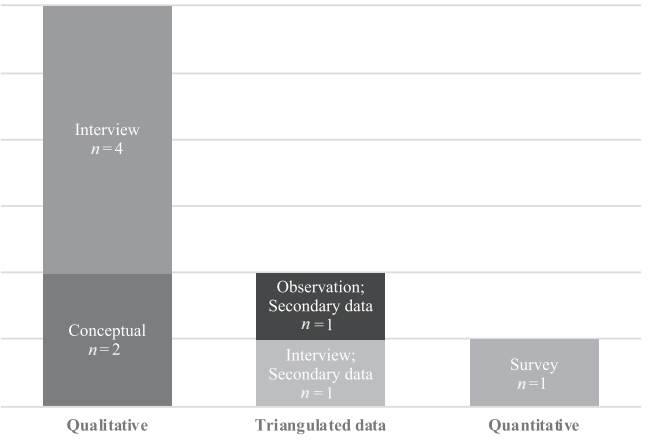


Figure 3.
Research methods and data types

4.1.3 Disaster types and investigated locations. The SLR results indicate that majority of the papers did not propose a solution for a specific disaster type. The findings present that four studies investigated SC operations in Asia continent while five papers did not specify any country. On the other hand, three papers focused on natural disasters in Nepal, Haiti and Indonesia.

4.1.4 Applied DCs, performance indicators, influencing factors of DCs and additional theories. As a result of the paper analysis, the DCs used in each study, the variables affecting the DCs, the dependent variables and additional theories in the studies were identified. It was identified that there are 3 moderators, 3 control variables, 4 enablers, 4 drivers, 1 mediator, 12 antecedents which directly and indirectly influence the 9 DCs. For instance, the model created by Altay *et al.* shows that SCA, as a dynamic capability, affects pre- and postdisaster performance and organizational culture elements have moderating effect in this relationship.

The analysis suggests that some studies contributed to the field by generating HSCM-specific DCs such as *sustaining capability* of Mishra *et al.* (2020), *being purposeful, being action-focused, being collaborative and being learning-oriented capabilities* of L'Hermitte *et al.* (2015) and *short-term collaboration capability* of Gabler *et al.* (2017). At the same time, the DCs proffered by organizational studies (Teece *et al.*, 1997) were benefited to investigate the impact of DCs on HSCM performance. In addition, the case study of UNICEF reveals that the SC partners are aware of each other's capabilities and make the best use of those capabilities for humanitarian operations (Vaillancourt, 2017). It can be said that this idea is in line with the knowledge access capability offered by Defee *et al.* (2010). Although the authors did not name it as knowledge access capability, from this point of view it clearly refers to the DC offered by Defee *et al.* (2010).

Although disaster management is commonly discussed for taking actions before and after disasters, the extant HSCM and DCs literature mainly focused on postdisaster phase with seven articles. Only one paper studied the effect of DCs for both pre- and postdisaster phases. On the other hand, one paper did not mention any dynamic capability but rather approached DCs as a general concept. Additionally, some papers used DCs with other theoretical point of views such as resource dependency and resource-based view.

4.2 Dynamic capabilities used in the HSCM literature

4.2.1 Supply chain agility. Agility is originated from manufacturing and organizational fields (Lu and Ramamurthy, 2011; Ramasesh *et al.*, 2001; Teece *et al.*, 2016; Zhang and Sharifi, 2000).

Nevertheless, the significance of it has been increasing in the context of profit and nonprofit SCs (Altay *et al.*, 2018; Braunscheidel and Suresh, 2009; Swafford *et al.*, 2006). SCA, which is regarded as a higher-order dynamic capability (Blome *et al.*, 2013; Vickery *et al.*, 2010), is comprehended as SC-wide ability to quickly respond to the changes in a dynamic and turbulent environment by aligning supply network and SC operations (Oloruntoba and Kovács, 2015). In this sense, SCA moves beyond organizational boundaries and encompasses the elements of being market sensitive, virtual, network-based and process integrated (Blome *et al.*, 2013; Christopher, 2000). This firm-specific capability facilitates to seize opportunities, provide flawless service and increase performance (Braunscheidel and Suresh, 2009; Dubey *et al.*, 2019a, b, c; Van Hoek *et al.*, 2001).

SCA has a paramount impact on reacting to operational interruptions rooted in disasters and humanitarian crisis. It differentiates in HSC context in terms of the evacuation and the rehabilitation processes (Altay *et al.*, 2018). Furthermore, in humanitarian logistics context, agility does not only include inventory prepositioning and deploying supplies and staff to the disaster field. It also necessitates to have the capability of problem recognition (sensing), determination of required resources (seizing) and revising the strategies for effective disaster SC operations (reconfiguring/transforming). However, it will be incomplete when only paying regard to quickly diagnosing impending problems and making immediate adjustments at operational level by overlooking strategic level capabilities. Within this scope, L'Hermitte *et al.* (2015, p. 211) defines SCA from DCs perspective as follows "*Agility is the adaptive capacity of an organisation as a whole to build strategic capabilities that support operational responsiveness and flexibility in order to manage existing or arising risks, uncertainties, and opportunities in the logistics and supply chain environment*". This definition highlights the importance of achieving the balance between having long-established capabilities and being able to respond to the sudden changes (L'Hermitte *et al.*, 2015).

L'Hermitte *et al.* (2015) argue that applying DCs in humanitarian logistics setting is suitable because HOs need to identify environmental changes, seize opportunities and respond and adjust organizational resources to manage disruptions continuously. Furthermore, DCs provide systems view approach to HOs because the constant contact with regular and temporary members of their supply network is inevitable to accomplish disaster operations successfully. As a result of their analysis, the authors determined four strategic level of DCs which are listed as being purposeful, being action-focused, being collaborative and being learning-oriented. Although DCs are critical to increase flexibility and responsiveness in humanitarian operations, antecedents of DCs provide continuity in building DCs. In this regard, the impact of people, processes and technology cannot be ignored. The study conducted by L'Hermitte *et al.* (2015) also discussed agility drivers: the risks and opportunities (demand, supply, process and environmental related). These drivers are described as factors that lead HSCs to continuously adapt and transform their operations when needed (L'Hermitte *et al.*, 2015).

In a case study L'Hermitte *et al.* (2016) empirically analyzed the impact of the abovementioned four strategic agile DCs on agile humanitarian SC operations (L'Hermitte *et al.*, 2016). Although L'Hermitte *et al.* (2015) classified agile DCs at individual, team, organizational and supply network levels, in this study they investigated the impact of organizational and SC level agile DCs on operational performance. As a result of analyzing the literature, they determined the subcomponents of these four DCs. The *being collaborative* DC, which is the most mentioned DC by respondents, both measures internal and external collaboration capability. The findings indicate its importance by the evidence of interviewees (L'Hermitte *et al.*, 2016, p. 86):

> in the field, you rely a lot on the regional bureau. [. . .] If you have an issue, you call them. [. . .] (FW6-08) (within the organization)

> the need for developing better coordination mechanisms between organisations with different mandates, in particular between humanitarian organisations and the military (FW5-01) (outside the organization)

Although deductive approach was used to determine categories in this study, the interview results revealed one more subcategory (inductive approach) named as the *physical structure available in the field* and this is the least mentioned factor by the interviewees (L'Hermitte *et al.*, 2016, p. 89).

It is important to know the factors affecting SCA as well as the consequences of it. Within this regard, the effect of organizational culture should be taken into account on the relationship between SCA and humanitarian SC performance in both pre- and post–disaster phases. Considering the competing values model, Altay *et al.* (2018) hypothesized that control and flexible orientation would positively affect the relationship between SCA and disaster performance in preparedness and response phases. The results present that SCA does not have a positive effect on postdisaster performance directly. But the effect is significant under the moderating effect of flexible orientation. Another finding of the study indicates that even though SCA directly affects predisaster performance, control orientation does not have an influence on the path connecting SCA and predisaster performance. In addition, it was observed that the control variable, i.e. temporal orientation does not have a significant and positive effect on the disaster performance (Altay *et al.*, 2018). Adapting the current methods of SCA measurements that are applied for commercial SCs can be useful within the context of HSCM. Adopting the SCA definition of Eckstein *et al.* (2015) which emphasizes the ability of an organization to sense and respond rapidly to short-term and temporary changes, the scale used by Altay *et al.* (2018) includes items which question sensing capability (. . . can quickly detect changes, identify opportunities, sense threats in our environment), seizing capability (. . . can make quick decisions to deal with changes in environment) and reconfiguring capability (. . . can adjust our supply chain operations to the extent necessary to execute our decisions; . . . can increase its short-term capacity as needed; . . . can adjust the specification of orders as requested by our partners) (Blome *et al.*, 2013; Eckstein *et al.*, 2015; Gligor and Holcomb, 2012). It can be mentioned that using these measurement items is in accordance with the novel framework offered by Teece *et al.* (1997).

4.2.2 Supply chain resilience. Originated from social psychology theory, resilience refers to a system's ability to absorb environmental changes and restoring the initial structure and function (Dixit *et al.*, 2020). For the SC context Ponomarov and Holcomb (2009, p. 131) defined SC resilience as "*the adaptive capability of the supply chain to prepare for unexpected events, respond to disruptions, and recover from them by maintaining continuity of operations at the desired level of connectedness and control over structure and function.*" This definition highlights the importance of adaptability because the preferred state may be different from present conditions and adapting to new conditions can facilitate SCs to recover quickly, return the predisaster state or even reaching a better state (Lee and Rha, 2016; Ponomarov and Holcomb, 2009). In order to establish resilient SCs to deal with emerging problems caused by uncertain and dynamic environments (Brandon-Jones *et al.*, 2014), HSCs are expected to adopt proactive and reactive approach to develop resilience capabilities (Chowdhury and Quaddus, 2017). The proactive approach includes establishing (in)formal communication channel, creating redundant capacity, having financial strength, being resourceful, flexible and robust. On the other hand, reactive characteristics of SC resilient are mitigation of disruptions in a short time with the smallest impact, quick response ability to the unexpected conditions and restoring to normal or more developed condition efficiently (Chowdhury and Quaddus, 2017).

