Journal of Transport and Supply Chain Management
ISSN: (Online) 1995-5235, (Print) 2310-8789

Strategic supply chain alignment: The role of third-party logistics service providers during disruption recovery

Authors:
Chris van der Westhuizen[1]
Wesley Niemann[1]

Affiliations:
[1]Department of Business Management, Faculty of Economic and Management Sciences, University of Pretoria, Pretoria, South Africa

Corresponding author:
Wesley Niemann,
wesley.niemann@up.ac.za

Dates:
Received: 25 Jan. 2022
Accepted: 17 Mar. 2022
Published: 29 Apr. 2022

How to cite this article:
Van der Westhuizen, C. & Niemann, W., 2022, 'Strategic supply chain alignment: The role of third-party logistics service providers during disruption recovery', *Journal of Transport and Supply Chain Management* 16(0), a738. https://doi.org/10.4102/jtscm.v16i0.738

Background: Global supply chain complexity and increased logistics outsourcing have made global supply chains more vulnerable to supply chain disruptions (SCDs). The proliferation of network partners has changed the role of outsourced logistics providers to be more strategic. However, this changing role comes with increased responsibility for the coordination and alignment of supply chain partners during supply chain disruption recovery (SCDR). Successful strategic supply chain alignment (SSCA) may improve overall supply chain performance during SCDR by aligning the recovery efforts of supply chain partners.

Objectives: This study aimed to investigate the role of third-party logistics service providers (3PLs) in SSCA during SCDR in South Africa.

Method: This research employed a generic qualitative design using purposive sampling techniques. Data were collected from five logistics triads that included 3PL, supplier and customer firms using semi-structured interviews.

Results: Third-party logistics service providers play various roles in SSCA during SCDR namely transactional, relational, dependency, resilience and more advanced roles. In addition, 3PLs utilise a range of approaches to achieve SSCA during SCDR including using collaborative planning, transparent communication policies and platforms, performance measurement and supply chain visibility.

Conclusion: This study expands on current literature by identifying the value-adding roles of 3PLs in SSCA during SCDR and the use of various approaches to achieve SSCA during SCDR in the South African context. For managers, the findings provide insight into the roles of 3PLs and the approaches used to achieve SSCA during SCDR that could increase overall supply chain performance.

Keywords: strategic supply chain alignment; third-party logistics service providers; supply chain disruption recovery; generic qualitative research; triadic perspective; South Africa.

Introduction

On 11 March 2020, the World Health Organization classified the outbreak of coronavirus disease 2019 (COVID-19) as a global pandemic (World Health Organization 2020). This impacted global supply chain performance and led to delivery delays, movement restrictions, manufacturing and retail shutdowns because of imposed quarantine laws (Barret 2020). As the mover of goods between the suppliers and their customers, third-party logistics service providers (3PLs) need to work with their upstream and downstream supply chain partners to coordinate and align their supply chains when responding to supply chain disruptions (SCDs) (Andrés & Poler 2015:13; Revilla & Sáenz 2013:3).

Supply chain disruptions occur inadvertently throughout the supply chain, impacting both the financial well-being and operating performance of partner firms (Andrés, Poler & Sanchis 2015:90; Zhu, Krikke & Caniëls 2016:273). Not all SCDs can be prevented with proactive supply chain risk management strategies. Therefore, a reactive approach is needed to recover once the SCD has realised (Scholten & Schilder 2015:472). Supply chain disruption recovery (SCDR) is the process of getting operations back to a state of full functioning after an SCD has occurred (Macdonald & Corsi 2013:279). Ultimately, supply chain partners have to work together to align their efforts to regulate the impact of SCDs (Revilla & Sáenz 2013:3).

Strategic supply chain alignment (SSCA) is the process of working with supply chain partners by aligning objectives and interests to improve overall supply chain performance (Selviaridis &

Note: Special Collection: Impact of COVID-19 on the transport and logistics management.

Spring 2017:736; Sharma, Bhat & Routroy 2014:11–12). Strategic supply chain alignment can be achieved by integrating processes across firm boundaries, collaboration through information sharing and the alignment of firm performance priorities (Sharma et al. 2014:11–12). The process of SSCA is often complicated by the proliferation of supply chain members caused by the trend towards logistics outsourcing (Greening & Rutherford 2011:108).

Outsourcing of logistics services exposes supply chain members to various SCDs, including labour issues, border delays, transportation breakdowns and corruption (Nel, De Goede & Niemann 2018:10). Therefore, it becomes crucial to work with supply chain partners, especially 3PLs, to align efforts during an SCD (Andrés & Poler 2015:13). Third-party logistics service providers take on various value-adding roles in the supply chain including core competency roles, functional outsourcing roles, complementary roles, strategic partnership roles and orchestrating roles (Niemann et al. 2018:1750–1751; Zacharia, Sanders & Nix 2011:40). These roles highlight the evolving nature of 3PLs from transactional to be more strategic, where 3PLs help coordinate functions and members in a supply chain or logistics triad (Heiyantuduwa, Wannisingha & Rupasinghe 2015:2; Jayaram & Tan 2010:264). A logistics triad is a cooperative three-way partnership between the logistics service provider, the buyer of goods and seller of goods (Daugherty 2011:23; Stefansson 2006:80). A logistics triad fosters an environment that enhances supply chain collaboration enabling supply chain partners to work together more efficiently that can improve SCD recovery efforts (Daugherty 2011:23; Greening & Rutherford 2011:114).

The process of working with supply chain partners to align objectives is addressed in multiple studies (Dubey et al. 2017:129–148; Selviaridis & Spring 2017:732–774; Sharma et al. 2014:7–26). However, as far as could be determined, no studies have addressed SSCA in an SCDR context. The literature highlights the importance of 3PLs by identifying the various roles that 3PLs play in a general supply chain context (Niemann et al. 2018:1751; Zacharia et al. 2011:47–49). Nonetheless, no studies have explored SSCA during SCDR in a logistics services context. The value of the developing country context should not be overlooked because of their inherent vulnerability to SCDs (Tukamuhabwe, Stevenson & Busby 2017:487). Thus, a South African context adds value to the study because of its vulnerability to SCDs, such as political turmoil, labour unrest and transportation breakdowns (Tukamuhabwe et al. 2017:487). A cross-industry perspective can shed light on the inherent differences between industry verticals (Ogulin 2014:72). Finally, using a triadic perspective, including upstream suppliers, downstream customers and 3PLs can provide a more comprehensive view on the role of the 3PL (Sinkovics, Kuivalainen & Roath 2018:565; Stefansson 2006:77).

The aim of this generic qualitative study is to explore the role of 3PLs in SSCA during COVID-19 SCDR. More specifically, the study intends to identify approaches to the alignment of supply chains. Furthermore, this study identifies the various factors that enable and hinder 3PLs from playing a role in SSCA during SCDR. Data were collected through semi-structured interviews with 3PLs, their upstream suppliers and downstream customers across five industry verticals by using purposive sampling techniques.

This study is guided by the following research questions:

- What role do 3PLs play in SSCA during SCDR?
- How do supply chain partners achieve SSCA during SCDR?

This study contributes to the extant literature by being one of the first studies to explore the role of 3PLs in SSCA during SCDR from upstream supplier, 3PL and downstream customer perspectives within South Africa. This study identified the various approaches to SSCA during SCDR. By understanding the role 3PLs play in SSCA during SCDR, practitioners can better identify the role their 3PL can play in SSCA to enhance overall supply chain performance during SCDR.

The article is structured as follows. First, a literature review addresses the relevant body of knowledge. Then the study's methodology is justified. Thereafter, the study's findings are reported with a summary that includes a discussion of the findings and managerial recommendations. Finally, the limitations of the study are discussed with directions for future research.

