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The role of managers in the supply chain to promote the emergence of team resilience

21819034

A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirement for the degree of Master of Business Administration.

7th March 2023

Abstract

This research explored the lived experiences of supply chain team managers when faced with adversity. Its aim was to understand how managers could improve team resilience by enhancing the three dimensions of social-ecological resilience: alertness, preparedness and agility. A theoretical framework was derived to help managers in their efforts to develop their team's ability to respond to disruption.

A qualitative research strategy was adopted. 19 managers in supply chain direct and support functions were interviewed. Their insights were analysed to inductively identify the concepts that underpin team resilience in the supply chain.

Six central themes that extend the understanding of how managers can promote team resilience were identified. Three were considered to be foundational: communication culture, leadership rapport-building and team structural characteristics.

These foundational themes support the themes which describe team positioning in the three dimensions of resilience. A learning and growth environment is valuable in the alertness dimension, where teams are encouraged to sense context. Regarding preparation for disruption, team members should strengthen social bonds to combine capabilities, and managers should foster team cohesion. In the final dimension, agility, teams need to adapt and grow in unexpected ways to be able to respond to unpredictable risks. Using a systems thinking risk management approach, managers should enhance critical thinking and decision-making, both vital factors that enable teams to develop suitable recovery plans.

Keywords: team resilience, complex adaptive systems, ambidexterity, crisis management, team bricolage.

<u>Glossary</u>

1) Multilevel – Inter- and intra-team interactions between departments and organisational levels.

2) Social-ecological resilience – Thrive in adversity through adaption, growth and transformation.

3) Engineering science resilience – The system's strength to withstand the effects of adversity or recover from adversity with agility to a predetermined state.

4) Supply chain-direct – Function involved in the physical movement and production of goods.

5) Supply chain-support – Support functions that indirectly contribute to or influence the movement and production of goods.

6) Bricolage – Construct or create from a diverse range of team members.

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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7th March 2023

Table of Contents

CHAPTER 1: PROBLEM DEFINITION AND PURPOSE

1.1 Research problem

Supply chains in the modern world have been built on the principles of lean and globalisation, which connect buyers and sellers to produce ever-improving products (Pettit et al., 2019). These supply chain networks, which facilitate the flow of goods, play a pivotal role in the world economy; they are, therefore, systems that are imperative to enable people to meet their needs and wants (Allain-Dupré et al., 2021). However, over the recent past, the enhancement of these supply chains has been underpinned by lean principles, resulting in lower inventory, cost-effectiveness and offshoring. These have adversely contributed to the supply chain, making it vulnerable to financial and operational impacts resulting from disruption (Aigbedo, 2021). Adding further concern, the interconnectedness of supply chains enables a ripple effect which spreads the adverse effects of disruption faced in one region to another across multiple supplier tiers (Katsaliaki et al., 2022).

Enterprise risk management processes employed by managers in the supply chain context aim to identify potential risks and implement individual mitigation strategies (Pettit et al., 2019). This is an attempt to simplify the risks embedded in the supply chain network, influenced by participants within and outside the network, that are visible to the firm. However, today's increasingly disruptive business environment emerges from less visible sources and managers in the supply chain therefore need a new strategic approach (Pettit et al., 2019). For example, during the Covid-19 pandemic, companies were forced into reactive approaches to recover from the disruption. Many businesses, however, such as those in the hospitality industry, could not recover without adapting and reinventing their operations (Aigbedo, 2021). This birthed the question in the minds of managers as to how to proactively build resilience within supply chain teams and their members.

Ozdemir et al. (2022), in their post-pandemic study, statistically demonstrated that firms considered to be high performers in resilience-building efforts were more immune to disruption. Unfortunately, most organisations and teams lacked the collective knowledge about how to adapt to the situation and were therefore limited in their readiness to withstand the disruption or their ability to respond (Badhotiya et al., 2022). This highlights a significant deficiency in conventional supply chain risk

management which focuses on robustness, which means returning to a predetermined optimum level without considering changes in contextual conditions (Wieland, 2021). Helmi et al. (2021) argued that the phenomenon of supply chain resilience lacked theoretical understanding. Future exploratory research should therefore be undertaken to understand the strategies and capabilities required to support supply chain resilience.

The worldwide interconnectedness of organisations contributes to supply chain volatility, unpredictability and uncertainty (Wieland & Durach, 2021). This is prevalent in most companies in the supply chain as a result of global sourcing of materials, outsourcing non-core activities and exporting. It is therefore necessary to rethink the underlying narrative behind resilience-building to one that is more adaptive (Wieland, 2021). Central to the functionality of the supply chain are the people and teams who come together to support it (Naderpajouh et al., 2020). Understanding the critical role managers play in orchestrating teams and organisational resources to prepare for, or respond to, disruption could therefore potentially aid understanding of resilience-building in the supply chain (Pype et al., 2018; Queiroz et al., 2022). This would throw light on the processes, practices and decision-making used to promote supply chain resilience from the context of team managers. Managers could reflect on these to provide insights into how they should guide teams to overcome disruption (Chapman et al., 2020).

1.2 Purpose of the research

Global supply chain networks are still recovering from the disruption that stemmed from the global Covid-19 pandemic (Allain-Dupré et al., 2021). This resulted in the loss not only of a tremendous number of lives, but also of livelihoods, because of isolation policies implemented to curb the spread of the virus (Xu et al., 2020). As a result, employees could not get to work, manufacturers could not get raw materials and buyers could not get to sellers, so the supply chain floundered (Allain-Dupré et al., 2021). The World Economic Forum identifies four disruption categories: environmental, geopolitical, economic and technological (Ozdemir et al., 2022). These are particularly important due to the current global climate crisis and the exceeding of planetary boundaries, which could potentially result in supply chains facing increased frequency and magnitude of disruption over an extended period (Raworth, 2017). More importantly, pressure is mounting on the supply chain to reinvent itself to meet the needs of a green economy (Schot & Kanger, 2018).

Increasing local and international disruptive events have recently illuminated the deficiencies of contemporary supply chain management practices that focus on cost reduction and responsiveness. The operating context is rapidly changing and uncertain (Wieland, 2021; Xu et al., 2020). Understanding how team managers can promote the alertness, preparedness and responsiveness of teams could therefore potentially improve the resilience-building efforts of team managers in other contexts (Helmi et al., 2021).

Research into team resilience is in its early stages, and the theoretical frameworks omit the process of resilience creation and how to sustain dynamic interactions among teams and individual team members (Chapman et al., 2020; Hartwig et al., 2020). Furthermore, according to Helmi et al. (2021), the concept of resilience is still ambiguous, resulting in multiple interpretations of resilience as a capability, set of antecedents, attributes or enhancers. This study attempts to go beyond the debate about the definition of resilience to gain an understanding of managerial practices through lived experiences that support the emergence of team resilience.

1.3 Research contributions of interest to scholars and practitioners

The novelty of the supply chain resilience concept hinders managers' ability to better inform their efforts to create resilience within the teams they lead and with whom they interact (Badhotiya et al., 2022; Chapman et al., 2020). However, team resilience is fast becoming pivotal in supply chain networks that operate in increasing uncertainty and volatility from both upstream and downstream. This is because supply chain networks are structurally complex as well as interdependent, and face contextual changes that constantly pressure test them and require adaptation (Zhao et al., 2019). Managers are tasked with decision-making and leading the team through these pressure tests. This research therefore aims to extract insights from managers' lived experiences of their teams' reactions to disruption and establish how they proactively strengthen their teams' resilience in a multilevel context. This will better inform managers by enabling them to understand the processes, practices and decision-making behaviours that shape team functionality in a resilient, supportive manner (Pype et al., 2018). This study contributes to the literature by addressing the following knowledge gaps:

Proactive resilience strategies guided by foresight. A forward-looking approach is imperative to guide teams' proactive strategies and initiatives to overcome disruption. Insights from various teams and individuals can tailor the mitigating activities relevant to the organisation's context and address the most impactful and probable disruptors. Pettit et al. (2019) outlined an alternative to the established reductionist approach to enterprise risk management, which involves a generic and costly investment in capabilities to anticipate and overcome all potential disruptors. This approach would be prohibitively expensive for smaller organisations and their teams, forcing them to adopt reactive strategies. This leaves these smaller organisations vulnerable to disruption and the global supply chains they feed into, thus working against the resilience of the broader supply chain (Katsaliaki et al., 2022). Furthermore, even with resources available, managers must make sense of unpredictable and unexpected risks to understand how to orchestrate these resources to strengthen the organisation and the team's resilience (Chapman et al., 2020; Queiroz et al., 2022). Along the same lines, Ozdemir et al. (2022) asserted that proactive and reactive strategies to address long-term and high-impact disruptions do not exist. These all confirm the uncertainty of crises.

Practices conducive to multilevel resilient teams. The interdependencies of the supply chain network result in ripple effects being felt by all participants in the supply chain (Helmi et al., 2021). These effects stem from everything from short-term operational fluctuations to longer-lasting structural changes, reinforcing the vulnerability of the supply chain (Ozdemir et al., 2022). However, the dominant logic of supply chain management practices seeks to manage the network in isolation from its environment, and to control static variables as well as a manageable number of stakeholders perceived to be most influential (Pournader et al., 2020). This study breaks the simplistic mould of supply chain management practices by contributing to the understanding of the multilevel dynamic interaction of teams and individuals in the supply chain (Chapman et al., 2020).

Decision-making behaviour during disruption. Premeditated disruption response plans, protocols and mitigating structures alone cannot guarantee that appropriate actions will be taken. It is most likely that, when faced with disruption, managers in the supply chain will decide what is to be done in the short term (Aigbedo, 2021).

This decision will be influenced by the contextual factors and pressures emanating from the disruption; the effect of these pressures on managerial and team decision-making is unclear, and support efforts in these situations may therefore be misguided (Pype et al., 2018). As these managers are embedded in the interconnected and complex system, there may be a large number of factors to consider in a limited time frame (Wieland & Durach, 2021). This research, therefore, contributes to the understanding of managerial and team decision-making during disruption to guide efforts to develop agility and response capabilities (Pettit et al., 2019; Pype et al., 2018).

1.4 Review of previous research

In the extant literature on supply chain resilience, there is a long-running debate between its interpretation from an engineering perspective, which concerns bouncing back to a predetermined state, and the social-ecological definition, which refers to the ability to adapt and thrive (Wieland & Durach, 2021). However, more recently, research on resilience has been based on the social-ecological definition, which is the interpretation adopted for this study (Ali & Gölgeci, 2019). Furthermore, resilience studies have been dominated by a focus on individual resilience. However, recent research on team resilience has been conducted in the context of healthcare personnel, military personnel and, more recently, elite sports organisations (Chapman et al., 2021; Fasey et al., 2021; Kuntz, 2021; Pype et al., 2018; Shashi et al., 2020). This study contributes a unique perspective on team resilience by deriving insights from the lived experiences of managers who faced adversity during Covid-19 or during other black swan events, such as the Listeriosis outbreak in South Africa, and how their post-adversity managerial approach has evolved. This is a valuable contribution, particularly in light of Ozdemir et al.'s (2022) assertion that the literature has neglected black swan events with higher impacts and longer durations, such as the Covid-19 pandemic.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The literature concerning the long-standing engineering science view of resilience is explored first in this chapter, followed by the social-ecological view of resilience, which is gaining popularity in the literature. The balance of the literature review consists of an in-depth exploration of the three domains which can be considered phases of the social-ecological view of resilience. Finally, knowledge gaps concerning team management approaches within the social-ecological phases are identified, which establish the research questions presented in chapter three.
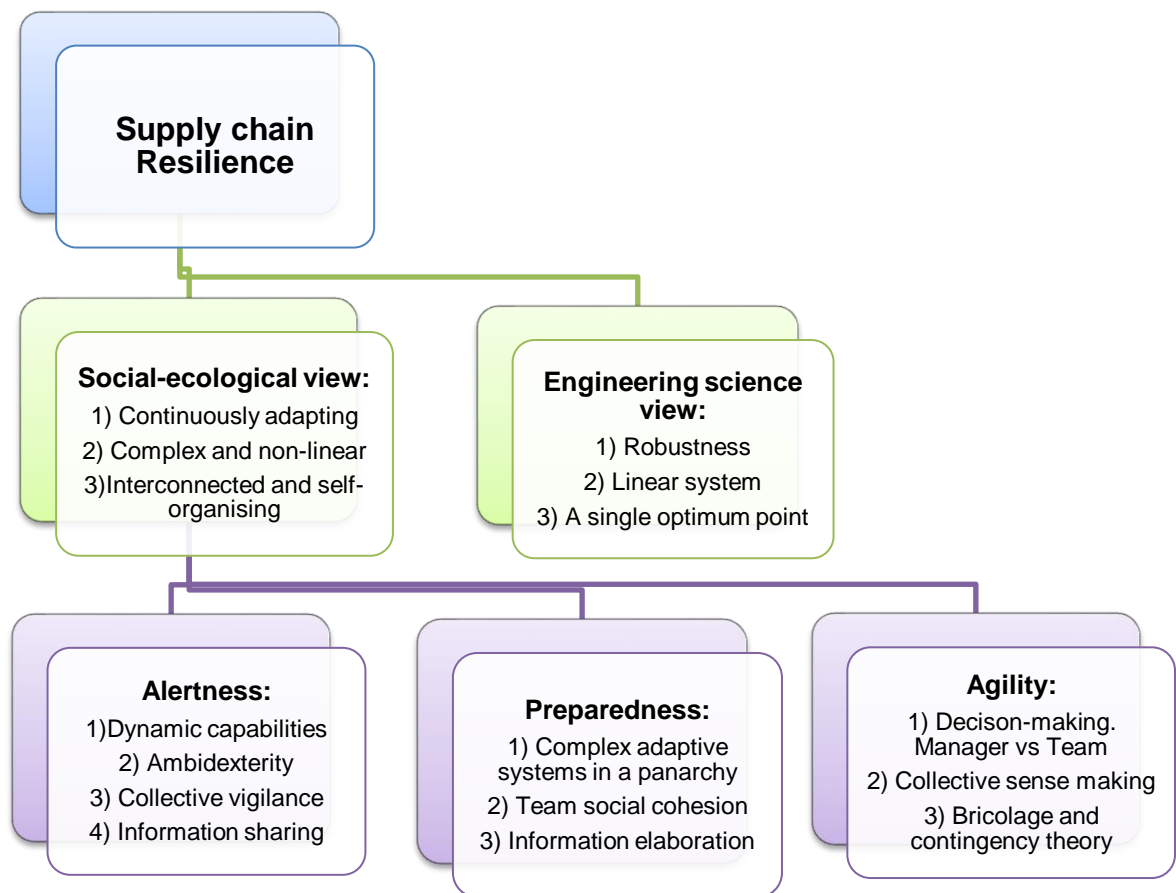
Figure 1: Map of the literature review

2.2 Supply chain resilience

Supply chain resilience refers to the ability of a supply chain to withstand, and recover from, climatic disasters or anthropogenic catastrophes (Shashi et al., 2020). It is a crucial aspect of business operations, as supply chain disruptions can significantly impact the delivery of products and services, as well as a company's bottom line. Wieland & Durach (2021) noted that it is vital to stabilise the system in the short term. However, they argued that the simplified assumptions of the engineering view of the supply chain are incapable of capturing the complexity of reality and insufficient for longer-term resilience.