Besides the benefits of SC resiliency for commercial operations, empirical findings present that it has a significant importance on pre- and postdisaster performance for humanitarian SCs. In addition, flexible orientation, which refers to an organization's tendency to being

creative, impulsive and risk-taking, increases the impact of SC resiliency on postdisaster performance. Similarly, control orientation, which focuses on hierarchy and efficiency culture of an organization, has a positive and significant effect on the on the path linking SC resiliency and predisaster performance (Altay *et al.*, 2018).

Even though it is important to know the outcomes of SC resilience in humanitarian context, understanding the antecedents of it is critical for the effective HSCM. The nature of disaster operations necessitates different organization to collaborate in order to save human life (Mishra *et al.*, 2020). For this reason, public and private organizations need to take joint action even if it is for a one-off and short-term humanitarian operation. Thus, the capability of governing this short-term relationship will increase SC resilience. Furthermore, adjustment, i.e. redesigning structure and course of SC, of governance barriers (*unidirectional communication, divergent goals and internalization*) and facilitators (*alignment, communication, structure, quantification and interdependency*) have an indirect impact on SC resilience. Yet another important issue is to establish swift trust, which refers to trust for ad hoc organizational structures, among involving parties and to manage its effect on SC resilience through short-term collaboration dynamic capability (Gabler *et al.*, 2017, pp. 134–135; Dubey *et al.*, 2019a, b, c).

4.2.3 Other dynamic capabilities. As a vital element of DCs, *sensing* is regarded as an antecedent for the seizing and reconfiguration (Aslam *et al.*, 2018). For this reason, organizations are expected to have generative-sensing capabilities in order to hypothesize about potential threats and opportunities (Teece *et al.*, 2016). Within this regard, sensemaking is necessary when organizations deal with ill-defined problems such as disaster operations which there is limited time to formulate the problem and then create a solution. For this reason, using real-time data are important in operational stage. Defined as constant sense of present conditions and operations, dynamic perception shapes decision-makers' perception of the available options for each action. As a dynamic capability, dynamic perception also serves to formulate problems and to reconfigure resources as a consequence of the changing environment of humanitarian ecosystem (Gralla *et al.*, 2016). Defining sensing as "*the ability of humanitarian stakeholders' ability to identify opportunities to increase operational efficiency through Lean thinking, which could involve the use and application of technology*", the findings of Mishra *et al.* (2020) highlight the importance of sensing to effectively apply seizing and reconfiguring capabilities (Mishra *et al.*, 2020, p. 5; Vaillancourt, 2017). In addition, some items, which Altay *et al.* (2018) used in the SCA scale, indicate the sensing capability. For instance, they tried to understand how swiftly an organization can sense threats, detect changes and opportunities (Altay *et al.*, 2018). Sensing is also essential to regularly follow the technological and technical developments so that upgrade the current systems. At operational level, obtaining tools used for sensing such as well-established information infrastructure is critical but can be problematic issue in developing countries and using mobile phone applications and social media can be inevitable to gain information from a disaster zone. In addition, as a complementary method, it is suggested to establish local stations to learn demand from the first-hand as an alternative way of sensing (Mishra *et al.*, 2020). Mishra *et al.* (2020) suggest applying the *seizing* capability to design and align operating models with the current conditions and a lean thinking approach in HSCs. On the other side, being exposed to environmental turbulences such as disasters increases the necessity to apply for reconfiguration of essential capabilities (Defee and Fugate, 2010) owing to its positive outcome of creating SC-wide competitive advantage. As humanitarian operations have wider operational scope and involves usual and unusual SC players, it is inevitable to continually reconfigure the competences, SC structures and processes (Vaillancourt, 2017). For this reason, being able to adjust SC operations, structures, procurement policies and SC cultures in dynamic environment of humanitarian crisis effectively and understand their effect on disaster performance is of significance for HOs (Altay *et al.*, 2018; Lu *et al.*, 2019; Mishra *et al.*, 2020).

Knowledge accessing dynamic capability, which was introduced by Defee and Fugate (2010), refers to knowing about the capabilities of a company's SC partners so it is able to make the best use of those capabilities (Defee and Fugate, 2010). Although Vaillancourt (2017) did not mention explicitly, the paper explains how UNICEF's SC operates by using this capability. In this study, they analyzed how SC members benefit utilizing UNICEF's worldwide operations and procurement consolidation ability in humanitarian operations. In return, UNICEF gains some benefits from its SC partners through developing knowledge base in the countries where it carries out operations (Vaillancourt, 2017). Governments, local and international nongovernmental organizations play different roles in humanitarian operations owing to their unique organizational capabilities. For instance, while the Nepalese government had the function of information dissemination, and international nongovernmental organizations can help local NGOs by using their purchasing power (Mishra *et al.*, 2020). This also underscores the importance of applying *collaborative capability* to establish a good and mutually beneficial relationships with external organizations (Lu *et al.*, 2019). *Sustaining capability*, as an extension of DCs theory, has been recently proffered by Mishra *et al.* (2020). This dynamic capability concentrates on *creating a long-term lean thinking strategy that benefits all stakeholders* to succeed their humanitarian aims by using optimum amount of resources (Mishra *et al.*, 2020, p. 12).

The role of humanitarian logisticians is critical to successfully manage SCs in dynamic environment of disaster times (Rajakaruna *et al.*, 2017) as one of the interview participants states "*[We are] particularly keen to have dynamic staff who are able to think on their feet.*" (Kovács *et al.*, 2012, p. 252). The skills of logistics staff members taking part in humanitarian operations not only provide effectiveness in SC operations but also develops and maintains DCs such as SCA. For example, Kovács *et al.* (2012) identified the importance of functional skills some of which are inventory and asset management, purchasing and procurement, transportation and fleet management from the analysis of job advertisements. On the other hand, skills such as stress management, customs clearance, marketing and customer relationship management achieved a very low score. As contextual skills "knowledge of donor regulations" and "liaison with other organizations", "training" are determined having high score among the humanitarian logistics skills (Kovács *et al.*, 2012). However, it might be difficult to have required number of skilled staff in disaster times and HOs may experience staff shortages. In order to overcome this problem, HOs need to quickly integrate existing and new (i.e. external manpower) staff members into the existing system to support the humanitarian logistics operations (Lu *et al.*, 2019).

In their study, Lu *et al.* (2019) discussed the role of agility-buildings strategies and DCs perspective which affect ramp-up operations of HOs. This paper further elaborates the importance of DCs (*transformation, integration and collaboration*) for the second-tier HOs which are not resource-rich for prepositioning of required supplies and manpower (Lu *et al.*, 2019, p. 848). Thus, developing agility-building strategies in the ramp-up process requires to count in organization size, funding capability and DCs enablers (people, process and technology). Thus, it is recommended that adopting one-size-fits-all approach and proposing general solutions for any kind of organization will be misleading for the disaster operations. Mishra *et al.* (2020) compared HOs' abilities and capabilities based on organization size as well.

5. Discussion

5.1 Supply chain agility in relation to sensing, seizing, reconfiguring, (short-term) collaboration capabilities and organizational culture

SCA is an extensively applied dynamic capability in the SCM literature within the context of manufacturing and service industries (Aslam *et al.*, 2018; Blome *et al.*, 2013; Gölgeci *et al.*, 2019; Gyarmathy *et al.*, 2020; Irfan *et al.*, 2019; Mandal, 2017; Mandal *et al.*, 2017a, b), as well as

it has started to gain ground in the HSCM literature. SCA enables HOs to respond to disaster-affected regions "*with right humanitarian aids in right time*" (Altay *et al.*, 2018, p. 1160). The perceived benefits gained by SCA has led it to be considered at the strategic level so as to support operational responsiveness and flexibility. The SCA definition of L'Hermitte *et al.* (2015) and the measurement items, which present the strategic view of Blome (2013) and Gligor (2012) (Blome *et al.*, 2013; Gligor and Holcomb, 2012), used by Altay *et al.* (2018) and also their approach to SCA as a SC strategy point out this fact. This strategic focus approach is in accordant with the main idea of DCs view (Teece and Pisano, 1994; Teece *et al.*, 1997).

As a strategic-level capability, dynamic capability of SCA is regarded to consist of four subelements, namely "*being purposeful*", "*being action-focused*", "*being learning-oriented*" and "*being collaborative*" and significantly affect the SC flexibility and responsiveness (L'Hermitte *et al.*, 2015). The "*being purposeful*" is defined as "*a shared purpose contributes to co-orientation of action across partners in the supply network* at the SC level" (L'Hermitte *et al.*, 2015, p. 224). Having a collective purpose enables HOs and SCs to have a strong identity, direction and strength to cope with unexpected and disrupting events. As a result, this increases the organizational and interorganizational agility bearing in mind that it is more challenging to have a collective action at SC level (Gabler *et al.*, 2017; L'Hermitte *et al.*, 2016). The studies of Helfat *et al.* (2007) and Adner and Helfat (2003) support this view in addition to McCann and Selsky's (2012) (Adner and Helfat, 2003; Helfat *et al.*, 2007; McCann and Selsky, 2012). With this regard, managers of HOs should be able to get the SC-wide purpose across to SC members. Given the conflicting goals of donors, suppliers, HOs and governments, embracing collective purpose can increase the sense of being a SC partner and the motivation to find dynamic solutions for the unusual problems. For this reason, it can be beneficial to investigate the effect of this dynamic capability from a multi-echelon SC perspective for different disaster conditions. Another dynamic capability is "*being action-focused*" which essentially refers to taking proactive actions (building preparedness) to facilitate operational capabilities. For accomplishing this purpose, sensing or dynamic perception capability and "*being learning-oriented*" capability are critical in order to understand the opportunities and threats to take right steps in the preparation phase and to find suitable solutions in the dynamically changing response stage (Gralla *et al.*, 2016). Within the scope of being action-focused, HSCs need to acquire required resources, have the ability of information sharing in supply network, have clear and standardized processes, build personnel with appropriate skills, have effective leadership and have pre-established local presence or connections in the field. Sensing the developments in the business ecosystem and obtaining all these factors can be regarded as antecedents to seize the opportunities and threats in humanitarian operations. In addition, it can be mentioned that "*being purposeful*" gives direction to all SC members to take aligned actions and "*being* collaborative" is essential for providing system-wide approach as well as responding more effectively by joining the forces of SC members. The empirical findings of McCann and Selsky's (2012), Roberts (2009) and Ozeroglu (2020) highlight the significance between being action-focused and agility (Ozeroglu and Kocyigit, 2020; Roberts, 2009). Considering the significance of sensing and learning to have a better "*being action-focused*" capability, HSCs ought to use state-of-the-art technologies in order to make sense out of data obtained from constantly changing operating environment of humanitarian relief operations, to have better absorptive capacity and to develop collaborative relationships with SC partners. At this juncture, it can be stated that more investigation is needed to extend this discussion and bring new perspectives to the HSCM research. "*Being collaborative*" of agility capabilities is about establishing internal and interorganizational relationships for the purpose of overcoming problems collaboratively. This is a critical element for agility since it is not viable for an organization to build agility by itself. At this point, the knowledge-accessing capability of Defee *et al.* (2010) could be appropriate to consider identifying the capabilities of each SC member, assigning suitable