Literature review

The third-party logistics service providers industry

Third-party logistics service providers can be defined as external parties that perform logistics services on behalf of their customers (Alkhatib, Darlington & Nguyen 2015:102; Tezuka 2011:25). This includes the outsourcing of services, such as warehousing, transportation, distribution and financial services (Karrapan et al. 2017:2; Niemann, Hall & Oliver 2017:206). Globally, firms have been outsourcing logistics services in pursuit of competitive success (Waugh & Luke 2011:337). Outsourcing has the potential to increase the efficiency and effectiveness of logistics systems because of the inherent expertise of the external service provider (Karrapan et al. 2017:2). In South Africa, the 3PL industry is very fallible in nature, which is attributed to the high level of freight transport costs (Havenga, Simpson & Van Eeden 2010:722). However, South Africa can still be seen as one of the most developed countries in Africa when it comes to logistics outsourcing (Niemann et al. 2017:206). Logistics serves as a strategic resource for the South African economy and is essential in providing a global competitive advantage (Havenga et al. 2016:6). However, exposure to the volatile South African environment may increase firm vulnerability to SCDs, which complicates outsourcing arrangements (Nel et al. 2018:10; Tukamuhabwe et al. 2017:487). The vulnerable nature of such uncertain environments calls for the effective alignment of 3PLs, upstream suppliers and downstream customers to reduce the impact of SCDs on the supply chain (Andrés & Poler 2015:13; Revilla & Sáenz 2013:3).

The role of third-party logistics service providers in the supply chain

The role of 3PLs in the supply chain has progressed into becoming more strategic, ranging from basic outsourced logistics services to more advanced interactions with organisations (Niemann et al. 2018:1744; Zacharia et al. 2011:40). The role of 3PLs is categorised into transactional, relational and more advanced roles in the supply chain (Heiyantuduwa et al. 2015:2; Hertz & Alfredsson 2003:141; Jayaram & Tan 2010:264; Karrapan et al. 2017:2). The transactional roles deal with cost efficiencies and service improvements (Heiyantuduwa et al. 2015:2). The relational roles emphasise relationships for strategic advantage (Jayaram & Tan 2010:264), and the advanced roles refer to where 3PLs act as a customer developer, logistics integrator and orchestrator (Hertz & Alfredsson 2003:141). These categories can be broken down further. Transactional roles include core competency roles, functional outsourcing roles and complementary roles (Huo, Ye & Zhao 2015:160; Niemann et al. 2018:1745; Yang & Zhao 2016:215). The relational category refers to strategic and collaborative roles for strategic advantage (Huo et al. 2015:161–163). Finally, the more advanced role category refers to the integrator and orchestrator roles of the 3PL (Heiyantuduwa et al. 2015:2; Zacharia et al. 2011:44).

Zacharia et al. (2011:47–49) introduced a model on the interrelated elements of the role a 3PL plays as an orchestrator in the supply chain. The model suggests that 3PLs, as orchestrators, are characterised by the four roles they play that include the role of standardisation, the role of visibility, the role of a neutral arbitrator and the role of the collaborator (Zacharia et al. 2011:47–49). The role of standardisation includes the simplification of all supply chain processes. The role of visibility motivates sharing information with all supply chain members. The role of a neutral arbitrator entails the role of the middleman during information sharing and collaboration. Finally, the role of collaborator refers to the value creation through the promotion of collaboration between all members of a supply chain (Zacharia et al. 2011:47–49). Without these roles, 3PLs cannot play the role of orchestrator, where they coordinate the various functions in a supply chain (Zacharia et al. 2011:49). A firm may choose to outsource its logistics activities to a 3PL that is aligned with the firm's business strategy, which can lead to benefits, such as increased flexibility, reduced costs and improved services (Heiyantuduwa et al. 2015:2). Logistics outsourcing serves as a powerful tool in reducing costs and improving efficiency, but more specifically, in reducing risks and external uncertainties in the supply chain (Yang & Zhao 2016:212).

TABLE 1: The role of third-party logistics service providers in the supply chain.

Role	Description	Source
Core competency	• Firms outsource their logistics services to 3PLs to focus on their own core competencies and improve their service offering in search of a competitive advantage.	Min and Joo (2006:259); Yang and Zhao (2016:215)
Functional outsourcing	• Functional outsourcing refers to the outsourcing of non-core activities, such as logistics activities to specialist third parties.	Aguezzoul (2007:7); Huo et al. (2015:160)
Complementary role	• This role provides customers with complimentary service offerings that enhance basic functional outsourcing by including offerings, such as information technology and postponement services.	Niemann et al. (2018:1745)
Strategic or collaborative partnerships	• This refers to the more strategic role of 3PLs, where customers not only outsource functional activities to 3PLs but collaborate with their 3PLs. • Firms form strategic partnerships with their 3PLs to obtain an advantage over their competitors. • This is where the relationship with a firm's 3PL moves from transactional to strategic.	Huo et al. (2015:161–163); Yang and Zhao (2016:215)
Integrator, orchestrator	• This role of the 3PL is where they integrate and coordinate the functions of the overall supply chain.	Heiyantuduwa et al. (2015:2); Zacharia et al. (2011:44)

3PL, third-party logistics service providers.

Supply chain disruption management

Firms attempt to mitigate the negative consequences of SCDs through preventative measures that accompany a traditional risk management process (Scholten & Schilder 2015:472; Zhu et al. 2016:273). However, SCDs are unpredictable, and once a supply chain risk has realised into an SCD, firms need to respond to reduce their adverse effect on the supply chain (Macdonald & Corsi 2013:270; Scholten & Schilder 2015:472). The management of SCDs after they have occurred is referred to as supply chain disruption management (DuHadway, Carnovale & Hazen 2019:194; Macdonald & Corsi 2013:272).

Supply chain disruption management consists of three distinct stages, namely pre-disruption, in-disruption and post-disruption (Blackhurst et al. 2005:4072–4077; DuHadway et al. 2019:194; Macdonald & Corsi 2013:272; Paul, Sarker & Essam 2016:3). Pre-disruption stage refers to the identification, detection and discovery of SCDs wherein supply chain visibility is utilised to determine when and if SCDs are occurring (Blackhurst et al. 2005:4072–4077; DuHadway et al. 2019:194; Ivanov et al. 2017:6165). The in-disruption stage deals with the mitigation of SCDs to reduce its impact on the supply chain when it is occurring (Macdonald & Corsi 2013:272). Finally, the post-disruption stage deals with the recovery and performance of managing an SCD after it has occurred to return operations to normal or an even better state of functioning (DuHadway et al. 2019:194; Macdonald & Corsi 2013:272; Ivanov et al. 2017:6165).

The unpredictability of SCDs places more emphasis on the SCDR stage to reduce the post-disruption impact thereof (Greening & Rutherford 2011:108). Recovery forms part of the post-disruption stage of the disruption management framework, which entail all the actions that were taken after an SCD has occurred (DuHadway et al. 2019:194; Greening & Rutherford 2011:117; Macdonald & Corsi 2013:271). The responsiveness and success of SCDR are crucial to minimising the impact of an SCD (Macdonald & Corsi 2013:270–271; Scholten & Schilder 2015:472). A measure of firm performance is to respond to and recover from an SCD as responsively and effectively as possible to reduce its impact on firm financial

performance, shareholder value and operating performance (Macdonald & Corsi 2013:270–271; Feizabadi, Maloni & Glogor 2018:279). For a more effective recovery, firms need to look to the entire supply chain and their capabilities to survive when confronted by uncertainty (Scholten & Schilder 2015:471). Firms need to work together and collaborate during times of crisis to become more resilient (Scholten & Schilder 2015:471; Macdonald & Corsi 2013:270-271). As supply chain resilience is a network-wide concept, it is not enough that one member strives for the formative elements of supply chain resilience (collaboration and integration), it needs to be adopted by all members to align their forces when an SCD occurs (Scholten & Schilder 2015:473; Friday et al. 2018:238). An important success factor for every firm, in a supply chain environment, is to ensure the smooth and coordinated functioning of all supply chain members to align their efforts when confronted by an SCD (Paul et al. 2016:3; Revilla & Sáenz 2013:3).