Supply chain resilience encompasses reactive, concurrent and proactive approaches (Han et al., 2020). The reactive approach is the ability to respond effectively to disruptions. This involves having contingency plans in place and the ability to quickly and effectively mobilise resources to mitigate the impact of disruptions. Companies can also improve their reactive capabilities by having good relationships with suppliers and other supply chain stakeholders, which can be leveraged for efficient and effective crisis response and recovery (Shashi et al., 2020). The proactive approach is the ability to anticipate and detect disruptions. This involves having the necessary systems and processes to monitor and analyse data so that potential disruptions can be identified early and addressed proactively. Companies can potentially increase their resilience by having multiple suppliers and diversifying their supply chains so they are not reliant on a single source of supply (Shashi et al., 2020).

More recently, Ozdemir et al. (2022) argued that proactive and reactive strategies contributed to building resilience during the pandemic but were insufficient to ameliorate the pandemic's negative effect. Fasey et al. (2021) posited advancing supply chain resilience by improving organisational diversity, efficiency, adaptability and cohesion. These are not hollow characteristics of a meta-system but emerge from micro-level systems, such as teams and individuals, that shape how disruptions and adversity are overcome (Naderpajouh et al., 2020). However, the concept of team resilience has been relatively neglected in academia, compared to those of organisational and individual resilience. There is a focus shift from defining resilience to documenting how resilience emerges within teams (Chapman et al., 2020; Hartwig et al., 2020).

2.2.1 Engineering science view

The engineering science definition of resilience is that the network is a linear system that operates at a single optimum point and emphasises the system's robustness to overcome disturbances to the steady state (Wieland & Durach, 2021). The importance of supply chain robustness is further emphasised by the study conducted by Badhotiya et al. (2022), which demonstrated that robustness has the highest impact on resilience through the use of Bayesian network modelling, which compares the conditional probabilities of resilience and 16 other indicators. The definition of robustness, which informed the study by Badhotiya et al. (2022), was the ability of a supply chain to anticipate and withstand adverse conditions without suffering loss. However, adopting this definition to measure resilience capacity is arbitrary because most risks are entirely unpredictable when they stem from climatic or anthropogenic sources (Shashi et al., 2020). Moreover, the resilience of an organisation or a team is measured in the context of the risk itself. Therefore, when the risk is uncertain, resilience capacity underpinned by robustness cannot be an accurate measure (Chapman et al., 2021).

2.2.2 Social-ecological view

Consistent with the view of team resilience as a process, Fasey et al. (2021) defined team resilience as a dynamic psychosocial process which protects a group from the adverse effects of stressors, which can be collectively encountered and overcome by combining team members' resources to adapt to adversity. In the Fasey et al. (2021) research on defining organisational resilience in elite sports, of the 62 expert panellists, 72% agreed with this definition, and 71.8% agreed that this definition of resilience applies to other contexts. This definition has also recently been corroborated by scholars who view the supply chain as a social-ecological system that is complex, non-linear, interconnected and a collection of self-organising systems which continuously adapts to new contexts and transforms in the face of change (Pettit et al., 2019; Wieland & Durach, 2021; Wieland, 2021 & Badhotiya et al., 2022). Defining the supply chain in this manner incorporates two of Reich's (2006) psychological principles of resilience: coherence and connectedness. Coherence refers to the collaborative manner in which a team develops the capacity to learn and adapt to disturbances. Connectedness refers to the degree to which a team can self-organise without disorganisation caused by external forces.

A focus on teams is important because they are essential in the supply chain, where a range of skills is necessary for end-to-end operations and to undertake complex tasks (Chapman et al., 2020 & Ozdemir et al., 2022). One of the critical antecedents of team resilience, identified by Kuntz (2021), is the level of managerial and social support within the team. Teams with high levels of managerial and social support are more likely to effectively manage stressors because team members and managers can provide emotional and informational support to one another. Furthermore, Kuntz (2021) suggested that social support has been shown to play a critical role in promoting team members' empathy for one another, creating a sense of belonging and psychological safety, which contributes to greater resilience.

In addition, shared leadership can foster positive relationships and promote a supportive work environment which helps to build team resilience by creating a sense of passion towards work across multiple levels and, in turn, encourages collaboration and open communication among team members (Salas-vallina et al., 2022). However, according to Bhaduri (2019), leadership approaches are not static when faced with adversity. For example, a transactional or transformational leadership approach is more applicable during the containment stage of a crisis. While these antecedents and outcomes of team resilience have been well-documented, there is a need for more research into the specific processes and mechanisms that underlie team resilience, using a broader theoretical toolkit to harness unique insights into supply chain team resilience (Ali & Gölgeci, 2019).

Based on the novel social-ecological view of the supply chain, Li et al. (2017) identified three dimensions of supply chain resilience: alertness, preparedness and agility. These are consistent with Han et al.'s (2020) three approaches of resilience, which were further validated by Ali & Gölgeci's (2019) meta-analysis of 155 published academic articles, of which 78% indicated that increased resilience capacity stemmed from the system's ability to prepare, resist and rebound from disruption. The alertness dimension encompasses visibility and awareness of leading indicators that guide preparation activities. The stage of resistance is anchored on the system's preparedness, which is enhanced by proactive team initiatives before the disruption

that increase the capacity to withstand and overcome adversity. In the final stage of response and rebound, there is commonality with the ability of the system to grow unpredictably and continuously in a rapidly-changing business environment. This depends on the system's agility and accelerated recovery (Badhotiya et al., 2022).

What is not known is the conceptual detail of how teams, through dynamic and multilevel interaction, enhance these three domains of resilience, resulting in the emergence of team resilience (Han et al., 2020; Ozdemir et al., 2022). Han et al. (2020), in their review of 153 published academic journals, concluded that **leadership and knowledge management capabilities have been neglected in the context of supply chain resilience and performance.** This sentiment is shared by Hartwig et al. (2020) who analysed 35 articles and highlighted the need for further research into contextual factors, such as supervisory and organisational practices, and their impact on team resilience. These capabilities and antecedents can be considered vital to the emergence of resilience. The literature will therefore be discussed in terms of the three domains outlined by Li et al. (2017), focusing on leadership and team management.

2.2.2.1 Alertness

In the complex and rapidly changing environment in which supply chains operate, constant organisational and team vigilance is necessary to sense potential disruptions and environmental changes even when they are still distant from the immediate network (Han et al., 2020). This sensing capability has commonality with Teece's (2016) ideology of dynamic organisational capabilities, where earlier detection positions the company to act sooner and seize potential opportunities, or adapt sooner in the case of disruption. A team's dynamic capability is a vital antecedent to organisational ambidexterity. Ambidexterity balances exploitative and exploratory initiatives (Leemann et al., 2021). This ability better guides the team's proactive resilience-building and innovative activities to ensure that the organisation's reactions to any disruption are well-prepared and informed (Chapman et al., 2021; Pettit et al., 2019). The collective vigilance capability is enhanced through curiosity about the external environment, openness to diverse inputs and willingness to challenge assumptions (Schoemaker & Day, 2021). One of the critical components of team vigilance is the identification of potential threats and risks in the supply chain. This requires teams to be proactive in their approaches and to have a

good understanding of supply chain processes and systems.

The efforts of those individuals who are particularly vigilant and proactively identify potential threats, as well as encourage collaboration between teams to share information and knowledge, can foster a culture of continuous improvement and lead to teams becoming more proactive in their approach to risk management. Reich's (2006) connectedness and coherence principles of resilience play a pivotal role, as fluid sharing of information and diverse networking outside comfort zones are required to enhance the team's collective curiosity (Han et al., 2020; Ponomarov & Holcomb, 2009; Schoemaker & Day, 2021). It is essential to recognise that team vigilance is about responding to disruptions and continuously improving supply chain processes and systems, which are vital to develop the team's capacity to overcome disruption. Teams must be encouraged to identify areas of improvement and make recommendations for change. However, this is challenging because team members may be reluctant to speak proactively and discuss ideas or concerns. This reluctance is heightened when the voice climate lacks safety and efficacy (Brykman & King, 2021).

This introduces the concept of mutual influence, whereby team members anticipate the informational needs of others by appreciating the interdependencies of tasks. This concept encourages curiosity into the various areas of the network and promotes creative conflict and greater knowledge integration (Hoegl & Muethel, 2007). In order to overcome adversity, organisations must have coherent and efficient teams that can work together to share knowledge and develop effective strategies. Team knowledge-sharing is a critical factor in achieving a resilient supply chain. According to Shekhar et al. (2019), knowledge-sharing among team members enables organisations to build collective knowledge that can improve their ability to respond to changes and uncertainty. Team members can share their expertise, experience and insights to develop new strategies and processes to improve the organisation's resilience. Ali & Gurd (2020), in a study of 225 firm managers within Australian food supply chains, found that higher knowledge-sharing has a mitigating relationship with the adverse performance effects from operational risks. This is because team members can share their knowledge and insights about potential risks and challenges, allowing organisations to develop contingency plans and strategies to mitigate potential disruptions.

The ability of teams to share knowledge effectively can also be enhanced through effective communication and collaboration. According to Kuntz (2021), managerial support for team members to adopt a growth mindset improves the organisation's ability to respond to uncertainty more effectively and enables a post-adversity growth trajectory. By sharing knowledge and working together, teams can develop innovative solutions to help organisations overcome challenges and maintain a resilient supply chain. Team managers can promote knowledge-sharing by effectively aligning teams to meet immediate demands and concurrently adapting to position themselves favourably to benefit from changes in the business environment (Liu et al., 2018). The difficulty in achieving this was outlined by Kuntz (2021) who noted that increased job complexity increases work intensity and, in turn, reduces the team's cognitive capacity because team members become physically and emotionally depleted.

The role of leadership in promoting team knowledge-sharing and resilience is also a critical factor. According to Chen et al. (2019), leaders can play an essential role in creating a culture of knowledge-sharing and promoting collaboration among team members. Leaders can also provide support, resources and incentives to encourage team members to share their knowledge and insights, and help create a culture that values learning and continuous improvement. This approach supports the proactive resilience strategies and innovations undertaken by the organisation and teams to address the critical deficiencies observed in their network (Zhao et al., 2019). Ozdemir et al. (2022) advocated for further qualitative analysis of success and failure stories about critical innovations undertaken and decisions taken to build resilient supply chains. However, the central antecedent to identifying and implementing these innovative undertakings is information-sharing (Ali & Gölgeci, 2019). In a meta-analysis conducted by Shashi et al. (2020), of 125 papers identified as relevant to supply chain resilience, 27 papers outlined barriers to supply chain resilience. Of these, 14 papers identified the lack of knowledge-sharing as a significant barrier to achieving supply chain resilience.

This researcher therefore aspires to contribute to the literature by gathering insights into how managers improve teams' information- and knowledge-sharing and, in turn, their collective awareness which enables them to foresee potential disruptions and

identify innovative, effective, proactive resilience-building strategies. Naderpajouh et al. (2020) outlined knowledge- and information-sharing as one of the central antecedents to resilience from a project management perspective; this could benefit from exploration in the context of cross-functional teams. Given that the supply chain encompasses diverse teams working together to resolve complex problems, this study contributes to understanding knowledge and information transfer among cross-functional teams (Chapman et al., 2020).

2.2.2.2 Preparedness

The literature concerning supply chain resilience and preparedness clusters around flexibility, collaboration and redundancy as critical drivers that prepare organisations and teams for unforeseen disruption (Ali & Gölgeci, 2019). However, the measure of preparedness is subject to the magnitude of the disruption (Chapman et al., 2021) and, secondly, risks to the supply chain are genuinely unpredictable. Therefore, evaluating a team's preparedness in the context of an unexpected risk is necessarily arbitrary. The social-ecological interpretation of resilience, on the other hand, views disturbances as having the potential to create opportunities to do new things and develop through bold strides and innovation, which is the most influential factor in preparing the organisation for future disruptions (Badhotiya et al., 2022; Li et al., 2017; Ozdemir et al., 2022; Wieland, 2021). Wieland (2021) introduced the ideology of viewing the supply chain as a panarchical system structured by linking adaptive cycles across different levels and spaces. An adaptive cycle accounts for adaptation, change and stability. The panarchy provides a structure that organises people and teams so that multilevel teams (interdepartmental and various levels of seniority) can dynamically interact. Teams in higher levels with slower innovation cycles are stimulated by the rapid innovation cycles of the teams below. The higher-level teams provide the necessary pressure tests on the innovation cycles in the teams below, resulting in creative and conservative growth (Wieland, 2021).

Ali & Gölgeci's (2019) meta-analysis of 155 academic papers on supply chain resilience found that only 3% of studies used complex adaptive systems as their theoretical underpinning, compared to 15% that were underpinned by the resource-based view of resilience. The resource-based view of supply chain resilience is that the more resources an organisation has, the more resilient it is perceived to be. Larger organisations may therefore be seen as more resilient. However, according

to Shashi et al. (2020), smaller organisations can achieve a level of resilience equal to that of larger organisations through tighter integration and information-sharing that strengthen the organisation's adaptive capability. Viewing the supply chain through the lens of a panarchy portrays each organisation, department and team as a set of nesting complex adaptive systems.

Complex adaptive systems are autonomous, interconnected, interactive and interdependent. They operate in a fluid, self-organising manner that supports the emergence of new adaptive capabilities to overcome complexity (Uhl-Bien & Arena, 2017; Zhao et al., 2019). The front-facing system is the operating system, characterised by formal structures, which supports standardisation, alignment and control. The role of this system is to communicate the conditions necessary for practical solutions that can be deployed and accommodate innovative and proactive resilience-building initiatives (Uhl-Bien & Arena, 2017). On the other end, the entrepreneurial system seeks to identify innovative proactive strategies that support learning and growth through collective intelligence and vigilance (Uhl-Bien & Arena, 2017). The final system, which connects the operational and entrepreneurial systems, is the enabling system. This facilitates the flow of information and knowledge to nurture the system's collective intelligence to proactively meet complexity pressures when they materialise.

Leaders play a pivotal role in enabling space to connect the entrepreneurial and operating systems. Connecting teams between these systems allows them to interact between multiple levels of the organisation and, in turn, creates a shared understanding of departmental strengths. This strengthens the team's social identity and enables continuous adaptability to develop its collective efficacy (Fasey et al., 2021). Hartmann et al. (2021) posited that a positive emotional team culture, underpinned by joviality, drives team members' willingness to connect with others. This notion is consistent with the idea that past positive experiences strengthen social cohesion. However, it does not account for factors such as reciprocal commitment, made up of a trusting, supportive and safe team environment, which contributes to team members' enthusiasm and loyalty (Fasey et al., 2021). Building the team's social resources binds together the capabilities and capacities of team members who are valuable in supporting the team's functionality in adversity (Chapman et al., 2021).

Conflict and tension are harboured in the enabling space that is created to support creativity, and these dynamic interactions must be moderated to create a safe space and avoid destructive conflict. Pype et al. (2018) observed that negative past experiences among nurses and doctors resulted in an atmosphere of distrust and team members working in isolation. Ali & Gölgeci (2019), in their systematic review of 155 research articles, noted that only 0.6% of these articles explored the barriers to team collaboration. This creates the opportunity to explore other potential factors that work against team coherence and stifle the emergence of team resilience. In contrast to barriers to team resilience, previous positive interactions increased the perceived complementarity of each team member's expertise and resulted in the sharing of information and responsibilities more efficiently, which is conducive to harnessing the collective intelligence of the group (Pype et al., 2018; Uhl-Bien & Arena, 2017).