roles to each SC player in the SC operations and so create appropriate collaboration between SC partners. For the success of internal collaboration, job rotation, developing strong relationship between staff members and organizational departments, integration between departments, eliminating functional silos to enable people from different departments understand each other are presented as prerequisites. On the other hand, external collaboration can be strengthened by having solid coordination mechanisms, formal and informal relationships between stakeholders. This will increase the ability to create less turbulent space, to find innovative solutions and to have unilateral actions (Helfat *et al.*, 2007; McCann and Selsky, 2012). Again, "*being purposeful*" can be regarded as a foundation of "*being collaborative*" since it may help organizations understand each other and develop long-term relationships. It can be stated that the impact of SC collaboration, as a dynamic capability, on SC operations is a widely accepted in the literature (Fawcett *et al.*, 2012; Mandal, 2017; McAdam *et al.*, 2017; Swanson *et al.*, 2017). Considering the positive effect of "*being collaborative*" on SCA, researchers and practitioners may analyze the positive effects of the well-established concepts of social capital, psychological contract, SC proximity on "*being collaborative*" in addition to the abovementioned factors. Therefore, it can be stated that there is a room for further analysis to determine the factors which improve collaborative efforts in HSCM setting. Lastly, "*being learning-oriented*" continuously improves and transforms humanitarian SC operations through analyzing processes, practices, experiences gained from past operations and sharing them with other organizations to give better decisions and quick response across the SC. As a proactive approach, it encourages to revise the current strategies and practices and also cross-organizational learning. According to the SC learning literature it can be emphasized that the "*being collaborative*" and "*being purposeful*" can play a significant role in learning process (Gibson *et al.*, 2016; Lambrechts *et al.*, 2012; Willis *et al.*, 2016; Yang *et al.*, 2019). The role of this dynamic capability has an important place in the SCM and DCs literature (L'Hermitte *et al.*, 2017; Li *et al.*, 2018; Yang *et al.*, 2019). However, despite the importance of it, the evidence shows that HOs' efforts can be regarded insufficient given the fact that it is not applied to its full potential and there is no integrated and formal mechanism established for the learning practices (L'Hermitte *et al.*, 2016). The abovementioned DCs can be built by obtaining and effectively utilizing the technology, process and people as it is the case in surge capacity management which are affected by the correct management of system and staff members (Hick *et al.*, 2009; Therrien *et al.*, 2017).

Instead of providing general solutions for any kind of HOs, Lu *et al.* (2019) analyzed HOs based on their sizes and compared the strategies which they use for building agility capability in the ramp-up process. The main findings indicate that second-tier HOs are more tended to apply DCs view because the lack of resources leads them to leverage resources from internal and external sources. Therefore, they are more inclined to use transformation and integration capabilities than super-large HOs to achieve operational-level agility. Depending on their size and power to obtain required resources, HOs can select adaptation, shaping or avoidance agility-building strategies (this refers to the resource dependency theory) and collaborative capabilities (this refers to the dynamic capability) to make required transformation and integration at operational level. For instance, given their limited budget to hire a large number of staff members for each different task, developing ambidextrous capabilities (adaptation strategy) for staff management can be a suitable choice to build manpower agility for the second-tier HOs. Thus, multiskilled staff members can be assigned to different tasks (transformation capability) or external manpower can be used in the ramp-up phase (integration capability) by taking into consideration the current needs of a disaster area. In contrast, super-large HOs can prefer to hold a well-trained taskforce (shaping strategy) for the potential humanitarian operations. Mishra *et al.* (2020, p. 8) addressed a similar strategy, which were used by international NGOs, to sense the real conditions in earthquake in Nepal: ". . . *we sent staff to locations, and the people were able to*

request help directly and we could provide it directly to them". In either case, organizations select a suitable strategy for developing and obtaining skilled staff members to increase SCA in a dynamic environment of humanitarian operations. The different approaches used by large and second-tier HOs are an indication of importance of developing appropriate human resource planning and investigating its effect on HSCM. In this way, the scarce resources of HOs will not be wasted, and flawless humanitarian operations can be achieved. In addition, while super-large HOs are financially powerful to preposition supplies to avoid supply shortages (avoidance strategy), second-tier HOs may have to allocate the funds, which are planned to be used in the development activities, to fulfill ad hoc emergency needs (adaptation strategy) (Lu *et al.*, 2019). The empirical findings of Mishra *et al.* (2020, p. 9) presents how the international NGOs utilize avoidance strategy: "*In the case of my organisation, as I said before, we had emergency stockpiles*…". Another point that differentiates the local and large HOs is the level of supplier dependency. Local HOs tend to sign long-term agreements with suppliers due to the lack of financial resources for prepositioning of supplies. Thus, local HOs need to develop collaborative capability more than larger HOs, especially, in the preparedness period. Although this creates more supplier dependency for local HOs, it enables them to respond quickly in surge times. Despite the fact that the firm size is commonly considered as an important factor in the SCM literature (Cheng *et al.*, 2014; Chiang *et al.*, 2012; Dubey *et al.*, 2018; Swierczek, 2020), the findings of this SLR indicate that there is a more need to provide solutions for HOs of different sizes to develop suitable DCs for more effective HSCM.

The impact of organizational factors, i.e. flexibility and control orientation, on the relationship between SCA and humanitarian SC performance is of interest to researchers (Altay *et al.*, 2018). Flexible oriented culture provides growth, human resource development and resource acquisition through flexibility, morale, readiness and alignment. In other words, it is the representation of an organization's willingness to change and encourage creativity as well as spontaneity to adjust operational processes. On the other side, control oriented culture can lead to achieve stability, efficiency, control and productivity by means of goal setting, planning, information management and communication. This signifies an organizational environment which values avoidance from confusion, predictability and hierarchy for accomplishing long-term goals and strengthening core competencies (Khazanchi *et al.*, 2007; Liu *et al.*, 2010). The previous investigations, which analyzed commercial SCs, determined that organizational culture have a significant effect on SCA (Braunscheidel and Suresh, 2009; Jermsittiparsert and Wajeetongratana, 2019; Malekifar *et al.*, 2014). From this perspective, it is expected that SCA will have a significant effect on pre- and postdisaster performance under the moderating effect of flexible and control orientations. However, the findings of Altay *et al.* (2018) indicate that although SCA has a positive and significant effect on predisaster performance, the control orientation, as a moderator, does not have any significant effect on the relationship between SCA and predisaster performance. In addition, the study of Altay *et al.* (2018) reveals that SCA does not have a direct effect on postdisaster performance, although the findings of L'Hermitte *et al.* (2016) and Dubey *et al.* (2014) show that SCA has a significant effect on postdisaster performance (Dubey *et al.*, 2014). In this case, the different results obtained for the role of SCA on humanitarian SC performance may be attributed to using different analysis techniques and scales. However, Altay *et al.* (2018) revealed an important finding that flexible orientation, which is an indicator of nontraditional and innovation-oriented organizational culture, enables SCA to improve postdisaster performance. Given the fact that DCs are related to idiosyncratic characteristics of organizational culture and history-honed routines (Teece, 2014), the existing literature supports this view by presenting the effect of two types of organizational culture on the relationship between SCA and disaster performance. This indicates that HOs should invest in establishing a suitable organizational culture that supports SCA. Despite the existing

findings of the literature, it is believed that the relationship between organizational culture, DCs and HSC performance is required to have more theoretical discussion.

5.2 SC resilience in relation to organizational culture, reconfiguring, sensing, knowledge-access and (short-term) collaboration capabilities

The antecedents and consequences of SC resilience, as a dynamic capability, have started to draw attention of researchers in order to analyze its effect on SC and firm performance in the manufacturing and service industries over the last decade (Chowdhury and Quaddus, 2017; Dabhilkar *et al.*, 2016; Hendry *et al.*, 2019; Sabahi and Parast, 2020). Parallelly, it has been started to be used in the humanitarian context recently.

Building resilient SCs is regarded as a critical factor to deal with uncertainties in the complex environment of disasters and for increasing the speed of coming to normal (Altay *et al.*, 2018). The empirical findings support that *the capability of HOs to restore material flow*, *to retrieve usual operational performance* and *to cope with disruptions quickly* (SC resilience items) play a significant role on *readiness training*, *forecasting ability to meet demand disruptions*, *having a disaster response team*, *having robust security systems* (predisaster performance) as well as *quick response to disasters*, *absorbing major losses*, *preserving the ability to deal with crisis* and *recovering from disaster with minimum cots* (postdisaster performance) (Altay *et al.*, 2018). The empirical findings suggest HOs to have flat organizational structures, create an environment to support equality, merit and innovation (flexible orientation) to increase the effect of SC resilience on postdisaster performance. Furthermore, as opposed to SCA the effect of the control orientation is significant for the path between SC resilience and predisaster performance. This result can be interpreted as a result of the rule, hierarchy- and stability-focused organizational culture does not meet the rapid, quick, immediate attributes of SCA. On the other hand, control-oriented HOs can achieve more SC resilience to gain back the predisaster position and continue the regular operations (Altay *et al.*, 2018). The significant relationship between SCR, disaster performance and control and flexible orientation gives direction to practitioners to evaluate their organizational cultures and question the level of SCR in pre- and postdisaster phases.