Strategic supply chain alignment

In general, the term alignment or fit refers to uniformity amongst strategic goals and the co-creation of value to end customers (Feizabadi et al. 2018:277; Selviaridis & Spring 2017:732; Skipworth et al. 2015:511). Supply chain alignment is one of the three strategic supply chain imperatives for achieving supply chain success (Feizabadi et al. 2018:271; Quang & Castro 2017:68; Whitten, Green & Zelbst 2012:29). From a strategic perspective, SSCA is the alignment of goals and objectives between supply chain members to improve overall firm performance (Dubey et al. 2017:134; Feizabadi et al. 2018:271; Mokadem 2015:338; Quang & Castro 2017:68; Skipworth et al. 2015:511; Wong et al. 2012:420). Strategic supply chain alignment should exist in the supply chain strategy of a firm and its supply chain members both internally and externally to improve functional performance within a firm and to achieve synergistic advantages across the overall supply chain (Dubey et al. 2017:134; Mokadem 2015:338; Skipworth et al. 2015:511; Whitten et al. 2012:31; Wong et al. 2012:420).

Strategic supply chain alignment consists of shareholder alignment and customer alignment (Wong et al. 2012:420; Quang & Castro 2017:72). Shareholder alignment addresses the fit between functional strategies, business strategy and shareholder expectations (Wong et al. 2012:420; Quang & Castro 2017:73). Poor business performance is most often caused by the misalignment of internal supply chain processes with overall strategic goals. This emphasises the need for shareholder alignment (Skipworth et al. 2015:512). The second type of SSCA is customer alignment and includes the deliberate acts to achieve a strategic fit amongst all members in a supply chain to create customer value (Wong et al. 2012:420; Quang & Castro 2017:72). Customer alignment is important because firms operating as part of a supply chain tend to act in their own self-interest, which could negatively impact overall supply chain performance (Skipworth et al. 2015:512). The relationship between shareholder alignment (internal alignment) and customer alignment (external alignment) is complementary in nature, in that their alignment can ultimately improve overall supply chain performance (Dubey et al., 2017:134; Skipworth et al. 2015:517). The main rationales for SSCA are to improve supply chain agility, improve customer value, improve financial and operational performance and increase shareholder value (Feizabadi et al. 2018:279).

Strategic supply chain alignment can be achieved in various ways, including integrating processes across firm boundaries, collaborating and sharing of information and alignment of supply chain performance priorities (Feizabadi et al. 2018:279; Quang & Castro 2017:72). Integrating processes across firm boundaries includes the clarification of the roles that supply chain members occupy. Having clarity in member roles and responsibilities can ease the alignment of supply chain members (Selviaridis & Spring 2017:740; Whitten et al. 2012:31). By collaborating and sharing information supply chain partners can integrate and coordinate systems across single firm boundaries, aligning all supply chain members (Quang & Castro 2017:72; Whitten et al. 2012:31). Finally, SSCA can be achieved by aligning the performance priorities of supply chain members, thereby reaching a consensus on overall supply chain objectives (Feizabadi et al. 2018:279; Whitten et al. 2012:31).

Methodology

Research design

This study applied a generic qualitative research design. This allowed for exploring various opinions, experiences and attitudes to form a detailed understanding of the various perspectives of the different research participants (Plano-Clark & Creswell 2014:289). Generic qualitative research was the most suitable research design as this study attempted to develop a deeper understanding of the role of 3PLs within SSCA during COVID-19 SCDR from a triadic perspective within South Africa. This study made use of primary data collection through semi-structured interviews, with multiple participants identified through purposive sampling techniques.

Sampling

The units of analysis for this study were the logistics triads, consisting of a 3PL, upstream supplier and downstream customer. A total of 15 firms participated in the study consisting of five 3PLs, five upstream suppliers and five downstream customers, completing five triadic relationships and a total of 15 semi-structured interviews. The principle of data saturation was used to determine the point at which additional interviews would provide no new insights (Guest, Bunce & Johnson 2006:79; Oppong 2013:203). In this study, all codes and themes were identified after analysing four triadic relationships consisting of 12 interviews, and no new codes or themes were identified in the remaining three interviews. Prior to final write-up all codes and transcriptions were reanalysed to ensure consistency in the

TABLE 2: Profile of study's participants.

Triad	Pseudonym	Job title	Gender	Industry	Interview length
Triad 1	US1	Deputy responsible pharmacist	Male	Pharmaceutical	44:49
	TPL1	Deputy DC manager	Male	Pharmaceutical	40:39
	DC1	Pharmacy manager	Female	Pharmaceutical	20:35
Triad 2	US2	Transport manager	Male	Cosmetics	35:24
	TPL2	Supply chain solutions and business development executive	Male	Cosmetics	36:13
	DC2	Transport manager	Male	Cosmetics	44:13
Triad 3	US3	Supply chain executive	Female	Clothing	28:46
	TPL3	Senior key account director	Male	Clothing	39:05
	DC3	Chief executive supply chain	Male	Clothing	55:16
Triad 4	US4	Head of supply chain Africa and Brazil	Male	E-commerce	37:53
	TPL4	Key account manager	Female	E-commerce	29:25
	DC4	International 4PL supply chain manager	Female	E-commerce	26:30
Triad 5	US5	Group manufacturing planner	Male	Outdoor retail	28:43
	TPL5	Key account manager	Female	Outdoor retail	31:32
	DC5	Supply chain executive	Male	Outdoor retail	45:00
	Average length of interviews				**35:59**

US, upstream supplier; TPL, third-party logistics; DC, down stream customer; 4PL, Fourth Party Logistics Service Provider.

data collection and analysis process. Table 2 summarises the participant's details.

Homogenous sampling, a form of purposive sampling, was used in this study to identify suitable 3PL firms. Sampled 3PL firms had the following similar characteristics, they have to provide logistics services, within South Africa and need to have experienced a recent SCD. Individual participants need to have been working at the firm for at least 12 months and need to hold the middle to senior management positions. Third-party logistics service provider firms were sampled according to the study's inclusion criteria, after which upstream suppliers and downstream customers were sampled by using snowball sampling. This was done by asking participants to refer firms within their network that would comply with the study's inclusion criteria. This allowed the researcher access to hidden populations within the same network (Bornstein, Jager & Putnick 2013:363). Sampled firms had to comply with the following criteria: First, the firm had to either be a current upstream supplier or downstream customer with an existing business relationship. Second, the firm had to operate in South Africa. Third, these firms had to complete the triad, where each triad only consists of a 3PL, upstream supplier and downstream customer. The snowballed participants had to meet the following criteria: First, they need to hold a middle to senior management position in the firm with a direct relationship to the 3PL. Second, the participants needed to have a minimum of 12-month experience at the current firm. Third, the participants needed to be involved in the SSCA and SCDR initiatives of the firm.

Data collection

In this study, data were collected through 15 semi-structured interviews, three interviews per logistics triad and one interview per firm. This enabled the researchers to explore the opinions and experiences of participants in a specific context (Rowley 2012:262). The interview process was audio-recorded, and the proceedings were transcribed verbatim. The interview protocols were developed based on the study's research questions and an extensive review of the literature. Interview questions were structured to obtain in-depth responses to further explore the specific phenomenon (Dikko 2016:523). Initial protocols were assessed by conducting a pre-test with an industry participant who met the inclusion criteria. These mi-structured interviews lasted an average of 36 min. All interviews were conducted online using Google Meets, Zoom or Microsoft Teams. Participants provided permission to audio record the interviews. The participants were asked to read and sign an informed consent form to reassure participants of their anonymity in the study. The interviews were transcribed for data analysis.