Information- and knowledge-sharing are vital to healthy functionality within a complex adaptive system. Badhotiya et al. (2022) found that information-sharing was the most influential driver of their 16 indicators of resilience. When faced with adversity, information flows facilitate the leveraging of the team's social resources, skills and ability to optimise contingency planning or recovery efforts (Chapman et al., 2021; Han et al., 2020). The flow of information in the system will depend on the multilevel dynamics shaped by the attractors of the team, who are managers in the supply chain context (Pype et al., 2018). These managers must develop their capabilities to deal with nonlinear, uncertain and surprising behaviour in the supply chain (Wieland & Durach, 2021).

Brykman & King (2021) pushed the envelope of information-sharing further; they posited that teams must engage with the information and other team members in an iterative process to clarify, discuss and integrate this information. This is called information elaboration, which teams can use to capitalise on the discrete knowledge held by specific teams and team members. In the context of normality, these actions are discretional, and team members are not prompted by disruption to engage with each other to overcome an immediate stressor (Kuntz, 2021). Chapman et al. (2021) concurred. They recognised the need to explore the emergence of team resilience when the stakes are low, and adversity less frequent and of a lower magnitude, to

further understand how managers prevent teams from slipping into the mundane. Talat & Riaz (2020) recommended encouraging team interdependence through job descriptions that encourage this. However, the practicality and potency of a formalised method of fostering team interactions and bricolage may be inadequate in rapidly changing contexts; guiding values and missions among team members may therefore be more appropriate according to Shashi et al. (2020).

Ali & Gölgeci (2019) posited the need for more exploratory studies regarding management support, usually provided continuously in fostering team resilience to overcome uncertainty and adversity. This sentiment was supported by Talat & Riaz (2020), who concluded that traditional management practices are insufficient to foster team resilience. There is therefore a void in the literature which requires articulation of the conceptual details of the complexities of how team managers continuously support multilevel team interaction and, in turn, the emergence of team resilience (Chapman et al., 2020, 2021; Han et al., 2020; Hartwig et al., 2020; Naderpajouh et al., 2020).

2.2.2.3 Agility

The agility pillar of resilience concentrates on the reactive strategies and actions that the team employs to respond to the disruption and return the organisation to a stable position (Zhao et al., 2019). Effective reactive responses are critical to maintain the resilience of the supply chain. Disruptions can significantly impact the supply chain's overall performance through increased costs, reduced efficiency and decreased customer satisfaction. These impacts can be minimised to ensure long-term viability of the supply chain if managers lead the team's response to disruptions effectively,

The speed at which a supply chain team recovers from disruption and returns to normality is called the recovery velocity. More agile supply chains mean higher velocity, resulting in an increased frequency of multilevel decision-making to adapt and assist the system's recovery (Ozdemir et al., 2022). The role of teams in reactive responses is crucial. Teams can bring various skills and perspectives to the response effort, allowing for a more comprehensive and effective response. Teams can also facilitate collaboration and communication between different stakeholders in the supply chain, ensuring that everyone works towards the same goal. Decision-making, which is entrusted to managers and teams in the supply chain, can therefore

be considered pivotal to the system's recovery, adaptability and overall resilience (Fahimnia et al., 2019; Pettit et al., 2019).

Managers empowered to make these decisions autonomously during disruption can be seen as costless and effective resilience-fostering tools. However, it must be appreciated that human judgment significantly influences daily decision-making (Fahimnia et al., 2019). Leadership and team dynamics also significantly influence team managers' decision-making effectiveness during supply chain disruptions. Influential leaders can motivate and inspire their teams to work together to achieve common goals, even in adversity. They can also communicate clearly and effectively, ensuring that all team members are informed and aligned on the way forward (Bhaduri, 2019). However, a study by Pype et al. (2018) showed that professionals periodically ignore their knowledge and expertise, and act in suboptimal ways to preserve collaborative relationships with superiors. This is concerning because Repetitively acting in suboptimal ways will hinder the teams functionality (Uhl-Bien & Arena, 2017). Understanding this nuance is important in the supply chain context, as the decision-makers are managers who are also attractors that shape the team's functioning (Naderpajouh et al., 2020).

Communication is another important attribute of decision-making as it clarifies the context of the disruption and enables the integration of organisational knowledge and experiences (Beer et al., 2005). When teams face adversity, there is an immediate need for structure and clarity of responsibility, which can be achieved with effective internal communication channels (Fasey et al., 2021). Pype et al. (2018) observed that crossing task boundaries previously resulted in unexpected communication and the blurring of task responsibilities, accompanied by unsought information. How the manager decides to receive information shapes future team interactions, and actions such as abruptly cutting off communication may result in animosity in the team, acting to block information flow, which amplifies the uncertainty (Han et al., 2020).

Key themes of the Chapman et al. (2021) study of military personnel undergoing elite training are the team's social bonds and mental models. These are conducive to the emergence of resilience and enhanced by shared experiences in the face of adversity, which is positively influenced by shared leadership and coordination of behaviours. By contrast, Bhaduri (2019) argued that the appropriate leadership

approach is subject to the team's source and stage of adversity. Bhaduri (2019) suggested that, in the response and containment phase of a crisis, a transactional or transformational leadership approach is more suitable than shared leadership to ensure a team's effective recovery from a crisis. This is consistent with the findings of Fasey et al. (2021) who suggested that teams look for certainty in decision-makers, as well as accountability, when faced with adversity. Furthermore, in the recovery phase, success depends on the decision-making, communication and risk-taking competencies of team managers; they hold power and prominence in their teams, and must focus on guiding members towards a shared purpose (Brykman & King, 2021).

On the other hand, managers may not be equipped to address all the challenges that arise from adversity. Shashi et al. (2020) therefore proposed a roadmap to tackle the most critical challenges which could be delegated to team members who could exercise decentralised decision-making. This is expected to more effectively support the swift recovery of the team and organisation. Furthermore, absolute reliance on team managers could deprive the team of harnessing their collective creativity to enhance their problem-solving capabilities through healthy team conflict, which introduces diverse perspectives for consideration in the decision-making process (Beer et al., 2005; Naderpajouh et al., 2020).

Collective team structures strengthen social bonds and mental models which are vital for the team to overcome adversity (Chapman et al., 2021). This approach is appropriate when disruptions are complex and diverse perspectives are required, both to interpret them and to plan the optimal course of action for the external and internal situational factors. By collectively making sense of the adversity, team members can effectively bricoleur and potentially overcome it more easily (Talat & Riaz, 2020). This is consistent with the ideologies of contingency and systems theories; managers appreciate that their organisation and team function within a greater system and that the solution to adversity depends on the internal context of the team and the external environmental context. This has immense potential for further exploration (Ali & Gölgeci, 2019).

What remains unknown, however, is how conflict and disruption impact the professional well-being of teams and team members. It is potentially counterproductive to rational decision-making in specific contexts, especially when teams face pressure emanating from disruption (Pype et al., 2018). To understand how managers decide on responsive strategies to disruption, in a manner that preserves the functionality of a complex adaptive system, the literature prompts further research into team managers' lived experiences of leading their teams through adversity (Naderpajouh et al., 2020; Pype et al., 2018; Zhao et al., 2019).

2.3 Conclusion

By interpreting the supply chain as a complex adaptive system, managers gain an ideal to work towards. Three dimensions of team resilience must be strengthened and maintained: alertness, preparedness and agility. However, the emergent nature of resilience within teams in the supply chain is yet to be documented in the academic literature. The researcher therefore aimed to close the following knowledge gaps to enhance the understanding of how dynamic and multilevel interactions enhance resilience:

1) Firstly, what are the vital managerial insights that support team information- and knowledge-sharing to successfully identify critical proactive disruption responses in an uncertain operating environment?

2) Secondly, what are the conceptual details of managerial practices that support multilevel team dynamics, resulting in proactively building resilience capabilities?

3) To afford managers a well-rounded understanding of team resilience, the final knowledge gap that was addressed was the critical considerations of managers when leading their teams through adversity.

Table 1 in chapter three below depicts the themes of resilience and the related knowledge gaps.

CHAPTER 3: RESEARCH QUESTIONS

By shedding light on the emergence of resilience in supply chain teams, this research aims to help managers to consciously work towards establishing resilience capabilities within their teams in order to ensure their survival in uncertain and disruptive business environments. In addition, the exploration of managerial practices enhances the understanding of the role of leadership and knowledge management in the supply chain context to promote resilience and performance, an area which has previously been neglected (Han et al., 2020; Hartwig et al., 2020; Ozdemir et al., 2022).

Primary research question: How do managers in the supply chain support the emergence of team resilience?

3.1 Research questions

The subordinate research questions support the overarching research question by revealing the factors that contribute to the three dimensions of resilience within a team.

Research question 1 (RQ 1): What are the ways in which managers improve their team's collective awareness?

Research question 2 (RQ 2): What do managers do to support multilevel team and individual interactions?

Research question 3 (RQ 3): What do managers do when leading their teams through adversity?

Table 1 below depicts the three dimensions of resilience and the related knowledge gaps, and appendix 3 provides a conceptual map of the proposed research project.

Table 1 - Mapping of research questions to unique knowledge gaps

Theme	Research question (RQ)	Unique knowledge gap (UKG)
Li et al (2017) **Alertness**	RQ 1 - What are the ways in which managers improve their team's collective awareness?	Ambidexterity balances exploitative and exploratory initiatives (Leemann et al., 2021). This ability better guides the teams' proactive resilience-building and innovative activities to ensure that the organisation's reactions to the disruption are well-prepared and informed (Chapman et al., 2021; Pettit et al., 2019). Team managers can promote knowledge-sharing by effectively aligning teams to meet immediate demands and concurrently adapting to position themselves favourably to benefit from changes in the business environment (Liu et al., 2018). The difficulty in achieving this is outlined by Kuntz (2021), whereby the increase in job complexity increases work intensity and, in turn, reduces the team's cognitive capacity. Ozdemir et al. (2022) advocate for further qualitative analysis into the success and failure stories of critical innovations undertaken and decisions taken in building resilient supply chains. However, collective team awareness is the central antecedent to identifying these innovative undertakings, which depends on information-sharing (Shashi et al. (2020).
Li et al (2017) **Preparedness**	RQ 2 - What do managers do to support multilevel team and individual interactions?	A team's ability to seize opportunities is the most influential factor in preparing the organisation for future disruptions (Badhotiya et al., 2022; Li et al., 2017; Ozdemir et al., 2022; Wieland, 2021). Building the team's social resources binds the capabilities and capacities, which is valuable in supporting the team's functionality in adversity (Chapman et al., 2021). Chapman et al. (2021) recognise the need to explore the emergence of team resilience where the stakes are low and adversities are less frequent and of a lower magnitude to further understand how managers prevent teams from slipping into the mundane. Ali & Gölgeci (2019) posit the need for more exploratory studies regarding management support in fostering team resilience. This sentiment is supported by Talat & Riaz (2020), who conclude that traditional management practices are insufficient to foster team resilience continuously.

Table 1 (Continued): Mapping of research questions to unique knowledge gaps

Theme	Research question (RQ)	Unique knowledge gap (UKG)
Li et al (2017) **Agility**	RQ 3 - What do managers do when leading their team through adversity?	Managers appreciate that their organisation and team function within a greater system and that the solution to adversity is subject to the internal context of the team and the external environment. This approach to team managers and their teams responding to adversity has immense potential for further exploration (Ali & Gölgeci, 2019). It is unknown how conflicts and disruptions impact the professional well-being of teams and team members. It is potentially counterproductive to rational decision-making in specific contexts, especially when teams face pressure emanating from disruption (Pype et al., 2018). Seeking to understand how managers decide on responsive strategies to disruption in a manner that preserves the functionality of a complex adaptive system, the literature prompts further research into team managers' lived experiences of leading a team through adversity (Naderpajouh et al., 2020; Pype et al., 2018; Zhao et al., 2019)

CHAPTER 4: RESEARCH METHODOLOGY

4.1 Introduction

In this chapter, the research methodology and design employed by this study to gain insights into how managers in the supply chain promote the emergence of team resilience is explained. The research aimed to enhance the understanding of the managerial and team contextual factors that build team resilience by analysing the daily lived experiences of managers in uncertain and high-pressure situations. This was an explorative qualitative study. Data was collected through semi-structured interviews of middle and senior managers that were either directly involved in the supply chain or served in a supporting function. The data was then analysed and categorised according to themes that emerged.

4.2 Choice of methodology

4.2.1 Purpose of the research design: Exploratory

The research aimed to enhance the understanding of the manager's role in supporting the emergence of team resilience and how this capability forms in the supply chain context. To understand the "what" and the "how" of the emergence of team resilience, by gaining insights from managers' lived experiences, the research design was exploratory (Barratt et al., 2011; Saunders et al., 2019). This is consistent with Han et al.'s (2020) advice for more in-depth and exploratory studies of team resilience antecedents through lived experiences. This study focused on managerial approaches and team contextual factors that were present daily during times of adversity. These contextual factors develop over time within teams and form part of their functionality (Hartwig et al., 2020). The researcher remained open to new knowledge throughout the study and purposefully allowed for developing new knowledge from information shared by interviewees. This helped the researcher to identify and gain an in-depth understanding of managerial approaches as well as team contextual factors and their intricacies (Edmondson & Mcmanus, 2007; Saunders et al., 2019).

4.2.2 Philosophy: Interpretivism

The manager's role in supporting resilience in their team was investigated. Supply chain team resilience is influenced by the inter-organisational and intra-organisational network in which it is embedded, and is context-dependent, which is the phenomenon explored by the researcher, along with the approaches managers employed to overcome adversity faced by the team. This phenomenon is socially derived and correlates with the interpretivism philosophy, where the understanding is context-dependent and socially constructed (Holden & Lynch, 2004).

4.2.3 Approach selected: Inductive

From the onset, a deductive approach was used and the academic literature was reviewed to define the main concepts of team resilience: awareness, preparedness and agility. Then, to gain an in-depth understanding of these concepts, an interview guide was developed, based on the literature, to guide the discourse between the researcher and interviewees during the data-gathering process (see appendix 3). The concept of team resilience is fairly new and is seen as having the potential to replace the traditional method of overcoming disruption through established supply chain risk management approaches (Wieland & Durach, 2021). In this regard, Locke (2007), more recently corroborated by Gruber et al. (2018), posited an inductive approach in situations in which contextual factors rapidly change and new phenomena emerge. Insights were therefore inductively derived through data analysis and themes that could potentially make a contribution to the existing body of knowledge were identified (Saunders et al., 2019; Spiggle, 1994).

4.2.4 Methodological choices: Qualitative mono-method

A qualitative research approach was adopted because of the novelty of the concept of team resilience (Saunders et al., 2019). A mono-method of data collection was relied upon; semi-structured interviews with open-ended questions were conducted. This was done to extract lived experiences and insights from senior and middle managers of teams within the supply chain context. The use of open-ended questions in the semi-structured interviews was conducive to the collection of rich, complex data and introduced new perspectives and insights to support the exploratory nature of the research (Khan, 2014). For an exploratory study, this approach was more beneficial than a more rigid interview approach as it allowed the

researcher to adapt the framing and use of prompts to the context introduced during the discussion. This created a conversational flow of insights over which the researcher could exercise sufficient control while simultaneously allowing the interviewees to contextualise their responses. When interviewees exercised this flexibility by asking clarifying questions, or introduced unexpected insights, the researcher was able to explore these further (Flick, 2018).

