Exploring the role of ambidexterity and coopetition in designing resilient fashion supply chains: A multi-evidence-based approach

Journal:	*Journal of Enterprise Information Management*
Manuscript ID	JEIM-08-2019-0213.R3
Manuscript Type:	Research Article
Keywords:	supply chain management, resilience, ambidexterity, coopetition, fashion supply chains, ambidextrous coopetition

Dear Associate Editor of the JEIM,

We, first, like to pay our gratitude to the esteemed reviewers for their valuable time to review our paper and providing very constructive comments/feedback. We have made suggested changes in the manuscript and prepared the following tables for them to review what we have done against their each comment.

We hope to satisfy the reviewers' concerns and looking forward for the acceptance of our manuscript for the JEIM publication.

Reviewer/referee 1:

Comment number	Reviewer comment	Action/corrections
1	Acknowledging our contributions	We thank the reviewer for acknowledging our contributions in the following areas: Methodological triangulation, Framework development; and Proposed future research directions perspective.
2	There are several English, grammar and formatting errors; therefore, it is worth getting the work proofread.	We have proof read our manuscript from a professional organisation and we hope there will not be any issues in the presentation now.
	The authors can further highlight why 2019 was not included in the SLR and only restricted to 2018.	We have highlighted on page 8 that we restricted or research to December 31, 2018 to observe a complete yearly trend (please see in red highlight on page 8)
3	The extended framework is very similar to Piyya et al 2018; it will worth to add that paper in the methodology section.	We have added Rafi-ul-Shan et al., (2018) paper into the methodology section.
4	The authors need to further highlight 'use of theories' in the coopetition section of the findings. Dynamic capabilities in the proposed framework need more discussion. For example, their type, development, dual relationship, etc.	*Coopetition section of findings*: we have provided discussion of four theories (resource based view, knowledge based view, game theory and dynamic capabilities) in the coopetition section of our findings. Please see red highlights.
		Dynamic capabilities in the proposed framework: we have provided one complete paragraph on dynamic capabilities, their type and relationship in the conclusions and future research directions (please see red highlights)
5	Yes, the paper can be the foundation for further and empirical research studies in the domain.	We thank the reviewer for acknowledge our research implications
6	The authors need to provide a complete reference list including in-text corrections.	We have completed all the references and crosschecked with the reference list.

Reviewer/referee 2:

Comment number	Reviewer comment	Action/corrections
1	Acknowledging our contributions	We thank the reviewer for acknowledging our contributions form an inter-disciplinary research perspective.
2	Newbert's (2007) inclusion and exclusion criteria should also mention that the papers from the Business Management discipline.	We have revised our inclusion and exclusion criteria proposed by Newbert (2007) and included the reviewer's suggestion by mentioning that: papers from the Business Management discipline will be included. Please see page 7 red highlight in the inclusion and exclusion criteria.
3	There is a little discussion of the use of theories in the coopetition part. A suggestion would be to add some terminologies such as RBV, DC, KBV, etc, in the same discussion.	*Coopetition section of findings*: we have provided discussion of four theories (resource based view, knowledge based view, game theory and dynamic capabilities) in the coopetition section of our findings. Please see red highlights.
4	The researchers need to highlight what type of dynamic capabilities should be required in their proposed typology.	*Dynamic capabilities in the proposed framework*: we have one complete paragraph on dynamic capabilities, their type and relationship in the conclusions and future research directions.
5	References needs to be re-looked at both places, in-text and the reference list.	We have completed all the references and crosschecked with the reference list. We have also corrected references according to the JEIM requirements/specifications.
6	The reviewer suggest a strong need for a proof reading.	We have proof read our manuscript from a professional organisation and we hope there will not be any issues in the presentation now.

Additional questions:

Comment number	Reviewer comment	Action/corrections
1	Acknowledging our contributions	We thank the reviewer for acknowledging our contributions (research and practical)
2	Newbert's (2007) inclusion and exclusion criteria should also mention that the papers from the Business Management discipline.	We have revised our inclusion and exclusion criteria proposed by Newbert (2007) and included the reviewer's suggestion by mentioning that: papers from the Business Management discipline will be included.
3	There is a little discussion of the use of theories in the coopetition part. A suggestion would be to add	*Coopetition section of findings*: we have provided discussion of four theories (resource based view, knowledge based view, game theory and dynamic

	some terminologies such as RBV, DC, KBV, etc, in the same discussion.	capabilities) in the coopetition section of our findings.
4	The researchers need to highlight what type of dynamic capabilities should be required in their proposed typology.	*Dynamic capabilities in the proposed framework*: we have one complete paragraph on dynamic capabilities, their type and relationship in the conclusions and future research directions (please see red highlights).
5	References needs to be re-looked at both places, in-text and the reference list.	We have completed all the references and crosschecked with the reference list. We have also corrected references according to the JEIM requirements/specifications.
6	The reviewer suggests a strong need for proofreading.	We have proof read our manuscript from a professional organisation and we hope there will not be any issues in the presentation now.

Finally, as reviewers suggested, we have highlighted correction areas in red in the manuscript.

Please do not hesitate to contact should you need further information/explanation.

Many thanks,

Kind regards,

The authors

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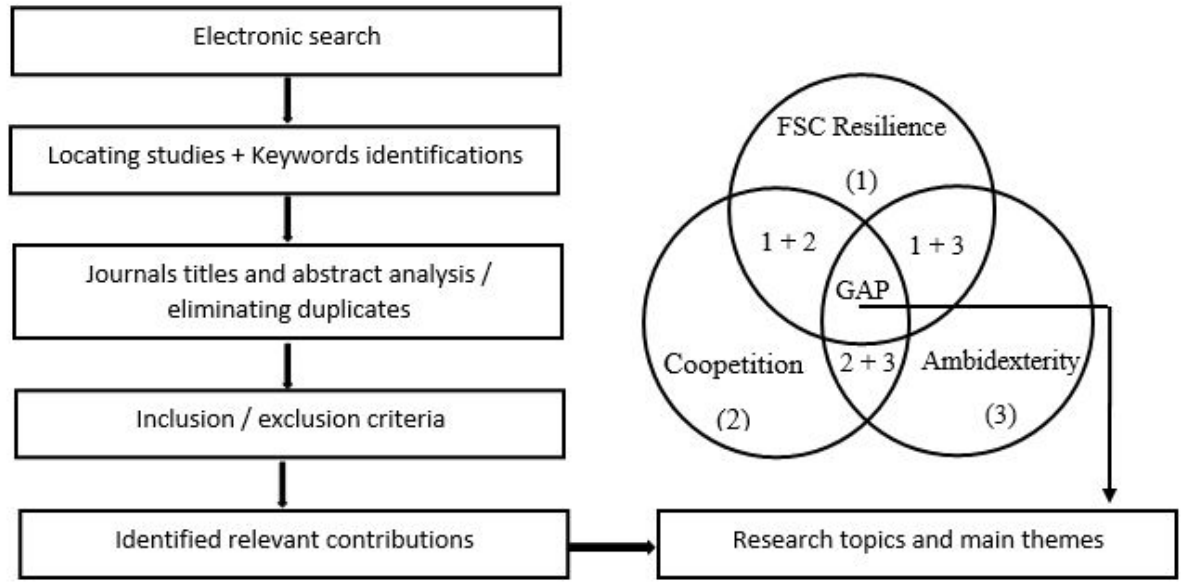
Figure 1: Systematic Literature Review Process for CIMO



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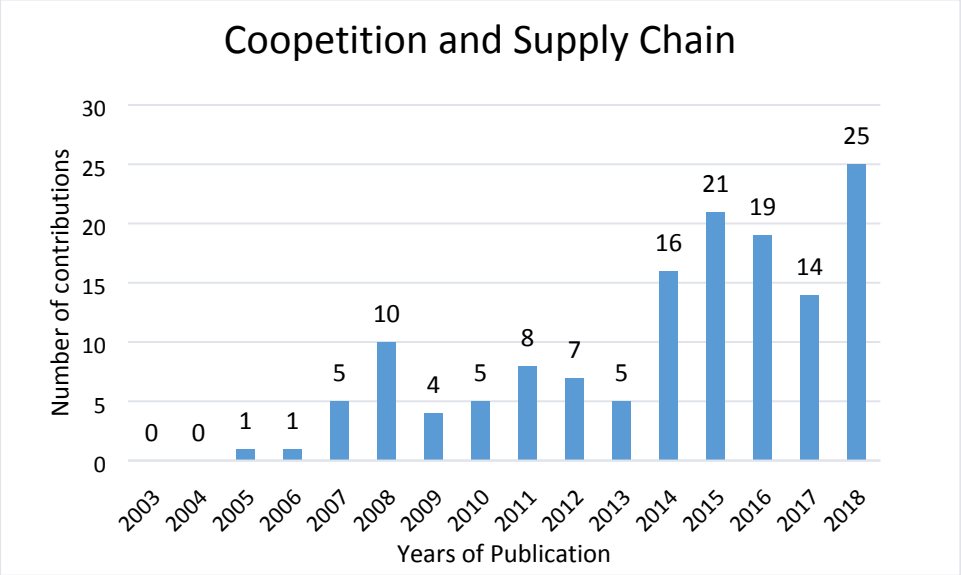