Data analysis

This study used thematic analysis to identify codes within the data and to develop themes and sub-themes through deductive and inductive approaches (Braun & Clarke 2012:57). *ATLAS.ti* software was used for coding of the raw data. The initial codes were assigned relative to the specific research questions by putting labels to raw data extracts. Afterwards, the codes were refined by grouping codes that were similar to reduce redundancy to better fit under the specified themes or sub-themes. All codes are supported by relevant raw data extracts.

Trustworthiness

Various trustworthiness criteria were employed to ensure the trustworthiness of this study (Polit & Beck 2012:584; Shenton 2004:64). Credibility was ensured by making participants feel comfortable during the interviews so that they were forthcoming and truthful with their responses to the research questions by making use of ice-breaker questions at the start of the interview (Shenton 2004:68). To enhance the dependability criterion, the study implemented a detailed description of the overall research design and the data collection and analysis methods as an audit trail (Lietz & Zayas 2010:197). To ensure the transferability of the study, the researcher included a detailed description of the study's context, including the number of firms, location, industry,

data collection methods and the type of firms participating in the study. To ensure the conformability, the study made use of open-ended questions for unbiased perspectives and created an audit trail where interviews were transcribed meticulously to ensure their accuracy (Lietz & Zayas 2010:197; Milne & Oberle 2005:415).

Findings

This study identified two main themes as the basis for addressing the study's research questions, including the role of the 3PL in SSCA during SCDR and approaches to achieving SSCA during SCDR. The findings are discussed in the following subsections and are supported by raw data extracts and linked back to relevant literature. Figure 1 illustrates the themes and sub-themes.

The role of third-party logistics service providers in strategic supply chain alignment during supply chain disruption recovery

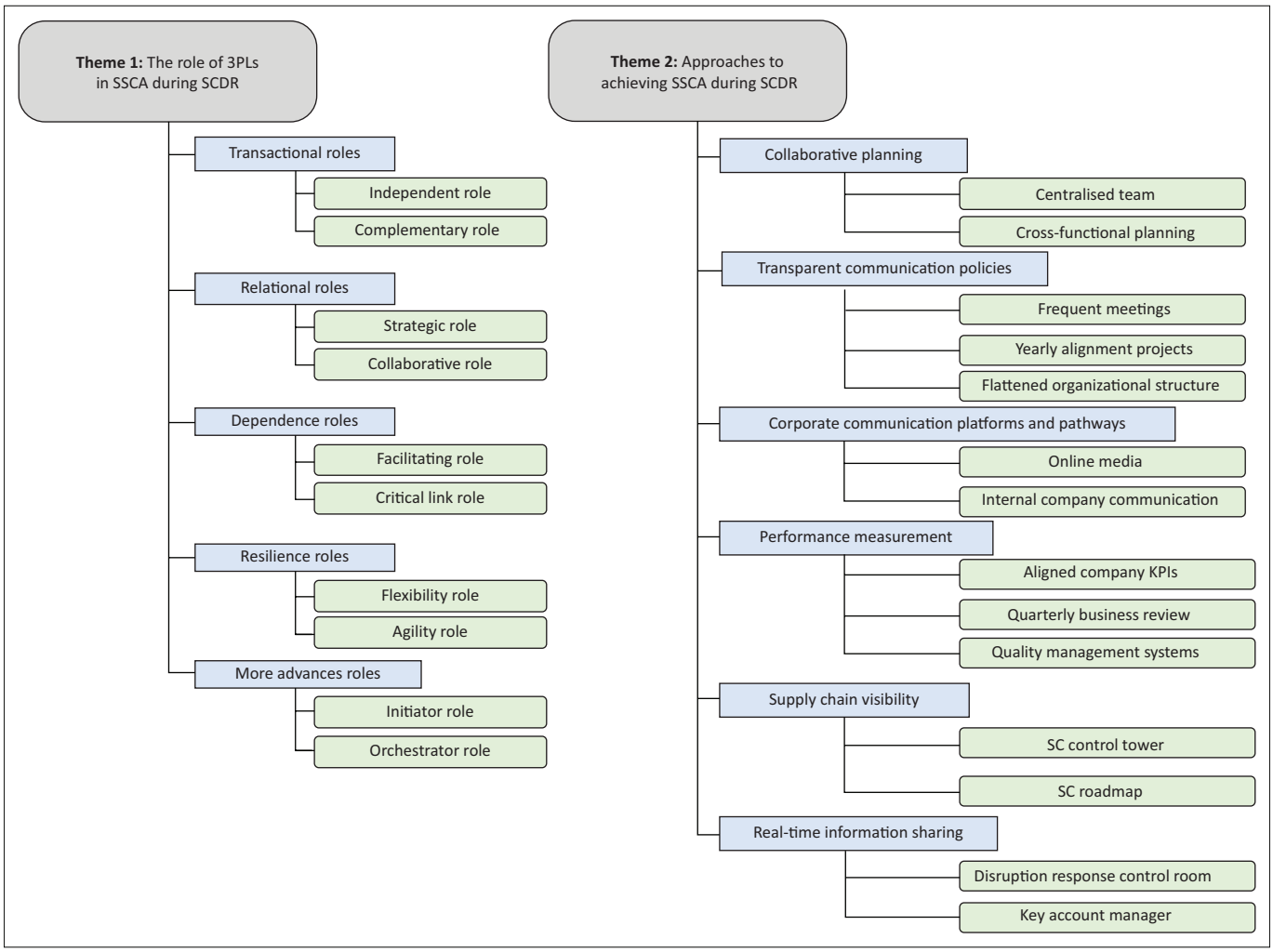
The first theme relates to Research question 1 (RQ1) and addresses the various roles that 3PLs play in SSCA during SCDR. The study identified 10 roles 3PLs play in SSCA during SCDR. These were categorised as follows: transactional, relational, dependency, resilience and more advanced roles. These roles are supported by raw data extracts.

Transactional roles

Four participants mentioned the independent nature of the 3PL in SSCA during SCDR. Transactional roles relate to the lack of collaborative contribution in the overall supply chain where the focus is on functional optimisation where firms operate independently rather than collaboratively. In this category, participants indicated that the 3PL plays a role of service execution where their main contribution is to perform the work they were hired to do but are not involved in any collaborative problem-solving. This role implies that the 3PL effectively plays no role in SSCA during SCDR as illustrated by the following response:

> 'Not really. Because they just have to give the service, so it doesn't matter if we have a good or a bad relationship.' (DC1, female, pharmacy manager)

However, the lack of collaboration does not necessitate a lack of value as the 3PL can also act as a source of expertise to enhance overall performance. This means that even though the 3PL plays no role in SSCA during SCDR,



SSCA, strategic supply chain alignment; SCDR, supply chain disruption recovery; SC, supply chain; KPI, key performance indicator; 3PL, third-party logistics service providers.

FIGURE 1: A summary of the themes and sub-themes identified in this study.

they do, however, perform complementary activities that enhance overall performance. Two participants highlighted the complementary nature of their working relationship as follows:

> 'I mean, the wording smart refers to where we take advantage of what we do in the supply chain. And where our clients do the same, so yeah, definitely.' (TPL2, male, supply chain solutions and business development)

Participants highlighted the transactional nature of the role of the 3PL in SSCA during SCDR across the upstream supplier, 3PL and downstream customer perspectives.