Gabler *et al.* (2017) contributed to the field by considering the dynamic capability of SCR as an outcome and analyzing the factors affecting it. In addition, the second dynamic capability, short-term collaboration, was considered as an antecedent of SCR. Short-term collaboration emerges when public–private organizations have to work together temporarily with the aim of responding a disaster or recover from it. This enables to create a sense of responsibility and to fulfill collective purpose along the humanitarian SCs. However, achieving successful short-term collaboration depends on focusing on common goal of SC (reconfiguration), clearly outlining the roles among SC partners, establishing well-functioning communication system and relationship between partners which can be effective when there is bilateral communication. The effectiveness of adjusting these factors (categorized as barriers and facilitators to short-term collaborations) will impact the level of SC resilience. Additionally, "*plug and play*" SCs (this indicates short-term collaboration) require restructuring the relationships between SC members (this refers to the SC reconceptualization capability) as a result of changing conditions and this attempt can be succeeded by evaluating each partner's contribution to the disaster operation (knowledge-access capability) (Beske *et al.*, 2014; Defee and Fugate, 2010; Vaillancourt, 2017). These findings imply the necessity of keeping communication channels open regardless the nature (short or long term) of the relationship. The study also proposes that the need of establishing short-term collaboration increases in sudden-onset disasters more than slow-onset disasters. Thus, there is a correlation between the speed of disaster occurrence and willingness to collaborate and consequently effective governance of collaboration. The scope of disaster is related to the requirement of effective

short-term collaboration because of the fact that organizations cannot cope with the destructive effect of large-scale disasters alone. With this regard, it can be mentioned that the characteristics of each disaster type plays a significant role on the relationship between SC collaboration and SCR. In addition, aligning goals among SC partners and building swift trust are among the critical factors influencing the effectiveness of short-term collaboration. The fact remains that the trusted (contractual) relationships, which refers to pre-established relationships, may less necessitate to apply short-term collaboration. Lastly, the ability of allocating resource and the level of resource commitment, i.e. how much SC members dedicated to share their resources for humanitarian operations, in a dynamic environment are other factors that affect SC resilience by the moderation of short-term collaboration (Gabler *et al.*, 2017).

5.3 Sustaining capability in relation to waste management, collaboration, sensing, seizing and reconfiguring capabilities

Being concerned about gaining long-term competitive advantage by using lean approach leads organizations to concentrate on DCs rather than ad hoc solutions (Hansen and Møller, 2016). Lean thinking model can be operationalized by applying DCs which have a mediation role to eliminate waste and increase efficiency (Mishra *et al.*, 2020). For instance, sensing capability is used for specifying constraints such as fluid information, demand and supply mismanagement, limitations for transportation and distribution, technological insufficiencies. After understanding the influencing factors, HOs can seize the opportunities and threats by revising the operating models. For the purpose of achieving the lean thinking culture HSCs adapt their existing culture and structure for the current disaster conditions. In line with the findings of L'Hermitte *et al.* (2016), the role of coordination was emphasized for sensing and seizing of logistics and procurement opportunities. In addition, collaboration is regarded as an important element of transformation capability as Lu *et al.* (2019) and Gabler *et al.* (2017) laid stress on it for successful HSC operations. The combination of three fundamental DCs of Teece *et al.* (2018, 2010) with the lean thinking culture creates the basis of sustaining dynamic capability (Teece, 2010, 2018). HSCs can apply dynamic capability of sustaining through long-term lean thinking strategy, which focuses on waste elimination and supply-demand alignment, for achieving their goals efficiently. Thanks to its cyclical nonstop nature, sustaining capability building on the concepts of continuous learning and measurement of performance will facilitate (1) determining the constraints disrupting humanitarian operations, wastages of relief supplies (especially perishable products) in humanitarian SCs and (2) creating additional capabilities to manage relief materials correctly for the benefit of disaster victims. Furthermore, it will enable government and nongovernmental organizations to reduce their SC costs and economic losses (Mishra *et al.*, 2020). Despite empirical finding presenting the importance of sustaining capability for the HSC operations, sustainable dynamic capability, which facilitates providing humanitarian assistance equally and efficiently to the victims, is not sufficiently in the agenda of researchers and practitioners and requires more attention by the practitioners as well.

6. Comprehensive model

Figure 4 illustrates the factors positively affecting the determined DCs as well as the positive effect of DCs on HSCM based on the synthesis of the extant literature. By distilling the literature, the comprehensive model was provided for the use of both practitioners and researchers. In this way, it was aimed to facilitate the understanding of abovementioned relationships and answer the research questions visually.

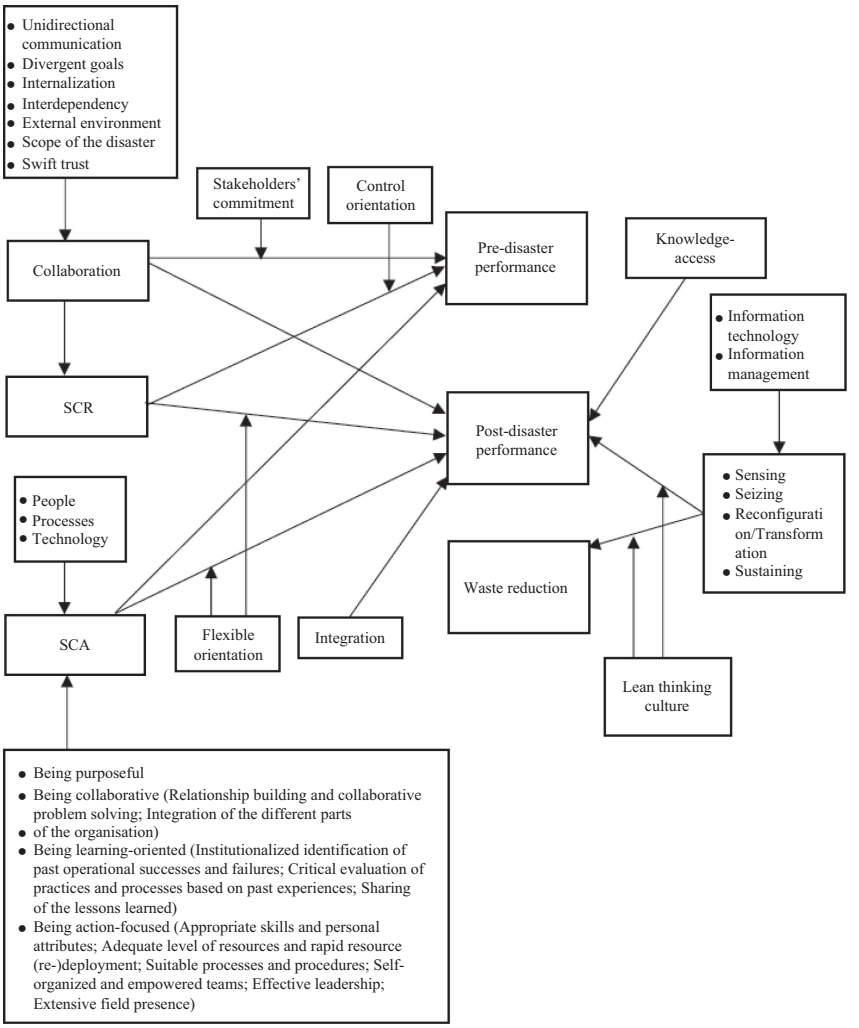


Figure 4.
Comprehensive model

7. Conclusions, limitations and recommendations for further research

7.1 Conclusions

This study systematically and meticulously analyzed the literature which focus on HSCM from DCs perspective. In this sense, the author anatomized the introduction, finding, methodology, discussion and conclusion parts of each paper in order to identify the DCs used in the HSCM literature, factors affecting these DCs and their impact on HSCM performance. This study can be considered as original on the ground that it is the first SLR analyzing the role of DCs in HSCM context.

The result of this SLR reveals that nine papers have been used DCs view to investigate HSCM so far. The studies of L'Hermitte *et al.* (2015, 2016), Gabler *et al.* (2017) and Mishra *et al.* (2020) attempted to generate new HSCM-specific DCs and other six papers benefited from the exiting DCs literature. The DCs used in the studies are SCA, SCR, reconfiguration/transformation, integration, (short-term) collaboration, sustaining, sensing, seizing and

knowledge access. Another important finding is that majority of the exiting literature applied qualitative data to investigate the newly emerging research field and only one paper used survey method to offer solutions. In addition, it is determined that only one paper analyzed the influence of DCs on pre- and postdisaster performance while eight papers focused on only the postdisaster performance. Despite the small number of papers published within this context, it is important that high-profile journals have laid the foundations of DCs in humanitarian setting. Another point is that the studies, which focused on a specific country, investigated the humanitarian operations in Asia continent. This can be explained by the frequency and magnitude of natural disasters in these regions. The corollary of the widespread and continual disasters is to find better ways to respond them.

The insights, which were retrieved from the investigated papers, underline some critical relationships between the antecedents and consequences of DCs (Figure 4). The findings unearth the fact that majority of the investigations applied more than one DC by adopting ambidextrous approach and DCs affect each other. For instance, the study of Gabler *et al.* (2017) related the short-term collaboration DC to SCR DC and Altay *et al.* (2018) used SCA and SCR together. Moreover, the subelements of DCs are interconnected. To have collaborative capability it is important to share common purpose and have a sense of understanding of the operating environment and learning from the past experiences. On the other hand, it should be noted that there are other factors exerting an influence on the DCs. This review findings present that organizational factors have a critical role on DCs such SCA and SCR. It can be exemplified that it is not possible to achieve postdisaster performance without a flexible oriented organizational culture. Likewise, the effective management of people, technology and process enables HOs to perform better disaster operations. Resource commitment of stakeholders, establishing short-term collaboration, swift trust, information management and logisticians' skills to maintain operations are among the other variables affecting DCs and HSC performance. Lastly, the lean thinking culture is important to reduce waste in HSC operations when accomplishing objectives of HSCs.

This SLR deduces that applying DCs view is still in its infancy in the literature. Although there have been attempts to investigate the role of DCs in HSCM, it is obvious that it is not sufficient. First and foremost, this study contributed to the literature by bringing up the significance of DCs in HSCM to the agenda. Secondly, this investigation determined the DCs used in HSCM and revealed the relations between the dependent and independent variables through the comprehensive model. In this way, this review provides a guidance to researchers in conducting their future investigations and practitioners to carry out SC operations by considering the factors affecting their operations in the dynamic nature of humanitarian operations.