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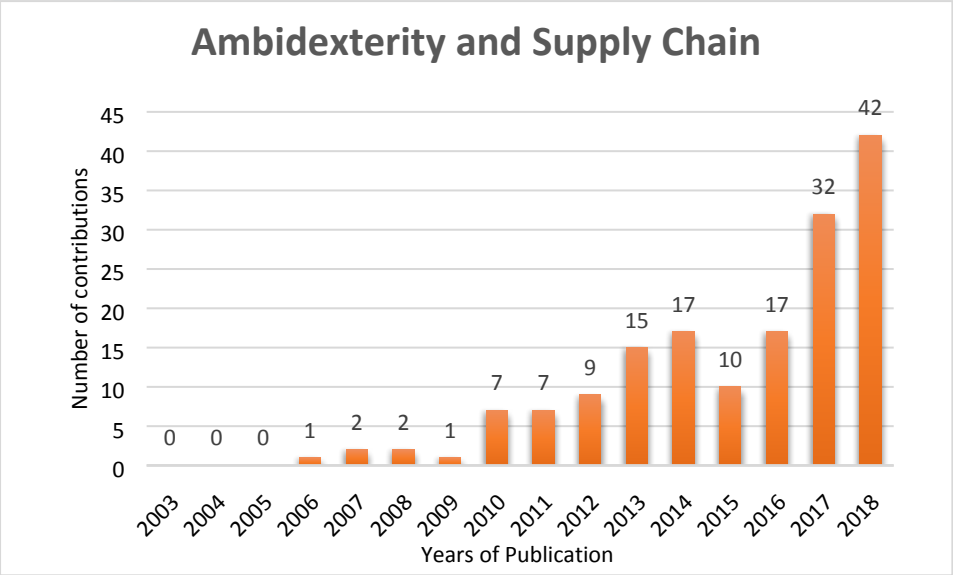

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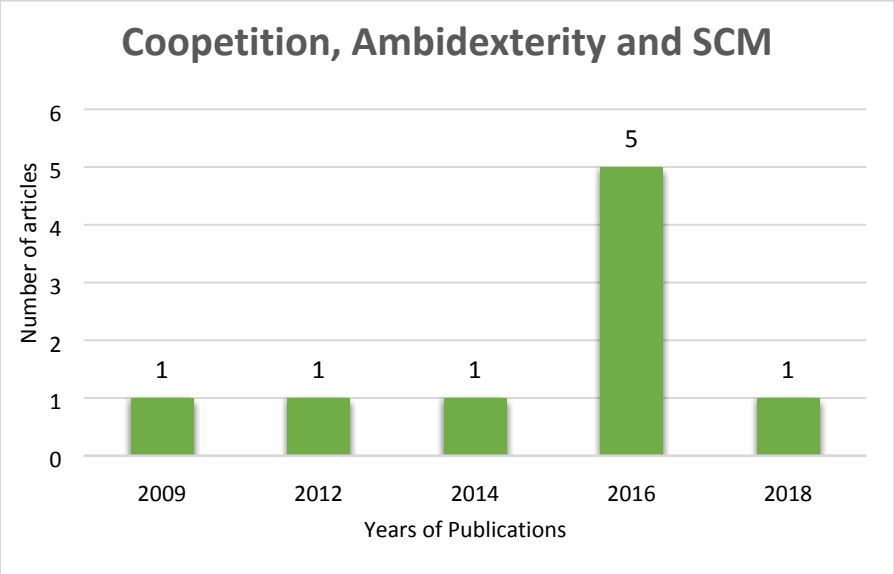

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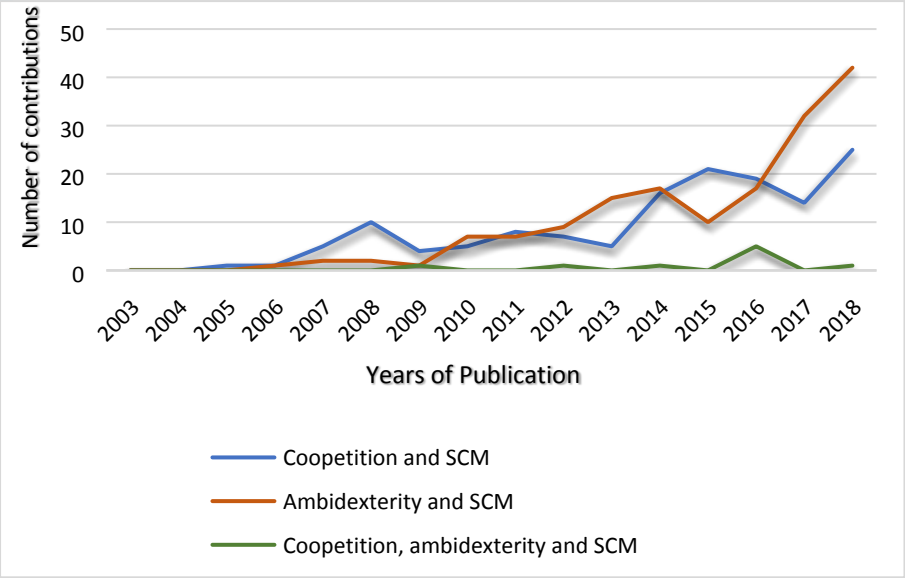

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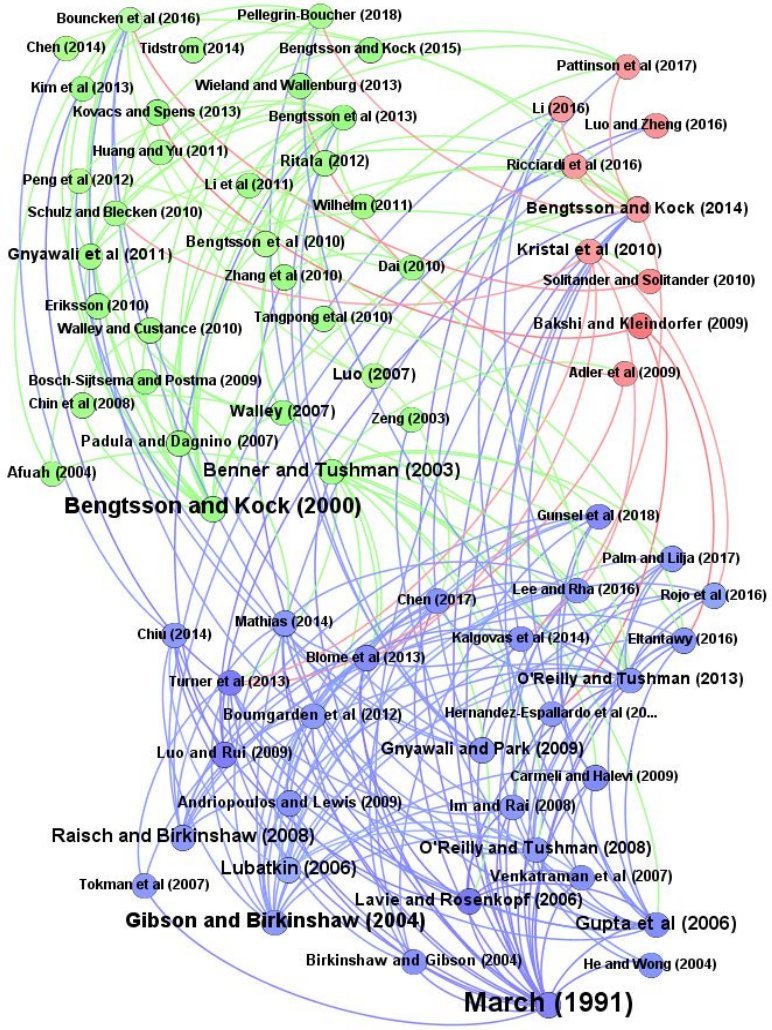