Relational roles

Nine participants highlighted the relational role that 3PLs play in SSCA during SCDR. Relational roles refer to the roles that 3PLs play for strategic advantage. The relational role category includes strategic and collaborative roles. Strategic roles refer to when firms have well-established relationships with their supply chain partners and see themselves as an extension of their supply chain partner's business as illustrated by a participant as follows:

> 'They are an extension of my business I don't treat them like a vendor, they are a partner of mine. I have to have that relationship with them it's a lot more customers.' (US4, male, head of supply chain Africa and Brazil)

Collaborative roles refer to when supply chain partners work closely together, which is not always accompanied by advanced partnerships but merely mutual interests. These relational roles enable SSCA as firms to collaborate and share information to collectively respond during SCDR. This is apparent in the following response:

> 'I think we play a key role if I think about one of our customers that we had to work very, very closely with them …' (TPL3, male, senior key account director)

Participants highlighted the relational roles of the 3PL across the upstream supplier, 3PL and downstream customer perspectives. This indicates that there is a strong awareness of the importance of relational roles in SSCA during SCDR, both upstream and downstream in the supply chain.

Dependency roles

Eight participants mentioned the interdependent nature of the roles that the 3PL plays in SSCA during SCDR. These roles relate to the role that the 3PLs play where their upstream supplier and downstream customer are unable to achieve successful SSCA without them. These roles include a critical link and facilitating roles. The critical link role refers to when 3PLs serve as essential members in the supply chain where their supply chain partners are unable to deliver a service to the end-consumer without their participation. This is illustrated in the following response:

> 'I think to some extent we play the role of the glue between the upstream and downstream stakeholders in the supply chain.' (TPL3, male, senior key account director)

The facilitating role refers to when 3PLs serve as the middleman to information sharing between upstream suppliers and downstream customers. Sharing information is a pre-requisite to successful SSCA. Accordingly, supply chain partners are unable to align their supply chain without the 3PL serving as a link between upstream suppliers and downstream customers. These 3PLs communicate goals, objectives and problems promptly to keep supply chain partners aligned in their SCDR efforts. The facilitating role is illustrated in the following response:

> 'The experience that they have is just so valuable. And honestly, again, it's, you know, they're all, they all know what kind of questions to ask. They will know, you know, who to go to for what, that kind of thing. So, facilitating this kind of thing.' (TPL4, female, key account manager)

Participants mentioned the dependent nature of the role the 3PL plays in SSCA during SCDR across upstream supplier, 3PL and downstream customer perspectives. This indicates that the parties within a logistics triad know of their dependence on one another during SCDR. Firms choose to outsource certain activities to focus on their core competency, making them dependent on external service providers.

Resilience roles

Five participants commented on the resilience role of their 3PLs in SSCA during SCDR. The resilience role category refers to the role of the 3PL, where they assist SSCA to be more robust and better able to recover more successfully from an SCD. These resilience roles include flexibility and agility roles. The flexibility role refers to the ability of the 3PL to take on a broader scope of responsibilities in the time of SCDs. The agility role of 3PLs refers to their ability to adapt to unexpected events to stay aligned with supply chain partners. These roles enable supply chain partners to maintain SSCA during SCDR. This is illustrated in the following responses:

> 'But we had to shift their focus really quickly into managing the exporting of stock and together with all the paperwork and stuff …' (US4, male, head of supply chain Africa and Brazil)

> '[… G]oing to implement the action plans that you've worked on in advance of the event occurring and then tailoring or adapting those plans to suit the nuances of the event …' (DC5, male, supply chain executive)

One upstream supplier, one 3PL, and three downstream customers mentioned the resilience role of their 3PLs. These responses may be because of the differing power relationships between supply chain members, where downstream customers have the most bargaining power. This creates a supply chain where downstream customers have demanding expectations and where partners further upstream become compliant incumbents. Even though these roles allow for SSCA during SCDR, the problem lies in whether the supply chain members mutually align their goals and objectives or whether members further upstream merely adopt the demanding goals and objectives of their downstream counterparts.

More advanced roles

Three participants emphasised the more advanced nature of the role that the 3PL plays in SSCA during SCDR. These roles refer to the orchestrator and initiator roles that the 3PL plays in SSCA during SDCR. This is where the 3PL is responsible for more than just their part of the supply chain. These roles include taking on responsibility for the activities of other supply chain partners and taking responsibility for initiating the SCDR process on behalf of the whole supply chain. The key difference between the two roles is that the orchestrator role takes responsibility for the activities of network partners and sees them through from the beginning to the end of their natural life cycles. Whereas with the initiator role, 3PLs take responsibility for starting the SCDR effort but are not responsible to see them through to their natural conclusion. This is evident in the following responses:

> 'We definitely took the lead and we definitely managed the supply chain as if it was us running that business ourselves.' (TPL2, male, supply chain solutions and business development executive)

> 'Um, other than that, we literally do everything for them, communicated everything to them …' (TPL5, female, key account manager)

Only the 3PL perspective mentioned the more advanced roles of the 3PL in SSCA during SCDR. This indicates that 3PLs perceive their roles as more advanced, as opposed to the perceptions of their supply chain partners. This skewed perception indicates that 3PLs lack full visibility into their supply chain members' supply chain and base their importance on the responsibility of managing activities their network partners opted to outsource. They determine their contribution on the supporting activities of their supply chain partners and not their supply chain partners' overall supply chain.

This study confirms the three main category roles of 3PLs, including transactional roles, relational roles and more advanced roles as stated in the extant literature (Heiyantuduwa et al. 2015:2; Hertz & Alfredsson 2003:141; Jayaram & Tan 2010:264; Karrapan et al. 2017:2). However, this study also identified two additional categories of roles applicable to 3PLs in SSCA during SCDR, namely resilience, and dependency roles.

Approaches to achieving strategic supply chain alignment during supply chain disruption recovery

The second theme of this study relates to RQ2 and refers to the approaches to achieving SSCA during SCDR. The study identified the following six approaches to achieving SSCA during SCDR, namely collaborative planning, transparent communication policies, corporate communication platforms and pathways, performance measurement, supply chain visibility and real-time information sharing. These approaches are supported by raw data extracts.

Collaborative planning

Eight participants highlighted the use of collaborative planning in SSCA during SCDR. This approach includes the centralised team and cross-functional planning approaches. The centralised planning approach deals with the formation of a centralised team in the company that is represented by all departments and all levels in the organisation that participates in collaborative planning and problem-solving. This is highlighted in the following response:

> 'We have a very dynamic team in Cape Town that, um, that makes sure that we don't follow our own rules.' (DC1, female, pharmacy manager)

Cross-functional planning approach entails working together across all departments within the company to align intra-firm goals and objectives as illustrated by participants:

> '[… *A*]ll the functional areas feel represented in that growth plan …' (DC3, male, chief executive supply chain)

These collaborative planning approaches enable both internal and external SSCA during SCDR. The distribution of participant responses is uneven, with the downstream customers being represented by four participants, whereas the upstream supplier and 3PL perspectives are only represented by two participants each. This indicates that collaborative planning is highly important for the downstream customer, as opposed to further upstream in the supply chain. This could be because of downstream customers being the closest to the end consumer. This essentially means less margin for error and less time to respond, as lack of performance directly impacts the end consumer and cannot be passed further down the chain, as in the case of upstream suppliers and 3PLs.

