

The influence of collective emotions in the response to supply chain disruptions: a buyer–supplier empirical approach

Jose Matas, Francisco Javier Llorens-Montes and Nieves Perez
Department of Management, University of Granada, Granada, Spain

Abstract

Purpose – The objective of this study is to examine how emotions play a role in the firm’s reaction to disruptions in the supply chain. Drawing on the upper echelons theory, we evaluate whether managers’ perception of collective emotions (CEs) in the supply environment affects the execution of specific organisational responses (bridging and buffering) to disruptive events. Furthermore, we investigate to what extent companies’ own capabilities, such as supply chain resilience, influence this relationship.

Design/methodology/approach – A web-based survey was distributed among managers involved in supply chain relationship management (e.g. supply chain or purchasing managers). LinkedIn was used to identify and contact adequate respondents, and 221 valid responses were collected. The proposed theoretical model was empirically tested using structural equation modelling based on partial least squares (PLS-SEM).

Findings – Results suggest that emotions can shape a firm’s response to supply chain disruptions. In fact, managers are more likely to pursue both bridging and buffering strategies as their perception of CEs increases. However, the intensity and underlying motivations for pursuing each strategy differ.

Originality/value – When CEs are perceived by buyer managers, stronger supply chain resilience incentivises the choice of cooperative practices within existing suppliers, thereby reinforcing pre-existing links. We conclude that combining companies’ inherent variables or capabilities with managerial cognition and perceptions can improve our understanding of decision-making processes and buyer–supplier relationships.

Keywords Collective emotions, Supply chain disruptions, Buyer-supplier relationships, Supply chain resilience, Organisational behaviour, B2B research

Paper type Research paper

1. Introduction

Major supply chain disruptions are quite unlikely to occur, but when they do, they “create ambiguous and unfamiliar situations that exert high damage on the company” (Azadegan *et al.*, 2020, p. 749). Such disruptions can be derived from natural disasters (e.g. earthquakes, floods), infrastructure issues (e.g. fire in facilities), or geopolitical conflicts, among others. All these unforeseen circumstances may alter the regular flow of goods and have the potential to negatively impact production processes, such as transportation or information systems, and therefore affect performance (Al-Balushi and Durugbo, 2020; Ivanov *et al.*, 2014). However, these unexpected events are valuable opportunities for advancing our knowledge regarding risk management in the supply chain and organisations’ response to specific threats.

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As supply chains are inter-organisational in nature, they can be considered a group whose members have some form of connexion, either direct or indirect (Fawcett *et al.*, 2006). A disruptive event that affects part of the chain may thus generate a ripple effect and strike the rest of the chain (Ivanov *et al.*, 2014). Similarly, human societies or social groups are composed of individuals exposed to suffering a common crisis because of their interconnectedness (Farny *et al.*, 2019). When a disaster affects a certain society, it can trigger collective emotions (CEs)—the similar emotions that members of the same group manifest towards common experiences—(Farny *et al.*, 2019). These emotions can foster a sense of community (Jasper, 1998; Von Scheve and Ismer, 2013) and therefore help individuals overcome difficulties and motivate a proactive response to crises (Farny *et al.*, 2019; Fritsche *et al.*, 2018).

Traditionally, supply chain literature has presumed that decision-making processes are rational, assuming that decision-makers in firms are not influenced by their values or beliefs and will respond homogeneously to similar situations (Boudreau *et al.*, 2003). However, this consideration is not realistic because these processes involve human behaviours that are inherently subjective. Hence, adopting a behavioural perspective is necessary to understand the link between supply chain management theories and actual firm practices. For example, following a fire in the production facilities of Toyota's supplier, Aisin, Toyota and other firms (both within and outside Toyota's group) collaborated. They did so by disclosing technical information for production to rivals, not to pressure Aisin into prioritising their deliveries (aware of Aisin's relationships with smaller clients) or disseminating new solutions. These efforts expedited the recovery process for all involved parties while involving the renouncement of potential individual benefits (Nishiguchi and Beaudet, 1998). However, our understanding of the relational perspectives and managers' cognitive processes in decisions made to recover from disruption remains limited.

While recent literature highlights the relevance of emotions in decision-making processes at the managerial level (Cristofaro, 2019), most studies focus on individual emotions (Menges and Kilduff, 2015). These studies have integrated specific individual emotions (e.g. anger, joy) into their models (Chugh *et al.*, 2023; Polyviou *et al.*, 2018), studying how managers' emotions and cognition affect their behaviour (Bono and Ilies, 2006). At the same time, the role of individuals within an organisation in the execution of certain supply chain strategies remains largely unexplored (Timmer and Kaufmann, 2019). Researchers have recognised the potential to advance theory through empirical studies addressing the ways in which managers use the perception and information they receive (Neely *et al.*, 2020). However, the existing literature is unclear on how environmental perceptions and behavioural factors, such as emotions, can influence the firm's response to a major disruption. Furthermore, despite the inter-organisational nature of supply chain research (Fawcett *et al.*, 2006), little attention has been paid to how collective events and their behavioural reflection affect firms' decision-making, as has been done in other areas of study (Farny *et al.*, 2019).

The objective of this study is to clarify how managers' perception of emotions in their supply environment can influence their decision-making processes after a disruption. In this work, the supply environment is understood as a group formed by current and potential suppliers available for the focal firm. The inclusion of supply alternatives within the supply environment study aligns with current research streams in empirical operations research (Wong *et al.*, 2020) and captures the relevance of not only considering direct ties when studying motivational factors such as emotions. As we are studying interconnected groups of firms -supply chains-, we adopt a broader perspective than individual emotions and examine the impact of collective emotions (CEs) to see if they motivate a proactive response to crises situations as it happens in social groups (Farny *et al.*, 2019).

To understand the effect of managers' perceptions of CEs on organisational response, we ground this study in the upper echelons theory. We focus on the company's decision-makers because the upper echelons theory argues that company managers' values, beliefs, and

experience play a key role in defining the path the firm's organisational behaviour takes (Hambrick, 2007). The upper echelons theory thus provides a theoretical framework to connect behavioural factors with supply chain management, as it is a relevant theory for understanding strategic processes and considering complex social interactions that influence firm behaviour, cognition and decision-making (White and Borgholthaus, 2022). Therefore, the perception of CEs by the company decision-makers may help to understand the overall organisation's response to supply chain disruptions. The literature on strategies to mitigate risk in the face of disruptions has developed two main lines of proactive organisational response: bridging and buffering.

Bridging involves strengthening existing relationships to face the problem caused by the disruption. Among other actions, bridging could imply greater integration of information or signing longer-term contracts—responses that create stability and consolidate the connexion (Fennell and Alexander, 1987). In contrast, buffering seeks solutions outside existing relationships, such as accumulating stock or searching for alternative suppliers to reduce dependence on a single supplier (Timmer and Kaufmann, 2019). This study thus contributes to the literature by answering the following research question:

RQ1. How does managers' perception of collective emotions in the firm's supply environment affect the organisation's response to disruptions?