7.2 Limitations and recommendations for further research

Despite the fact that the SLR was conducted meticulously, this paper has some limitations. Firstly, the papers, which were published only in English, were included. Thus, the author could not analyze the papers written in other languages. Secondly, this review is based upon a limited number of studies which specifically investigate HSCM with DCs perspective. Thirdly, this study selected only peer-review journals due to their reliability as a result of thorough peer-review process. Therefore, this investigation does not reflect the contributions of studies such as thesis, conference proceedings and book chapters. Lastly, this study was conducted by a single researcher. However, the author administered all processes by following each step of producing SLR proposed by Denyer and Tranfield (2009).

Like other industries, the humanitarian sector is exposed to pressure to keep up with the modern business methods as a result of changes in micro and macro environment. The humanitarian business ecosystem has been evolving rapidly since the invaluable efforts of

Henry Dunant and this has led HOs to transform their way of conducting operations. Adapting the methods and techniques used by business enterprises into humanitarian sector plays an important role for the development of HSCs. With the intent of understanding the trend of using DCs in SCM literature the author conducted a literature search. It was performed in SCOPUS and Web of Science Core Collection databases with the keywords "dynamic capabilit*" in combination with "supply chain*", "logistics", "supply chain management", "supply network*". The result of literature search, which included only peer-review papers published in English, shows that 238 papers have been published since 2003. There is a drastic increase in the number of papers published after 2018 with 25 papers in 2018, 50 papers in 2019 and 37 papers in 2020 (until September 28, 2020). The fact that majority of articles has been published in operations management and SCM-oriented journals shows the importance DCs has gained in these field. In these papers, they investigated various kinds of supply chain-related DCs (e.g. demand planning, absorptive capacity, knowledge scanning for strategic purchasing) and the affecting factors from various perspectives. For the purpose of analyzing HSCM, it is suggested for future studies to consider the extant SCM and DCs literature. However, it is not only enough to copy and paste business approaches, e.g. DCs, to analyze HSCM. For this reason, as a next step, it is important to develop DCs which are specific to HSCM. This SLR shows that there is an important gap for determining HSCM-specific DCs for the future researchers. In addition, because disaster types have different characteristics and are regarded as unique, it will be highly valuable to analyze DCs by segmenting disasters. The findings show that only one paper utilized survey method. In this sense, there is a need to develop more rigorous HSCM-specific DCs scales and use correlational research methods to analyze the relationships between barriers and success factors. HOs vary in terms of size (local or international), ownership (government or nongovernmental) and founding purpose. This brings up differences in operational issues. Therefore, future studies can compare the dissimilarities between different kinds of HOs in developing and using DCs for HSCM. Another critical issue in HSCM is collaboration of diverse stakeholders. To accomplish this, the role of social capital, psychological contract and interorganizational citizenship can be investigated by the future investigations.

References

Abidi, H., De Leeuw, S. and Klumpp, M. (2014), "Humanitarian supply chain performance management: a systematic literature review", *Supply Chain Management*, Vol. 19 Nos 5/6, pp. 592-608, doi: 10.1108/SCM-09-2013-0349.

Adner, R. and Helfat, C.E. (2003), "Corporate effects and dynamic managerial capabilities", *Strategic Management Journal*, Vol. 24 No. 10, pp. 1011-1025, doi: 10.1002/smj.331.

Adrot, A. and Robey, D. (2008), "Information technology, improvisation and crisis response: review of literature and proposal for theory", *14th Americas Conference on Information Systems, AMCIS 2008*, AIS Electronic Library, Toronto, p. 397.

Agarwal, S., Kant, R. and Shankar, R. (2019), "Humanitarian supply chain management frameworks: a critical literature review and framework for future development", *Benchmarking: An International Journal*, Vol. 26 No. 6, pp. 1749-1780, doi: 10.1108/BIJ-08-2018-0245.

Akter, S. and Wamba, S.F. (2019), "Big data and disaster management: a systematic review and agenda for future research", *Annals of Operations Research*, Vol. 283, pp. 939-959, doi: 10.1007/s10479-017-2584-2.

Allred, C.R., Fawcett, S.E., Wallin, C. and Magnan, G.M. (2011), "A dynamic collaboration capability as a source of competitive advantage", *Decision Sciences*, Vol. 42 No. 1, pp. 129-161, doi: 10.1111/j.1540-5915.2010.00304.x.

Altay, N. and Narayanan, A. (2020), "Forecasting in humanitarian operations: literature review and research needs", *International Journal of Forecasting*, pp. 1-11, doi: 10.1016/j.ijforecast.2020.08.001.

Altay, N., Gunasekaran, A., Dubey, R. and Childe, S.J. (2018), "Agility and resilience as antecedents of supply chain performance under moderating effects of organizational culture within the humanitarian setting: a dynamic capability view", *Production Planning and Control*, Vol. 29 No. 14, pp. 1158-1174, doi: 10.1080/09537287.2018.1542174.

Antai, I., Mutshinda, C. and Owusu, R. (2015), "A 3-R principle for characterizing failure in relief supply chains' response to natural disasters", *Journal of Humanitarian Logistics and Supply Chain Management*, Vol. 5 No. 2, pp. 234-252, doi: 10.1108/JHLSCM-07-2014-0028.

Aslam, H., Blome, C., Roscoe, S. and Azhar, T.M. (2018), "Dynamic supply chain capabilities: how market sensing, supply chain agility and adaptability affect supply chain ambidexterity", *International Journal of Operations and Production Management*, Vol. 38 No. 12, pp. 2266-2285, doi: 10.1108/IJOPM-09-2017-0555.

Augier, M. and Teece, D.J. (2009), "Dynamic capabilities and the role of managers in business strategy and economic performance", *Organization Science*, Vol. 20 No. 2, pp. 410-421.

Balcik, B., Beamon, B.M., Krejci, C.C., Muramatsu, K.M. and Ramirez, M. (2010), "Coordination in humanitarian relief chains: practices, challenges and opportunities", *International Journal of Production Economics*, Vol. 126 No. 1, pp. 22-34, doi: 10.1016/j.ijpe.2009.09.008.

Banomyong, R., Varadejsatitwong, P. and Oloruntoba, R. (2019), "A systematic review of humanitarian operations, humanitarian logistics and humanitarian supply chain performance literature 2005 to 2016", *Annals of Operations Research*, Vol. 20, pp. 1384-1425, doi: 10.1007/s10479-017-2549-5.

Behl, A. and Dutta, P. (2019), "Humanitarian supply chain management: a thematic literature review and future directions of research", *Annals of Operations Research*, Vol. 283, pp. 1001-1044, doi: 10.1007/s10479-018-2806-2.

Besiou, M., Pedraza-Martinez, A.J. and Van Wassenhove, L.N. (2014), "Vehicle supply chains in humanitarian operations: decentralization, operational mix, and earmarked funding", *Production and Operations Management*, Vol. 23 No. 11, pp. 1950-1965, doi: 10.1111/poms.12215.

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, pp. 131-143, doi: 10.1016/j.ijpe.2013.12.026.

Beske, P. (2012), "Dynamic capabilities and sustainable supply chain management", *International Journal of Physical Distribution and Logistics Management*, Vol. 42 No. 4, pp. 372-387, doi: 10.1108/09600031211231344.

Blome, D., Schoenherr, T. and Rexhausen, C. (2013), "Antecedents and enablers of supply chain agility and its effect on performance: a dynamic capabilities perspective", *International Journal of Production Research*, Vol. 51 No. 4, pp. 1295-1318, doi: 10.1080/00207543.2012.728011.

Booth, A., Papaioannou, D. and Sutton, A. (2012), *Systematic Approaches to a Successful Literature Review*, SAGE Publications, Thousand Oaks, CA.

Brandon-Jones, A. and Knoppen, D. (2018), "The role of strategic purchasing in dynamic capability development and deployment: a contingency perspective", *International Journal of Operations and Production Management*, Vol. 38 No. 2, pp. 446-473, doi: 10.1108/IJOPM-10-2015-0656.

Brandon-Jones, E., Squire, B., Autry, C.W. and Petersen, K.J. (2014), "A contingent resource-based perspective of supply chain resilience and robustness", *Journal of Supply Chain Management*, Vol. 50 No. 3, pp. 55-73, doi: 10.1111/jscm.12050.

Braunscheidel, M.J. and Suresh, N.C. (2009), "The organizational antecedents of a firm's supply chain agility for risk mitigation and response", *Journal of Operations Management*, Vol. 27 No. 2, pp. 119-140, doi: 10.1016/j.jom.2008.09.006.

Brekalo, L., Albers, S. and Delfmann, W. (2013), "Logistics alliance management capabilities: where are they?", *International Journal of Physical Distribution and Logistics Management*, Vol. 43 No. 7, pp. 529-543, doi: 10.1108/IJPDLM-06-2012-0194.

Brusset, X. and Teller, C. (2017), "Supply chain capabilities, risks, and resilience", *International Journal of Production Economics*, Vol. 184, pp. 59-68, doi: 10.1016/j.ijpe.2016.09.008.

Charles, A., Lauras, M. and van Wassenhove, L. (2010), "A model to define and assess the agility of supply chains: building on humanitarian experience", *International Journal of Physical Distribution and Logistics Management*, Vol. 40 Nos 8/9, pp. 722-741, doi: 10.1108/09600031011079355.

Cheng, J.H., Chen, M.C. and Huang, C.M. (2014), "Assessing inter-organizational innovation performance through relational governance and dynamic capabilities in supply chains", *Supply Chain Management*, Vol. 19 No. 2, pp. 173-186, doi: 10.1108/SCM-05-2013-0162.

Chiang, C.Y., Kocabasoglu-Hillmer, C. and Suresh, N. (2012), "An empirical investigation of the impact of strategic sourcing and flexibility on firm's supply chain agility", *International Journal of Operations and Production Management*, Vol. 32 No. 1, pp. 49-78, doi: 10.1108/01443571211195736.

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, pp. 185-204, doi: 10.1016/j.ijpe.2017.03.020.

Christopher, M. (2000), "The agile supply chain: competing in volatile markets", *Industrial Marketing Management*, Vol. 29 No. 1, pp. 37-44, doi: 10.1016/S0019-8501(99)00110-8.