4.2.5 Strategy: Phenomenology

The researcher sought to understand the complexities of the lived experiences of managers in the supply chain while navigating their teams out of adversity and proactively cultivating team resilience. A phenomenological research strategy was therefore adopted to gain a clear understanding of the managers' perspectives and the complexities they faced in the emergence of team resilience, and to derive commonalities that are transferable to other contexts (Khan, 2014). Phenomenology emphasises the recollection of individuals' lived experiences so that the researcher can explore and learn about an emerging phenomenon. This results in knowledge created from the practical world, which can be shared (Vickers & Parris, 2007). A phenomenological strategy was used by Kegeelaer et al. (2020) to obtain an insider perspective of three different coaches' perspectives of team resilience during high-stakes competition settings, which resulted in a set of characteristics. Similarly, this study drew out deep insights from managers in the supply chain about their experiences in adverse, uncertain and high-pressure times to understand their perspectives on the managerial approach and team contextual factors that support resilience. A phenomenological strategy was therefore employed for the purpose of growing the body of knowledge on team resilience, which can potentially be transferable to different contexts (Nadkarni et al., 2018).

4.2.6 Time horizon: Cross-sectional

The researcher conducted a cross-sectional study in which participants were interviewed once, in 2022. Interviewees reflected on their past experiences of their team's daily interactions in the context of disruption, adversity and uncertainty. The cross-sectional approach provided a near-term repository of lived experiences which was analysed to derive insights that better inform managers in their team resilience-building approaches. This approach was chosen because of the limited time period

of the study, however this presents an opportunity to contribute to the understanding of team resilience in a period where the focus on this concept is heightened. Furthermore, the data collected, excluding the identities of interviewees and their organisations, could be made available for other researchers to further the findings of this research.

4.3 Population

The study focused on team managers who operated within a supply chain network, either directly or in a support role. The population relevant to the study was senior and middle-level managers with decision-making responsibilities and who influence internal and external stakeholders. The rationale for targeting this subset of the population is that senior and middle-level managers play the role of attractors who shape their teams' interactions and connectedness (Badhotiya et al., 2022). Managers of teams within organisations with turnovers of at least R20 million were considered as they would be significantly influential in a network of inter-organisational and intra-organisational systems (Wieland & Durach, 2021).

4.4 Unit of analysis

The unit of analysis was individuals who hold senior or middle management positions in the supply chain network and have led their teams through recent crisis events. These black swan events significantly impacted normal business operations and ranged from the COVID-19 pandemic to more industry- and region-specific business crises, such as the Listeriosis outbreak and social unrest. This group was specifically targeted to gain further understanding of the process followed to identify and frame potential disruptions, managerial practices that contributed to preparation for the identified potential disruption and critical considerations in their decision-making during adverse conditions (Badhotiya et al., 2022; Li et al., 2017). Gathering insights from these managers resulted in themes that contribute to the body of knowledge which can potentially be transferrable to different contexts of managers in the supply chain (Nadkarni et al., 2018; Spiggle, 1994)

4.5 Sampling method and size

A single-stage non-probability sampling approach was employed. This was purposive sampling based on senior and middle managers directly involved in the manufacturing or transporting of goods. In addition, managers in support functions of the supply chain network, such as human resources and finance teams, were also included. Respondents from diverse professional disciplines were selected for triangulation. This is suitable for a heterogeneous population because it enables unknown patterns to emerge from diverse inputs that are of value and represent key themes that contribute to understanding how team resilience emerges (Saunders et al., 2019).

Groenewald (2004) recommended a minimum of ten interviews for phenomenological research. However, Saunders et al. (2019) recommended a sample size of between 12 and 30 to achieve saturation when the sample population is heterogeneous. Therefore, as diverse inputs from different dimensions and perspectives were sought, 20 interviews were conducted based on purposive sampling. Of the 20 interviews, however, only 19 were included in the qualitative analysis. This was because the 20th interview was concluded after the completion of only two of the three sections in the guide. The selection criteria for recruiting interviewees included having operational influence, medium-term decision-making responsibilities and leading a team that is influenced by, and is part of a network of, inter-organisational and intra-organisational networks. In addition, the researcher purposively selected interviewees from varying contexts, as outlined in table 2, to derive commonalities among variations which, according to Patton (2002), assists the researcher to derive more significant insights.

Table 2 – Interviewee characteristics

	Supply Chain – Direct	Supply Chain – Support	Total
Senior management	6	3	9
Middle management	5	5	10
Total	11	8	19

Through iterative analysis and interpretation of the data collected during the interviews, data saturation was reached at the 13th interview when no new codes were derived (Sim et al., 2018). This is illustrated in figure 2 in which supply chain-direct interviewees are sorted first, followed by supply chain-support interviewees. Figure 3 shows the data saturation of interviewees from the supply chain-direct in isolation. At the 11th and final interview, only two additional codes emerged. Figure 4 shows the data saturation of interviewees from the supply chain-support in isolation. At the 8th and final interview, only one additional code emerged. When treated as separate groups, 83 codes emerged explicitly from the supply chain-direct interviewees and 74 codes emerged from the supply chain-support interviews. Individually the saturation graphs of these two groups are comparable, and when consolidated, these two groups resulted in 84 unique codes (figure 2). This shows that the responses from the supply chain-support interviewees corroborated those of the supply chain-direct, is a form of triangulation in data collection used by the researcher. Gaskell & Bauer (2000) argued that data should be gathered until no new patterns emerge. The researcher therefore, ceased collecting data after 19 interviews were conducted, instead of the upper limit of 30 suggested by Saunders et al. (2019) for a heterogeneous population. Prior to the consolidation of duplicate codes, 182 codes emerged. These were subsequently reduced to 102 codes after consolidating duplicate codes. After that, these codes were further condensed to 84 codes during the in-depth qualitative analysis and sense-making to identify themes in the data. The researcher's inductive approach resulted in sub-themes and emerging themes to yield insights into the three concepts of resilience which were deductively derived from the literature.
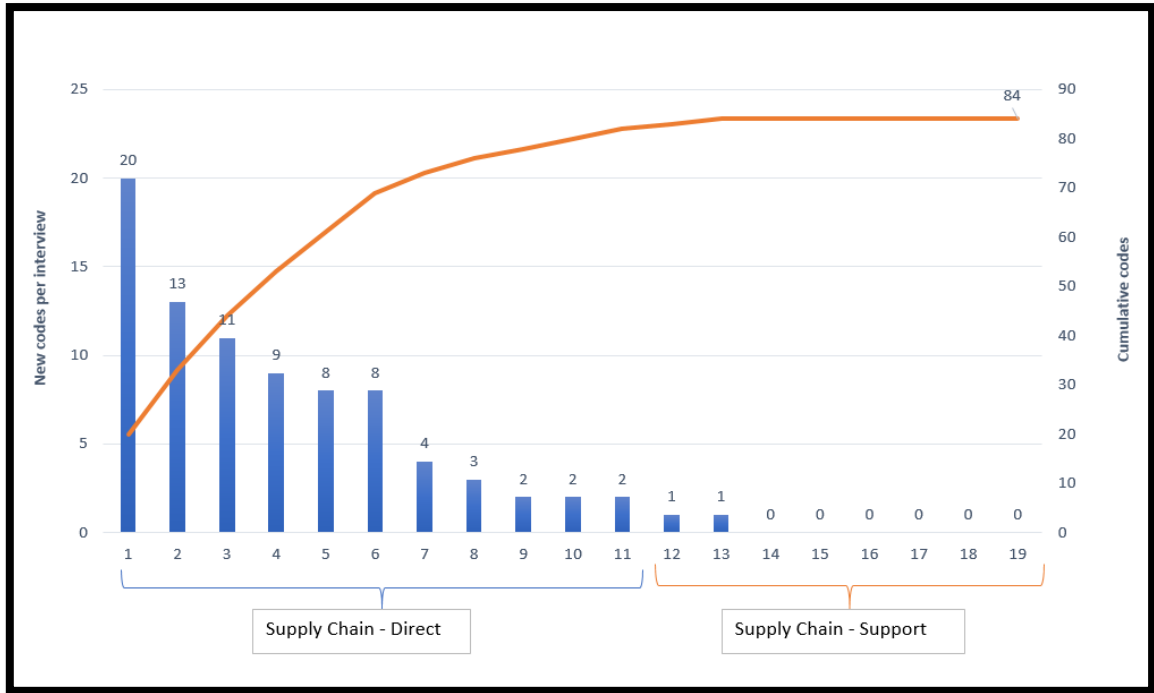
Figure 2 – Data saturation (direct and support consolidated)
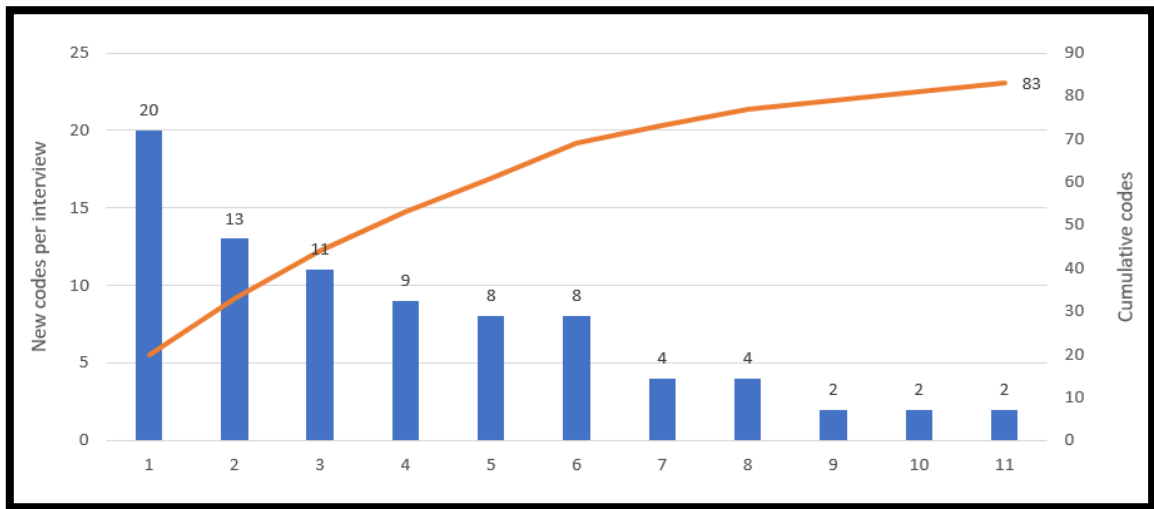
Figure 3 – Data saturation supply chain-direct
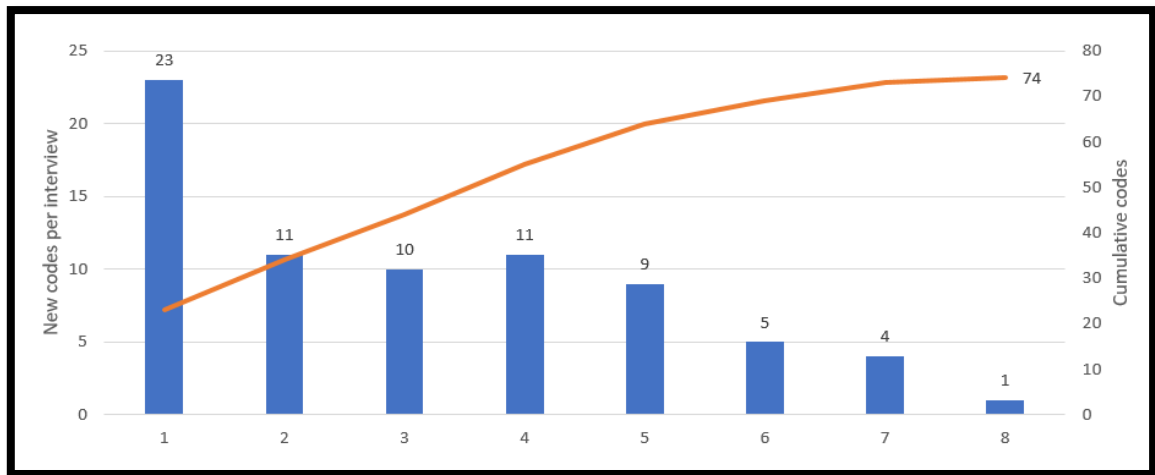
Figure 4 – Data saturation supply chain-support

4.6 Research instrument

Semi-structured interviews, which were appropriate to support the exploratory nature of this research and at the same time to guide the discussion around the concepts of team resilience derived in chapter two, were used. A set of predetermined open-ended questions were administered in the same sequence for all respondents to ensure the consistency and reliability of the data collected. This enabled the data gathered from each interview to be comparable with that gathered from other interviews. However, the researcher did leverage the flexibility of the semi-structured interview to temporarily deviate from the questioning sequence to explore any new insights that were introduced. This was partially consistent with Henriksen et al.'s (2022) advice that a semi-structured interview process does not have a predetermined set of questions in a specific order but instead uses a checklist of topics to be explored. This is valuable because it is receptive to various inputs and includes the interviewees in the knowledge-building process. Appendix 1 contains the interview guide, made up of open-ended "how" and "what" questions which were administered with contextual prompts that the researcher used discretionally to provoke the thoughts of the interviewee (Barratt et al., 2011). The questions in the interview guide were developed to answer the three secondary research questions derived from the three concepts of team resilience, and outlined in chapter three. This assisted the researcher to answer the overarching primary research question and to contribute unique knowledge to fill existing gaps regarding the emergence of team resilience. This is discussed further in chapters five to seven. To further refine content validity and construct validity, the researcher pilot-tested the research

instrument on three peers who fulfilled the sampling criteria. The final pilot interview was used in the thematic analysis because it used the final iteration of the instrument (Saunders et al., 2019).

4.7 Data gathering

The data sought by the researcher came from interviewee reflections about a historical phenomenon. The conversation was therefore not prescriptive, but allowed the interviewee to articulate their own experiences and insights gained when faced with adversity (Henriksen et al., 2022). Before selecting an interviewee, the researcher analysed and understood the interviewee's context by reviewing their company and professional profiles on LinkedIn. By reviewing the prospective interviewee's professional background, the researcher attempted to determine their industry, seniority and involvement in the supply chain to determine their suitability for the research. Afterwards, the researcher reached out to the prospective interviewee to set up an online or in-person interview and shared an informed letter of consent to be signed and returned before the interviews were conducted (See appendix 4). The letter of informed consent explained the purpose of the research, ensured interviewees of confidentiality in the reported results and informed them that their participation was entirely voluntary. The interviews took between 35 minutes to an hour, as outlined in the letter of informed consent. Each interview began with a brief introduction to the research and the concepts of team resilience, followed by interviewee confirmation that they agreed to the conversation being recorded. Following that, the researcher employed the interview guide. This was done to ensure that the interviewee was comfortable to participate in the research and had sufficient context to enable the them to interact with the researcher in a manner conducive to knowledge-sharing and exploratory conversing, yielding deep insights and rich data.

The researcher followed the following steps to collect data from the interviews:
1) During the interview, recorded and took notes of the ideas, themes and insights that emerged. This allowed the researcher to be in tune with the conversation and conduct the semi-structured interview that thoroughly addressed the knowledge gaps by drawing out deep insights from the interviewee's experiences (Henriksen et al., 2022).