Understanding why managers can react differently to disruptions is important to identify the underlying factors that influence decision-making during times of uncertainty and ambiguity. By acknowledging the influence of beliefs, emotional perceptions, and human behaviours, supply chain management strategies can be tailored to suit different managerial styles and better prepare for disruptions.

However, the literature on supply chain and risk management has rather focused on factors related to companies' capabilities, particularly highlighting the study of supply chain resilience (Castillo, 2022; Ponomarov and Holcomb, 2009) to understand why and how companies react to disruptions. Supply chain resilience is understood as a firm's capability to prepare, respond, and recover from disruptions (Ponomarov and Holcomb, 2009). While the emotional perspective provides new insights, it alone is insufficient to fully understand why a particular firm may choose one response strategy over another. In this regard, more rational elements such as supply chain resilience, which describe the firm's ability to sustain its operations, may influence the impact of collective emotions' perception on the firm's response. Therefore, we posit that supply chain resilience can act as a moderator in the relationship between a manager's perception of collective emotions and the firm's response to disruptions, leading to research question two:

RQ2. How does firm's supply chain resilience capability influence that relationship?

Answering these questions will contribute to supply chain management research and practise in three ways. First, we respond to the call for research that relates group-level emotions and organisation-level outcomes (Ashkanasy *et al.*, 2017) by studying managers' perceptions. In particular, we aim to extend the literature in supply chain management research by integrating established research streams from related fields and showing that behavioural factors, particularly emotions, are relevant to understanding firms' reactions to disruptions. Second, we advance the upper echelons theory through an empirical study that highlights the relevance of managers' perception and the influence of more distal stakeholders. Third, we operationalise and validate a measurement scale for the perception of CEs in the upstream supply chain. Additionally, this study can also guide practitioners in understanding the importance of emotional and relational factors in decision-making during supply chain disruptions. By recognising the impact of emotions on cooperative practises (bridging), suppliers can effectively foster cooperation from buyers,

resulting in increased investments and long-term relationships. Similarly, buyers can make informed decisions by considering managers' emotions and perceptions, leading to improved responses to disruptions.

Drawing on survey data collected from 221 managers of different companies, we tested the proposed relationships using structural equation modelling. The current situation following the pandemic provides a unique scenario of generalised disruptions, a business context that would be difficult to replicate in other circumstances, even using experiments or simulation-based methodology.

2. Theoretical background and hypothesis development

2.1 Upper echelons theory

Hambrick and Mason (1984) introduced the upper echelons theory into the management literature. This theory argues that managers behave according to their specific way of interpreting the situations they face, and that personalised interpretation depends on their experiences, personality, and values. This conceptualisation provides a theoretical basis for understanding organisations' decisions by studying their managers and their perceptions of the environment (Hambrick and Mason, 1984). Building upon this foundation, subsequent research has expanded on the theory's premises, highlighting the pivotal role of leaders, including top management teams and board members, in shaping organisational strategies and behaviours. Therefore, managers are not only interpreters of strategic situations but also catalysts for action, translating external and internal motivations into tangible organisational initiatives (Dubey *et al.*, 2019; Feng *et al.*, 2022; Huo *et al.*, 2021; Li *et al.*, 2023).

The development of the upper echelons theory has enabled progress on very diverse topics in recent years, with a particular growing interest in empirical work in supply chain management and B2B research. For example, to study the relationship between CEO characteristics and firm performance (Wang *et al.*, 2016), representation of women in the top management team and environmental strategies (Kumar and Paraskevas, 2018), external pressures in the adoption of circular economy practices (Dubey *et al.*, 2019), buyer's perception of supply disruption risks (Ellis *et al.*, 2010), lean management within the Toyota network (Potter, 2022), or digital supply chains and information sharing (Wei *et al.*, 2020). For example, to study industrial AI transformation (Xu and Zhang, 2023) or digital supply chains and information sharing (Wei *et al.*, 2020).

In the supply chain management context, decisions within the focal firm are influenced by the performance of its suppliers and the quality of their relationships. The upper echelons theory would set the focus on the managers operating at these interfaces. Their perception of the network can offer insights into the strategic decisions guiding supply chain management practices (Huo *et al.*, 2021). Therefore, we adopt the upper echelons theory to improve our understanding of the psychological and social processes that lead managers in the interfaces with suppliers to make certain decisions (Hambrick, 2007). In addition, we to respond to the need for empirical studies that describe how managers perceive or interpret specific information and its consequences (Neely *et al.*, 2020) in the context of generalised disruptions.

2.2 Collective emotions and organisational response

Humans' individual behaviour may depend not only on social identity and the sense of belonging to a group but also on the CEs generated in that specific context over time (Fritzsche *et al.*, 2018). Similarly, a firm's behaviour may differ depending on the specific environment in which its supply chain is embedded. Managers of different companies involved in such supply chain relations are continuously in contact and thus influence each other. According to the upper echelons theory, such contact impacts decisions, affecting processes, operations, strategies, and business results (Simsek *et al.*, 2018).

CEs are defined as emotions that are shared by individuals in a certain group or community (Farny *et al.*, 2019). CEs have not, however, been conceptualised consistently in the literature. Research published in leading journals uses different terms for CEs, such as group emotion, shared emotion, collective affect, collective mood, and emotional climate (Menges and Kilduff, 2015).

Despite the lack of consensus on the conceptualisation, there has been a growing interest in and integration of CEs in management-related research. For example, the relationship between co-workers' shared emotions and client satisfaction (Barsade and O'Neill, 2014); organisational crisis management and workers' negative feelings (Ayoko *et al.*, 2017); and leadership (Bono and Ilies, 2006). Menges and Kilduff (2015) listed several empirical articles in organisation science that discuss the relationship between emotions and various dimensions, such as decision-making processes, team creativity, productivity, and ethical behaviour in organisations.

Most of the emotion-related literature is linked to human resources research, although this topic has also become relevant in operations research (Urda and Loch, 2013). However, operations and management research still need a deeper understanding of the influence of emotions (Ayoko *et al.*, 2017; Barsade and O'Neill, 2014; Farny *et al.*, 2019; Sanchez-Burks and Huy, 2009; Urda and Loch, 2013), especially deeper knowledge of the consequences of the group's shared emotions in the supply chain context. This is important because CEs may affect the maintenance of the structure itself, as a member's perception of a lack of shared affect could increase the likelihood of turnover (Barsade and Knight, 2015). Individual emotions (e.g. anger) have been shown to influence a company's decisions on supplier retention after a supply disruption (Polyviou *et al.*, 2018). However, CEs may differ from individual ones, and further empirical research is needed to understand this distinction (Menges and Kilduff, 2015).