Dabhilkar, M., Birkie, S.E. and Kaulio, M. (2016), "Supply-side resilience as practice bundles: a critical incident study", *International Journal of Operations and Production Management*, Vol. 36 No. 8, pp. 948-970, doi: 10.1108/IJOPM-12-2014-0614.

David Swanson, R. and Smith, R.J. (2013), "A path to a public-private partnership: commercial logistics concepts applied to disaster response", *Journal of Business Logistics*, Vol. 34 No. 4, pp. 335-346, doi: 10.1111/jbl.12031.

Day, J.M. (2014), "Fostering emergent resilience: the complex adaptive supply network of disaster relief", *International Journal of Production Research*, Vol. 52 No. 7, pp. 1970-1988, doi: 10.1080/00207543.2013.787496.

Defee, C.C. and Fugate, B.S. (2010), "Changing perspective of capabilities in the dynamic supply chain era", *International Journal of Logistics Management*, Vol. 21 No. 2, pp. 180-206, doi: 10.1108/09574091011071915.

Denyer, D. and Tranfield, D. (2009), "Producing a systematic review", in Buchanan, D.A. and Bryman, A. (Eds), *The SAGE Handbook of Organizational Research Methods*, Sage Publications Ltd, London, pp. 671-689.

Dixit, V., Verma, P. and Tiwari, M.K. (2020), "Assessment of pre and post-disaster supply chain resilience based on network structural parameters with CVaR as a risk measure", *International Journal of Production Economics*, Vol. 227, p. 107655, doi: 10.1016/j.ijpe.2020.107655.

Dubey, R., Ali, S.S., Aital, P. and Venkatesh, V.G. (2014), "Mechanics of humanitarian supply chain agility and resilience and its empirical validation", *International Journal of Services and Operations Management*, Vol. 17 No. 4, pp. 367-384, doi: 10.1504/IJSOM.2014.059999.

Dubey, R., Luo, Z., Gunasekaran, A., Akter, S., Hazen, B.T. and Douglas, M.A. (2018), "Big data and predictive analytics in humanitarian supply chains: enabling visibility and coordination in the presence of swift trust", *International Journal of Logistics Management*, Vol. 29 No. 2, pp. 485-512, doi: 10.1108/IJLM-02-2017-0039.

Dubey, R., Altay, N. and Blome, C. (2019a), "Swift trust and commitment: the missing links for humanitarian supply chain coordination?", *Annals of Operations Research*, Vol. 283, pp. 159-177, doi: 10.1007/s10479-017-2676-z.

Dubey, R., Gunasekaran, A. and Childe, S.J. (2019b), "Big data analytics capability in supply chain agility", *Management Decision*, Vol. 57 No. 8, pp. 2092-2112, doi: 10.1108/MD-01-2018-0119.

Dubey, R., Gunasekaran, A., Childe, S.J., Roubaud, D., Fosso Wamba, S., Giannakis, M. and Foropon, C. (2019c), "Big data analytics and organizational culture as complements to swift trust and collaborative performance in the humanitarian supply chain", *International Journal of Production Economics*, Vol. 210, pp. 120-136, doi: 10.1016/j.ijpe.2019.01.023.

Eckstein, D., Goellner, M., Blome, C. and Henke, M. (2015), "The performance impact of supply chain agility and supply chain adaptability: the moderating effect of product complexity", *International Journal of Production Research*, Vol. 53 No. 10, pp. 3028-3046, doi: 10.1080/00207543.2014.970707.

Eisenhardt, K.M. and Martin, J.A. (2000), "Dynamic capabilities: what are they?", *Strategic Management Journal*, Vol. 21 Nos 10–11, pp. 1105-1121, doi: 10.1002/1097-0266(200010/11)21:10/11<1105::AID-SMJ133>3.0.CO;2-E.

Fawcett, S.E., Fawcett, A.M., Watson, B.J. and Magnan, G.M. (2012), "Peeking inside the black box: toward an understanding of supply chain collaboration dynamics", *Journal of Supply Chain Management*, Vol. 48 No. 1, pp. 44-72, doi: 10.1111/j.1745-493X.2011.03241.x.

Fikar, C., Hirsch, P. and Nolz, P.C. (2018), "Agent-based simulation optimization for dynamic disaster relief distribution", *Central European Journal of Operations Research*, Vol. 26, pp. 423-442, doi: 10.1007/s10100-017-0518-3.

Gabler, C.B., Richey, R.G. and Stewart, G.T. (2017), "Disaster resilience through public–private short-term collaboration", *Journal of Business Logistics*, Vol. 38 No. 2, pp. 130-144, doi: 10.1111/jbl.12152.

Gibson, T., Kerr, D. and Fisher, R. (2016), "Accelerating supply chain management learning: identifying enablers from a university-industry collaboration", *Supply Chain Management*, Vol. 21 No. 4, pp. 470-484, doi: 10.1108/SCM-10-2014-0343.

Gimenez, C. and Tachizawa, E.M. (2012), "Extending sustainability to suppliers: a systematic literature review", *Supply Chain Management*, Vol. 17 No. 5, pp. 531-543, doi: 10.1108/13598541211258591.

Gligor, D.M. and Holcomb, M.C. (2012), "Understanding the role of logistics capabilities in achieving supply chain agility: a systematic literature review", *Supply Chain Management*, Vol. 17 No. 4, pp. 438-453, doi: 10.1108/13598541211246594.

Gölgeci, I., Assadinia, S., Kuivalainen, O. and Larimo, J. (2019), "Emerging-market firms' dynamic capabilities and international performance: the moderating role of institutional development and distance", *International Business Review*, Vol. 28 No. 6, p. 101593, doi: 10.1016/j.ibusrev.2019.101593.

Golgeci, I. and Ponomarov, S.Y. (2013), "Does firm innovativeness enable effective responses to supply chain disruptions? An empirical study", *Supply Chain Management*, Vol. 18 No. 6, pp. 604-617, doi: 10.1108/SCM-10-2012-0331.

Gossler, T., Wakolbinger, T. and Burkart, C. (2020), "Outsourcing in humanitarian logistics – status quo and future directions", *International Journal of Physical Distribution and Logistics Management*, Vol. 50 No. 4, pp. 403-438, doi: 10.1108/IJPDLM-12-2018-0400.

Gralla, E., Goentzel, J. and Fine, C. (2016), "Problem formulation and solution mechanisms: a behavioral study of humanitarian transportation planning", *Production and Operations Management*, Vol. 25 No. 1, pp. 22-35, doi: 10.1111/poms.12496.

Gupta, S., Altay, N. and Luo, Z. (2019), "Big data in humanitarian supply chain management: a review and further research directions", *Annals of Operations Research*, Vol. 283, pp. 1153-1173, doi: 10.1007/s10479-017-2671-4.

Gyarmathy, A., Peszynski, K. and Young, L. (2020), "Theoretical framework for a local, agile supply chain to create innovative product closer to end-user: onshore-offshore debate", *Operations and Supply Chain Management*, Vol. 13 No. 2, pp. 108-122, doi: 10.31387/oscm0410256.

Handfield, R.B., Cousins, P.D., Lawson, B. and Petersen, K.J. (2015), "How can supply management really improve performance? A knowledge-based model of alignment capabilities", *Journal of Supply Chain Management*, Vol. 51 No. 3, pp. 3-17, doi: 10.1111/jscm.12066.

Hansen, D. and Møller, N. (2016), "Conceptualizing dynamic capabilities in lean production: what are they and how do they develop?", *EMJ - Engineering Management Journal*, Vol. 28 No. 4, pp. 194-208, doi: 10.1080/10429247.2016.1238727.

Heaslip, G. and Kovács, G. (2019), "Examination of service triads in humanitarian logistics", *International Journal of Logistics Management*, Vol. 30 No. 2, pp. 595-619, doi: 10.1108/IJLM-09-2017-0221.

Helfat, C.E. and Peteraf, M.A. (2003), "The dynamic resource-based view: capability lifecycles", *Strategic Management Journal*, Vol. 24 No. 10, pp. 997-1010, doi: 10.1002/smj.332.

Helfat, C.E., Finkelstein, S., Mitchell, W., Peteraf, M.A., Singh, H., Teece, D.J. and Winter, S.G. (2007), *Dynamic Capabilities: Understanding Strategic Change in Organizations, Dynamic Capabilities: Understanding Strategic Change in Organizations*, 1st ed., Blackwell Publishing, Malden.

Hendry, L.C., Stevenson, M., MacBryde, J., Ball, P., Sayed, M. and Liu, L. (2019), "Local food supply chain resilience to constitutional change: the Brexit effect", *International Journal of Operations and Production Management*, Vol. 39 No. 3, pp. 429-453, doi: 10.1108/IJOPM-03-2018-0184.

Hick, J.L., Barbera, J.A. and Kelen, G.D. (2009), "Refining surge capacity: conventional, contingency, and crisis capacity", *Disaster Medicine and Public Health Preparedness*, Vol. 3 No. S1, pp. 9-S67, doi: 10.1097/DMP.0b013e31819f1ae2.

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, pp. 3508-3519, doi: 10.1016/j.jclepro.2017.06.093.

Irfan, M., Wang, M. and Akhtar, N. (2019), "Impact of IT capabilities on supply chain capabilities and organizational agility: a dynamic capability view", *Operations Management Research*, Vol. 12, pp. 113-128, doi: 10.1007/s12063-019-00142-y.

Irfan, M., Wang, M., Zafar, A.U., Shahzad, M. and Islam, T. (2020), "Modeling the enablers of supply chain strategies and information technology: improving performance through TISM approach", *VINE Journal of Information and Knowledge Management Systems*, pp. 2059-5891, doi: 10.1108/VJIKMS-06-2019-0082.

Ivanov, D. (2020), "Viable supply chain model: integrating agility, resilience and sustainability perspectives—lessons from and thinking beyond the COVID-19 pandemic", *Annals of Operations Research*. doi: 10.1007/s10479-020-03640-6.

Jermsittiparsert, K. and Wajeetongratana, P. (2019), "The role of organizational culture and it competency in determining the supply chain agility in the small and medium-size enterprises", *International Journal of Innovation, Creativity and Change*, Vol. 5 No. 2, pp. 416-432.

Khazanchi, S., Lewis, M.W. and Boyer, K.K. (2007), "Innovation-supportive culture: the impact of organizational values on process innovation", *Journal of Operations Management*, Vol. 25 No. 4, pp. 871-884, doi: 10.1016/j.jom.2006.08.003.