Transparent communication

Transparent communication is defined as the timely and open sharing of information between parties internal and external to the supply chain. This approach includes frequent meetings, yearly alignment projects and a flattened organisational structure. Eight participants identified transparent communication policies as a way to achieve SSCA during SCDR as illustrated in the following responses:

> '[… *A*]nd kind of have frequent meetings, um, regarding the status …' (TPL3, male, senior key account director)

> '[… *S*]o, it's to make sure that all the different divisions within the organization … are all aligned.' (US3, female, supply chain executive)

> '[… *F*]rom a management side of view, um, [*TPL1*] has a very flattened organo-gram …' (TPL1, male, deputy DC manager)

The distribution of participant responses is relatively evenly spread between perspectives. This indicates that participants value the importance of transparent information sharing and that successful SSCA could not be achieved without it.

Corporate communication platforms and pathways

Corporate communication platforms are used to share information internally and externally. This approach consists of online media, such as websites, social media and video conferencing, and pathways for internal company communication, such as posters and company intranet highlighted by the participants and illustrated below:

'[… *A*]nd kind of have frequent meetings, um, regarding the status …' (TPL3, male, senior key account director)

'[… *S*]o, it's to make sure that all the different divisions within the organization … are all aligned.' (US3, female, supply chain executive)

'[… *F*]rom a management side of view, um, [*TPL1*] has a very flattened organo-gram …' (TPL1, male, deputy DC manager)

These platforms ensure the rapid availability of information throughout the company and enable successful internal and external SSCA. Nine participants identified these corporate communication platforms and pathways as a way to achieve both internal and external SSCA during SCDR. The 3PL and upstream supplier perspective has the most and second most participants indicating the importance of these platforms and pathways. Conversely, the downstream customer perspective had the fewest participants indicating the importance of these platforms and pathways. This indicates that 3PLs perhaps value these corporate communication platforms more than their supply chain counterparts. This may be because the 3PLs hold the middle ground between upstream suppliers and downstream customers, and that they are in constant contact with upstream and downstream partners. This also indicates the lack of communication between customers and suppliers.

Performance measurement

Eleven participants identified performance measurement as an approach for achieving SCCA during SCDR. This approach deals with the pre-established standards that parties are measured by that serve as guidelines for desired performance. Here, performance measurement consists of aligned company key performance indicators, quarterly business reviews and quality management systems as illustrated below:

'[… *W*]e do their strategic alignment based on our KPIs …' (US3, female, supply chain executive)

'… I'll speak to three months when we have our quarterly business review.' (US4, male, head of supply chain)

'… I mean, we actually focusing massively now on a group quality project.' (US5, male, group manufacturing planner)

The distribution of participant responses is very skew. All participants from the upstream supplier perspective and only two participants from the downstream customer perspective mentioned the importance of performance measurement. This indicates that there is a greater presence of performance measurement implemented at an upstream perspective compared with the downstream customer perspective. This could be because of there being more moving parts to measure performance as upstream is usually the location where various sources of raw materials converge. As opposed to downstream customers' being measured on fewer indicators becasue of a less complex product mix. It may also be that a culture of performance measurement is not well established in the case of these specific downstream customer participants. Power dynamics are favoured to the downstream customer, which indicates that downstream customers hold their upstream suppliers and 3PLs to stricter measures, than they do themselves. Therefore, they should insist on performance measures.

Supply chain visibility

Five participants highlighted the importance of supply chain visibility as an approach to achieving SSCA during SCDR. This supply chain visibility consists of approaches, such as supply chain control towers and supply chain roadmaps. Supply chain visibility acts as a catalyst for SSCA during SCDR as it gives supply chain members visibility into their supply chain partner's operations and their goals and objectives. This is evident in the following responses:

'[… *T*]hose who don't have a strong visibility solution like that, or a control tower …' (TPL3, male, senior key account director)

'[… *W*]e call it a roadmap. So, we map out all the different things we want to do …' (TPL5, female, key account manager)

An uneven distribution of participants mentioned the use of supply chain visibility. This includes three participants from a 3PL perspective, two participants from a downstream customer perspective and no participants from an upstream supplier perspective. This indicates that supply chain visibility is more utilised further down the chain as opposed to the upstream supplier perspective. This could be because of upstream suppliers being the farthest partners up the chain and focus only on their immediate customer and not the entire supply chain.

Real-time information sharing

The final approach deals with real-time information sharing. This approach consists of tools, such as a disruption-response control room or a key account manager that can lead to SSCA during SCDR, as it allows all network partners to stay up to date with the latest developments. This real-time information would enable them to adapt in real-time to remain aligned with their supply chain partners. The following response illustrate these approaches:

'[… *E*]veryone created basically a COVID control room …' (TPL1, male, deputy DC manager)

'[… *I*]t's basically their [*key account manager*] job to monitor the third party …' (US1, male, deputy responsible pharmacist)

The distribution of participants highlighting the importance of real-time information sharing in SSCA during SCDR is relatively even. This indicates that upstream suppliers, 3PLs and downstream customers know the value of real-time information sharing in SSCA during SCDR. Partners often are more inclined to share real-time information with their immediate customer and not through the entire supply chain.

Extant literature mentions three main ways to achieve SSCA, namely integrating processes across firm boundaries, collaboration and sharing of information and aligning supply chain performance priorities (Feizabadi et al. 2018:279; Quang & Castro 2017:72). This study confirms the overall information sharing theme in achieving SSCA but expands on extant literature by addressing more specific approaches to SSCA during SCDR, including collaborative planning, transparent communication policies, corporate communication platforms

and pathways, performance measurement, supply chain visibility and real-time information sharing.

Conclusion

Discussion of the findings and theoretical implications

The overall aim of this study was to investigate the role of the 3PL in SSCA during SCDR from a triadic perspective within South Africa. Furthermore, this study explored the various approaches to achieving SSCA during SCDR.

The first research question addressed the role of 3PLs in SSCA during SCDR from an upstream supplier, 3PL and downstream customer perspective. This study confirmed the three main roles of 3PLs including transactional, relational and more advanced roles as stated by extant literature (Heiyantuduwa et al. 2015:2; Hertz & Alfredsson 2003:141; Jayaram & Tan 2010:264; Karrapan et al. 2017:2). However, literature identified these roles in a general supply chain context, whereas this study confirmed these findings to be consistent in an SSCA during the SCDR context. This study expanded on current literature by identifying two additional roles of 3PLs in SSCA during SCDR, namely dependency roles, and resilience roles.

The second research question addresses the approaches that supply chain partners can use to achieve SSCA during SCDR. This study confirmed the existence of the three main approaches to SSCA as stated in the extant literature, namely integration of processes across firm boundaries, collaboration and information sharing and aligned performance priorities (Feizabadi et al. 2018:279; Quang & Castro 2017:72). However, this study expands the body of knowledge by classifying six more specific approaches to SSCA during SCDR, including collaborative planning, transparent communication policies, corporate communication platforms and pathways, performance measurement, supply chain visibility and real-time information sharing. It was also found that participants only used a few approaches with the specific intention of achieving SSCA during SCDR.

Managerial recommendations

First, this study highlights the important role of the 3PL to align the supply chain during SCDR. Practitioners need to understand the various roles of 3PLs to identify and target the specific roles that their 3PL can play in SSCA during SCDR to enhance their overall supply chain performance. Second, practitioners need to recognise the various approaches available to them to achieve SSCA during SCDR. These approaches, however, are communication and collaboration approaches that managers employ, which indirectly leads to SSCA. Accordingly, practitioners need to develop tools with the specific intention of achieving SSCA that would not only enhance their SSCA efforts but also their overall performance. If practitioners are more aware of the factors that enable or hinder 3PLs from playing a role in SSCA during SCDR, they could better target efforts to utilise the enabling factors and avoid the barriers for 3PLs.