2) Used Happy Scribe online software to transcribe the recording verbatim.

3) Uploaded the unedited transcript in Atlas.ti to review, correct, code and remove personal or company identities while listening to the interview recordings. This ensured the quality of data transcription (Braun & Clarke, 2006; Flick, 2018).

4) Conducted a second review of the cleaned transcripts to determine the appropriateness of the codes and any applicable new codes.

During the interview process, the researcher maintained an open and neutral mindset to enhance the objectivity of the data and improve the trustworthiness of the reported results. Where narratives were unclear or open to interpretation, the researcher asked clarifying questions to align his perspective with how the interviewee viewed the phenomenon.

4.8 Data analysis approach

The researcher consciously exercised the 15-point criteria outlined by Braun & Clarke (2006) during the data analysis. First, the researcher reviewed the software-generated transcript in Atlas.ti while replaying the audio recording to ensure the transcription was verbatim. While checking the accuracy of the transcripts, the researcher also reviewed the interviewee's responses against the notes captured in the interview guide to crystalise the insights shared and inductively identify an appropriate code for the narrative. Once the initial coding of the transcript was completed, the researcher performed a second analysis to ensure validity and completeness. This was consistently applied to all 19 analyses of the interviews, thereby ensuring each data item was given equal attention. This process made the researcher cognisant of the underlying narratives and was central to actively positioning the researcher to identify emergent themes.

After all the data had been coded, the codes and their respective quotations were further analysed. Codes with similar meanings, supported by the quotations, were consolidated. At times, the code itself was re-worded and a log of these decisions by the researcher was maintained in Atlas.ti. From the researcher's analysis of the data collected from interviewees, 428 quotes were initially assigned to one of 182 codes that the researcher created as they emerged in the narrative of the interviewees. The

researcher subsequently consolidated quotations which were similar in meaning, or duplicates, which resulted in 84 remaining codes. Based on the commonalities and patterns identified in the consolidated codes, the researcher identified 26 sub-themes aggregated into six distinctive and internally consistent themes. This process of systematic induction and abstraction is depicted in appendix 5. These themes were iteratively refined by the researcher while structuring the relationships between the themes by referring back to the collated sub-themes, codes and quotes. Finally, the researcher interpreted the findings within the themes of team resilience that emerged, and proposed a framework of team resilience (see figure 6 in chapter seven), in order to, support the exploratory and inductive approach of the research and contribute towards closing the knowledge gaps identified in the literature (Braun & Clarke, 2006).

4.9 Strategies to assure the quality of data

Strategy 1: Interviewee triangulation

Interviewees from various seniority levels, functions and organisational size were selected to mitigate any inherent biases of the researcher or a specific population set. Furthermore, the researcher purposefully ensured a balance between male and female interviewees to mitigate potential gender biases regarding suitable managerial approaches in adversity. The researcher intended to maximise variation in the sample to ensure the introduction of diverse perspectives within which familiar themes could be identified (Patton, 2002). This approach enabled richer explorative discussions into the intricacies and nuances of the interviewee's team dynamics (Saunders et al., 2019). This form of interviewee triangulation enhances the credibility of the researcher's findings (Flick, 2018). Table 3 outlines the various interviewee characteristics.

Table 3: Interviewee metrics

Gender	#		Function	#		Seniority	#		Turnover	#		Value Chain	#
Male	11		Support	8		Senior	9		> R250 MN	7		DVC	6
Female	8		Direct	11		Middle	10		>R2 BN	7		RVC	7
									< R2 BN	5		GVC	6
Total	19			19			19			19			19

Key:

MN = Million
BN = Billion
DVC = Domestic Value Chains
RVC = Regional Value Chains
GVC = Global Value Chains

Strategy 2: Audit trail of analysis

To enhance the dependability of the results, a paper trail of the data collection, including unedited transcripts, interview recordings and the final polished transcripts used in the data analysis, was maintained. The research can therefore be reproduced, and the findings validated. Subsequently, using Atlas.ti, the researcher's decisions concerning coding quotations and updating codes were retained. Furthermore, the subsequent thematic mapping and analysis process were documented in Microsoft Excel in a manner that records the researcher's decisions. These audit trails enhance the dependability of the findings as well as their confirmability (Seale, 1999). In addition, the data from this research, excluding any identifiers of interviewees and their organisations, will be made available to researchers interested in building on the findings.

4.10 Ethical considerations

The researcher has stored the interview recordings and transcripts on his academic institute's Google drive. This was done to ensure the safekeeping of the data for ten years. It can only be accessed by the researcher and persons with whom he shares the specific folder. The researcher, upon request, will make this folder available to any person to validate the findings of the research or researchers interested in building on its findings. The recordings and transcripts have been referenced to the interviewee's pseudonyms outlined in table 4 and not to any real-world identifiers of the interviewees or their companies. The researcher has maintained the anonymity of interviewees in the final research report and interview transcripts by not including

identifiers of sources, individuals or organisations. Before formal data collection, the researcher obtained ethical clearance from the Ethics Committee of the Gordon Institute of Business Science (GIBS).

4.11 Limitations of the research project

4.11.1 Time frame
The cross-sectional nature of the research could potentially result in limited generalisability of interviewee's reflections and recollections of the intricacies and nuances encompassed in their team's shared experience while navigating through and overcoming adversity (Chapman et al., 2020).

4.11.2 Researcher's own biases
Interpretive studies are subject to the biases of the researcher's own contextual and background factors. Therefore, to ensure the findings were transferable to varying contexts, the researcher remained cognisant of his biases which stemmed from his assumption that individual proactive information-sharing and an individual's self-motivation to learn are central to team resilience. To address this, the researcher explored the literature to identify the concepts of team resilience and purposefully sought diverse perspectives from various interviewees. Furthermore, the frequency of code occurrences was analysed to identify emergent themes and sub-themes to ensure that these diverse inputs were considered in the researcher's findings.

Chapter 5: Results

5.1 Introduction

The contextual characteristics of the interviewees are outlined in this chapter. The codes derived from the interviews are then presented and interpreted to derive the themes and sub-themes to emerge from the data collection.

5.2 Interviewees and contexts

In this chapter, individual interviewees are referenced using their pseudonyms. These take the form of the letter "I" followed by a full stop and a number (for example, I.1). The interviewees in this study all resided within South Africa. They were equally split between companies that operate either in the domestic value chain (DVC), regional value chain (RVC) or the global value chain (GVC). These distinctions are made in the company identifier in table 4.

These interviewees were categorised as either senior or middle-level managers by the researcher. The researcher's rationale for the interviewee's assigned categorisation was based on the manager's position in the organisation's organogram and the degree of discretion and decision-making they could exercise. There are therefore noticeable instances where interviewees with similar titles are categorised differently, such as interviewees I.5 and I.12. Interviewee I.5 is an operations manager in a company with a turnover of R50 million who exercises significantly more discretion over the company and team direction in the medium term compared to interviewee I.12 who is a finance and operations manager in a company with a turnover of R350 million in which the medium term company direction is set at a more senior level (table 4).

The researcher targeted interviewees in supply chain support functions from finance, human resources, marketing and customer management because of their substantial influence over the supply chain in the short and medium term. The reason is that they play a critical role in business survival and recovery from disruptions such as the COVID-19 pandemic. For this reason, more distant teams within disciplines such as legal, information technology, research, and new product innovation were purposefully excluded from the sample. The culture of the companies where the interviewees worked varied, with the most distinct contrast between interviewees I.4

and I.13, who were both in support functions in the retail industry. Interviewee I.4's narrative depicts a task-focused culture, whereas I.13 describes a people-centric culture, as can be seen in the quotes below:

> *"We are all one collective. I feel like in our environment, it's quite easy to implement something because if I had to tell my regional admin managers or raise an order to do something that's done quite efficiently, I don't have any issues in my context." (I.4)*

> *"So I think one of the main things is just the surety that people have, in the sense that I always have a job here, and it's something that I hear all of the time, is that if you have a job in our company, you have a job for life…So it's one of the things I think really has driven people." (I.13)*

These cultural variations were essential as they form the basis of the managerial perspective and approach that these interviewees saw as appropriate when facing adversity or disruption. These deep-rooted cultural assumptions would have influenced how the interviewees narrated their views during the data collection. These variations allowed for richer insights and more credible findings of common themes in the data (McCracken, 1988).

Company turnover plays a significant role in organisational resilience through the availability of resources (Fasey et al., 2021). However, the researcher focused on team resilience within the organisation, where resilience capacity is based on learning and the accumulation of collective knowledge and team capabilities (Brykman & King, 2021). A study conducted by Park et al. (2018) determined that firm size does not significantly influence employee satisfaction or turnover intention. These elements are central to team resilience because they are vital to employee productivity and engagement. The researcher therefore purposefully ensured that the sample was balanced between various company sizes to include interviewees from different work cultures and company environments.

In addition to company culture, the researcher determined other interviewee characteristics (outlined in table 4 below) prior to the interview by reviewing the interviewee's professional profile. These characteristics were subsequently

confirmed during the interviews. The qualitative data analysis began with the interviews of those directly involved in the supply chain and, after that, interviews of those from support functions in the supply chain. Data saturation was observed at the 13th interview (see figure 2). The emergent themes are discussed further in the next section of this chapter.

Table 4: Characteristics of interviewees

Interviewee	Company Identifier	Industry / Sector	Position	Gender	Level	Function	Company turnover
I.1	RVC 1	Automotive	Regional financial manager	Male	Senior	Support	R100 million
I.2	RVC 2	Plastic manufacturing	Sales and distribution manager	Male	Senior	Support	R50 million
I.3	DVC 3	Consumer durable manufacturer	Marketing Manager	Male	Middle	Support	R100 million
I.4	RVC 4	Retail and distribution	Finance manager	Male	Middle	Support	R200 billion
I.5	DVC 5	FMCG manufacturing	Operations management	Male	Senior	Direct	R50 million
I.6	RVC 6	Food manufacturing	Talent acquisition manager	Female	Middle	Support	R35 billion
I.7		Food manufacturer	Brand account manager	Male	Middle	Support	
I.8	GVC 7	FMCG manufacturing	Plant planning manager	Female	Middle	Direct	R2 billion
I.9		FMCG manufacturing	Regional indirect procurement manager	Female	Middle	Direct	
I.10	GVC 8	Imports and exports	General manager	Female	Senior	Direct	R20 million
I.11	DVC 9	Automotive component manufacture	Engineering manager	Male	Senior	Direct	R400 million
I.12	DVC 10	Food manufacturer	Plant finance and operations manager	Male	Middle	Direct	R350 million

Table 4 (Continued): Characteristics of interviewees

Interviewee	Company Identifier	Industry / Sector	Position	Gender	Level	Function	Company turnover
I.13	DVC 11	Third-party retail services	Diversity and equity manager	Female	Senior	Support	R430 million
I.14	GVC 12	Warehousing and logistics	General manager	Male	Senior	Direct	R29 billion
I.15	DVC 13	Food manufacturing	Finance and accounting manager	Female	Middle	Support	R1 billion
I.16	GVC 14	Chemical manufacturing and distribution	National distribution and logistics manager	Female	Senior	Direct	R400 million
I.17	RVC 15	Consumer durables manufacturer	National planning manager	Male	Middle	Direct	R80 million
I.18	GVC 16	Import clearing and warehousing	Client Executive	Male	Senior	Direct	R200 million
I.19	RVC 17	Food manufacturer	Warehouse and distribution manager	Female	Middle	Direct	R35 billion
A total sample size of 19 interviewees from 17 companies.							

5.3 Presentation of results

The presentation of the results from the thematic analysis in this section is guided by the research questions outlined in chapter three. These questions were derived based on the unique knowledge gaps identified when describing the emergence of team resilience in chapter two. The interview transcripts were analysed in Atlas.ti, and codes were assigned as insights emerged. The initial coding resulted in 182 codes, which were subsequently reduced to 102 after removing duplicate codes. Thereafter, an initial relationship analysis of the contents of the remaining codes resulted in the identification of 28 sub-themes and six themes. Next, the researcher conducted a second round of distillation, which resulted in 84 different codes, 25 sub-themes and six themes (presented in appendix 6). The second round of distillation was undertaken because the researcher's increasing familiarity with the data resulted in the identification of additional related codes. Finally, the researcher reviewed the frequency of code occurrences across all interviewees and applied two

criteria to determine the relevance of these codes. The first qualifier was the number of interviews in which the codes appeared, set at three or more. This allowed for more contextual nuances to emerge, which could make a unique contribution to the literature or identify an emerging theme that warranted further exploration. The second was the absolute number of quotes per code, set at four or more. The second criterion determined the code's significance and importance to the interviewees. After these two qualifiers had been applied, 62 codes remained and these are discussed further, with the relevant research questions, in the following sections of this chapter. The process of thematic analysis followed by the researcher is depicted in table 5.

The sub-themes, themes and codes relevant to the three research questions are presented independently in the following sections. Noticeably, three of the emerging themes are shared among the three research questions. The commonality of these themes is due to interviewees referring to these aspects as the interviews progressed and the complexity of the discussion increased. The remaining three themes are specific to each of the research questions.

Table 5: Thematic analysis process

Phase	Codes, Sub-themes and themes
Phase 1: Coding of interviews	182 codes
Phase 2: Removal of duplicates	102 codes
Phase 3: Round one relationship analysis	102 codes / 28 sub-themes / 6 themes
Phase 4: Round two relationship analysis within the assigned sub-theme and themes	84 codes/ 25 sub-themes/ 6 themes

Phase 5: Application of relevance criteria
   1) Appeared in 3 interviews or more
   2) Appeared 4 times or more in total
	64 codes/ 25 sub-themes/ 6 themes

RQ 1: What are the ways in which managers improve their team's collective awareness?

The central aim of research question one was to understand what managers of teams in a supply chain setting do to entice team members to be curious and forward-thinking. These heighten the team's awareness and capacity to anticipate significant context changes. This collective team ability is a central building block of team resilience. Insights into the antecedents of this ability are therefore valuable to this study and the current body of knowledge about team resilience. These insights were primarily drawn out by questions one to four in the interview guide (see appendices 1 and 3). However, as the interviews progressed beyond question four, interviewees occasionally referred to earlier concepts which further contributed to the information collected under research question one. Therefore, codes most relevant to improving the team's collective awareness, along with their respective sub-themes and themes, are presented in table 6 and subsequently exhibited with related quotes from the interview transcripts.