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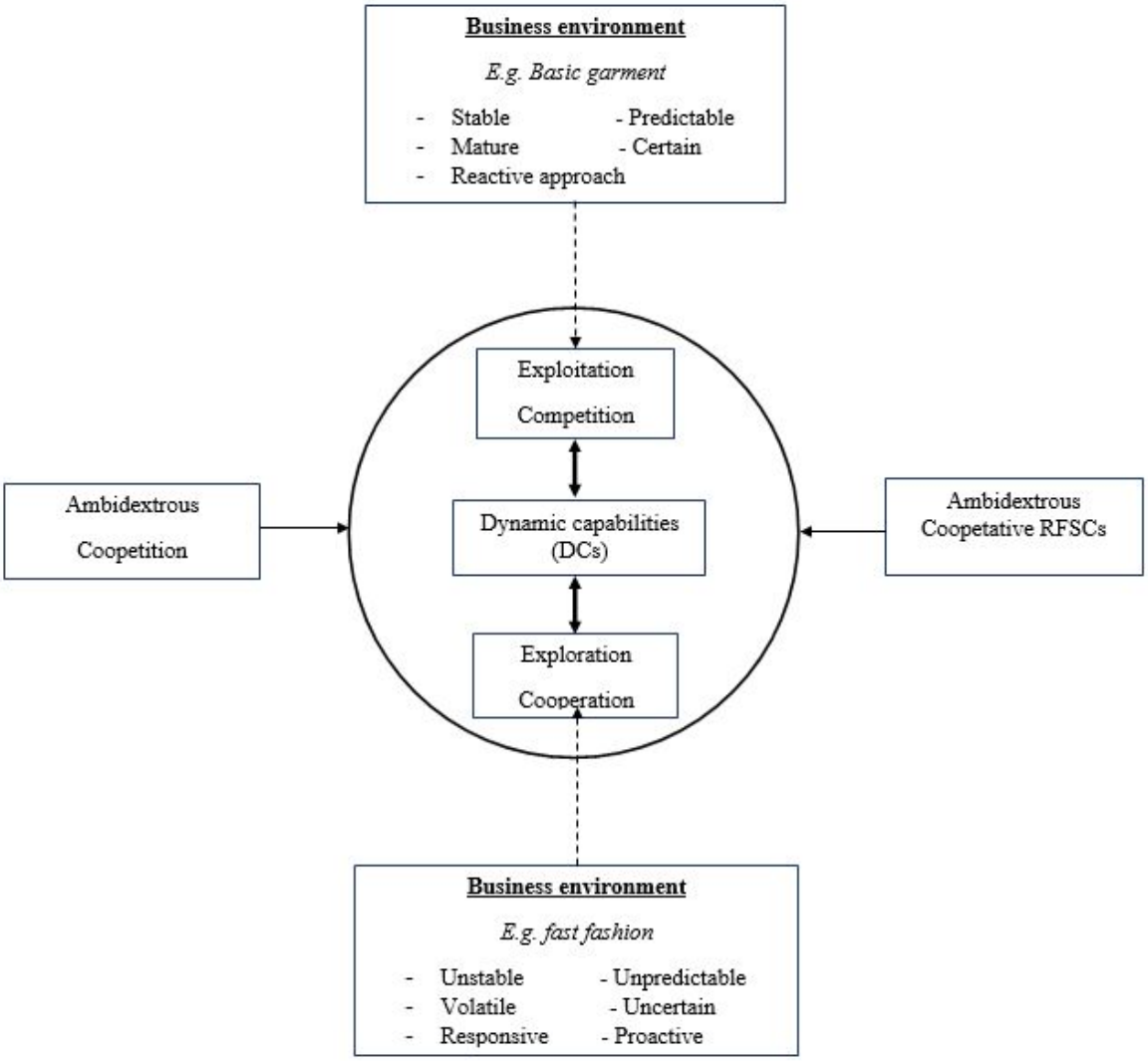

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Table 1: Key Journals in the Research Domain

Main domain	Key journals in the domain
Fashion Supply Chain	*International Journal of Retail & Distribution Management* *Journal of Fashion Marketing & Management* *International Journal of Production Economics* *International Journal of Physical Distribution & Logistics Management* *Journal of Operations & Production Management* *The International Review of Retail, Distribution & Consumer Research* *European Journal of Operational Research*
Resilient supply chains	*International Journal of Retail & Distribution Management* *Supply Chain Management: An International Journal* *Journal of Purchasing & Supply Management* *International Journal of Production Economics* *Journal of Operations Management* *International Journal of Production Research* *The International Journal of Logistics Management* *International Journal of Physical Distribution & Logistics Management*
Coopetition	*Production and Operations Management* *Industrial Marketing Management* *Journal of Operations Management* *European Management Journal* *Journal of Business World* *Journal of Business & Industrial Marketing* *International Journal of Physical Distribution & Logistics Management* *International Journal of Technology Management* *British Journal of Management*
Ambidexterity	*Academy of Management Review* *Journal of supply Chain Management* *Strategic Management Journal* *Journal of Business & Industrial Marketing* *Academy of Management Journal* *Journal of Operations Management* *Academy of Management Perspectives* *Supply Chain Management: An International Journal* *Journal of Business Logistics*

Table 2: key papers in the Research Domain

Title	Source
Coopetition and investment for supply-chain resilience.	Bakshi and Kleindorfer (2009)
Cooperation and competition in relationships between competitors in business networks.	Bengtsson and Kock (1999)
Coopetition in business networks- To cooperate and compete simultaneously	Bengtsson and Kock (2000)
Coopetition among nascent craft breweries: a value chain analysis	Flanagan et al., (2018)
A study of inter-firm dynamics between competition and cooperation -	Osarenkhoe (2010)

A coopetition strategy	
Toward a structural view of co-opetition in supply networks	Pathak et al., (2014)
Emergent coopetition from a sensemaking perspective: A multi-level analysis	Pattinson et al., (2017)
The coexistence of competition and cooperation between networks: Implications from two taiwanese healthcare networks	Peng and Bourne (2009)
The management of coopetitive tensions within multi-unit organizations	Seran et al., (2016)
Coopetitive networks, knowledge acquisition and maritime logistics value	Song and Lee (2012)
Coopetition: insights from the agri-food supply chain	Walley and Custance (2010)
Levels, phases and themes of coopetition: A systematic literature review and research agenda	Dorn et al., (2016)
Managing coopetition through horizontal supply chain relations: Linking dyadic and network levels of analysis	Wilhelm (2011)
Ambidextrous Governance in Supply Chains: The Impact on Innovation and Cost Performance.	Blome et al., (2013)
Balancing exploration and exploitation in supply chain portfolios.	Chiu (2014)
The role of supply management resilience in attaining ambidexterity: a dynamic capabilities approach.	Eltantawy (2016)
Exploitation-and exploration-based innovations: the role of knowledge in inter-firm relationships with distributors.	Hernández-Espallardo et al., (2011)
Knowledge Sharing Ambidexterity in Long-Term Interorganizational Relationships.	Im and Rai (2008)
Creating ambidexterity by integrating and balancing structurally separate interorganizational partnerships.	Kauppila (2010)
The effect of an ambidextrous supply chain strategy on combinative competitive capabilities and business performance.	Kristal et al., (2010)
The impact of ambidexterity on supply chain flexibility fit	Rojo et al., (2016)
Exploration, exploitation and satisfaction in supply chain portfolio strategy	Tokman et al., (2007)

Table 3: Most frequently used words and their frequencies in our finalised papers

Word	Count	%	Word	Count	%
Competition	8,689	1.7	Resilience	1,142	0.21
Cooperation	7,921	1.6	Risk	1,002	0.20
Exploitation	6,831	1.4	Performance	973	0.19
Exploration	6,195	1.3	Capabilities	918	0.19
Partners	6,127	1.3	Knowledge	867	0.18
Disruptions	5,925	1.1	Trust	719	0.17
Ambidexterity	5,034	1.0	Resource	531	0.16
Coopetition	4,919	0.90	Dynamic	412	0.16
Competitors	4,713	0.89	Conflicts	372	0.14
Fashion	2,381	0.45	Cost	217	0.12
Relationships	2,125	0.42	Framework	131	0.11

Table 4: A research agenda for ambidexterious coopetitive resilient FSCs

Extant literature themes and key papers	Current research gaps	Future research directions
Definition and characteristics of ambidextrous coopetition. (Bengtsson and Kock, 2014; Li, 2016; Ricciardi et al., 2016; Pattinson et al., 2017)	Ambidexterity and coopetition are treated and discussed as two different concepts in the extant empirical research. Both concepts have been defined in the context of their dimensions. Ambidextrous coopetition definition and characteristics are unknown in the extant literature.	What are an appropriate definition and characteristics of ambidextrous coopetition in general and for fashion chains specifically?
Drivers and barriers of ambidextrous coopetition. (Zineldin, 2004; Lubatkin et al., 2006; Padula and Dagnino, 2007; Gnyawali and Park, 2009; Chen, 2014; Pathaka et al., 2014; Palm and Lilja, 2017)	The drivers and barriers of ambidextrous coopetition as a unified concept are unknown in the extant literature. Lack of knowledge on why fashion supply chains might not be able to manage their disruptions and enhance resilience, and what motivates and/or impedes them to integrate ambidextrous coopetition into their operations as a unified concept	What are the different drivers and barriers for ambidextrous coopetition in FSCs?
Operational impacts of ambidextrous coopetition. (Kauppila, 2007; Luo and Rui, 2009; Dorn et al., 2016)	Lack of knowledge on how a combinatory concept or construct of ambidextrous coopetition affects the operational performance of FSCs. It remains uncertain which factors of a combinatory ambidextrous coopetition affects the operational performance of fashion supply chains	How does ambidexterious coopetition affect operational performance of FSCs?
Building supply chain resilience through ambidextrous coopetition? (Bakshi and Kleindorfer, 2009; Dorn et al., 2016 and Kauppila, 2007)	Lack of knowledge, especially for FSCs, on how ambidextrous coopetition can be integrated into business operations as a unified concept to build resilience. Lack of knowledge on how FSCs can manage or are managing ambidextrous coopetition to build resilience.	How should and how do organisations in FSCs manage ambidextrous coopetition to build resilience and/or how can an ambidextrous coopetition concept enable FSCs to build resilience?
Framework/typology development for ambidextrous coopetition. (Dowling et al., 1996; Tushman and O'Reilly, 1996; Benner and Tushman, 2003; Gibson and Birkinshaw, 2004; He and	The existing frameworks, models and typologies treated ambidexterity and coopetition as two different concepts. They are based upon either ambidexterity dimensions (exploration and exploitation) or coopetition dimensions (cooperation and competition). The extant empirical research lacks an ambidextrous coopetition framework,	What could be an appropriate framework, model or typology of ambidextrous coopetition to design RFSCs?