Limitations and directions for future research

This study holds various limitations. First, 3PLs that were identified in the study had to have direct relational links to their upstream suppliers and downstream customers. However, these relational links may differ in kind. Some relationships within a triad may be stronger compared with the relationships within other triads. Having similar relational links between participants within and across triads may provide a better account of the role of the 3PL in SSCA during SCDR. This would make it possible to determine whether the type of relational links influences the role a 3PL plays in SSCA during SCDR. Therefore, future research can aim to identify the role of 3PLs in SSCA during SCDR by collecting data from triads with similar relational links. Furthermore, firstly, future studies can test the nature of these relationships using quantitative methods. Secondly, this study was conducted during a period of unrest and uncertainty because of the outbreak of the Coronavirus and its accompanying lockdown regulations. This one-time event may have magnified the participant's responses and perceptions of SCDs. By replicating this study during normal circumstances, opinions and responses may vary. Thirdly, this study did not identify 3PLs based on the kind of 3PL they are but merely whether they are a 3PL in general. The nature of the 3PL and the services they provide may influence the role that the 3PL plays in SSCA during SCDR. Future research can address this by including a type classification into the sampling criteria to identify 3PLs based on the nature of their relationship, and the services they provide that would provide for a more accurate account of the role they play in SSCA during SCDR. Finally, future research can explore the enablers and barriers of SSCA during SCDR.

Acknowledgements

Competing interests

The authors have declared that no competing interests exist.

Authors' contributions

This article is based on the MPhil dissertation of C.v.W. who was the main researcher. W.N. acted as the supervisor with the conceptualisation, literature review, research instrument and development of this manuscript.

Ethical considerations

Ethical clearance was obtained from the University of Pretoria, Faculty of Economic and Management Sciences Research Ethics Committee 16017588/2020. Each participant had to sign an informed consent form before the start of the interview. The confidentiality of participants was assured by assigning pseudonyms to the participants and their firms.

Funding information

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

Data availability

Data is stored according to institutional policy.

Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

References

Aguezzoul, A., 2007, *The thirdparty logistics selection: A review of literature*, viewed 25 April 2020, from https://hal.archives-ouvertes.fr/hal-00366527

Alkhatib, S.F., Darlington, R. & Nguyen, T.T., 2015, 'Logistics service providers (LSPs) evaluation and selection: Literature review and framework development', *Strategic Outsourcing: An International Journal* 8(1), 102–134. https://doi.org/10.1108/SO-12-2014-0028

Andrés, B. & Poler, R., 2015, *Dealing with the alignment of strategies within the collaborative networked partners*, viewed 05 March 2020, from https://link.springer.com/content/pdf/10.1007/978-3-319-16766-4_2.pdf

Andrés, B., Poler, R. & Sanchis, R., 2015, *Collaborative strategies alignment to enhance the collaborative network agility and resilience,* viewed 23 Feruary 2020, from https://hal.inria.fr/hal-01437935/document

Barret, E., 2020, *A week of corporate coronavirus warnings starts to quantify the economic toll of China's outbreak*, viewed 21 February 2020, from https://fortune.com/2020/02/21/coronavirus-earnings-report-warnings/

Blackhurst, J., Craighead, C.W., Elkins, D. & Handfield, R.B., 2005, 'An empirically derived agenda of critical research issues for managing supplychain disruptions', *International Journal of Production Research* 43(19), 4067–4081. https://doi.org/10.1080/00207540500151549

Bornstein, M.B., Jager, J. & Putnick, D.L., 2013, 'Sampling in developmental science: Situations, shortcomings, solutions, and standards', *Development Review* 33(4), 357–370. https://doi.org/10.1016/j.dr.2013.08.003

Braun, V. & Clarke, V., 2012, 'Thematic analysis', in H. Cooper (ed.), *APA handbook of research methods in psychology: Volume 2 Research designs*, pp. 57–71, American Psychological Association, Washington, DC.

Daugherty, P.J., 2011, 'Review of logistics and supply chain relationship literature and suggested research agenda', *International Journal of Physical Distribution & Logistics Management* 41(1), 16–31. https://doi.org/10.1108/09600031111101402

Dikko, M., 2016, 'Establishing construct validity and reliability: Pilot testing of a qualitative interview for research in Takaful (Islamic insurance)', *The Qualitative Report* 21(3), 521–528. https://doi.org/10.46743/2160-3715/2016.2243

Dubey, R., Altay, N., Gunasekaran, A., Blome, C., Papadopoulos, T. & Childe, S.J., 2017, 'Supply chain agility, adaptability and alignment: Empirical evidence from the Indian auto components industry', *International Journal of Operations & Production Management* 38(1), 129–148. https://doi.org/10.1108/IJOPM-04-2016-0173

DuHadway, S., Carnovale, S. & Hazen, B., 2019, 'Understanding risk management for international supply chain disruptions: Risk detection, risk mitigation and risk recovery', *Annals of Operations Research* 283(1), 179–198. https://doi.org/10.1007/s10479-017-2452-0

Feizabadi, J., Maloni, M. & Glogor, D., 2018, 'Benchmarking the tripple – A supply chain: Orchastrating agility, adaptability and alignment', *Benchmarking: An International Journal* 26(1), 271–295. https://doi.org/10.1108/BIJ-03-2018-0059

Friday, D., Ryan, S., Sridharan, R. & Collins, D., 2018, 'Collaborative risk management: A systematic literature review', *International Journal of Physical Distribution & Logistics Management* 48(3), 231–253. https://doi.org/10.1108/IJPDLM-01-2017-0035

Greening, P. & Rutherford, C., 2011, 'Disruptions and supply networks: A multi-level, multi-theoretical relational perspective', *The International Journal of Logistics Management* 22(1), 104–126. https://doi.org/10.1108/09574091111127570

Guest, G., Bunce, A. & Johnson, L., 2006, 'How many interviews are enough? An experiment with data saturation and variability', *Field Methods* 18(1), 59–82. https://doi.org/10.1177/1525822X05279903

Havenga, J.H., De Bod, A., Simpson, Z.P., Viljoen, N. & King, D., 2016, 'A logistics barometer for South Africa: Towards sustainable freight mobility', *Journal of Transport and Supply Chain Management* 10(1), 1–7. https://doi.org/10.4102/jtscm.v10i1.228

Havenga, J., Simpson, Z. & Van Eeden, J., 2010, *The state of logistics in South Africa: Sustainable improvements or continued exposure to risk*, viewed 13 August 2020, from https://www.researchgate.net/profile/Joubert_Eeden/publication/267857866_THE_STATE_OF_LOGISTICS_IN_SOUTH_AFRICA_-_sustainable_improvements_or_continued _exposure_to_risk/links/54b3a6340cf26833efce9e70.pdf

Heiyantuduwa, M., Wannisingha, W.M.N.N. & Rupasinghe, T., 2015, A strategic analysis of the use of thirdparty logistics service providers (3PLs) in the fast moving consumer goods (FMCG) industry: A systematic review of literature, viewed 25 April 2020, from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2699881

Hertz, S. & Alfredsson, M., 2003, 'Strategic development of thirdparty logistics providers', *Industrial Marketing Management* 32(2), 139–149. https://doi.org/10.1016/S0019-8501(02)00228-6

Huo, B., Ye, Y. & Zhao, X., 2015, 'The impacts of trust and contracts on opportunism in the 3PL industry: The moderating role of demand uncertainty', *International Journal of Production Economics* 170(1), 160–170. https://doi.org/10.1016/j.ijpe.2015.09.018

Ivanov, D., Dolgui, A., Sokolov, B. & Ivanova, M., 2017, 'Literature review on disruption recovery in the supply chain', *International Journal of Production Research* 55(20), 6158–6174. https://doi.org/10.1080/00207543.2017.1330572

Jayaram, J. & Tan, K.C., 2010, 'Supply chain integration with third-party logistics providers', *International Journal of Production Economics* 125(2), 262–271. https://doi.org/10.1016/j.ijpe.2010.02.014