Table 6: Codes and sub-themes relevant to research question one

Themes	Sub-themes	Codes	Frequency
Communication culture	Easing access to information*	○ Transparency and democratising information	11
	Evidence-based discussion*	○ Management's role in providing comfort with the use of evidence-based discussions	5
	Conducive communication spaces*	○ Communication platform must be free of politics and based on trust to enable swift information-sharing	4
Leadership rapport-building*	Inspiring innovation	○ Freedom and autonomy to be creative and impactful	10
		○ Leadership role in influencing curiosity and forward-thinking	9

Table 6 (Continued): Codes and sub-themes relevant to research question one

Themes	Sub-themes	Codes	Frequency
Team structure characteristics*	**Awareness**	○ Empowered teams collectively sensing the environment	7
		○ Organisational alignment	8
		○ Shared understanding of internal business interdependencies	33
Learning and growth environment	**Internal continuous learning**	○ Autonomy to deal with daily challenges to develop capabilities to navigate the complexity	7
		○ Emotional maturity to maintain healthy conflict	8
		○ Informal learning from mistakes balanced with open and timely corrective action	7
		○ Social skills - The need to build and cultivate influential relationships	7
	Internal network learning	○ Identifying the right people and supporting them	6
		○ Multilevel learning and growth	5
	Internal purposeful learning	○ Continuous improvement and learning to build spring capacity	9
		○ Learn from past adversity with constructive negative feedback	8
	External continuous network learning	○ Actively getting the team invested in the customers' business – Knowledge-sharing	4
		○ Informally maintaining partnerships in the network	7
	Purposeful external business research	○ Be aware of signals in the business environment	7
		○ Deep understanding of the external environment to recover effectively	9
		○ Informally communicating about the general business environment	5
4 Themes	10 Sub-themes	22 Codes	176 quotes

*Shared among the three research questions, with additional sub-themes and codes applicable to the other research questions

5.4.1 Communication culture
5.4.1.1 Easing access to information
The narratives of seven interviewees from direct and support roles in the supply chain highlighted the importance of open communication and transparency in a business. The interviewees believed all employees should have access to information about the entire business, not only their departments, to understand the company's performance better. This could be achieved through the democratisation of information.

Additionally, the interviewees felt that being direct and not secretive with employees was crucial to build trust and increase transparency. When employees know exactly where they stand, and what the situation is, they are more likely to be motivated and engaged in their work.

The interviewees also believed that having a clear and comprehensive understanding of the situation enabled employees to work together more effectively towards a common goal. By having a bird's eye view of why certain things need to be done, employees can drive the same focus, leading to better collaboration and teamwork.

> *"You don't need to only see your department's income statement or only look at your particular area. You need to know what's going on in the entire business. So, democratisation of information, let everybody know where the business is."* (I.1)

> *"I think being as direct and not secretive, all employees know exactly where they stand and exactly what the situation is."* (I.3)

> *"For somebody to understand it better and have that bird's eye view of why certain things need to be done, it makes it easier for the team to also drive the same focus."* (I.19)

> *"If they sense that you're being open and honest and this is really what is taking place and this is why they will be there with you, you will be able to put up their motivation."* (I.16)

5.4.1.2 Evidence-based discussions

A nuanced view emerged from the responses of interviewees from supply chain-support positions, suggesting that evidence-based discussions are crucial to provide comfortable space for team planning. Only one interviewee from supply chain-direct shared this sentiment. For example, interviewee I.10 believed facts and figures should be the foundation of communication with a team. Similarly, interviewee I.10 observed that employees often struggle to filter information and focus on what is essential when evidence based discussions are absent. This can lead to confusion and overwhelm employees who react to whoever shouts the loudest. The interviewees felt it would benefit team managers to promote clear and concise communication, based on evidence, to avoid creating chaos and uncertainty.

> *"My approach with my team has always be[en] facts and figures. You can entertain a certain amount of kind of loose conversation but then you want to get down to facts and figures" (I.10)*

> *"What I've seen over the last four weeks is that they just didn't have the ability to filter the information, take out the noise and to focus on what's important. And they are absolutely overwhelmed. So all they would do is they would react to whoever was shouting the loudest at that time." (I.11)*

> *"I feel that it would be nice for them to send out a communication, not to create chaos or stress or uncertainty, but just to send out a communication to the teams and say, guys, this has happened. We believe so and so, and we believe that this will impact us in this region or something to that effect" (I.9)*

5.4.1.3 Conducive communication spaces

A nuanced view from senior managers within a supply chain-direct position was that creating a safe, open and approachable communication environment is crucial for a team's success. In an atmosphere where team members feel comfortable expressing their thoughts, managers should work against communication platforms that may limit freedom of expression. These spaces make team members comfortable to have open and honest discussions. When the sentiment of these discussions is neutral and factually focused, team members can collectively learn from each other. In addition, the neutrality of the communication spaces ensures that the discourse is free of politics, and team members can attach trust to the information shared in the

discussion.

"Conversing as a team, it is a safe space to say, this is what it is, this is what I'm having difficulty with. And also to know that this is a learning experience and also that not everybody has got all the answers." (I.16)

"There's various platforms, there's no lack of platforms to be able to communicate. But I believe that a lot of those platforms were very politically managed and driven where people didn't feel that they had the freedom to always communicate on them" (I.11)

"But if you keep it open then you know that people won't hide information. For example, I'm approachable as a manager, if anyone has any concerns or anything like that, they can come to you so that you can make discussions a bit easier or better." (I.17)

5.4.2 Leadership rapport-building
5.4.2.1 Inspiring innovation
Derived from the reflections of eight interviewees, equally split between support and direct, was the view that managers can create a curious and forward-thinking mindset in their teams by encouraging team members to openly explore the external environment or ideas. For example, interviewee I.10 emphasised open communication between management and employees to promote better understanding and address operational issues. This stimulates the team's curiosity and encourages team participation in information-sharing and continuous learning. In addition, the interviewees' views emphasised the manager's role in fostering a culture of collaboration and learning by seeking input and feedback from their team, which builds their confidence and knowledge base.

"I will be the one who will go to production, to manufacturing, to design, to all the facets that kind of link first to marketing and then externally from a finance perspective, from a logistics perspective. So that I will be able to share information as well as learn information and then by setting that example out there and encourage other people to go and do the same thing" (I.3)

"When you're in a management position to have your people aware of being able to ask questions at their level around operational issues." (I.10)

"I as the manager, go to them and say what do you think of this? What do you believe is the right way of actually doing approaching this problem? And in that way you build their confidence and you actually build their knowledge base as well. So it makes them interested in wanting to continue working and giving the best that they can give to the department." (I.16)

Managers in supply chain-direct and supply chain-support suggested that creating a supportive work environment, in which employees feel free to express themselves and take ownership of their responsibilities, is essential for growth, learning and impact. However, this insight featured slightly more among middle managers; six of the eight responses were contributed by this sub-set of the sample. It was suggested that this supportive work environment can be achieved by fostering a positive and fear-free atmosphere and promoting a setting in which employees are encouraged to take risks and make mistakes. Additionally, middle managers believed that leaders who are confident in their beliefs, and willing to stand up for them, can inspire and impose this mindset on other team members. These narratives highlighted the importance of creating a supportive, empowering work environment to foster growth and success. As a result, teams can clearly understand the situational factors and challenge the status quo of standard practices.

"I think if you create an environment of fear, all of those things that you said now won't happen... So that is what I have, positively acting impact to create an environment of growth and learning with mistakes, without fear." (I.12)

"Once you take ownership of your responsibilities, it gives you the freedom to be as creative and as impactful in your role as possible, knowing that you have full freedom to express yourself in the desired tasks." (I.3)

"I think one thing that I've learned from a specific plant controller was to put your foot down and stick with your gut, right? So if you stick with your gut and you believe in what you are saying, people will follow you" (I.9).

"I will resist and say, you know what, this is wrong. This is not how it should be." (I.8)

5.4.3 Team structure characteristics

5.4.3.1 Awareness

Seventeen interviewees outlined the importance of teams understanding the different aspects of an organisation, including the interconnections between roles and their impact on each other, and the value of centralised information. Team managers can foster alignment among teams and team members by enhancing the team's shared understanding of the interconnectedness of various teams. This can also elevate awareness of individual team member's roles in achieving the organisational objectives. Equally important, teams can understand the impact of their role on other teams, which motivates and guides proactive information-sharing among the network of teams. Internal awareness and alignment are sources of stability and calm for team members facing disruption. They contribute to team comfort and clarity, which motivates team members in times of adversity. Finally, the interviewees emphasised the importance of centralised information to guide decision-making and maintain stability in times of uncertainty.

> *"I have to basically take on all responsibility from a supply chain perspective as well as the marketing perspective to ensure that they're both aligned. And once they are both aligned then obviously the business can operate quite efficiently."* (I.3)

> *"If you know that your role impacts someone else… I can link it to how it's going to impact the person behind you and the person in front of you and the person next to you."* (I.12)

> *"I need to understand what my production guys are going through and they have concerns as well. They raise his concerns."* (I.2)

> *"But to centralise people, to the fact that information is important and that it often allows the organisation to be much calmer in times of uncertainty because everybody's singing off the same sheet."* (I.10)

Team managers appreciated that team members' curiosity about the external environment and the extended value chain in which they operate enables them to detect early signals of change or disruption, and enables an organisational response to be identified sooner. The team's extended awareness of the value chain helps to clarity the environment in which they are embedded and contributes to proactive initiatives that support the system's stability. Interviewee I.14 recognised the value of empowered team members who make daily decisions and are able to act as sensors of the external environment and relay information to senior managers. Detection of early signals improves the ability of the organisation and its teams to respond to change or adversity.

"So the moment people are in a bit of a crisis, especially when they believe their livelihoods are at stake, these factors, they're going to definitely stay and they put up their hands." (I.11)

"Being the marketing manager of the company, it is my duty to not only handle the marketing aspect and the advertising of the product on consumer basis. But to also find out in the back end and the logistics and supply." (I.3)

"So it's the guys taking the orders, it is the guys at the front line. They've got a lot of 'intel' into where that market is going and where our customers are going and what our customers' needs are, basically." (I.14)

5.4.4 Learning and growth environment

An environment that promotes the development of the team's collective knowledge and awareness is central to the capability-building of teams and team members. This equips teams with the resources and confidence to undertake more complex tasks.

5.4.4.1 Internal continuous learning

Six supply chain-direct interviewees felt strongly about team learning through autonomous daily decision-making. This was corroborated by only one interviewee from supply chain-support. Their insights revealed that the opportunity to exercise autonomy more frequently develops team members, and the team's collective skills and capabilities, to gradually cope with more complex tasks and, in turn, become

better equipped to face adversity. This is because team members are more involved in decision-making. They are increasingly involved in an informal continuous learning platform, in the form of problem-solving activities. Hero leadership and micromanagement remove the opportunity for team members to exercise their discretion and, in turn, decrease the team's ability to face uncertainty and adversity in an autonomous manner.

"A traditional management style that we used to have of micromanaging every single little detail and people were afraid to make decisions because of some of the directors. We had a director that was extremely like that and that hurts that autonomous decision-making, decentralised decision-making to a large degree" (I.14)

"They have the skills, they have the knowledge and also empowering them with the responsibility, if you can empower them with the responsibility to make decisions, then you don't need management. (I.12)

"I think the other important aspect for me is to try and inculcate an attitude of continuous improvement that people are trying to do just a tiny bit better every day. Because if we can do that, we end up building capability and we also end up building spring capacity within an organisation where you've got time then to move on to kind of more complex tasks" (I.10)

"It's not the same as actually practically going through it. But the good thing is that majority of the people that are sitting in support roles operational part [experience] of the business. So they understand it, they understand how to react in certain situations." (I.13)

Ten interviewees recognised the importance of working with different types of people and finding ways to handle conflict in the workplace. The belief was that conflict is healthy and can help build respect between colleagues and set clear workplace boundaries. Team members working through challenges in a team setting allows them to develop their emotional maturity. This enables healthy conflict and impactful collaboration. When team members can resolve disputes within the immediate network, without any third-party involvement, the team's social cohesion is

strengthened. When teams practise this frequently, they develop the capability to solve problems collectively.

> *"You meet so many different types of people you need to kind of find ways of working with difficult people, people with resistance to change, all kinds of things like that." (I.11)*

> *"But realistically I'm of the opinion that the people that try and sort it out amongst your staff at that level because I think in that manner you're going to gain the respect of the other person. And conflict is healthy. We enjoy conflict, healthy conflict" (I.14)*

> *"They have to want that organisational maturity. And for me, and this is something I'm quite passionate about, it has to come through empowering people and respecting people, listening to what they're having to say, but also to put in quite clear boundaries about what forums discuss and the boundaries are very important as well." (I.10)*

Common trends from the insights of five of the interviewees included the importance of learning from mistakes, positive reinforcement and coaching for future scenarios. Mistakes were seen as opportunities for learning and improvement. Through reflection exercises, managers can encourage team members to learn from past mistakes and adversity. Positive reinforcement was considered necessary to encourage decision-making and promote confidence. These trends suggest that the interviewees valued a supportive, learning-oriented environment that encourages individuals to grow and develop their skills.

> *"Sometimes the thing about mistakes is that it gives you an opportunity to learn from it and come out with preliminary methods to make sure that it doesn't happen." (I.2)*

> *"There's got to be positive reinforcement, regular positive reinforcement. So when somebody makes a good decision or doesn't make a good decision, but at least made the decision." (I.18)*

"The biggest thing is also is then overcoming scenarios and situations it helps them in the long run to be able to overcome future scenarios. And the way I coach and try to help them through it hopefully helps into future scenarios as well." (I.7)

5.4.4.2 Internal network learning

Interestingly, five interviewees recognised multi-level learning and growth as critical for building interdepartmental relationships, four of these interviewees were middle managers. The interviewees also stressed the need for regular catch-up meetings to ensure cross-functional communication and collaboration. In a comfortable environment with relatively easy access to other teams in the internal network, team members can learn about new developments and share this information with the relevant teams and team members. In addition, teams engaging in multi-disciplinary meetings improve their ability to solve complex problems by leveraging various team members' expertise and skills. Managers can help to create this environment by actively including and supporting the relevant team members in cross-functional discussions.

"Cross functional teamwork is very important…So what I do is with my team member, I make sure that he gets involved, whether it's with marketing, whether it's with sales, whether it's with technical, network ops, anything. I encourage him to speak up to be part of the team. And if he's not added to an invite, I will definitely add him." (I.2)

"I think the most important thing is sort of cross-functional meetings catch up where you establish whenever it's necessary to have one of those meetings…So I found that the best way to build inter-departmental communication is to have a cross-functional sort of debrief.." (I.15)

Emerging from the interviews was the importance of bridging skills gaps and fostering a sense of integration and value among team members. Identifying and including relevant team members in cross-functional settings helps to transfer knowledge through the various levels of the organisation and from senior to junior staff. Interviewee I.16 highlighted the importance of making team members feel integrated into the process and valued for the information they bring. This can be achieved by

actively involving them in the process and ensuring they understand the importance of their contributions.

> *"We have a lot of skills gaps within our normal people that are working on the plant and also trying to pass down that knowledge so that everyone within the value chain of the plant has knowledge of how things are supposed to work." (I.12)*

> *"So they would feel integrated in the process and feel that the information that they're bringing is really important and that they're a valuable member of the team." (I.16)*

5.4.4.3 Internal purposeful learning

Nine interviewees emphasised the importance of empowering and supporting team members to be confident in their abilities and to contribute effectively to team discussions and decision-making processes. Purposeful mentoring and coaching are essential to build the confidence and social skills to interact in cross-functional team settings. Managers can use this to give team members the confidence to move out of their comfort zones. This could ignite team members' curiosity, which interviewees seemed to believe could lead to greater collaboration, innovation and success within teams.

> *"So with my team member, what I've done is now I have like, meetings with him to say, these are your strengths. You need to speak up a little bit more you need to present in this way. When you're in a meeting, you need to speak and be heard." (I.6)*

> *"Break the norms, the status quo, and break the formality out of it and expose people to an environment that they are not comfortable, that causes them to be fascinated, and that causes them to engage better or participate more." (I.19)*

Team managers can formally and purposefully measure the improvement in team members' participation and interactions. One of the ways, outlined by interviewee I.13, is through a contact matrix that captures the perceptions of randomly selected

stakeholders. The excerpt below outlines the researcher's exploration of this formal method of measuring a team member's impact on their network. Managers could potentially adopt this method in different contexts.