To contribute to the theoretical and practical development of the role of CEs in B2B research, we adapted the framework proposed by Farny *et al.* (2019) (Table 1). Their work identifies the CEs that arise in a group facing a critical situation and explains how these emotions can facilitate the creation of institutions in a post-disaster context.

In the supply chain context, such critical situations are referred to as disruptions. Supply chain disruptions refer to the emergence of a shared critical situation that affects a specific group of companies, altering the regular flow of different assets. Following the disruption, managers are motivated to respond proactively to restore stability and improve operating processes (Bode and Wagner, 2015). Therefore, it is important to determine what factors influence the decision to adopt different types of organisational responses.

Collective emotion	Definition adapted to supply chain context	Adapted from
Collective Confidence	Shared feeling that the supply chain can improve their situation in the future	Curtin (1982), De Rivera (1992)
Feeling of Security	Companies in the supply chain do not perceive either threats or dangers, or threats or dangers they believe they will be able to overcome	Rivera <i>et al.</i> (2007)
Compassionate Empathy	Noticing, feeling, and responding to another supply chain company's problems	Dutton <i>et al.</i> (2006)
Affective Solidarity	In response to an event, each member of the supply chain contributes to enhancing the sense of community	Jasper (2011), Farny <i>et al.</i> (2019)
Collective Hope	Group members actively respond to supply chain events because they share strong feelings of belonging	Seo <i>et al.</i> (2012)
Harmonious Passion	Motivation to engage in new activities and change willingly and freely, in harmony with other activities performed	Vallerand <i>et al.</i> (2003)

Source(s): Authors' own work

Table 1.
Conceptualisation
of CEs

To analyse the relevance of CEs, we need to study their effect on specific organisational responses as they reflect the decision-making process by managers. An extensive review of the literature on supply chain risk management highlighted the two main organisational responses to these risks: bridging and buffering (Bode *et al.*, 2011; Manhart *et al.*, 2020).

The bridging strategy aims to reduce uncertainty by strengthening the focal firm's current relationships (Fennell and Alexander, 1987; Mishra *et al.*, 2016). Actions within the framework of bridging can be defined as cooperative (Timmer and Kaufmann, 2019) and focus on existing relationships. In the context of institutional creation, Farny *et al.* (2019) argued that emotions play a key role in the continuation of creation work practises in a group. Similarly, CEs in the environment may help to justify a specific organisational response oriented towards consolidating existing relationships to reduce the negative impact of future disruptions. Examples of bridging actions in the supply chain include deeper integration (e.g. vertical integration), negotiation of a longer-term contract, and investing in joint structures (e.g. joint ventures), or even mergers and acquisitions (Al-Balushi and Durugbo, 2020; Bode *et al.*, 2011; Mishra *et al.*, 2016).

In contrast to bridging, the buffering strategy involves external measures beyond the firm's existing relationships to reduce vulnerability and minimise the negative impact of environmental threats, such as supply chain disruptions (Bode *et al.*, 2011; Fennell and Alexander, 1987). This response is sometimes considered uncooperative towards current suppliers, but it does not necessarily imply terminating existing connexions. Instead, firms can use their resources to explore solutions beyond these relationships (Laari *et al.*, 2023) while maintaining them, especially as temporary measures following a disruption (Küffner *et al.*, 2022). Examples of buffering actions include seeking redundant suppliers, redesigning products, and stockpiling inventory (Timmer and Kaufmann, 2019).

Research has examined the application of these strategies as responses to different types of disruption in the supply chain. For instance, to cope with disruptions due to political factors or IT-related issues such as cyberattacks (Al-Balushi and Durugbo, 2020; Manhart *et al.*, 2020). However, scholars note a lack of research on the role individuals play within organisations in executing one strategy or the other to respond to a disruptive event in the supply chain (Timmer and Kaufmann, 2019). One exception was the experiment by Mir *et al.* (2017) that focused on individual analysis of managers. The authors concluded that not only rational factors such as cost-benefit analysis but also decision-makers' perceptions of suppliers, could influence their decisions to change suppliers (buffering).

Farny *et al.* (2019) identified CEs in a society affected by a large-scale natural disaster. Similarly, we argue that CEs are also present in a firm's specific supply environment after experiencing a general disruption. These emotions may arise because of common experiences, shared norms, and specific societal conditions, such as an organisational crisis (Ayoko *et al.*, 2017). Given the role that emotional processes play in managers' behaviour (Polyviou *et al.*, 2018) and therefore in the organisation's response, we propose the following hypotheses:

- H1a.* The more managers perceive CEs in their supply environment, the more they will pursue bridging as an organisational response to a disruption.
- H1b.* The more managers perceive CEs in their supply environment, the more they will pursue buffering as an organisational response to a disruption.

2.3 The moderating effect of supply chain resilience

Supply chain resilience is "the adaptive capability of the supply chain to prepare for unexpected events, respond to disruptions, and recover from them by maintaining continuity of operations at the desired level of connectedness and control over structure and function"

(Ponomarov and Holcomb, 2009, p. 131). Because supply chain resilience is inherent to a certain network itself (Kim *et al.*, 2015), it depends on existing inter-organisational relationships. It is also a significant factor in the analysis of the scope of the impact of a disruption on the supply chain and the measures taken by affected firms (Katsaliaki *et al.*, 2022). When a supply chain is considered resilient to adverse events, the configuration of its existing interrelations can be sufficient to reduce the negative impact of this disruption (Hasani and Khosrojerdi, 2016). However, when major disruptions occur, the impact of the disruption might not be preventable and firms would actively respond to them (Bode and Wagner, 2015).

Yet, little attention has been paid to the empirical analysis of the relationship between supply chain resilience capability and its influence on decision-makers when applying organisational response strategies (e.g. buffering and bridging) in the face of severe disruptions.

Based on the foregoing, we argue that although CEs can influence organisational response, the capability to manage disruptions effectively -or supply chain resilience-is an important factor in understanding decision-making processes. Supply chain resilience may thus act as a factor that moderates the relationship between the perception of CEs and the type of organisational response, providing a more comprehensive understanding of the dynamics between emotions and firm responses to disruptions.

H2a. Supply chain resilience positively moderates the relationship between CEs perception and the pursuit of bridging.

H2b. Supply chain resilience positively moderates the relationship between CEs perception and the pursuit of buffering.

3. Methodology

3.1 Sampling and data collection

Primary data were collected because attitudes and behaviours are better assessed by asking the decision-makers themselves (Straits and Singleton, 2018). As this work aims to explain the relationships between variables in real business contexts, rather than through experiments or case studies, a survey instrument was considered more appropriate. An initial version of the survey was sent to three different academics, all of whom had in-depth expertise in supply chain and operations management. We used the feedback of these experts to improve the initial version of the survey and eliminate any structural problems from the measures. Afterwards, twenty companies performed a pre-test that was not included in the final sample.