Kovács, G. and Spens, K.M. (2007), "Humanitarian logistics in disaster relief operations", *International Journal of Physical Distribution & Logistics Management*, Vol. 37 No. 2, pp. 99-114, doi: 10.1108/09600030710734820.

Kovács, G. and Tatham, P. (2009), "Responding to disruptions in the supply network – from dormant to action", *Journal of Business Logistics*, Vol. 30 No. 2, pp. 215-229, doi: 10.1002/j.2158-1592.2009.tb00121.x.

Kovács, G., Tatham, P. and Larson, P.D. (2012), "What skills are needed to be a humanitarian logistician?", *Journal of Business Logistics*, Vol. 33 No. 3, pp. 245-258, doi: 10.1111/j.2158-1592.2012.01054.x.

Laaksonen, O. and Peltoniemi, M. (2018), "The essence of dynamic capabilities and their measurement", *International Journal of Management Reviews*, Vol. 20 No. 2, pp. 184-205, doi: 10.1111/ijmr.12122.

Lambrechts, F., Taillieu, T., Grieten, S. and Poisquet, J. (2012), "In-depth joint supply chain learning: towards a framework", *Supply Chain Management*, Vol. 17 No. 6, pp. 627-637, doi: 10.1108/13598541211269238.

Lee, S.M. and Rha, J.S. (2016), "Ambidextrous supply chain as a dynamic capability: building a resilient supply chain", *Management Decision*, Vol. 54 No. 1, pp. 2-23, doi: 10.1108/MD-12-2014-0674.

L'Hermitte, C., Bowles, M., Tatham, P. and Brooks, B. (2015), "An integrated approach to agility in humanitarian logistics", *Journal of Humanitarian Logistics and Supply Chain Management*, Vol. 5 No. 2, pp. 209-233, doi: 10.1108/JHLSCM-04-2014-0016.

L'Hermitte, C., Tatham, P., Bowles, M. and Brooks, B. (2016), "Developing organisational capabilities to support agility in humanitarian logistics: an exploratory study", *Journal of Humanitarian Logistics and Supply Chain Management*, Vol. 6 No. 1, pp. 72-99, doi: 10.1108/JHLSCM-02-2015-0006.

L'Hermitte, C., Brooks, B., Bowles, M. and Tatham, P.H. (2017), "Investigating the strategic antecedents of agility in humanitarian logistics", *Disasters*, Vol. 41 No. 4, pp. 672-695, doi: 10.1111/disa.12220.

Li, M., Wang, Z. and Zhao, X. (2018), "The role of indigenous technological capability and interpersonal trust in supply chain learning", *Industrial Management and Data Systems*, Vol. 118 No. 5, pp. 1052-1070, doi: 10.1108/IMDS-08-2017-0350.

Liu, H., Ke, W., Wei, K.K., Gu, J. and Chen, H. (2010), "The role of institutional pressures and organizational culture in the firm's intention to adopt internet-enabled supply chain management systems", *Journal of Operations Management*, Vol. 28 No. 5, pp. 372-384, doi: 10.1016/j.jom.2009.11.010.

Lu, Y. and Ramamurthy, K. (2011), "Understanding the link between information technology capability and organizational agility: an empirical examination", *MIS Quarterly: Management Information Systems*, Vol. 35 No. 4, pp. 931-954, doi: 10.2307/41409967.

Lu, Q., Wu, J., Goh, M. and De Souza, R. (2019), "Agility and resource dependency in ramp-up process of humanitarian organizations", *International Journal of Logistics Management*, Vol. 30 No. 3, pp. 845-862, doi: 10.1108/IJLM-05-2018-0119.

Maghsoudi, A. and Pazirandeh, A. (2016), "Visibility, resource sharing and performance in supply chain relationships: insights from humanitarian practitioners", *Supply Chain Management*, Vol. 21 No. 1, pp. 125-139, doi: 10.1108/SCM-03-2015-0102.

Malekifar, S., Taghizadeh, S.K., Rahman, S.A. and Khan, S.U.R. (2014), "Organizational culture, IT competence, and supply chain agility in small and medium-size enterprises", *Global Business and Organizational Excellence*, Vol. 33 No. 6, pp. 69-75, doi: 10.1002/joe.21574.

Mandal, S., Bhattacharya, S., Korasiga, V.R. and Sarathy, R. (2017a), "The dominant influence of logistics capabilities on integration: empirical evidence from supply chain resilience", *International Journal of Disaster Resilience in the Built Environment*, Vol. 8 No. 4, pp. 357-374, doi: 10.1108/IJDRBE-05-2016-0019.

Mandal, S., Korasiga, V.R. and Das, P. (2017b), "Dominance of agility in tourism value chains: evidence from India", *Tourism Review*, Vol. 72 No. 2, pp. 133-155, doi: 10.1108/TR-11-2016-0048.

Mandal, S. (2017), "The influence of dynamic capabilities on hospital-supplier collaboration and hospital supply chain performance", *International Journal of Operations and Production Management*, Vol. 37 No. 5, pp. 664-684, doi: 10.1108/IJOPM-05-2016-0249.

Matopoulos, A., Kovács, G. and Hayes, O. (2014), "Local resources and procurement practices in humanitarian supply chains: an empirical examination of large-scale house reconstruction projects", *Decision Sciences*, Vol. 45 No. 4, pp. 621-646, doi: 10.1111/deci.12086.

McAdam, R., Humphreys, P., Galbraith, B. and Miller, K. (2017), "Developing management capability within a horizontal supply chain in performance measurement deployment and evolution: a Dynamic Capabilities and Goal Theory perspective", *Production Planning and Control*, Vol. 28 Nos 6–8, pp. 610-628, doi: 10.1080/09537287.2017.1309706.

McCann, J.E. and Selsky, J.W. (2012), *Mastering Turbulence: The Essential Capabilities of Agile and Resilient Individuals, Teams, and Organizations, Personnel Psychology*, Jossey-Bass, San Francisco, CA.

Mishra, J.L., Chiwenga, K.D., Mishra, N. and Choudhary, S. (2020), "Extending dynamic capabilities towards lean thinking in humanitarian supply chains", *Production Planning and Control*. doi: 10.1080/09537287.2020.1834136.

Nakano, M., Akikawa, T. and Shimazu, M. (2013), "Process integration mechanisms in internal supply chains: case studies from a dynamic resource-based view", *International Journal of Logistics Research and Applications*, Vol. 16 No. 4, pp. 328-347, doi: 10.1080/13675567.2013.813919.

Nelson, R.R. and Winter, S.D. (1982), *An Evolutionary Theory of Economic Change, an Evolutionary Theory of Economic Change*, Belknap Press of Harvard University Press, Cambridge.

Noori, N.S. and Weber, C. (2016), "Dynamics of coordination-clusters in long-term rehabilitation", *Journal of Humanitarian Logistics and Supply Chain Management*, Vol. 6 No. 3, pp. 296-328, doi: 10.1108/JHLSCM-06-2016-0024.

Nurmala, N., de Leeuw, S. and Dullaert, W. (2017), "Humanitarian–business partnerships in managing humanitarian logistics", *Supply Chain Management*, Vol. 22 No. 1, pp. 82-94, doi: 10.1108/SCM-07-2016-0262.

Ojha, D., Gianiodis, P.T. and Manuj, I. (2013), "Impact of logistical business continuity planning on operational capabilities and financial performance", *International Journal of Logistics Management*, Vol. 24 No. 2, pp. 180-209, doi: 10.1108/IJLM-06-2012-0049.

Oloruntoba, R. and Gray, R. (2006), "Humanitarian aid: an agile supply chain?", *Supply Chain Management*, Vol. 11 No. 2, pp. 115-120, doi: 10.1108/13598540610652492.

Oloruntoba, R. and Kovács, G. (2015), "A commentary on agility in humanitarian aid supply chains", *Supply Chain Management*, Vol. 20 No. 6, pp. 708-716, doi: 10.1108/SCM-06-2015-0244.

Ozeroglu, E. and Kocyigit, Y. (2020), "Organizational agility in health organizations: the role of visionary leadership", *Pressacademia*, Vol. 7 No. 1, pp. 13-22, doi: 10.17261/Pressacademia.2020.1184.

Parast, M.M. (2020), "The impact of R&D investment on mitigating supply chain disruptions: empirical evidence from U.S. firms", *International Journal of Production Economics*, Vol. 227, p. 107671, doi: 10.1016/j.ijpe.2020.107671.

Petricevic, O. and Verbeke, A. (2019), "Unbundling dynamic capabilities for inter-organizational collaboration: the case of nanotechnology", *Cross Cultural and Strategic Management*, Vol. 26 No. 3, pp. 422-448, doi: 10.1108/CCSM-02-2019-0044.

Piening, E.P. (2013), "Dynamic capabilities in public organizations", *Public Management Review*, Vol. 15 No. 2, pp. 209-245, doi: 10.1080/14719037.2012.708358.

Ponomarov, S.Y. and Holcomb, M.C. (2009), "Understanding the concept of supply chain resilience", *The International Journal of Logistics Management*, Vol. 20 No. 1, pp. 124-143, doi: 10.1108/09574090910954873.

Prakash, C., Besiou, M., Charan, P. and Gupta, S. (2020), "Organization theory in humanitarian operations: a review and suggested research agenda", *Journal of Humanitarian Logistics and Supply Chain Management*, Vol. 10 No. 2, pp. 261-284, doi: 10.1108/JHLSCM-08-2019-0051.

Ramasesh, R., Kulkarni, S. and Jayakumar, M. (2001), "Agility in manufacturing systems: an exploratory modeling framework and simulation", *Integrated Manufacturing Systems*, Vol. 12 No. 7, pp. 534-548, doi: 10.1108/EUM0000000006236.

Rasouli, M.R. (2019), "Intelligent process-aware information systems to support agility in disaster relief operations: a survey of emerging approaches", *International Journal of Production Research*, Vol. 57 No. 6, pp. 1857-1872, doi: 10.1080/00207543.2018.1509392.

Rey, F. (2017), "The complex nature of actors in humanitarian action and the challenge of coordination", The Humanitarian Studies Unit, in *Reflections on Humanitarian Action*, Pluto Press, Sterling, Virginia, London, pp. 99-119, doi: 10.2307/j.ctt18fs9tr.9.