"Interviewee: And then for them to also manage their contact, it's also one of their performance objectives is to establish their contact matrix and form relationships with their partners.

Researcher: That is new, that I've not heard before. Contact matrix. How does that work? How do you measure it?

Interviewee: So we measure it from feedback from stakeholders. Our reviews are also 360. So it's not just performance objectives. There's a 10% of a value survey that's offered. So the value survey is literally random stakeholders that you deal with." (I.13)

5.4.4.4 External continuous learning

Eight interviewees suggested that involving employees and fostering relationships with partners, both formal and informal, was crucial for the success of an organisation. The internal learning culture can be extended outside the organisation by connecting and collaborating with external teams; improvements can be identified and awareness of the extended supply chain elevated. These trends suggest that staying closer to network partners enables organisational teams to pick up environmental signals earlier, which gives team members more time to assess and, if necessary, prepare for, the disruption. In addition, awareness of the external market could present innovative alternatives when faced with unexpected disruption.

"I tend to involve the guys and make sure that they also spend time with the customers. Even though the oke is a production manager, the guy runs a machine. And what not I also want interaction from him with the customer that works out to an advantage." (I.2)

"So in that way, we do keep contact with formal and informal partners. I keep contact with them and I know a couple of guys from India. They are basically

engineers working for our hub in India. I have a good relationship with them. I asked them how the market is going and they tell me, "The market is pumping in Zimbabwe". (I.5)

"I have to stay close to all of that or the experts to ensure that all the products are being marketed according appropriately and all the stock is well within the way of being delivered to the preferred suppliers." (I.3)

5.4.4.5 Purposeful external business research
The interviewees shared a focus on staying ahead by keeping informed about market trends and emphasised the importance of research and analysis. By conducting purposeful business research, teams can identify early signals complex and multifaceted problems. The researcher observed a nuanced view stemming from supply chain-direct interviewees who also significantly relied on regular informal communication about the general business environment to detect early signals of changes in the operating environment. This is valuable given the faster pace of the operating environment which limits the opportunity to conduct formal research to inform team actions. Early identification can ensure that teams position themselves to seize the opportunity or seek alternatives that align with the organisation's goals.

"It's constant research and constant analysis with both the trends as well as the competitors to try to stay ahead of the curve." (I.3)

"So there's always research that we get, even from the other companies as well, to see what is actually in the market in terms of the trends and things." (I.17)

"The other thing is that we have research and development teams as well. These guys are constantly not just scrolling the Internet. They're also looking at newer trends." (I.2)

Purposeful research into emerging trends or early signs of wicked problems can be conducted through formal processes, such as audit checks, as outlined in the excerpt below from interviewee I.18. This can be helpful in the supply chain setting to protect companies from emerging crises.

"The condition of their trucks is definitely deteriorated and I think the industry and the cost pressures and the diesel cost and all of that is forcing transporters to cut corners where they can to try and stay in the game. So we're having to continuously audit checks, ask for insurance confirmations and accreditations." (I.18)

5.4.5 Concluding remarks on research question one

A learning and growth environment ensures team awareness of the internal network and its interdependencies, as well as signals in the external environment and their potential impact. In this environment, teams heighten their internal awareness by interacting and sharing information with other teams inside the organisation. This builds the confidence for team members to explore outside their comfort zones, which reignites their curiosity. The team's reach of networks can be extended outside of the organisation so that members understand the extended value chain and partner with external teams. External partnering facilitates earlier identification of signals in the external environment, which teams can purposefully assess and for which, if required, they can identify response strategies. These team practices enhance the team's internal as well as external awareness and preserve the team's structural characteristics. This practice can be viewed as preserving the team's structural characteristics.

RQ 2: What do managers do to support multilevel team and individual interactions?

In the researcher's attempt to contribute to the literature on team resilience, research question two was designed to derive insights into how team managers enhance interaction between team members and teams at different levels of the network. Strengthening these interactions improves the team's preparedness for adversity and contributes to the emergence of team resilience. Questions five to nine in the interview guide were the primary means of enquiry into this sphere of team resilience. Noticeably, interviewees referred to insights from earlier in the interviews when they contextualised their responses. Furthermore, as the complexity of the discussions built up, insights from this section flowed into the final section of the interviews. The codes most relevant to supporting multilevel team and individual interactions, along with their respective sub-themes and themes, are presented in table 7 and subsequently exhibited with relative quotes from the interview transcripts.

Table 7: Codes and sub-themes relevant to research question two

Themes	Sub-themes	Codes	Frequency
Communication Culture	Conducive communication spaces	○ Communication flow through established channels	4
		○ Communication platform demonstrated by leadership	9
		○ Communication with the relative stakeholders present	6
	Evidence-based discussion*	○ Evidence-based vetting of which partners to target	5
Leadership rapport-building	Setting the tone	○ Continuous trust building	8
		○ Leading by example	8
		○ Referent power underpinned by trust, which is grown daily	5
	Deterrents to autonomy	○ Authoritative and transactional networks	7
		○ Hierarchy and unhealthy competition	7
		○ Personal characteristics and contexts	4
	Maintaining fluidity *	○ Leadership role in breaking down silos and creating an interactive environment	8

Table 7 (Continued): Codes and sub-themes relevant to research question two

Themes	Sub-themes	Codes	Frequency
Team structure characteristics	**Accessibility to other teams**	○ Stakeholder partnership to prepare and respond better to uncertainty	5
		○ Flat system encouraging fluid communication	6
	Empathy	○ Comfort within the structure to interact	21
		○ Intentionally connecting with team members emotionally	6
	Clarity and monitoring	○ Clear understanding of the structure	6
		○ KPI-focused functionality	6
	Organisational justice*	○ Accountability in the structure	7
	Autonomous preservation	○ Healthy conflict resolution strengthens social cohesion	6
		○ Structure reinforced through informal communication	5
Team cohesion and interaction	**Collective planning**	○ Collective scenario planning to decide on the best option	12
		○ Partnering relationship with stakeholders to be aware of business developments	6
	Creating a sense of certainty	○ Commonly defining the problem among the team	4
		○ Communication with the relative stakeholders present	6
		○ Senior leadership framing external information in terms of internal business impact	6
	Collective decision-making	○ Transparency in the decision-making process	8
		○ Collective decision-making	3**
	Shared purpose	○ Business purpose embedded in the culture	6
		○ Link between the role and the greater purpose of the business	10
		○ Proactive information-sharing beyond formal reports to align on strategy motivated by purpose	5
4 Themes	**14 Sub-themes**	30 Codes	205 quotes

* Shared amongst the three research questions, with additional sub-themes and codes applicable to the other research questions.

** Exempt from the code exclusion criteria outlined in section 5.3

5.5.1 Communication culture
5.5.1.1 Conducive communication spaces

Interviewee responses tended to focus on regular and structured communication within the company. The narratives suggested that companies have established several recurring communication processes, including daily planning meetings, bi-monthly formal reviews, weekly communication checks on production, and weekly cross-functional meetings.

These regular communication processes allow for consistent updates and help to ensure that all relevant parties are informed and involved in decision-making. Including individuals from each division or department that influences the organisation in these communication processes demonstrates an active commitment to collaboration and cross-functional teamwork. The team members selected to participate depends on the task around which the communication platform is established.

Conducive communication spaces, in the context of preparedness, speak to the structural aspects of communication channels and platforms as well as the establishment of regular communication intervals that purposefully include the relevant people from the network of teams. This differs from the comforting role that communication spaces play in supporting honest and free team interaction, outlined in section 5.4.1.3.

> *"On a structural perspective, what takes place is that there is a daily meeting, so there's a daily planning meeting that takes place, and you will find that there are people from production that are present." (I.16)*

> *"We do have formal reviews coming through that would be on a bi-monthly basis. So once every two months we would have a catch up that would basically be the macro economic trends." (I.7)*

> *"Once a week, communication on the plant to check how whatever product they're running, how it's running, and so on and so forth." (I.12)*

"What I like is that on a weekly basis, we have a cross-functional meeting. So that meeting includes the manager from each division in the company or department in the company that has any influence at any level on production or planning." (I.17)

5.5.1.2 Evidence-based discussions

One trend derived from interviewees' insights was continuous improvement through purposeful collaboration. For example, interviewee I.16 emphasised the importance of collaboration by connecting individuals within the company to ensure effective communication and direction. The narratives suggested that individuals in the company are focused on finding ways to improve processes and that collaboration is critical to this improvement. By working together and leveraging the strengths of each individual, the company is better equipped to achieve its goals and drive success.

The trend of continuous improvement and collaboration highlights the importance of working together as a team and leveraging the strengths of each individual in order to achieve desired outcomes. Central to having an evidence-based discussion around a specific purpose, the communication space needs to be populated by the appropriate team members. This enables effective collaboration of team members when they need to navigate uncertainty. In the context of preparedness, in contrast to team awareness, managers play a role in facilitating the creation of a communication culture that seeks to link appropriate team members and enable evidence-based discussions.

"I generally look at the numbers planning as well. What impacts that ton per day goal as much as possible? So that's how I think I try to find you… So it depends on what you continuously trying to improve." (I.12)

"So we effectively put our people in contact with their people so they would be pointed in the right direction. And then when the business starts, there would be a lot of interaction between the manager and the controllers, not just left in the dark to try and find their way." (I.16)

"This is what we want to achieve. And for our strategy, we need to collaborate with ABC. So by clearly highlighting the strategy, so it explains the reason why and then highlighting our weapon, which is for us, collaboration." (I.19)

5.5.2 Leadership rapport-building
5.5.2.1 Setting the tone

An overwhelmingly consistent pattern was the importance of leading by example; leaders use positive energy to shape the team's energy and mindset when they face adversity and uncertainty. Managers who lead by example, and have charisma as well as passion, can inspire and motivate their teams to persevere through adversity. In addition, setting the tone for teams is an ongoing leadership process to ensure that social interactions build better connections between team members. For example, interviewee I.3 highlighted the reciprocal relationship between the leader and the team, with the leader's positive energy replicated and reciprocated by the team.

"I think in terms of getting the sort of team to buy into what the overall objective is, lead by example. So people feed off each other's energy. So if you are the person that wakes up every day and you go to a meeting and you just complain. Your team isn't going to be encouraged to be better or to persevere through all adversities. So I think we lead by example." (I.6)

"I concentrate on the charisma or the pizzazz of my passion. So if you speak to somebody and you have the passion, it's so I want to say, because people can latch onto your energy" (I.19)

"But if you create that persona and you create that energy that you like to be replicated more often than not in a good team. Which I do have. My energy does get received and reciprocated and we work very hard together." (I.3)

Team managers can earn the trust of their team members by allowing teams to voice their concerns and thoughts frequently. Trust within the team alleviates animosity or tensions when agility is required. This plays an essential role in team resilience because team members authentically buy into decisions relatively more easily, and smooth the path to recovery following adversity or change.

"I felt it was good for, you know, for the guys to feel that they were heard and also to get feedback and for me to understand their concerns as well. And that was operational. I think all of that helped me to be on a much better footing with the team itself, so that when we were communicating, they could trust me, or they felt they could trust me." (I.11)

"I think that just comes down to trust there and them knowing that they do have a voice when their voice needs to be heard, I think for the other 30% or whatever it is, they'll buy into the decision that's been made in the best interest of the business." (I.14)

"How to give us a voice so people listen to us. I don't think it's about the influence, but I think if you gain trust from a certain level, then people start respecting your decisions." (I.9)

5.5.2.2 Deterrents to autonomy

Interviewees mentioned the following factors that work against team autonomy and that leaders should therefore work to eliminate. Firstly, buy-in may be superficially based on short-term job security, or fixed departmental objectives in an authoritative setting, instead of on business growth and continuous improvement. In this setting, team members are discouraged from challenging the status quo or proactively suggesting business improvement initiatives.

"Everyone still wants their job during this uncertainty, and we can give a stable job. So, like, most people just go with it because they know how stable the working environment is… If this made a decision from the top, then they don't question it. I think the buy-in is influenced by whatever we decide. They just have to go with it." (I.4)

"Well, the first thing that would hold me back is if it's not in line with my manager's objective Right. If it doesn't speak to those things, I can immediately know that there will be some kind of objection or lack of commitment towards it." (I.7)

"That normally comes from a management level and I think that's something that they can work on, but that kind of demotivates you and it puts off completely. You don't even see a need of what you are doing or even if it's good enough." (I.9)

Interviewees from a supply chain-direct role strongly expressed the view that dismissiveness and negative feedback demotivate team members from partaking in discretional initiatives. In addition, a blame culture makes the idea of doing nothing more than the basic tasks of the team more appealing and discretional growth initiatives less attractive. In a team setting, these should therefore be strongly discouraged.

"It only takes one person, to kind of demotivate you. They don't see you reason and they don't want to listen to you. So whatever comes out of your mouth is wrong." (I.9)

"When you get a person coming in who maybe doesn't value transparency or who doesn't value communication, and they end up inadvertently like shutting down a member of the team. Then immediately a high performance team is going to kind of become a little bit more reserved because what was considered to be high performance behaviour previously." (I.10)

"Often people are scared to take initiative and scared to be autonomous in their decision-making because of the fear of failure. So they'll rather do nothing than do something in fear that it might not work. So you have to break that down as an example." (I.18)

On the other hand, supply chain-support interviewees noted that within the organisational hierarchy, departments sometimes have competing objectives. This, together with unhealthy competition between departments, can work against fluid interaction among various teams. In this regard, team managers should work to focus teams around the central business purpose and foster collective commitment to this purpose.

"I would say hierarchy. Sometimes with hierarchy, some people don't think they need to speak to other people and so on and so forth. Also silos, working in different silos that also blocks the communication." (I.12)

"If you look at LinkedIn, all of the noise is being made about our business unit. A lot of that is decentralised and people forget that they are a part of one organisation and they just want that business unit to shine. So that would end that information- sharing" (I.13)

"Like a store won't get call my offices, for example, they'll go first to my regional admin manager. Like they won't even take a chance trying to call me or something, just in the event that they get into trouble. There is definitely a hierarchy, which I do think is a disadvantage." (I.4)

5.5.2.3 Maintaining fluidity

Interviewees perceived organisational silos as having a negative impact on business success. Silos lead to poor collaboration and communication between departments, hindering success. It is therefore crucial to break them down and foster a collaborative work environment through effective communication and teamwork. Maintaining interactions between organisational teams should be an ongoing leadership process to ensure that the default silo mentality does not re-emerge and work against team interaction and information-sharing. Informal social interactions outside of business help to build better connections between teams.

". It was a fun time. It was good times. And then, as leadership changed, that fell away. So the silos were there, and then we found a way of breaking out of that silos. And I find that now with new management, we gone back into the silos." (I.8)

"Operating in silos is a massive risk to our business, particularly because of the different services that we offer. And so I think just making sure that individuals have that ability and they know that there's no line in the sand or no barriers that I put up between divisions and between managers." (I.14)

"You get this Silo mentality between different departments…that's why one of the first things I did was implement the daily meeting. It's only a 15 to 20 minutes meeting and it's a standing meeting" (I.18)

5.5.3 Team structure characteristics
5.5.3.1 Accessibility to other teams
A common perception among six interviewees was that a flat organisational structure improved the accessibility of various teams and team members. This structural characteristic can be considered a foundational requirement that supports the ability of teams to interact seamlessly between organisational levels on a diverse range of topics that emerge in the operational environment. This eases networking and partnering among teams when faced with new situations. The team's connection points with other teams can multiply over time when partnering strengthens the connectedness of the internal network and results in broader accessibility.