Wong, 2004; Lavie and Rosenkopf, 2006; Kauppila, 2007; Walley, 2007; Chin et al., 2008; Bengtsson et al., 2010)	model or typology for researchers for further investigations and for organisations to use as a guiding template to implement or benchmark for enhanced resilience.	

Exploring the role of ambidexterity and coopetition in designing resilient fashion supply chains: A multi-evidence-based approach

Purpose: The purpose of this paper is to investigate the knowledge gaps in the extant literature on the role of ambidexterity and coopetition in designing resilient fashion supply chains (RFSCs), and to develop a contextual framework for effective decision-making to enable practitioners to enhance their supply chain resilience.

Design/methodology/approach: The study adopts a novel Multi-Evidence-Based Approach comprising Denyer and Tranfield's (2009) systematic literature review with Context, Intervention, Mechanisms and Outcome (CIMO) logic, text mining and network analysis. The approach constitutes a rigorous methodology that cross-validates results and ensures the reliability and validity of findings.

Findings: The authors identified key knowledge gaps in the literature and explored the main contribution categories (e.g. conceptual understandings, operational impacts, use of theories and frameworks). Subsequently, we developed a contextual framework of ambidextrous coopetition to design RFSCs. Finally, an empirical research agenda is proposed with the five research directions to address the gap and take forward the notion of ambidextrous coopetition and RFSCs.

Research limitations/implications: The Multi-Evidence-Based Approach is a structured and triangulated systematic literature review approach and thus lacks empirical study.

Practical implications: This research proposes a contextual framework of ambidextrous coopetition that can be used by fashion companies to embed resilience into their structures and operations. This research also presents an agenda for the future empirical research.

Originality/value: This paper contributes by providing a combinatory synthesis on the role of ambidexterity and coopetition in designing RFSCs. This paper introduces a novel methodological triangulation for improving the quality and validity of SLRs. It identifies significant knowledge gaps and defines directions for future research.

Keywords: supply chain management, resilience, ambidexterity, coopetition, fashion supply chains, ambidextrous coopetition.

Paper type: research paper

1. Introduction

Supply chain trends, such as outsourcing and offshore manufacturing, globalisation, improved infrastructure and information technologies (Manuj and Mentzer, 2008) have extended supply chains into longer and complex networks. This has increased supply chain vulnerability, fragility and frequent operational disruptions making disruptions management an important issue and critical challenge (Christopher and Holweg, 2017; Colicchia et al., 2019; Ruel et al., 2019). The global spread of supply chains also compromises agility and responsiveness which is essential to compete in modern demand-driven and volatile markets such as fashion (Masson et al., 2007; Chan et al., 2017). The literature highlights the direct and indirect impacts of disruptions on cost and performance of global supply chains (Christopher and Holweg, 2017). The supply chain costs triggered by disruptions stem not only from securing the transportation of goods, but also from the need to underwrite the risk of delays and quality damages in global supply chains (Christopher et al., 2011). These implications and impacts of disruptions demonstrate the significance of the topic and the need for systematic research studies to provide effective strategies and basis for decision-making to design resilient supply chains (Dorn et al., 2016; Christopher and Holweg, 2017: Colicchia et al., 2019).

Fashion industry characteristics, such as volatile and unpredictable demand, short product lifecycles, supplier base rationalisation, reducing buffers and inventories, increased demand for on-time deliveries, changes in consumer tastes and preferences and technology shifts create further complexity in fashion supply chains (FSCs) (Masson et al., 2007; Caniato et al., 2012; Chen et al., 2019). Global spread of the industry, due to sourcing in Asia and retail in the Western markets, has further increased the use of highly complex global supply networks creating greater exposure to disruptions in FSCs, such as financial, chaos and market risks (Masson et al., 2007). Similarly, the fashion and garment industry is subject to enduring criticisms about its negative social and environmental impacts, including child labour, worker exploitation and pollution (Rafi-ul-Shan et al., 2018). Recent industry incidents such as the Rana Plaza incident in Bangladesh and a fire at the ASOS distribution centre in the UK further demand our consideration for managing natural and man-made disruptions in FSCs (Perry et al., 2015). The extant research also reported business and brand reputation, lack of visibility and control, disruptions, ethical, environmental and complexity risks in FSCs (Christopher et al., 2004; Masson et al., 2007; Caniato et al., 2012; Perry et al., 2015). Therefore, it is

imperative for FSCs to manage disruptions and unforeseen events for their survival and continuity (Brandon-Jones et al., 2014).

Our initial review of the literature on resilience in FSCs identified the following major gaps. First, although several authors have carried out literature reviews on resilient SCM at various stages over the last few years (Kamalahmadi et al., 2016), there is no systemic literature review on the combined role of ambidexterity and coopetition in designing resilient fashion supply chains (RFSCs) (Dorn et al., 2016). The strategy management literature has proposed ambidexterity and coopetition as two dynamic strategies to manage uncertainties and disruptions and enhance resilience capabilities (Dorn et al., 2016; Lee and Rha, 2016). Ambidexterity concerns simultaneous exploration of existing capabilities and exploitation of new opportunities whereas coopetition concerns simultaneous cooperation and competition with business partners (Dorn et al., 2016; Lee and Rha, 2016 ;). Although, these strategies contain confusions, conflicts, tensions and complexities due to the paradoxical and opposing nature of their elements, the extant empirical research has reported their positive financial and operational impact on organisational performance (Tidström, 2014).

Second, the frequency of disruptions has been increased manifold, including longer recovery time and focal firms held responsible for any actions or lack of actions at any tier in their supply chains (Christopher and Holweg, 2011; 2017). Third, the existing strategies and relevant frameworks for supply chain resilience to address natural and man-made disruptions are inadequate and have not been systematically investigated (Christopher and Holweg, 2011). Additionally, although a few studies provide some guidelines (Bakshi and Kleindorfer, 2009; Lee and Rha, 2016), the contributions to the topic by conceptual understanding, operational impacts, use of theories and existing frameworks have not been systematically synthesised in order to explore differences in academic perspectives or the peculiarities of contextual settings (Dorn et al., 2016). Fourth, the role of ambidexterity and coopetition in designing RFSCs is unknown, for example, how can ambidexterity and coopetition be implemented in FSCs as a unified concept and what will be an appropriate framework for this implementation including its operational impact on the performance of FSCs.

In order to address these gaps, this paper seeks to advance our understanding of the role of ambidexterity and coopetition in designing RFSCs, providing key insights for developing strategies and effective decision-making to counter the impact of natural and man-made

disruptions on FSCs. In carrying out the review and analysing the data, our contributions are as follows: First, we identify the knowledge gaps and categorise the key contributions to the topic from different categories (e.g. conceptual understanding, operational impacts, use of theories, and proposed models, frameworks and typologies). Second, we identify developments in the research on the role of ambidexterity and coopetition in designing RFSCs and develop a strategic framework to help practitioners in strategic decision-making to counter the impact of natural and man-made disruptions on FSCs.

Lastly, we introduce a novel combination of rigorous triangulation methods (a systematic literature review (SLR) by CIMO criterion, text mining and network analysis) for cross-validation of our findings and ensuring the data reliability and validity. Hence, this paper responds to the call for further work on the role of ambidexterity and coopetition in SCM using a multi-evidence-based approach to understand and synthesise the role of ambidexterity and coopetition (Dorn et al., 2016) in designing RFSCs. The demand for this exploration is due to interrelationships and the paradoxical, opposing and overlapping nature of the dimensions of ambidexterity and coopetition (Tidström, 2014; Dorn et al., 2016), given the fashion industry's significant global reach in both production and retail markets (Rafi-ul-Shan et al., 2018), as well as its importance to our current way of life and economy (Giannakis and Papadopoulos, 2016).