The survey used a 7-point Likert scale to capture variability in the answers. The design avoided common scale formats (or anchors) to prevent potential item-related systematic bias (Straits and Singleton, 2018). To reduce non-respondent bias, we developed a short and dynamic survey with a friendly interface adapted to multiple formats (web, smartphone and tablet).

For a proper integration of the theoretical foundation of the upper echelons theory and the supply chain management perspective, additional efforts were made to obtain adequate respondents. LinkedIn was thus used to identify and contact suitable respondents, as this platform has been established as a useful tool for empirical study in operations and supply chain research (Shee *et al.*, 2018). Rather than looking for a specific type of firm, we controlled the process to ensure that the job position of potential respondents was purchasing manager, logistics manager, supply chain manager, or procurement manager. Consequently, our sample consists of Spanish-based firms that have the above-mentioned profiles in their

organisation and consequently have people in direct contact with suppliers. These positions are appropriate as they are present at the interfaces of relationships among firms. Therefore, managers currently holding one of the abovementioned positions, based on the information from their LinkedIn profiles, compose the sampling frame. We thus ensure the inclusion of relevant respondents, which is crucial for methodological alignment with the theoretical framework.

Within that specific framework, we randomly contacted managers by two different means to increase the likelihood of response: direct messages sent via LinkedIn and direct emails to the firm. We incorporated motivational elements designed to increase the response rate. First, the emails were nominative, making explicit reference to the potential respondent based on the information obtained manually on LinkedIn. Second, we composed personalised emails that referred to the specific firm and the importance of its participation in advancing knowledge (Straits and Singleton, 2018). We conducted an *F*-test using G*Power statistical software to determine the recommended sample size to achieve a statistical power of 95%, which was set at 215 respondents (Faul *et al.*, 2009). Finally, 1121 contacts were made to obtain 221 useful responses. The efforts on the data collection strategy resulted in a response rate of 19.71%, which is similar to or even higher than that reported in recent operations management research on risk and supply chain disruptions (Fan *et al.*, 2020).

This contacting strategy was also designed to minimise response bias problems. We explicitly emphasise the anonymity and confidentiality of the responses. Along with the use of self-administered questionnaires, we aimed to reduce potential social-desirability bias and inconvenience of data collection for participants (Dillman *et al.*, 2014). In addition, the demographic characteristics of the sample (Table 2) show the diversity of the companies included in the study, contributing to reducing potential respondent bias.

3.2 Measures

Collective emotions. We used the variables identified in the ethnographic study by Farny *et al.* (2019). To maintain content validity, we adapted the original scales of the six CEs identified to the supply chain context (Table 1), incorporating the opinions of the experts who took the pre-test. The variable perception of CEs is a formative second-order composite established by six different first-order variables measured reflectively. A high level of some of these first-order variables indicates that the respondent's perception of that specific CE is very positive.

Organisational response. Buffering and bridging strategies were operationalised following Bode *et al.* (2011). To contextualise the respondents, we used the disruption caused by the COVID-19 pandemic as a significant event to reflect their firm's organisational response.

Supply chain resilience. We used the scale applied and validated by Golgeci and Ponomarov (2013) and Ponomarov (2012). This measure is considered appropriate because it has received broad support in recent publications in the field of risk mitigation strategies (Um and Han, 2021), across different levels of disruption (Wong *et al.*, 2020) and degrees of environmental dynamism (Yu *et al.*, 2019).

Control variables. Different variables were used to control the model and study the possible effects of existing relationships. We included firm size, differentiating large from small and medium-sized firms. We also controlled for years the firm had been operating in the sector because the strength of existing business relationships may be affected by time. Similarly, we grouped the industries into manufacturing, services, and "other" industries, to check for potential differences among groups by applying the recommendations for structural equation modelling (Benitez *et al.*, 2020) and creating a composite from the existing categories. Finally, we also controlled for years of the respondent's experience, which is a very

IMDS 124,6		<i>Frequency</i>	<i>Percent</i>
2188	<i>Firm age</i>		
	1–20	62	28.1
	21–40	70	31.7
	41–60	50	22.6
	>60	39	17.6
	<i>Total</i>	221	100
	<i>Number of employees</i>		
	<50	72	32.6
	50–250	68	30.8
	251–1000	37	16.7
	>1000	45	20.4
	<i>Total</i>	221	100
	<i>Respondent's years of experience</i>		
	<10	89	40.3
	10–19	64	29
	20–29	46	20.8
	≥30	22	10
	<i>Total</i>	221	100
	<i>Firm sales (million EUR)</i>		
	<1	16	7.2
	1–6.9	54	24.4
7–39.9	63	28.5	
>40	88	39.8	
<i>Total</i>	221	100	
<i>Industry</i>			
Manufacturing	81	36.7	
Wholesale and Retail Trading	53	24	
Others	22	10	
Transportation and storage	15	6.8	
Other general services	15	6.8	
Construction	12	5.4	
Agriculture	8	3.6	
Information and communication	8	3.6	
Professional, scientific and technical activities	7	3.2	
<i>Total</i>	221	100	

Table 2.
Sample characteristics

Source(s): Authors' own work

significant factor in our study. Knowing decision-makers' backgrounds is important because the upper echelons theory argues that they make decisions based on their experience and perceptions.

4. Results

4.1 Statistical analysis technique

The proposed theoretical model was empirically tested using structural equation modelling based on partial least squares (PLS-SEM). For the analysis, SmartPLS 3.2.8 software was used, which is a common tool in similar empirical B2B research (Gani *et al.*, 2022). The analysis involved a two-step process. The first step tested the measurement model by analysing the validity, consistency, and reliability of the measures and proposed scales. The second step evaluates the structural model, applying a bootstrapping procedure with 5,000

samples to improve the statistical robustness of the empirical results. By taking this approach, we assess the strength and significance of the relationships hypothesised among the variables. We decided to use PLS because it is a common method in empirical applied research to overcome the limitations of restrictive assumptions such as multivariate normality (Streukens and Leroi-Werelds, 2016). It also allows the incorporation of both reflective and formative components in the analysis, as well as the calculation of latent variable scores to address the structural model (Hair *et al.*, 2019).

4.2 Measurement model evaluation

To evaluate the measurement model, we follow similar research (e.g. Tan *et al.*, 2022) and assess the convergent validity, discriminant validity, and reliability of the constructs under study. This first step confirmed convergent validity and indicator reliability. External (standardised) loadings were greater than 0.7 (Hair *et al.*, 2011), indicating that the variable explains at least 50% of the variance of each indicator. We also confirmed that the average variance extracted (AVE) was above the recommended threshold of 0.5, as shown in Appendix.