Karrapan, C., Sishange, M., Swanepoel, E. & Kilbourn, P.J., 2017, 'Benchmarking criteria for evaluating third-party logistics providers in South Africa', *Journal of Transport and Supply Chain Management* 11(1), 1–10. https://doi.org/10.4102/jtscm.v11i0.305

Lietz, C.A. & Zayas, L.E., 2010, 'Evaluating qualitative research for social work practitioners', *Advances in Social Work* 11(2), 188–202. https://doi.org/10.18060/589

Macdonald, J.R. & Corsi, T.M., 2013, 'Supply chain disruption management: Severe events, recovery, and performance', *Journal of Business Logistics* 34(4), 270–288. https://doi.org/10.1111/jbl.12026

Milne, J. & Oberle, K., 2005, 'Enhancing rigor in qualitative description', *Journal of Wound Ostomy & Continence Nursing* 32(6), 413–420. https://doi.org/10.1097/00152192-200511000-00014

Min, H. & Joo, S.J., 2006, 'Benchmarking the operational efficiency of thrid party logistics providers using data envelopment analysis', *Supply Chain Management: An International Journal* 11(3), 259–265.

Mokadem, M.E., 2015, 'ISO 9000 moderation role over supply chain alignment in manufacturing context', *Journal of Manufacturing Tenchnology Management* 27(3), 338–363. https://doi.org/10.1108/JMTM-03-2015-0015

Nel, J., De Goede, E. & Niemann, W., 2018, 'Supply chain disruptions: Insights from South African third-party logistics service providers and clients', *Journal of Transport and Supply Chain Management* 12(1), 1–12. https://doi.org/10.4102/jtscm.v12i0.377

Niemann, W., Hall, G. & Oliver, K., 2017, 'South African 3PL firms' approaches to sustainable supply chain management', *Journal of Contemporary Management* 14(1), 204–237.

Niemann, W., Meyer, A., Kotzé, T. & Odendaal, J., 2018, *The role of third party logistics providers as orchestrators in emerging markets*, viewed 23 Febraury 2020, from https://www.researchgate.net/search.Search.html?type=publication&query=THE%20ROLE%20OF%20THIRD%20PARTY%20LOGISTICS%20PROVIDERS%20AS%20ORCHESTRATORS%20IN%20EMERGING%20MARKETS.

Ogulin, R., 2014, 'Supply chain alignment: A thematic bibliography', *Journal of New Business Ideas & Trends* 11(1), 63–75.

Oppong, S.H., 2013, 'The problem of sampling in qualitative research', *Asian Journal of Management Sciences and Education* 2(2), 202–210.

Paul, S.K., Sarker, R. & Essam, D., 2016, 'Managing risk and disruption in production-inventory and supply chain systems: A review', *Journal of Industrial and Management Optimization* 12(3), 1009–1029. https://doi.org/10.3934/jimo.2016.12.1009

Plano-Clark, V.L. & Creswell, J.W., 2014, *Understanding research: A consumer's guide,* Pearson Higher Ed., London

Polit, D.F. & Beck, C.T., 2012, *Nursing research: Generating and assessing evidence for nursing practice*, 9th edn., Lippincott Williams & Wilkins, Philadelphia, PA.

Quang, H.T. & Castro, R.D., 2017, 'Impact of supply chain alignment on construction performance: A developed model for Vietnam', *International Journal of Construction Supply Chain Management* 7(2), 68–92. https://doi.org/10.14424/ijcscm702017-68-92

Revilla, E. & Sáenz, M.J., 2013, *A taxonomy of supply chain risk management strategies: Antecedents and performance,* viewed 22 Febraury 2020, from http://gebrc.nccu.edu.tw/proceedings/APDSI/2013/proc/P130201019.pdf.

Rowley, J., 2012, 'Conducting research interviews', *Management Research Review* 35(4), 260–271. https://doi.org/10.1108/01409171211210154

Scholten, K. & Schilder, S., 2015, 'The role of collaboration in supply chain resilience', *Supply Chain Management: An International Journal* 20(4), 471–484. https://doi.org/10.1108/SCM-11-2014-0386

Selviaridis, K. & Spring, M., 2017, 'Supply chain alignment as a process: Contracting, learning and pay-for-performance', *International Journal of Operations & Production Management* 38(3), 732–774. https://doi.org/10.1108/IJOPM-01-2017-0059

Sharma, S.K., Bhat, A. & Routroy, S., 2014, 'An empirical study on supply chain risk management strategies in Indian automobile industry', *IUP Journal of Supply Chain Management* 11(4), 7–26.

Shenton, A.K., 2004, 'Strategies for ensuring trustworthiness in qualitative research projects', *Education for Information* 22(2), 63–75. https://doi.org/10.3233/EFI-2004-22201

Sinkovics, R.R., Kuivalainen, O. & Roath, A., 2018, 'Value co-creation in an outsourcing arrangement between manufacturers and third party logistics providers: Resource commitment, innovation and collaboration', *Journal of Business & Industrial Marketing* 33(4), 563–573. https://doi.org/10.1108/JBIM-03-2017-0082

Skipworth, H., Godsell, J., Wong, C.Y., Saghiri, S. & Julien, D., 2015, 'Supply chain alignment for imporved business performance: An empirical study', *Supply Chain Management: An International Journal* 20(5), 511–533. https://doi.org/10.1108/SCM-06-2014-0188

Stefansson, G., 2006, 'Collaborative logistics management and the role of third-party service providers', *International Journal of Physical Distribution & Logistics Management* 36(2), 76–92. https://doi.org/10.1108/09600030610656413

Tezuka, K., 2011, 'Rationale for utilizing 3PL in supply chain management: A shippers' economic perspective', *IATSS Research* 35(1), 24–29. https://doi.org/10.1016/j.iatssr.2011.07.001

Tukamuhabwe, B., Stevenson, M. & Busby, J., 2017, 'Supply chain resilience in a developing country context: A case study on the interconnectedness of threats, strategies and outcomes', *Supply Chain Mangement: An International Journal* 22(6), 486–505. https://doi.org/10.1108/SCM-02-2017-0059

Waugh, B. & Luke, R., 2011, 'Logistics outsourcing by manufacturers in South Africa', *Journal of Transport and Supply Chain Management* 5(1), 337–360. https://doi.org/10.4102/jtscm.v5i1.81

Whitten, G.D., Green, K.W. & Zelbst, P.J., 2012, 'Tripple – A supply chain performance', *International Journal of Operations & Production Management* 32(1), 28–48. https://doi.org/10.1108/01443571211195727

Wong, C., Skipworth, H., Godsell, J. & Achimugu, N., 2012, 'Towards a theory of supply chain alignment enablers: A systematic literature review', *Supply Chain Management: An International Journal* 17(4), 419–437. https://doi.org/10.1108/13598541211246567

World Health Organization, 2020, *WHO Director-General's opening remarks at the media briefing on COVID-19*, viewed 29 March 2020, from https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020.

Yang, Q. & Zhao, X., 2016, 'Are logistics outsourcing partners more integrated in a volatile environment?', *International Journal of Production Economics* 171, 211–220. https://doi.org/10.1016/j.ijpe.2015.09.036

Zacharia, Z.G., Sanders, N.R. & Nix, N.W., 2011, 'The emerging role of third-party logistics provider (3PL) as an orchestrator', *Journal of Business Logistics* 32(1), 40–54. https://doi.org/10.1111/j.2158-1592.2011.01004.x

Zhu, Q., Krikke, H. & Caniëls, M., 2016, 'Collaborate or not? A system dynamics study on disruption recovery', *Industrial Management and Data Systems* 116(2), 271–290. https://doi.org/10.1108/IMDS-05-2015-0209