This paper is organised as follows. The next section provides a brief context for the study followed by discussion of the multi-evidence-based approach. The fourth section presents the results of the multi-evidence-approach and highlights the important issues found in the literature. The fifth section sheds light on the combined role of ambidexterity and coopetition for conceptual model development leading to the conclusions and future empirical research directions.

2. Context for the study

Fashion Supply Chains (FSCs): FSCs have received increasing interest in academic literature across multiple disciplines and market levels, including fast fashion, mid-market and luxury (Perry et al., 2015; Chan et al., 2017; Chen et al., 2019), due to their dynamic, complex and volatile nature. The fashion industry is highly global with garment manufacturing taking place mainly in Asia and retailing in the Western economies (Caniato et al., 2012). Fashion

manufacturing is comparatively low-tech and labour-intensive with low barriers to entry (Perry et al., 2015), hence, a mass trend of outsourcing of production to lower labour cost countries, resulting in long and geographically complex supply chains with decreased visibility and control (Masson et al., 2007). Consequently, the fashion industry is criticised due to its negative environmental and social impacts, including child labour, work exploitation and catastrophic disasters such as the Rana Plaza incident (Rafi-ul-Shan et al., 2018).

The main characteristics of fashion are: short product life cycles, high demand volatility, low predictability and high impulse buying, constant renewal of products and seasonality to create a higher consumer appetite for renewals (Barnes and Lea-Greenwood, 2006; 2010; Perry et al., 2015; Chen et al., 2019). These characteristics require agile and responsive supply chains, management structures based upon close interfaces, real-time information sharing and process alignment, flexibility and collaboration to respond on-trend demand in timely manner (Sull and Turconi, 2008; Panahifar et al., 2018). Fashion retailers such as Zara and H&M have achieved phenomenal growth by rapidly translating famous fashion house styles and celebrity trends into new collections at competitive prices allowing consumers to constantly refresh their wardrobes (Barnes and Lea-Greenwood, 2006; 2010).

Fashion consumer purchase decisions are based upon "want" rather than "need" and "see-now, buy-now" due to the impact of social media and communication technologies (Perry et al., 2015). Fashion consumers are increasingly demanding in tastes and preferences, more fickle and unwilling to pay extra (Rafi-ul-Shan et al., 2018); therefore, FSCs must be proactive in determining trends and sufficiently reactive to bring them to market in a timely manner with minimum stock-keeping units in order to maximise margins during the selling window (Perry et al., 2015). Otherwise, retailers may incur extra inventory costs and unsold items may have to be marked down, affecting profit margin (Barnes and Lea-Greenwood, 2006; 2010).

Resilience: Supply chain structures and philosophies of lean, reduced assets and costs, streamlining flows to eliminate buffers have enabled global supply chains to be operationally efficient, but substantially increased disruptions (Christopher and Holweg, 2011; Ruel et al., 2019). Today's business structures and strategies were designed under stable environment assumptions that are inapplicable in the modern turbulent, volatile and highly unstable business environment (Christopher and Holweg, 2011). Therefore, it is vital to design resilient supply chains to survive and compete in a volatile and unpredictable market place such as fashion (Christopher and Peck, 2004).

Resilience is 'the ability of a system to return to its original state or move to a new, more desirable state after being disturbed' (Christopher et al., 2004, p. 2) and is interchangeably used with supply chain risk management (SCRM), defined as 'the management of supply chain risk through coordination or collaboration among the supply chain partners so as to ensure profitability and continuity'(Tang and Musa, 2011, p. 26). However, resilience is more than SCRM, it is a capability to survive and compete in a volatile, unpredictable and turbulent market place such as fashion (Christopher and Peck, 2004). The concept has been defined, conceptualised, understood and applied from multidimensional and multidisciplinary perspectives (Kamalahmadi and Parast, 2016; Colicchia et al., 2019).

Most definitions of resilience include the probability of disruptions or disturbances, proactively planning and designing, anticipating unexpected events, responding adaptively, maintaining control over structure, and transcending to a post-event robust state of operation (Ponis and Koronis, 2012; Colicchia et al., 2019). Resilience is a capability of a system to anticipate a disruption, apply resistance and stimulate recovery and responses in the shortest period with minimum adverse impacts (Kamalahmadi and Parast, 2016; Colicchia et al., 2019). Antecedents of supply chain resilience include flexibility, agility, velocity, visibility, availability, redundancy, and mobilisation of resources, collaboration and supply chain structure knowledge (Ponis and Koronis, 2012). It is essential for supply chains to acquire the essential level of readiness throughout the pre-disruption state in order to reduce the probability of disruption occurrence (Ponis and Koronis, 2012). Supply chains should possess the ability to response and recover from disruptive events to minimise the impact of disruption and, thus, bounce back from post-disruption phase (Christopher and Peck, 2004).

The extant literature has proposed various strategies to design resilient supply chains. For example, supply chain reengineering, agility, information sharing, collaboration and building relationships, and knowledge sharing between supply chain partners (Christopher and Peck, 2004; Colicchia et al., 2019). Supply chain literature emphasises building resilience capabilities such as visibility, flexibility, redundancy, disaster readiness, information sharing and collaboration (Cheng and Kam, 2008; Bakshi and Kleindorfer, 2009; Kamalahmadi and Parast, 2016). However, the existing empirical research on SC resilience does not extend to holistic network level, heavily relying upon financial outcomes (Christopher and Holweg, 2017), descriptive and under-developed at complex supply network level, such as global fashion supply chains (Rafi-ul-Shan et al., 2018). Furthermore, the combined role of ambidexterity and coopetition in designing RFSCs' needs to be explored because of their reported dynamic

capability nature and due to the ineffectiveness of the traditional resilience strategies in global SCs (Giannakis and Papadopoulos, 2016). Our study makes a substantial contribution to this domain by integrating a multi-evidence-approach on the role of ambidexterity and coopetition in designing RFSCs and explicitly defining the significant aspects covered in the specific content of relevant articles, and exploring the developments in this emerging knowledge domain (Dorn et al., 2016).

3. Research methodology

Multi-evidence-based Approach: CIMO criteria, Text Mining and Network Analysis

In this study, we adopted a triangulation approach to extract and analyse a large volume of empirical research on the role of ambidexterity and coopetition in designing RFSCs. Our novelty is to combine the SLR by applying CIMO logic, text mining and network analysis to systematically identify, select, and evaluate the existing studies, consequently limiting the research bias by producing valid results. Our triangulation is based on the following three phases:

3.1 Phase One: SLR by applying CIMO logic

SLR is an evidence-based approach to identify, select and analyse the most relevant data to provide in-depth understanding of what is already known and potential gaps for the future research (Colicchia and Strozzi, 2012; Rafi-ul-Shan et al., 2018). The key principles of SLR (i.e. transparency, inclusivity and an explanatory and heuristic nature) allow an objective overview of search results and reduce issues of bias and error (Denyer and Tranfield, 2009). Figure 1 below shows the steps undertaken in this phase.

……..Insert figure 1 here……

In order to define the scope of study we used Denyer and Tranfield's (2009) Context, Intervention, Mechanisms and Outcome (CIMO), elements as an initial framework:

1. *Context*: the individuals, relationships, institutional settings or wider systems that are studied.
2. *Intervention*: the effects of the event, action or activity are studied.
3. *Mechanisms*: the mechanisms that explain the relationship between interventions and outcomes and under which circumstances these mechanisms are activated or not; and

4. *Outcomes*: the effects of the intervention, including how outcomes are measured and what are the intended and unintended effects.

Applying CIMO logic, the main emergent themes were unpredictable and volatile demand, short life-cycle product, supply chain complexity and time-based competition (C), practices and tools for designing resilient supply chains (I), organisational ambidexterity and coopetition processes (M) and increased organisational performance, supply chain survival and continuity (O), as shown in Figure 1, with resulting combinatory ambidexterity and coopetition processes for a resilient FSCs gap.

This was followed by identifying our research keywords to appropriately position our study. We carried out multiple discussions and brainstorming sessions within our research team and a focus group discussion of two academics and an industry professional. For enhanced face validity, the initial keywords were refined into series of search strings using Boolean logic, for example, "ambidexterity AND/OR Resilience", and "coopetition AND/OR Resilience AND/OR ambidexterity AND/OR Fashion" (Rafi-ul-Shan., 2018).

The search strings were continuously refined, resulting into 18 most relevant strings that were used to search data on Web of Science, Science Direct and Emeraldinsight. These databases enabled us to find a large volume of high quality, peer-reviewed journals with complete bibliographic data and full-length author abstracts from the most influential research (Colicchia and Strozzi, 2012), thus, ensuring high quality search results that can be easily organised and analysed (Rafi-ul-Shan et al., 2018). For greater quality of our search results, we also applied the following inclusion and exclusion criteria proposed by Newbert (2007):

- Papers published in peer-reviewed scientific journals in English.
- Including the most relevant journals in the Business Management discipline, in general, and in the area of logistics, operations management and supply chain management in particular. We excluded papers from all other disciplines unless papers covered inter-organisational or network perspective.
- Empirical research papers, qualitative or quantitative, including theoretical papers;
- Papers published in the last 19 years.
- Ensuring relevance by selecting articles that contained at least one keyword in their title or abstract.
- Ensuring empirical relevance by reading all remaining abstracts and articles in their entirety.