Appendix presents the model's internal consistency, confirmed by the Cronbach Alpha (CA), which must be between 0 and 1 (ideally above 0.7) to justify the non-redundancy of the items. To complement this test, we analysed composite reliability (CR), which should be a value above 0.7 (Hair *et al.*, 2011).

A model's discriminant validity is confirmed if one construct differs from the others according to empirical standards and if the phenomena that capture it are different from those that capture the other constructs in the model (Hair *et al.*, 2011). Despite cross-loading yielding satisfactory results, we incorporated more robust complementary methods. The Fornell-Larcker criterion confirms that the square root of the AVEs for each construct is greater than their correlations with the other constructs, based on the correlation matrix (Table 3). Following the more recent recommendations of Henseler *et al.* (2016), we used the heterotrait-monotrait ratio (HTMT) (Table 3), which estimates the real correlation between two constructs if they were perfectly reliable. We found no problems with discriminant validity, as none of the values exceeded the established limit of 0.85 and no confidence interval of the HTMT statistic with bootstrapping contained the value of 1 (Henseler *et al.*, 2015).

We tested for multi-collinearity through using variance inflation factors (VIFs) and obtained values under 5 – the limits recommended by Hair *et al.* (2011), with one exception. One item of the construct of bridging, imported from the existing literature

	Bridging	Buffering	Confidence	Empathy	Hope	Passion	SCR	Security	Solidarity
Bridging	0.876	0.616	0.364	0.349	0.496	0.400	0.421	0.460	0.398
Buffering	0.556	0.829	0.225	0.114	0.293	0.257	0.266	0.208	0.192
Confidence	0.322	0.218	0.854	0.397	0.377	0.376	0.342	0.513	0.442
Empathy	0.31	0.097	0.35	0.858	0.521	0.528	0.582	0.681	0.821
Hope	0.427	0.275	0.318	0.449	0.82	0.793	0.701	0.551	0.536
Passion	0.366	0.244	0.337	0.477	0.7	0.831	0.681	0.646	0.650
SCR*	0.383	0.253	0.308	0.525	0.61	0.628	0.799	0.641	0.471
Security	0.375	0.191	0.404	0.549	0.43	0.535	0.533	0.813	0.722
Solidarity	0.345	0.158	0.378	0.711	0.46	0.581	0.422	0.572	0.868

Note(s): The Fornell-Larcker criterion is in the diagonal and below the diagonal. The HTMT ratio is above the diagonal

*SCR accounts for Supply Chain Resilience

Source(s): Authors' own work

Table 3.
Fornell-Larcker
criterion and
HTMT ratio

and measured reflexively, exceeded this threshold (VIF of 5.6). Because the item is significant to the construct and we did not wish to lose content validity, we decided not to eliminate the item.

4.3 Structural measurement and hypothesis testing

The structural model evaluation assesses the significance of the relationships hypothesised in the proposed research model (Figure 1). After obtaining a positive evaluation of the measurement model, we extracted the latent variable scores from the different variables composing the formative second-order composite, which reflects the perception of CEs. This process standardised the scores between -1 and 1, which we used as indicators to measure the second-order construct (Sarstedt et al., 2019). Appendix displays the weights and significance of each first-order variable in the perception of CEs. In addition, the predictive power of the model was calculated as part of the structural model validation. We used the blindfolding technique to calculate Q² values for dependent constructs, which were positive. Positive Q² values denote the path model's predictive relevance (Hair et al., 2014).

Finally, we evaluate the fit of the empirical data to the theoretical model by evaluating the discrepancies between the empirical matrix and the implicit correlation matrix in the model (Benitez et al., 2020; Henseler et al., 2015). For this purpose and following Henseler et al. (2016), we evaluated the value of the standardised root mean square residual (SRMR), for which the model obtained 0.07 for the saturated model, showing an adequate fit (<0.08) according to a conservative approach (Hu and Bentler, 1998). Also, the values of the discrepancies of the geodesic distance (dG) and the unweighted least squares distance (dULS) remained lower than the 95% (HI95) and the 99% (HI99) quantiles after a bootstrap sampling process (Henseler et al., 2016), suggesting an adequate fit of the model.

Table 4 presents the results of the structural equation modelling, displaying values for the strength and significance of the relationships hypothesised, as well as the beta values of the control variables' effect on the dependent variables in the model.

The results show that a greater perception of positive CEs motivates greater organisational response in terms of both bridging and buffering, but that each strategy is adopted with different intensity and for different reasons. A positive and significant relationship between greater perception of positive CEs in the supply environment and organisational response oriented towards bridging confirms H1a ($p < 0.001$). Thus, the greater the degree of perception of CEs, the more the organisation's response is based on new

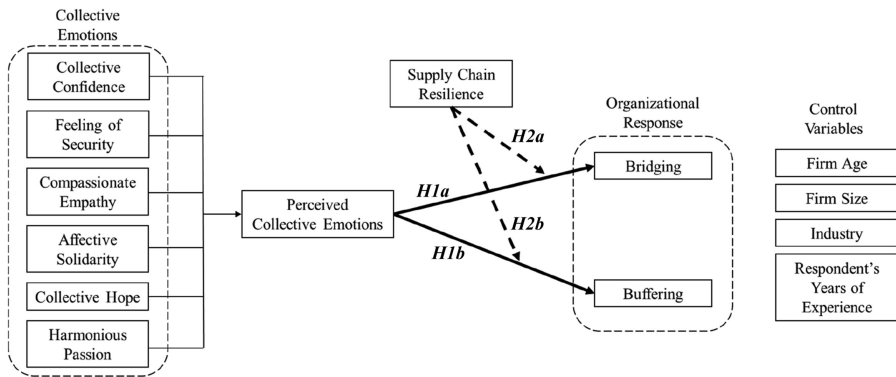


Figure 1. Proposed research model

Source(s): Authors' own work

Relation	Hypothesis	Path coefficients	<i>p</i> value	Results
Direct effect				
CE → Bridging	H1a	0.444	0.000***	Supported
CE → Buffering	H1b	0.227	0.014*	Supported
Moderating effect				
SCR → CE*Bridging	H2a	0.160	0.024*	Supported
SCR → CE *Buffering	H2b	0.055	0.336	Not supported
Control variables				
Firm Size → Bridging	–	0.035	0.579	Not significant
Firm Size → Buffering	–	0.015	0.835	Not significant
Firm Age → Bridging	–	0.093	0.089	Not significant
Firm Age → Buffering	–	–0.061	0.424	Not significant
Industry → Bridging	–	–0.080	0.475	Not significant
Industry → Buffering	–	–0.030	0.749	Not significant
Years of Experience → Bridging	–	0.153	0.005**	Significant
Years of Experience → Buffering	–	0.086	0.192	Not significant

Note(s): **p* < 0.05; ***p* < 0.01; ****p* < 0.001
Source(s): Authors' own work

Table 4. Significance of model relationships

strategies that reinforce the environment's collaborative relationship and behaviour, in line with other authors (Ashnai et al., 2016). We also confirmed H1b (*p* < 0.05), establishing a positive relationship between the perception of CE and buffering.