Roberts, N. (2009), *Digitally Enhancing Customer Agility and Competitive Activity: How Firms Use Information Technology to Sense and Respond to Market Opportunities in Hypercompetitive Environments*, Clemson University, Clemson.

Rajakaruna, S., Wijeratne, A.W. and Chen, Y. (2017), "Determinants of skills and competencies of humanitarian logisticians: a Sri Lankan perspective for developing countries", *International Journal of Human Resources Management*, Vol. 6 No. 1, pp. 7-24.

Sáenz, 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, doi: 10.1111/jscm.12020.

Sabahi, S. and Parast, M.M. (2020), "Firm innovation and supply chain resilience: a dynamic capability perspective", *International Journal of Logistics Research and Applications*, Vol. 23 No. 3, pp. 254-269, doi: 10.1080/13675567.2019.1683522.

Sangari, M.S. and Razmi, J. (2015), "Business intelligence competence, agile capabilities, and agile performance in supply chain an empirical study", *International Journal of Logistics Management*, Vol. 26 No. 2, pp. 356-380, doi: 10.1108/IJLM-01-2013-0012.

Schniederjans, D.G., Ozpolat, K. and Chen, Y. (2016), "Humanitarian supply chain use of cloud computing", *Supply Chain Management*, Vol. 21 No. 5, pp. 569-588, doi: 10.1108/SCM-01-2016-0024.

Scholten, K., Scott, P.S. and Fynes, B. (2010), "(Le)agility in humanitarian aid (NGO) supply chains", *International Journal of Physical Distribution and Logistics Management*, Vol. 40 Nos 8/9, pp. 623-635, doi: 10.1108/09600031011079292.

Sheu, J.B. (2010), "Dynamic relief-demand management for emergency logistics operations under large-scale disasters", *Transportation Research Part E: Logistics and Transportation Review*, Vol. 46 No. 1, pp. 1-17, doi: 10.1016/j.tre.2009.07.005.

Singh, R.K., Gupta, A. and Gunasekaran, A. (2018), "Analysing the interaction of factors for resilient humanitarian supply chain", *International Journal of Production Research*, Vol. 56 No. 21, pp. 6809-6827, doi: 10.1080/00207543.2018.1424373.

Soosay, C.A. and Hyland, P. (2015), "A decade of supply chain collaboration and directions for future research", *Supply Chain Management*, Vol. 26 No. 6, pp. 613-630, doi: 10.1108/SCM-06-2015-0217.

Stechemesser, K., Endrikat, J., Grasshoff, N. and Guenther, E. (2015), "Insurance companies' responses to climate change: adaptation, dynamic capabilities and competitive advantage", *Geneva Papers on Risk and Insurance: Issues and Practice*, Vol. 40, pp. 557-584, doi: 10.1057/gpp.2015.1.

Swafford, P.M., Ghosh, S. and Murthy, N. (2006), "The antecedents of supply chain agility of a firm: scale development and model testing", *Journal of Operations Management*, Vol. 24 No. 2, pp. 170-188, doi: 10.1016/j.jom.2005.05.002.

Swanson, D., Jin, Y.H., Fawcett, A.M. and Fawcett, S.E. (2017), "Collaborative process design: a dynamic capabilities view of mitigating the barriers to working together", *International Journal of Logistics Management*, Vol. 28 No. 2, pp. 571-599, doi: 10.1108/IJLM-02-2016-0044.

Swierczek, A. (2020), "Investigating the role of demand planning as a higher-order construct in mitigating disruptions in the European supply chains", *International Journal of Logistics Management*, Vol. 31 No. 3, pp. 665-696, doi: 10.1108/IJLM-08-2019-0218.

Tabaklar, T., Halldórsson, Á., Kovács, G. and Spens, K. (2015), "Borrowing theories in humanitarian supply chain management", *Journal of Humanitarian Logistics and Supply Chain Management*, Vol. 5 No. 3, pp. 281-299, doi: 10.1108/JHLSCM-07-2015-0029.

Tabaklar, T. (2017), *Scalability and Resilience in Humanitarian Supply Chains*, Hanken School of Economics, Helsinki.

Tatham, P., Wu, Y., Kovács, G. and Butcher, T. (2017), "Supply chain management skills to sense and seize opportunities", *International Journal of Logistics Management*, Vol. 28 No. 2, pp. 266-289, doi: 10.1108/IJLM-04-2014-0066.

Teece, D. and Pisano, G. (1994), "The dynamic capabilities of firms: an introduction", *Industrial and Corporate Change*, Vol. 3 No. 3, pp. 537-556, doi: 10.1093/icc/3.3.537-a.

Teece, D.J., Pisano, G. and Shuen, A. (1997), "Dynamic capabilities and strategic management", *Strategic Management Journal*, Vol. 18 No. 7, pp. 509-533, doi: 10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z.

Teece, D., Peteraf, M. and Leih, S. (2016), "Dynamic capabilities and organizational agility: risk, uncertainty, and strategy in the innovation economy", *California Management Review*, Vol. 58 No. 4, pp. 13-35, doi: 10.1525/cmVr.2016.58.4.13.

Teece, D.J. (2007), "Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance", *Strategic Management Journal*, Vol. 28, pp. 1319-1350, doi: 10.1002/smj.640.

Teece, D.J. (2010), "Technological innovation and the theory of the firm: the role of enterprise-level knowledge, complementarities, and (dynamic) capabilities", in Bronwyn, H. and Hall, N.R. (Eds), *Handbook of the Economics of Innovation*, Elsevier BV., Rosenberg, Vol. 1, pp. 679-730, doi: 10.1016/S0169-7218(10)01016-6.

Teece, D.J. (2014), "The foundations of enterprise performance: dynamic and ordinary capabilities in an (economic) theory of firms", *Academy of Management Perspectives*, Vol. 28 No. 4, pp. 328-352, doi: 10.5465/amp.2013.0116.

Teece, D.J. (2018), "Business models and dynamic capabilities", *Long Range Planning*, Vol. 51 No. 1, pp. 40-49V, doi: 10.1016/j.lrp.2017.06.007.

Therrien, M.C., Normandin, J.M. and Denis, J.L. (2017), "Bridging complexity theory and resilience to develop surge capacity in health systems", *Journal of Health, Organisation and Management*, Vol. 31 No. 1, pp. 96-109, doi: 10.1108/JHOM-04-2016-0067.

Tranfield, D., Denyer, D. and Smart, P. (2003), "Towards a methodology for developing evidence-informed management knowledge by means of systematic review", *British Journal of Management*, Vol. 14 No. 3, pp. 207-222, doi: 10.1111/1467-8551.00375.

Vaillancourt, A. (2017), "Procurement consolidation in humanitarian supply chains: a case study", *International Journal of Procurement Management*, Vol. 10 No. 2, pp. 178-193, doi: 10.1504/IJPM.2017.082786.

Van Hoek, R.I., Harrison, A. and Christopher, M. (2001), "Measuring agile capabilities in the supply chain", *International Journal of Operations and Production Management*, Vol. 21 Nos 1/2, pp. 126-147, doi: 10.1108/01443570110358495.

Van Wassenhove, L.N. (2006), "Humanitarian aid logistics: supply chain management in high gear", *Journal of the Operational Research Society*, Vol. 57, pp. 475-489, doi: 10.1057/palgrave.jors.2602125.

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 Nos 7–8, pp. 446-461, doi: 10.1016/j.jom.2014.09.004.

Vickery, S.K., Droge, C., Setia, P. and Sambamurthy, V. (2010), "Supply chain information technologies and organisational initiatives: complementary versus independent effects on agility and firm performance", *International Journal of Production Research*, Vol. 48 No. 23, pp. 7025-7042, doi: 10.1080/00207540903348353.

Vickery, S.K., Koufteros, X. and Droge, C. (2013), "Does product platform strategy mediate the effects of supply chain integration on performance? a dynamic capabilities perspective", *IEEE Transactions on Engineering Management*, Vol. 60 No. 4, pp. 750-762, doi: 10.1109/TEM.2013.2266301.

Wan, Q., Yuan, Y. and Lai, F. (2019), "Disentangling the driving factors of logistics outsourcing: a configurational perspective", *Journal of Enterprise Information Management*, Vol. 32 No. 6, pp. 964-992, doi: 10.1108/JEIM-10-2018-0236.

Wankmüller, C. and Reiner, G. (2019), "Coordination, cooperation and collaboration in relief supply chain management", *Journal of Business Economics*, Vol. 90, pp. 239-276, doi: 10.1007/s11573-019-00945-2.

Willis, G., Genchev, S.E. and Chen, H. (2016), "Supply chain learning, integration, and flexibility performance: an empirical study in India", *International Journal of Logistics Management*, Vol. 27 No. 3, pp. 755-769, doi: 10.1108/IJLM-03-2014-0042.

Winter, S.G. (2003), "Understanding dynamic capabilities", *Strategic Management Journal*, Vol. 24, pp. 991-995, doi: 10.1002/smj.318.

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*, Vol. 24 No. 2, pp. 189-214, doi: 10.1108/SCM-11-2017-0359.

Yu, W., Jacobs, M.A., Chavez, R. and Yang, J. (2019), "Dynamism, disruption orientation, and resilience in the supply chain and the impacts on financial performance: a dynamic capabilities perspective", *International Journal of Production Economics*, Vol. 218, pp. 352-362, doi: 10.1016/j.ijpe.2019.07.013.

Zhang, Z. and Sharifi, H. (2000), "A methodology for achieving agility in manufacturing organisations: an introduction", *International Journal of Operations and Production Management*, Vol. 62 Nos 1–2, pp. 7-22, doi: 10.1016/S0925-5273(98)00217-5.

Zollo, M. and Winter, S.G. (2002), "Deliberate learning and the evolution of dynamic capabilities", *Organization Science*, Vol. 13 No. 3, pp. 339-351, doi: 10.1287/orsc.13.3.339.2780.

Zylbersztajn, D. and Filho, C.A.P.M. (2003), "Competitiveness of meat agri-food chain in Brazil", *Supply Chain Management*, Vol. 8 No. 2, pp. 155-165, doi: 10.1108/13598540310468751.

Corresponding author
Abdussamet Polater can be contacted at: apolater@erzincan.edu.tr