This process enabled us to shortlist 70 papers for the review that satisfied our inclusion and exclusion criteria. Most academic journal papers on all three topic areas were published from 2000 (Colicchia and Strozzi, 2012; Quarshie et al., 2016; Rafi-ul-Shan et al., 2018). Hence, the time span for this review was January 1, 2000-December 31, 2018. We restricted our research time span to December 31, 2018 so that we can observe a complete, yearly, trend. Figures 2-4 show yearly publications for ambidexterity and coopetition in the SCM discipline, with noticeably fewer papers identified for the combined discussion of ambidexterity and coopetition in SCM (Figure 5).

…...Insert figures 2 to 5 here……

Based upon our SLR applying CIMO logic, Table 1 shows the most important journals in our research domain.

…...Insert table 1 here…

Table 2 shows the most important and relevant papers on coopetition and ambidexterity in the SCM or network contexts.

……..Insert table 2 here…….

3.2 Phase Two: Text mining

To apply text-mining methods, we imported our finalised papers into NVivo12 for cross-validation, to ensure papers covered our research subject areas and to identify key themes covered in the papers. We coded and categorised our finalised papers in terms of definitions, conceptualisation and operationalisation of the concepts, operational impacts, use of theories and frameworks or typologies, etc.). The research team was also engaged in the process of compiling the database and a third expert validated the preliminary results of coding. This process eliminated any potential subjective bias and was repeated continuously until a consensus was reached between the experts. NVivo12 enabled us to use word clouds for cross-validation and to visualise the content focus of our finalised papers. Figure 6 and Table 3 show the most frequently used words in our finalised papers and the word cloud:

……..…Insert figure 6 here……

……Insert table 3 here……

Text mining ensured the validity and reliability of our selection process, including our finalised papers. Text mining in NVivo12 also enabled us to identify low values of relative frequencies pointing as important themes for future research.

3.3 Phase Three: Network analysis

For the network analysis, we coded all the major categories and frequencies. For future research directions and greater robustness, we also coded our sub-categories and noticeable minor categories and frequencies in a separate data set for the network analysis. This data set was prepared based upon our finalised papers that we stored in the NVivo12 for text mining purpose. This allowed us to perform citation analysis, examine networks and their clusters and to identify the knowledge gaps and contributions from the perspective of ambidexterity and coopetition and their role in designing RFSCs. The network analysis shows the main contributions in our research domain and the empirical research links with relatively equal publications on coopetition (green) and ambidexterity (blue), but minimum contributions as a unified discussion of both in the SCM discipline (red) or networks (Figure 7).

……Insert figure 7 here……..

Our triangulated methodological approach (SLR with CIMO logic, text mining and network analysis) is a methodological innovation and a novel contribution in the research on ambidexterity and coopetition and their role in designing RFSCs by eliminating subjective bias, cross-validation and enhanced validity and reliability of secondary data.

4. Findings

4.1 Ambidexterity

4.1.1 *Conceptualisation and operational impacts*: Ambidexterity has been defined as a strategy of pursuing exploration practices in the form of flexibility and exploitation practices in the form of efficiency (Kristal et al., 2010). Ambidexterity is the ability of an organisation to simultaneously explore and exploit different opportunities in the market place for better performances (Rojo et al., 2016). Although, there exist abundant definitions of ambidexterity, they all define the concept from its dimensions perspective, exploration and exploitation (O'Reilly and Tushman, 2013).

Ambidextrous organisations exploit their existing capabilities and resources to run business efficiently and satisfy existing customers, groups and markets while exploratory innovation

focuses on creating new products and markets and satisfying new customers (Kauppila, 2007) and, thus, an operational strategy for enhanced performance and competitive advantage (Subramani, 2004; Kristal et al., 2010; Blome et al., 2013). The extant research has reported positive impact of ambidexterity strategy on firm performance. For example, enhanced flexibility (Adler et al., 2009), supply chain flexibility (Rojo et al., 2016) positive financial returns and increased organisational survival rate under risks and uncertainties (Gibson and Birkinshaw, 2004). Accordingly, firms can sustain their competitive advantages through attaining the optimal level of supply chain flexibility by redesigning their existing practices and absorbing latest competences from internal and external environment simultaneously (O'Reilly and Tushman, 2013; Fantazy and Tipu, 2019).

Ambidextrous organisations get benefits of creating and developing supplier relationships and sharing risk and rewards (Tokman et al., 2007; Azadegan and Dooley, 2010; Hernández-Espallardo et al., 2011). In large organisations, resources endowment acts as a key driver for exploration and exploitation (Senaratne and Wong, 2018; Raisch and Birkinshaw, 2008). Conversely, limited resources availability, for example in SMEs, can be a barrier to implementing such mechanisms towards achieving organisational ambidexterity (Palm and Lilja, 2017). However, lack of employee motivation, lack of trust between network firms and external regulations enforced by governments may limit achieving ambidexterity (Stuart et al., 2012; Senaratne and Wong, 2018). Some other constraints to implementation of ambidexterity strategy reported in literature are organisational culture, top management commitment, employee empowerment, unwillingness of changing existing processes and operations, organisational structure, and having transactional mind-set (Tuan, 2016; Palm and Lilja, 2017)

4.1.2 *Operationalisation of the concept*: the empirical research has operationalised ambidexterity from multiple perspectives. For example, *simultaneous exploitation and exploration* perspective holds that it is not enough to achieve ambidexterity with the single usage of either one of the two capabilities (Günsel et al., 2018). For instance, when a firm pays more attention to exploitative activities, organisational monotony may arise. On the other hand, focusing all efforts on exploratory activities only may prevent firms from taking full advantages from the current capabilities and resources (Carmeli and Halevi, 2009). A *balanced view of ambidexterity* holds that organisations pursuing both activities in a balanced way are better off than firms pursuing single focus (Raisch and Birkinshaw, 2008; Andriopoulos and Lewis, 2009). A *combining vs. subtracting view* of ambidexterity holds that exploration and

exploitation activities are interdependent, non-interchangeable and separated from each other; companies that can attain complementarity and pursue both activities can achieve higher performance (Raisch and Birkinshaw, 2008). However, instead of its reported advantages, research has opposed the combination approach, and suggested that emerging companies should direct all their efforts towards either exploration or exploitation (Mathias, 2014). Nonetheless, for mature organisations, it becomes necessary not only to balance both activities, but also there will be a crucial need for integration of exploration and exploitation activities (Chiu, 2014).

The empirical research has reported three approaches to ambidexterity. First, *sequential ambidexterity* facilitates a firm to explore new opportunities and exploit existing capabilities through temporal separation of each activity (Boumgarden et al., 2012). This approach is more effective when applied at the project level, for example, a project often progresses from an exploration phase, which aims at finding a feasible business model through multiple stages, to an exploitation phase which mainly focuses on executing the feasible business model that was explored earlier (Chen, 2017). Second, *structural ambidexterity* approach, exploration and exploitation activities are coordinated by the top management of a firm across structurally separated business units (O'Reilly and Tushman, 2016). This approach facilitates the effective and efficient implementation of business strategies, structures and processes across different business units; therefore, affording a favourable and practical solution towards achieving organisational ambidexterity (Chen, 2017). Third, *contextual approach* refers to the behavioural capability of employees to simultaneously demonstrate exploration and exploitation across an entire business unit (Gibson and Birkinshaw, 2004). Contextual ambidexterity is pursuing exploration and exploitation by establishing an organisational context in which individuals are encouraged to explore and/or exploit within business units (Gibson and Birkinshaw, 2004).

4.1.3 *Use of theories*: The extant empirical research also used various theories to describe the knowledge domain of ambidexterity (Lee and Rha, 2016). For example, ambidexterity could be applied as a *dynamic capability* to develop a dynamic building-process for a firm's supply chain design or restructure (Tseng and Lee, 2014; Lee and Rha, 2016). As a dynamic capability-building process, ambidexterity enhances a firm's competencies and aids highlighting uncertainties in business environments (Lee and Rha, 2016). Therefore, ambidexterity as a dynamic capability can lead to supply chain resilience by sensing and seizing opportunities for disruption management and quick recovery. From the *knowledge-based view* perspective,

supply chain exploitation entails internalising and leveraging the current knowledge bases to enhance current technologies and processes through SCM (Huang et al., 2008; Tseng and Lee, 2014; Tuan, 2016) while exploration, enables the establishment of tactic knowledge within SCM through externalisation and socialisation (Im and Rai, 2008). Hult et al. (2004) claimed that the knowledge-based view facilitates manufacturers building unique capabilities that positively influence competitive capabilities. The *resource-based view* (RBV) suggests that, for a firm to stay competitive in the market and create value, its resources should be unique, valuable, rare and inimitable by other organisations (Conner, 1991). The RBV stresses on the identifications of potential resources and choosing the right ones (Helfat and Peteraf, 2003). Organisations tend to pursue a variety of strategies in order to reach out new markets through expanding their resources, consequently achieving tenable core competencies (Fantazy and Tipu, 2019). Nevertheless, the lack of resource may cause conflicts and trade-offs between exploration and exploitation within firms when trying to develop both activities simultaneously (March, 1991).