The analysis showed that supply chain resilience positively moderates the relationship between CE and organisational response oriented to bridging, confirming H2a (*p* < 0.05). Figure 2 shows that a different degree of supply chain resilience can strongly influence the relationships between CE and bridging, especially in the presence of a high degree of CEs.

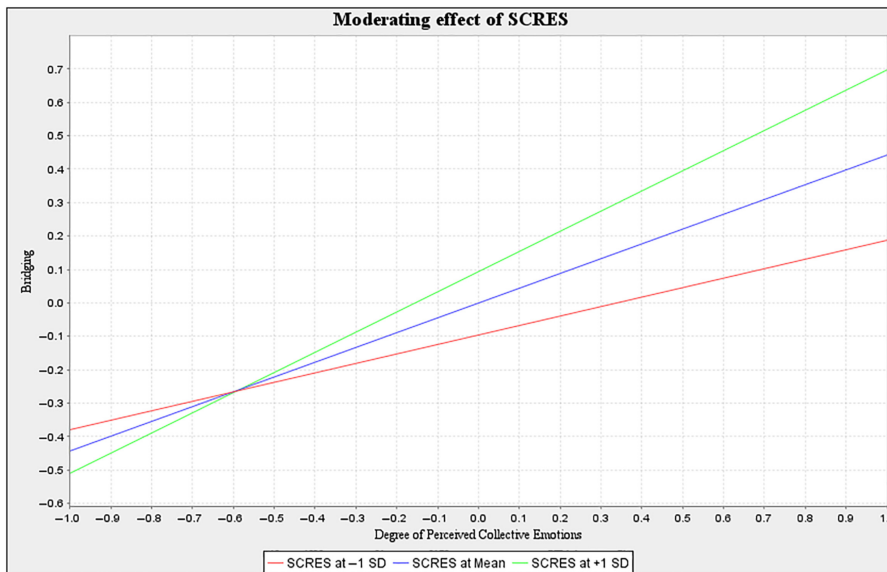


Figure 2. Moderating effect of SCR

Source(s): Authors' own work

On the other hand, we find no evidence of a moderating effect of supply chain resilience on the relationship between CE and buffering, and thus cannot confirm H2b ($p = 0.336$).

The control variables are not significantly related to the dependent variables. The size of the firm does not influence on the selection of buffering ($p = 0.835$) or bridging ($p = 0.579$) as responses against disruptions. Industry categorisation was also not significant ($p = 0.749$ and $p = 0.475$, respectively), indicating, for example, that manufacturing firms' behaviour was not significantly different from that of service firms. The years that the company has been operating (firm age) did not have a significant effect on specific firm response to disruptions either, neither buffering ($p = 0.424$) nor bridging ($p = 0.089$). However, respondent's years of experience shows a positive and significant relationship to the development of bridging responses in response to disruptions ($p < 0.01$). Not buffering ($p = 0.192$). Thus, the more years of work experience, the greater the manager's inclination to apply an organisational response oriented to bridging.

5. Discussion

This article illuminates the internal processes that shape organisations' responses to severe disruptions in the supply chain. It also increases the understanding of the role of CEs in operations and supply chain management research. Taking supply chain resilience into account, we use the upper echelons theory to explain how managers' perception of their supply environment affects their way of responding to especially turbulent situations.

Our findings support H1a, linking the pursuit of bridging with a perception of a high degree of CE. The focal firm trusts existing contacts to solve problems related to the supply chain and focuses on investments in this direction. This response means that CEs function to motivate not only the creation of new institutions (Farny *et al.*, 2019) but also the strengthening of existing connexions in the context of disruption in supply chain management. To achieve this more advanced collaborative strategy, a company can implement changes such as greater information integration, long-term contracts, and even deeper interaction, such as the creation of joint ventures, mergers, or acquisitions.

The pursuit of buffering when collective emotions are perceived, as stated in H1b, may initially seem counterintuitive. For example, Mishra *et al.* (2016) found that trust negatively correlates with buffering actions. Although trust is not an identical variable, it serves as a proxy for comparison between studies, given its role as a behavioural and relational construct denoting confidence in business partners, regarding them as truthful and benevolent (Sahay, 2003). On the contrary, we find a positive relationship. These results can be explained in three different ways. First, in line with conclusions drawn in past literature (Bode *et al.*, 2011), the disruption itself leads the focal firm to question its prior beliefs about existing relationships, as strong dependence on specific suppliers could increase risks in turbulent situations. The focal firm may thus seek alternative solutions (e.g. redesign products to avoid depending completely on a certain supplier). Second, in a context of major disruptions, firms may opt to engage in complementary activities even when the perception of CE is high and other bridging actions are being implemented. Buffering actions can complement bridging strategies and serve as post-disruption and temporary measures (Küffner *et al.*, 2022). For example, stockpiling can effectively serve as a buffering mechanism against disruption in the short run, but it might not be sufficient for a long-term crisis. Although this practise is effective in the short term, it may not be sufficient for a long-term crisis. Third, the perception of positive CEs could reduce aversion to establishing new relationships with companies in the firm's supply environment, making buffering actions such as seeking redundant suppliers or switching suppliers less difficult to initiate.

We also empirically observe that supply chain resilience moderates a company's reaction to a disruption (H2a). Existing research has examined how bridging and buffering actions

can lead to supply chain resilience when major disruptions occur, acting as antecedents (Holgado and Niess, 2023). We extend these findings and show that the existing degree of supply chain resilience also influences decision-making processes regarding firm response to disruptions. In the presence of a high perception of CEs, stronger supply chain resilience incentivises the choice of cooperative practises within existing relationships, thereby reinforcing and strengthening pre-existing links. As Figure 2 shows, this moderator effect weakens when the perception of CEs is low. The pursuit of bridging is thus negative when elements such as security, trust, and hope are not perceived in the supply environment, even if supply chain resilience is high. Since supply chain resilience is an inherent characteristic of existing structures and relationships (Kim *et al.*, 2015), its moderating effect is not significant in the relationship between the perception of CE and the search for alternative solutions (H2b), as this motivation seeks to reduce dependence on existing relationships.

The findings identify another factor that significantly influences decisions about organisational response: the respondent's years of experience. We argue that having many years of work experience leads one to forge a better relationship with partners, creating social capital that can affect organisational decisions in the face of severe disruptions.

5.1 Theoretical implications

The arguments provided and the results obtained advance the study of behavioural supply chain management and the role of emotions in operations research. This article represents the first step towards empirical operationalisation of the perception of CEs in a group—in our context, CEs that arise in the supply environment. The inter-organisational nature of supply chains, coupled with the study of disruptive events, provides an appropriate context to justify the implementation of the theoretical model and to expand the literature on firm responses to disruptions.

In response to the literature's call for empirical contributions to the study of CEs in operations and management research (Menges and Kilduff, 2015), we found that the perception of certain emotions in the environment can influence how managers make decisions regarding their supply chain. Consequently, it is important to consider the background and perception of managers to understand and foresee how companies may react to disruptions. This finding extends studies that found that the cognitive processes and personality of managers can affect responses to supply chain events (Timmer and Kaufmann, 2019) by identifying antecedents associated with psychological factors and more distal stakeholders. In particular, it expands the body of supply chain management literature on emotions beyond isolated constructs (e.g. anger, joy) (Chugh *et al.*, 2023). Indeed, the results illustrate the relevance and applicability of the concept of collective emotions in the B2B context.

At the same time, we complement previous research on the outcome of buffering and bridging strategies in supply chain management (Reimann *et al.*, 2017) by identifying factors (e.g. collective emotions) related to buyer information processing. Emotions perceived from a wider group (such as in the case of the supply environment) do play a role in the context of upstream supply chain management. These findings complement the existing literature on firms' response spectrum. Research has highlighted the relevance of different variables that may influence the firms' responses to disruptions. Among these antecedents, we can find perceptual dimensions such as growth aspiration or personality traits (Kariv *et al.*, 2024; Timmer and Kaufmann, 2019) or relational dimensions such as governance, power, and dependency (Al-Balushi and Durugbo, 2020; Liu and Wei, 2021; Su *et al.*, 2014). We complement these perspectives by acknowledging the relevance of both emotions and individuals' cognition in decision-making processes (Cristofaro, 2019; Timmer and Kaufmann, 2019), showing that the perception of emotions by decision-makers is also an antecedent that helps explain firms' behaviour under disruptive situations.

This article also contributes to the very small body of empirical upper echelons theory literature in operations research (Neely *et al.*, 2020) by examining how specific information managers perceive is used when making decisions on how to face disruptions. The findings of this study are consistent with previous research that has also demonstrated the relevance of the relational perspective and managers' perceptions in understanding buyer-supplier relationships (Gallear *et al.*, 2022). Studying managers' particular perceptions helps understand the black box of managers' emotions, which have been shown to be significant in the study of behavioural factors for decision-making. We extend recent B2B studies in emotions showing that not only do managers' own emotions influence firm response (Chugh *et al.*, 2023) but also how they perceive emotions in their environment.

We also found that existing firm capabilities related to their supply structure (e.g. supply chain resilience) play a moderating role in the organisation's response and future configuration of relationships with suppliers. Although supply chain resilience has been studied extensively as a dependent variable (Fan *et al.*, 2020; Um and Han, 2021), our study shows that the existing level of supply chain resilience also influences organisational decisions made in turbulent contexts such as disruptions. Thus, the results of this study suggest that a combination of both a company's inherent variables (such as its capabilities) and behavioural considerations (such as managers' perception of the environment) is necessary to better understand the decision-making process of a company. Although these factors are individually important, they might not be sufficient on their own. Therefore, it is essential to combine these elements to fully comprehend the factors that influence a company's choices.

5.2 Managerial implications

Our study has implications for both buyers and suppliers. We found that the likelihood of choosing cooperative practises (bridging) with suppliers after a disruption increases when managers perceive collective emotions. Since behavioural elements such as emotions have been identified as relevant to understanding firms' decision-making under disruptive contexts, managers of supplier firms need to consider not only the perception of their clients in terms of capabilities and performance but also pay attention to the emotional and relational perspective, which has been shown to influence the buyers' organisational response after a disruption. By improving how they are perceived in terms of emotions, customers may engage in bridging actions with them to face disruptions. This, in turn, may lead to increased investments and longer-term contracts, thereby affecting the firm's competitive position against rivals. This is especially relevant in highly concentrated industries, in which the number of competitors is lower and strengthening relationships with existing customers is key for survival, especially in a context of disruption. Managers are therefore advised not to ignore their emotional climate in their supply environment, as it may help to anticipate the organisational response from suppliers and be better prepared to effectively respond jointly to supply chain disruptions.

On the other hand, buyer firms can make more informed choices and improve decision-making in response to disruptions by considering managers' perceptions and emotions. These insights can inform supply chain management practises, prompting the integration of emotional assessment tools and training programmes that enable managers to better assess and respond to emotional cues within the supply chain. Managers could thus tailor their response strategies based on the prevailing emotional climate. Firms whose managers perceive a high degree of CEs in their environment and wish to maintain and stabilise relationships should thus bid to create a collaborative network based on bridging strategies. This investment could focus, for example, on the integration of information systems, the inclusion of partners in strategic decision-making about the supply chain, or investing in

common structures (e.g. joint ventures, vertical integration). However, buffering actions can also be pursued and complement the firm's strategy, especially as temporary and post-disruption measures. By temporarily changing the means of transport, diversifying the supply base, or seeking redundant suppliers, the firm can also proactively react to minimise the consequences of the disruption (Küffner *et al.*, 2022).

Additionally, managers' experience in the field has been found to influence a firm's response to bridging actions. Top management teams of companies in industries that are embedded in highly complex or very dynamic environments may be interested in hiring more experienced managers for positions directly involved in purchasing, logistics, or supply chain management. This is because bridging actions can help strengthen existing relationships and develop longer-term relationships.

5.3 Limitations and future research

The interpretation of this work should consider its context and the existing limitations, which may also guide future research streams. One main constraint of the initial study design is its reliance on a single respondent per observational unit. To reduce this limitation, we follow web questionnaire guidelines to obtain valuable answers, such as the personalisation of emails or the short length of the survey (Dillman *et al.*, 2014).

Furthermore, consistent with the theoretical framework provided by the upper echelons theory, great efforts were made to identify and contact specific managers relevant to the study. Common method bias could also explain the correlation observed between the variables (Podsakoff *et al.*, 2003). Although this bias cannot be eliminated completely, the survey was designed to reduce it to the greatest extent possible using psychological separation of the main construct, different response formats, or by conveying a message of security to minimise social desirability bias.

At the same time, conducting a cross-sectional study prevents us from properly establishing a causal relationship between variables. Future research should take the time frame into account and determine the differences between short and long-term responses and variability in the degree of CEs perception. For example, stockpiling (buffering) may be helpful immediately after a disruption but change over time, especially in the case of very long-term disruptions (Ivanov and Dolgui, 2020). We also encourage researchers to capture multiple perspectives within the same group to draw conclusions at a higher level of analysis, such as the network level. For these conclusions, it would not only be interesting to understand the decision-making process but also to include performance variables to seize the effects of those choices.