4.1.4 *Frameworks*: the empirical research also proposed various frameworks for ambidextrous organisations. For example, O'Reilly III and Tushman (2008) proposed that a firm should consider ambidexterity based upon strategic importance and operational leverage. When new opportunities are strategically unimportant and firms cannot benefit from existing resources or capabilities, the firms should spin them out, either within the larger company or to the public. If a product has low strategic importance, but offers operational leverage it can be either internalised or contracted out. When a business is strategically important, but cannot benefit from leveraging existing firm assets, the advice is to operate the new business as an independent business unit (O'Reilly III and Tushman, 2008). If the new opportunity is both strategically important and can benefit from the firm's existing assets and operational capabilities, under this condition an ambidextrous design is most appropriate. However, their typology does not explain how SMEs can develop an independent business unit and, therefore, be more appropriate for larger firms. Some other models are based upon reactive and proactive exploration and exploitation orientations towards markets and knowledge creation (Kauppila, 2007), and innovation capabilities development (Blome et al., 2013). Similarly, the existing models are either focusing at firm and employee level or a limited network level (i.e., Tushman and O'Reilly, 1996; Benner and Tushman, 2003; Gibson and Birkinshaw, 2004; He and Wong, 2004, Lavie and Rosenkopf, 2006, Kauppila 2007). Similarly, none of the existing

ambidexterity models or frameworks integrate coopetition (Doran et al., 2016). Further, they do not explain how ambidexterity can help develop RFSCs.

4.2 COOPETITION

4.2.1 *Conceptualisation and operational impacts*: Coopetition has been defined in diverse, contradictory but often parallel ways (Minà and Dagnino, 2016). Coopetition implies the simultaneous cooperation and competition between two or more firms competing in the same market for the purpose of creating mutual value (Nalebuff and Brandenburger, 1996; Luo, 2007). Relationships among supply chain partners are usually perceived as competitive. However, in practice, many firms are sought to be simultaneously involved in both competition and cooperation with other firms in the supply chain (Walley and Custance, 2010). Supply chain partners tend to cooperate in activities that occur at the upstream while they compete towards the downstream closer to customers (Bengtsson and Kock, 2000).

Coopetition is based on the idea that processes for value creation and sharing take place within inter-firm interdependence, resulting in a structure where both competition and cooperation are simultaneously present and interconnected (Walley, 2007). Cooperating and competing at the same time enables firms to gain both common benefits for both parties and private benefits for individual parties (Kim et al., 2013); for example, via joint third-party audits for the assessment of supplier environmental and social criteria or collaborative shipping (Kovacs and Spens, 2013). The empirical research shows that coopetition has a positive impact on the inter and intra firm level by increasing competitiveness and technological innovation and increased R&D (Rossi and Warglien, 2009; Zhang et al., 2010, Huang and Yu, 2011; Li et al., 2011; Solitander, 2011). Theory of *knowledge-based-view* (KBV) also explains firms' intentions to engage in coopetative relationships. For example, firms engage in coopetative relationships for knowledge sharing, creation and acquisition, enabling them to survive and compete in a dynamically changing business environment by constantly reviewing, updating and embracing new competencies (Bengtsson and Raza-Ullah, 2016).

Global fashion supply chains are prone to natural and man-made disruption due to their volatile nature (Giannakis and Papadopoulos, 2016). From a coopetition perspective, the extant literature has advocated cooperation against competition in order to manage supply chain disruptions and enhance resilience (Perry et al., 2015). Relational competencies, such as cooperation and communication, present a positive influence of cooperative relationships on

resilience (Wieland and Wallenburg, 2013). Similarly, SCR can be enhanced through collaborative activities, such as information sharing, enabling supply chain visibility and flexibility (Scholten and Schilder, 2015). Walley (2007) argued that traditional business management was based on an assumption of inter-firm competition that led to innumerable loss of business opportunities that were based upon *game theory* principles of "win-lose" scenarios. However, by the mid-1990s, it became apparent that the traditional approach was becoming obsolete and that cooperation between competitors could produce a "win-win" scenario. However, FSCs relationships are characterised as short-term for greater flexibility and to fulfil on trend demand (Rafi-ul-Shan et al., 2018).

Coopetition is described as a characteristic of a firm's structure, growth level of a firm's industry and inherent uncertainties (Padula and Dagnino, 2007; Ritala, 2012; Chen, 2014). For example, quick erosion of firm's core competencies reduces its control over its destiny, which compels the firm to join its competitors for security (Dai, 2010). The theory of *resource-based view (RBV)* also explains why firms engage in coopetative relationships. For example, firms are more motivated to develop relationships with competitors that possess superior capabilities and resources, enabling them in achieving mutual objectives (Gnyawali and Park, 2011). Furthermore, a firm's internal motives may lead to coopetition initiation, but firms also combine their resources and share knowledge with their competing partners to increase their bargaining power and enhance their competitive capabilities (Gnyawali and Park, 2009). On the other hand, lack of trust between coopetition partners and the unreliability when choosing partners may cause coopetition strategy to fail (Schulz and Blecken, 2010). Some other challenges include integrating of cooperation and competition activities in a balanced manner, lack of information sharing, commitment, and resources (Pellegrin-Boucher et al., 2018).

4.2.2 *Operationalisation of the concept*. The research on coopetition has operationalised the concept from the relationship governance and implementation perspectives. *Relational governance* concerns about the management of exchanges through norms, commitment, trust, mutual understanding and a morally coopetative atmosphere (Muthusamy and White, 2005; Liu et al., 2009; Stuart et al., 2012). Establishing relational governance is a long-term process where competitors start knowing and developing future reliable expectations from each other. This leads towards setting joint plans and objectives, showing commitment and trust by information sharing and collaboration, hence, minimising opportunism (Woolthuis et al., 2005; Tangpong et al., 2010). Mutual benefits and continuity expectations stimulate a better understanding between coopetitors and inspire comprehensive knowledge sharing (Dyer and

Hatch, 2006; Liu et al., 2009). The empirical research has reported that value creation and firms performance can be improved through the relational governance in the inter-firm levels (e.g., Bosch-Sijtsema and Postma, 2009; Wang et al., 2011). *Transactional governance* applies legal conditions and incentive systems to regulate partners' exchanges while preventing uncertainty occurrence by, for example, predetermined deadlines and penalties to prevent delays (Hagedoorn and Hesen, 2007; Liu et al., 2009). Finally, firms may *singularly* emphasise on either relational or transactional governance or try to simultaneously utilise both mechanisms as *plural governance* (Li et al., 2010). Singular governance alone, transactional or relational, is often utilised when the coopetition level is low or coopetition does not exist, whereas, plural governance focuses on the coopetition complexity (Bouncken et al., 2016). Shifting incrementally from singular into plural governance is perceived to obtain efficient product innovation while increasing coopetition level (Li et al., 2010).

From the implementation perspective, the *initiation phase* contains studies that explore the structural choices and possibilities for coopetition formation (Dorn et al., 2016). In coopetition, both cooperation and competition are combined on the basis of an agreement. Alongside the formal agreement, organisational structural design is important aspect of the initiation phase of coopetition. It has been argued that having the right organisational structure is essential for more stable relationships among coopetative firms (Zeng, 2003; Luo and Rui, 2009). The *managing phase* emphasises on two aspects. First, establishing a balance between cooperative and competitive activities. However, in practice, an optimal point where cooperation and competition can be balanced is unknown and, second, difficulty in managing the dynamics that may arise throughout coopetative relationships between the elements of coopetition, cooperation and competition (Wilhelm, 2011; Peng et al., 2012). Eriksson (2010) suggested some *dynamic capabilities* as coopetition management measures, such as imposing shared objectives, workshops, management development, leadership role, communication means and conflict resolution practices to balance and manage the dynamics between cooperation and competition.

4.2.3 *Frameworks*: the empirical research has also focused on developing coopetition frameworks or typologies to demonstrate dynamics between cooperation and competition (Bengtsson and Kock, 2003; Walley, 2007; Bengtsson et al., 2010). Most of the proposed typologies are based upon the intensity of interaction between cooperation and competition continua of coopetative relationships. For example, Chin et al. (2008) proposed that a *Monoplayer* (low cooperation and competition) maintains low degrees of cooperation and

competition with competitors. A *Contender* (high competition and low cooperation) never compromises on market share and power to maintain competitive position. A *Partner* maintains a high degree of cooperation and low competition in search of joint synergies created by complementary resources and capabilities. Finally, *Adapters* (high on competition and cooperation) are mutually dependent for competitive advantage. However, Bengtsson et al. (2010) argued that all four types of coopetative interactions are problematic when it comes to being dynamic, because the inherent characteristics of both dimensions do not provide suitable combinations to balance tensions. Similarly, coopetative interactions can be dynamic, but the tensions and situations that may constitute dynamic coopetition have not been empirically explored yet (Bengtsson et al., 2010). Furthermore, the proposed typologies are not empirically tested for their validity and their combined impact on the operational performance of a volatile, unpredictable and short life cycle market, such as fashion.

5. Framework development

The extant literature has implicitly highlighted the similarities between both concepts, ambidexterity and coopetition. For example, explorative processes depend more on collaborative relationships and are usually horizontal in their nature, in contrast, exploitative processes are more competitive and often vertical (Gupta et al., 2006). Therefore, the cooperation dimension of coopetition is aligned with the exploration dimension of ambidexterity and the competitive dimension of coopetition is aligned with the exploitative dimension of ambidexterity (Gupta et al., 2006; Dorn et al., 2016). A company that pursues an exploitative strategy is expected to operate in a relatively stable environment, in a mature industry and usually adopts reactive orientation by passive actions focusing on predictable, proximate and profitable returns (Kauppila, 2007). In contrast, companies in ambidextrous practices and coopetative relationships need to build dynamic capabilities to mutually benefit from such relationships by knowledge sharing, and capability development through proactive exploration in more uncertain, distant and even negative payback (Kauppila, 2007). Similarly, companies in ambidextrous practices and coopetative relationships need to cooperate and compete for the effective and efficient utilisation, control and management of their complementary resources (Wilhelm, 2011).

Dynamic Capabilities exhibit distinctive advantages in two types of markets (Eisenhardt and Martin, 2000). First, moderately dynamic markets (basic garments), where changes occur frequently but follow linear and predictable paths and where industry structures are stable.

Firms in such industries rely heavily on existing knowledge and a problem solving approach is usually followed for the design of processes and activities. Second, in highly volatile markets, such as fashion, where changes are less predictable and non-linear, market boundaries are blurred and industry structures are ambiguous and constantly shifting. The DC view integrates market dynamisms of market speed and unpredictable changes affecting business ability to compete in the market place. DC are strategic and organisational routines by which firms attain new resource configurations as markets emerge, collide, split, evolve and die and further enable firms to change processes in response to market changes (Eisenhardt and Martin, 2000). Empirical research on FSCs highlights the dynamic capabilities of internal and external integration, real-time information sharing and process alignment, management and supply chain knowledge development, building agility, flexibility and responsiveness in operations to respond to on-trend demand in timely manner (Kumar et al., 2006; Sull and Turconi, 2008; Perry et al., 2015; Rafi-ul-Shan et al., 2018). Therefore, ambidextrous coopetition can be expressed as a dynamic capability to exploit existing capabilities through cooperation among supply chain actors while simultaneously exploring new opportunities in a competitive manner (Dorn et al., 2016). Therefore, we propose the following framework for an ambidextrous coopetition (Figure 8):

……..Insert figure 8 here……..

The framework proposes that, *Ambidextrous Coopetition* can lead towards RFSCs by combining the relevant dimensions of both ambidexterity and coopetition in a dynamic manner and in accordance to the fashion industry and product characteristics (Kauppila, 2007). Organisations competing in basic garments need to exploit their existing capabilities and compete for a greater market share by integrating dynamic capabilities, such as information sharing and relationship building with supply chain partners (Perry et al., 2015; Dorn et al., 2016; Fernie and Grant, 2019). Since the basic garment products and industry is stable and predictable, being able to react to emerging situations through the dynamics of existing relationships, information sharing and management knowledge can, therefore, enhance resilience (Kauppila, 2007; Fernie and Grant, 2019). In contract, organisations competing in a volatile and unpredictable market place, such as fast fashion, need to constantly explore new opportunities to remain flexible and to respond to on-trend demand in a timely manner (Kauppila, 2007; Perry et al., 2015). Due to trendy nature, these organisations need to be highly proactive to identify new trends (exploration) and highly responsive to bring them on shelves (flexibility and cooperation in operations). This also requires dynamic capabilities, such as

agile culture, real-time information visibility and using responsive communication channels (Masson et al., 2007; Sull and Turconi, 2008; Fernie and Grant, 2018; Rafi-ul-Shan, 2018).

6. Conclusions and Future Research Directions

Highly fragmented industry and fashion characteristics makes FSCs more prone to disruptions including social, environmental and ethical issues (Perry et al., 2015; Chen et al., 2019). Thus, it is vital for FSCs to integrate resilience into their supply chain structures and operations. Literature has reported that the traditional strategies for supply chain resilience are ineffective for the modern volatile and unpredictable market place such as fashion. This calls for the researchers to explore multidisciplinary strategies to design RFSCs. To answer this call and addressing identified knowledge gaps, this research adopted a multi-evidence-approach to analyse and synthesise fragmented literature on the role of ambidexterity and coopetition in designing RFSCs. We found that coopetition and ambidexterity definitions are still unclear and vary according to the context (Turner et al., 2013; Bengtsson and Kock, 2014). Several studies have discussed the role of coopetition and ambidexterity on firms' performance (e.g., Li, 2016; Strese et al., 2016; Pattinson et al., 2017). In contrast, few studies have discussed the relationships between ambidexterity and supply chain resilience (e.g., Eltantawy, 2016; Rojo et al., 2016), and even fewer studies have highlighted the link between coopetition and supply chain resilience (Bakshi and Kleindorfer, 2009; Luo and Rui, 2009). Our findings suggest that none of the extant empirical research has explored the relationship between ambidexterity and coopetition and their combined role in designing RFSCs.

This research synthesised fragmented literature on FSCs, resilience, ambidexterity and coopetition and found that the dimensions of ambidexterity and coopetition have similarities and therefore both concepts form one contract, *ambidexterious coopetition*. However, the operationalisation of ambidexterious coopetition requires dynamic capabilities to balance dynamics for sustained competitive advantage. For practitioners, this research established relationships between ambidexterity and coopetition dimensions and highlighted different types of dynamic capabilities required for their operationalisation and designing RFSCs.

6.1 Theoretical contribution

This research made novel contributions by adopting a multi-evidence-approach to search, analyse and synthesise the fragmented extant empirical research on ambidexterity and coopetition and their role in designing resilient FSCs. This study provided a comprehensive

account on the conceptual understanding, operational impacts, governance mechanisms and the use of theories in the research domain. Consequently, enhancing our understanding by presenting a holistic view of the role of ambidexterity and coopetition for RFSCs. This research also proposed an ambidexterious coopetition framework for RFSCs by exploring and analysing the relationships between ambidexterity and coopetition dimensions. Finally, we integrated theoretical lens in our research and explicitly highlighted the role of dynamic capability theory in managing ambidexterious coopetition for resilient FSCs. Our identified knowledge gaps and proposed future research directions can further extend knowledge in the research domain.

6.2 Practical contribution

Against the backdrop of daily media reports of fashion industry scandals and disruptions, designing resilient supply chains is a critical challenge for FSC managers. This research has proposed an ambidexterious coopetition framework to aid fashion industry practitioners for resilience decision making. The novelty of our proposed framework rest in its explicit implementation guidelines that are according to the nature of fashion, basic and fast fashion. This research not only described the role of dynamic capabilities in designing RFSCs by *ambidexterious coopetition* but also highlighted different types of DCs required for the FSCs. Similarly, this research presents a comprehensive set of managerial practices for proactive and informed decision making for resilience. Thus, two opposing and contradictory dimensions of each concept, ambidexterity and coopetition, when combined based upon their relationships through DCs they enhance FSC resilience.

6.3 Research limitations

Much like all of the academic research, this research also has some limitations. First, this research used a multi-evidence-approach and structured systematic literature review process (Colicchia and Strozzi, 2012; Rafi-ul-Shan et al., 2018; Denyer and Tranfield, 2009). Although, the used approaches enabled us to remove biasness and produce high quality results by following a robust research process but our findings lack empirical insights. Second, we used only three databases to find the most relevant and high quality peer reviewed papers, thus, there is a possibility of missing some relevant papers. Future researchers can use more databases for a comprehensive search of empirical papers. Third, to enhance the overall quality and robustness of our research process, we specified a narrow inclusion and exclusion criteria in terms of time span for published papers and type of papers. Future researchers can increase time span, adding 1990s and 2019, and include conference and multidisciplinary papers for a

comprehensive view. Fourth, our proposed framework lacks empirical validity. Therefore, this research invites researchers to test our proposed framework and viability of the *ambidexterious coopetition* construct through empirical research. As a first step, the future researchers can conduct case studies in the fashion industry followed by a mixed method approach to test the framework across industries and countries. Finally, future researchers can further extend the knowledge domain through empirical investigations of our proposed existing knowledge gaps and research questions (table 4).

……Insert table 4 here……

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