The pursuit of buffering as an organisational response also depends on the firm's ability to build new relationships, whereas bridging relies on its ability to strengthen existing ones. Researchers are encouraged to deepen their current understanding of the effects of behavioural factors and relationship management capabilities on organisational response. It would also be important to explore this relationship at lower levels of supply chain risk management strategies, focussing on the consequences of specific actions rather than a more general strategy, such as buffering or bridging. At the same time, the operationalisation of CEs enables future research in relationships within the firm. Therefore, understanding the role of emotions in intra-firm sets would also contribute to current research.

Finally, researchers are encouraged to incorporate behavioural factors into their models, along with related firm structural characteristics or capabilities, to gain a better understanding of how these elements are linked and to appreciate the relevance of human factors in business management.

5.4 Conclusion

This study highlights the role of emotions in shaping organisational responses to disruptions in the supply chain. The findings present exciting opportunities for further exploration in

understanding the impact of emotions on buyer-supplier relationships. Managers are not static assets as their cognition and perception of the environment are under continuous change, which affects the firm's behaviour. Therefore, they should not be disregarded in research aimed at better understanding B2B relationships and organisational strategies.

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(The Appendix follows overleaf)

Construct	Measurement indicators	Weights/ Loadings	CA	CR	AVE	
<i>Confidence</i> Adapted from (De Rivera, 1992; Curtin, 1982)		0.210***	0.817	0.889	0.728	
	CON1	Please evaluate your supply environment relative to the following statements Its performance will be better next year than it is now	0.823***			
	CON2	It will be more competitive next year than it is now	0.846***			
	CON3	The role of my company in the environment will improve in the next year	0.890***			
	–	Its current performance is better than last year's performance. +				
	–	I think it is a good time for the supply environment to acquire important assets, such as machinery or advanced software. +				
<i>Feeling of Security</i> Adapted from (Rivera et al., 2007)		0.228***	0.739	0.853	0.661	
	SEC1	Please rate the following statements about the group of companies that compose your supply environment We believe that our contribution to the environment will cover our essential business needs	0.721***			
	SEC2	We care about each other	0.866***			
	SEC3	We like and respect the values and traditions of other companies in the environment	0.844***			
	–	We are open to having meetings with companies outside the current environment. +				
	–	There are opportunities to improve the environment and obtain better performance within it. +				
	–	We do not feel misled by others. +				
	–	We are confident that other members will listen to us if we have any concerns or suggestions. +				
	–	If we have a problem, the other companies in the environment will help us. +				
	–	All members receive in proportion with what we deserve. +				
<i>Compassionate Empathy</i> Adapted from (Dutton et al., 2006)		0.172***	0.880	0.918	0.736	
	EMP1	The companies in my supply environment Invest a large amount of resources (time, budget . . .) in helping other companies in the environment	0.838***			
	EMP2	Generate different resources to help the other companies in the environment that need them	0.888***			
	EMP3	Provide the help other companies need in a short period of time	0.865***			
	EMP4	Adapt help to the specific needs of each case	0.840***			

Table A1.
Constructs and indicators

(continued)

Construct	Measurement indicators	Weights/ Loadings	CA	CR	AVE
<i>Affective Solidarity</i> Adapted from (Jasper, 2011; Farny <i>et al.</i> , 2019)	The companies in my supply environment	0.204***	0.835	0.901	0.753
	SOL1 Think that what really matters is solidarity and mutual aid	0.895***			
	SOL2 Collaborate with the vision and objectives of the entire supply environment	0.917***			
	SOL3 Are open to welcoming any company that joins the environment	0.785***			
<i>Collective Hope</i> Adapted from (Seo <i>et al.</i> , 2012)	Please indicate how the companies in the supply environment to which you belong feel during unexpected events associated with strategic change	0.274***	0.837	0.892	0.676
	HOP1 Attentive	0.706***			
	HOP2 Active	0.821***			
	HOP3 Determined	0.870***			
	HOP4 Strong	0.880***			
	– Interested +				
	– Alert +				
	– Excited +				
	– Enthusiastic +				
– Inspired +					
– Proud +					
<i>Harmonious Passion</i> Adapted from (Vallerand <i>et al.</i> , 2003)	When changes occur in the network, the companies in my supply environment	0.237***	0.925	0.940	0.690
	PAS1 Allow these changes to happen and have a variety of experiences	0.851***			
	PAS2 Discover new and positive things	0.864***			
	PAS3 Have significant experiences	0.821***			
	PAS4 Highlight our distinctive qualities even more	0.862***			
	PAS5 Implement the changes without altering the other activities in the company	0.765***			
	PAS6 Experience those changes passionately, while still maintaining control	0.854***			
PAS7 Are completely devoted to these changes	0.794***				
<i>Supply Chain Resilience</i> Adapted from (Golgeci and Ponomarov, 2013)	Our supply chain is able to		0.905	0.925	0.638
	SCR1 Respond adequately to unexpected disruptions by quickly restoring its product flow	0.772***			
	SCR2 Return to its original state quickly after being disrupted	0.769***			
	SCR3 Move to a new, more desirable state after being disrupted	0.722***			
	SCR4 Deal with the financial consequences of supply chain disruptions	0.830***			
	SCR5 Maintain the desired level of connection among supply chain members when a disruption occurs	0.855***			
	SCR6 Maintain proper functioning among supply chain members when a disruption occurs	0.860***			

(continued)

Table A1.

Construct	Measurement indicators	Weights/ Loadings	CA	CR	AVE
	SCR7 Extract valuable knowledge from disruptions and other unexpected events (such as COVID-19)	0.773***			
<i>Organisational response</i>					
Adapted from (Bode <i>et al.</i> , 2011)					
<i>Bridging</i>	At the time of the disruption (such as that produced by COVID-19), to what extent did your business unit pursue, or made plans to pursue, the following activities?		0.897	0.929	0.768
	BRI1 Improve collaboration with suppliers in order to overcome the disruption	0.859***			
	BRI2 Cooperate more intensively with suppliers	0.942***			
	BRI3 Improve information exchange with suppliers	0.915***			
	BRI4 Involve suppliers in risk management activities (e.g. developing a joint contingency plan)	0.779***			
<i>Buffering</i>	– Tighten control mechanisms on suppliers (e.g. more monitoring). + At the time of the disruption (such as that produced by COVID-19), to what extent did your business unit pursue, or make plans to pursue, the following activities?		0.787	0.867	0.687
	BUF1 To become less dependent on its suppliers or usual brands	0.707***			
	BUF2 Seek protective mechanisms against disturbances in supply of the item purchased	0.918***			
	BUF3 Search for or develop one or more alternative supplier(s) for the item purchased	0.847***			

Note(s): * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

+: Items removed to meet the reliability and validity criteria

Source(s): Authors' own work

Table A1.

Corresponding author

Jose Matas can be contacted at: jmatas@ugr.es

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