"it is a very sort of informal kind of structure. You have your divisions, your departments, your roles and things like that. However, the way people get on with business is not your proper, like suit and tie… discussions all the time, conversations and things like that." (I.17)

"That's usually the easiest way to get around. Like for example, if it's internal and I need to make a contact in marketing, I would speak to someone that's in customer marketing because I deal with them daily and I would get that contact done. That's the easiest point of call within the business because we are a network of people and we use our network to do so." (I.7)

"Our board members are open to everybody. I mean the guys we know the bulk of our staff's names and I think again it's making sure that the guys feel like they are included and that open door policy where they can have a chat anytime." (I.14)

Interviewees highlighted the importance of building relationships with stakeholders who can provide valuable information and support in times of need. Good agreements and stakeholder partnerships are crucial for quick and effective crisis management. Multiplying team connection points outside the organisation's network

can contribute to the team's ability to recover speedily from adversity. This is because, in times of adversity, stronger partnerships within the team network enhance commitment to the survival and recovery of the organisation. This view was more prominent among supply chain-direct interviewees than those in support functions.

"That misinformation is prevalent on social media and you have to build up a credible network and that typically comes from suppliers themselves." (I.10)

"So then it becomes crisis management and you all hands on deck, get all your service providers that you need in place. Fortunately, we've got good agreements and partnerships with service providers, so we can react quite quickly to these big shipments." (I.18)

"I have very good relationship with my suppliers and with my customers. So any problem I have, I just pick up the phone" (I.5)

"We understand that there were supply constraints, but then we just packed up with supplies, the distributors helped us recover relatively fast." (I.4)

5.5.3.2 Empathy

Common among 13 interviewees was the importance of creating a supportive, open and non-hierarchical work environment. A structure in which inter-team accessibility is heightened, and information is shared seamlessly, makes teams comfortable to seek out support in times of high pressure and uncertainty. The narratives emphasised the need for individuals to feel comfortable seeking help and support from their peers without fear of judgment or retribution. The absence of a strict chain of command was seen as a positive factor that enables team members to naturally seek help and information from their colleagues. A supportive work environment is critical to a team's success, as it creates an atmosphere in which individuals can flourish and feel comfortable in their roles. This creates a setting in which constructive feedback can be shared and high-performing teams created.

"Fortunately there's open doors, so it's not hierarchical. So it's no chain of command kind of thing. So my teammates would naturally go to where they found comfort and asked for information." (I.6)

"What will support them is obviously they go to their peers more often than not because they feel more comfortable with them. So as an example, if a client team is doing very well with the rollout and they're doing amazing work and another client team is struggling with it, you'll see the interaction between the teams." (I.13)

"So you actually validate that need of I'm here to support you any time… but at the same time just you in that environment, it gives them a sense of comfortable environment for them to flourish because you are in the boat with them." (I.19)

Interviewees highlighted the importance of being vulnerable and open about one's own emotions, as well as the need for active listening and understanding of others' feelings. They experienced emotional strain and challenges trying to return to normal following major disruptions, including the COVID-19 pandemic, which led to the recognition that vulnerability and sharing one's feelings could be therapeutic and foster better relationships. Active listening and understanding are crucial to build trust and form stronger relationships, as they make people feel heard and valued. This social capability, developed within each team member through continuous social interactions with other team members, appeared to be a significant contributor to creating a safe space and, in turn, supported the comfort of the structure.

"Each person had a different emotional strain in that journey and obviously we still trying to get back to normal. The thing is that vulnerability, as I say, is always key. And I think one of my favorite things is to be vulnerable." (I.6)

"They were led by him [The founder]. And it was got an opportunity for us to decompress almost. To specifically say, individually, each and every single one of us about how we were feeling, what was our concern." (I.15)

"You realise in all of this conversation that I'm having with this person, this person just wants to be, to vent, to feel listened to and be understood… I realised that you can do that once, but you've won that person over." (I.19)

5.5.3.3 Clarity and monitoring

Insights captured from the interviewees suggested a common understanding of the importance of stakeholder-focused teamwork and collaboration within the organisation. The interviewees emphasised the need to understand and cater for internal and external stakeholders' needs and to communicate effectively with the relevant parties. The interviewees also acknowledged their volatile environments and the need for quick, effective action to address any issues. The narratives also touched on the importance of setting clear goals and tracking progress, with regular discussions to evaluate performance and adjust strategies to meet targets. Furthermore, clarity around team interdependence, and sharing information among teams and team members, highlights the shared purpose and fosters organisational alignment.

"That would involve understanding what the customer wants, most of the time that will be internal customers and then getting your team to understand that focus, that customer base focus that you don't work in a silo. You actually got to understand what these other people are doing." (I.11)

"You have to regardless of what's happening, because it is a volatile environment to work in. And so as soon as you get information, it is go and speak to the relevant person, the person that it actually impacts on." (I.16)

"Having clarity of what are they driving and what are we driving and how we interact, how the two interacts give us to that ground level of alignment whereby you are driving towards." (I.19)

"It's more monthly targets that you measure. And if we're not meeting those targets, how do we [the team] adjust next month so that we either reduce our cost or if we have to add in additional resources because we fall short. So that becomes a sort of monthly discussion." (I.18)

5.5.3.4 Organisational justice

Of the five interviewees who agreed that accountability in the team structure was essential, four were from supply chain-direct roles. They noted that accountability and fairness among team members, with complete transparency, are central to ensure discretional participation. This helps to create a sense of fairness and ensures that everyone works towards the same goals. At the same time, interviewees recognised that accountability needs to be accompanied by support and encouragement, and that individuals should be praised for their efforts even if they do not always make the right decisions. They also acknowledged that different individuals may have different levels of control and influence over certain aspects of the organisation, but that, ultimately, everyone needs to work together to achieve success. In addition, holding team members accountable allows them to share feedback that preserves their commitment to the shared purpose.

"So I feel that people need to be held accountable for the decisions or their roles that they play within the organisation. I don't think it's fair on the next team or the next team member if people don't get held accountable because you need for the decisions you make or the decisions you don't make, right? That's just the way I see it. (I.9)

"So I can be responsible just as much for being a low cost producer as the production team. So you can't hold me accountable for meeting yield, for example, or for plan adherence. I have no control over that, but at the same time, you could possibly hold me accountable for getting information to them on time. It's all feeding into the same KPI." (I.15)

"So when somebody makes a good decision or doesn't make a good decision, but at least made the decision, there needs to be some positive reinforcement. If somebody decided to do something a different way because it wasn't working, but it turned out that the different way didn't work either, say to the guy, well done for trying and if you keep looking at it, you're eventually going to find the best way to do this." (I.18)

5.5.3.5 Autonomous preservation

Team members from various levels of the organisation need to stay true to the neutrality of the team structure in order to preserve team connectedness and fluid information-sharing, according to eight interviewees. Healthy conflict resolution works to build and maintain social cohesion between teams and avoid escalation of operational issues to senior managers. Excessive managerial or leadership involvement in team disputes results in teams relying on this instead of practising their social skills in high-pressure situations or to overcome conflict. It may result in the degradation of team connectedness and cohesion, as evidenced by the insights from interviewees I.5 and I.12 when the researcher probed the effects of poorly-handled conflict resolution among teams. Excessive management involvement made team members overly reliant on managers to solve conflicts despite knowing they could overcome them themselves. This was in direct contrast to the scenario outlined by interviewee I.14, in which healthy conflict resolution built respect among team members, strengthening cohesion. Continuous engagement in healthy conflict among team members therefore autonomously preserves the team's social cohesion.

> *"Researcher: What's the reason that staff would choose not to go to the supervisor?*
>
> *Interviewee: Bad relationships amongst the supervisor and the general worker. Sometimes supervisor push them to get the workout, they won't like it. So they come and report to me, hoping I would overrule the supervisor. But we know what generally happens. So we have to communicate properly and get them to work as a team."* (I.5)
>
> *"Interviewee: It happens quite a lot when you had loggerheads and you in conflicts. So conflicts only there you reach a point where you're not accepting whatever they're saying and they're not accepting whatever we say… then you just move it on up to the CEO, and the boss is the one who ends up deciding.*
>
> *Researcher: Would you say that these kind of issues can perhaps be resolved at a local level without going to C suite executive?*

"Interviewee: They can be resolved, but it will need a give and take. It will need someone sacrificing something… but to try meet so that everybody is happy, so it can be resolved to with ingenuity and fresh thinking or whatever. But it can" (I.12)

"You'll earn the respect from your peers or the person that you have conflict with and how you handle that and how you manage that or after the conflict." (I.14)

5.5.4 Team cohesion and interaction
5.5.4.1 Collective planning
The insights from twelve of the interviewees centred on the importance of collaboration, communication and understanding to achieve goals and objectives. They stressed the value of working together and bouncing ideas off each other to find the best solutions. They also mentioned the importance of involving different parties and acknowledging their strengths to achieve a common goal. Collaboration helps to improve the framing of risks that emerge from unorganised and ambiguous data. Group brainstorming can spark the creativity necessary to identify plans of action that are agreed upon by the various team participants. Drawing out diverse perspectives strengthens the team's strategic and response planning by linking individual expertise and perspectives to enhance the group's collective intelligence and awareness. The interviewees also emphasised the value of engaging in deep discussions and understanding feedback to identify potential risks and make informed decisions.

"Collaborative management style where we would just sit around the table and discuss how we are going to get to these objectives and kind of fresh ideas bouncing off each other and try and implement the best ones that we come up with." (I.1)

"So we'll actually engage with different parties and because it comes as a strategy, we are able to even collaborate with people that I think that you don't like, like finance people. But because of acknowledging their strength, we are able to you to ask them more." (I.19)

"Just to actually get people into a room and deep dive into some of the feedback that you get. Because when you do quantitative data it's hard to deep dive... to understand a bit more about it and then formulating from there to see it in terms of the risk we'll look at, what we think might hinder us in future." (I.13)

5.5.4.2 Creating a sense of certainty

Seven interviewees from supply chain–direct roles strongly influenced the researcher's interpretation of the insights in this sub-theme. These sentiments were shared by three of the interviewees from supply chain–support. They highlighted the need for open, honest discussions between departments, where facts are communicated and conflicting views addressed. Clear communication and understanding of the facts are crucial to align the efforts of different departments towards common objectives. Collaborative planning and clear communication lead to clarity about the way forward and alignment as to the organisation's approach in an adverse situation; they also guide and orchestrate the interactions of teams and team members. The importance of regular scheduled meetings, during which information is shared and questions answered, was also emphasised. Different perspectives and ideas can be shared, and conflicts addressed, during such discussions to develop the best solutions.

"I think again, it comes down to just clear communication in that sense, understanding the facts, communicating the facts and then aligning on the next steps." (I.14)

"That's why you've got to have the heads of every department in the same meeting so that if there is conflict or roadblocks between departments and those are discussed openly and solutions are devised." (I.1)

"We regularly would meet on a weekly basis to discuss operations, but then we would throw that information in there and create an open for questions. And then if there were questions we couldn't answer, we would get the answers from more senior people and then relay the research." (I.8)

5.5.4.3 Collective decision-making

Interestingly, three interviewees recognised that not all decisions are, or need to be, made collectively. However, for complex decisions in an uncertain context that impact the broader team, three interviewees expressed their preference for collective decision-making. Collective decision-making better informs the decision and creates a foundation for other teams to voice their concerns and authentically buy into the plan of action. Two of the three interviewees that cited collective decision-making as their first preference (I.10 and I.17) recognised that a joint decision approach might only be achievable in some conditions. In these instances, communicating the decision with the rationale behind it may ensure that team members are more receptive. The researcher recognised the merits of this alternative approach and excluded this insight from the relevance threshold outlined in section 5.3. It is therefore discussed further below.

"It is about calling emergency meetings when this kind of instance happen and then making a call in and amongst the team ourselves that we all happy with and once that call has been made and that decision has been made then it will filter out to the rest of the month" (I.3)

"When I'm having to make a difficult decision and it's against sort of popular sentiment, as it were, you want to be able to consult as widely as the situation allows to get people's inputs and understand what the impact is from various points of view." (I.10)

"Instead of making it individually or discussing it with one or two people, try to do it as a group where everyone is going to be involved with the decision that you make. Explain your stance or the reasons why for the decisions that have to be made. Ask the group for feedback as well." (I.17)

Ten interviewees talked about transparent decision-making. Interestingly, nine of these were middle-level managers. Management is responsible for shaping team interactions when teams make decisions in uncertain contexts by demonstrating an inclusive approach to decision-making. When it is impossible to make a decision collectively, sharing the details of the dynamics and decision-making criteria helps to mitigate conflict, whether this is visible or encompassed in the team's perception of the decision. This maintains team members' commitment to the overall team and organisational purpose and therefore preserves the team members' interactions and willingness to share information within the network of teams.

> *"But when you have to make that decision, I find it useful to share the personal difficulty of having to make this decision so that you don't come across as too kind of bloody minded about it. We share how difficult this situation is, but then you balance it off against short term gains and losses, long-term gains and losses." (I.10)*

> *"But if the decision is already made and you have to convey the decision to them, still have it as a group, be open about it and explain the reasoning why behind it." (I.17)*

> *"I think, for me it's about being honest. I think it is about honesty. So regardless of the decision that is actually being made you actually have to unpack it with your team and it's about being honest and say this is what's happened, this is why this has happened." (I.16)*

> *"You have to engage with them regularly to make sure that they understand why it's being done, because they will also help communicate that to the rest of the staff. Communication on unpopular decisions. I would say we need to speak facts." (I.18)*

5.5.4.4 Shared purpose

A common trend among 12 interviewees' insights was that the organisation's purpose is reiterated among teams through collaborative planning and inclusion in the decision-making process. These motivate and build social cohesion among team members to improve their collective ability to troubleshoot and problem-solve in

changing contexts. Personal motivation was also mentioned as a crucial factor in success; interviewees highlighted the importance of finding meaning and purpose in one's work and the impact individuals can make on the team's overall success. Shared purpose allows managers to expect faster team recovery when faced with disruption. It strengthens the robustness of the system made up by the teams.

> *"I think, again, the most important thing is our communication of articulating. It comes back to the thing of we all need to get along. We all need to work towards the strategic goals of the company. We need to come to a solution. We need to fix each other's problems and help each other." (I.15)*

> *"So creating that kind of synergy and that kind of emotional connection within the business and the brand just cements the fact that in the crisis everyone will be hands on deck within their own right, within their own scope as well as out of their own scope to ensure that things run smoothly." (I.3)*

> *"I think when we understand what the overall goal is of the team and the impact that we can make as individuals, we can then focus on what we need to do over and above our job responsibilities. So I think finding your reason and your purpose in the greater business is very important for our focus." (I.6)*

Five interviewees from supply chain-direct acknowledged that knowledge-sharing between departments is improved when cross-functional teams are aligned to a common purpose. In addition, these ongoing interactions can improve the team's cohesion and collaborative ability.

> *"Now it forces everyone every day to look at the same number, to discuss why wasn't the number maintained on and so forth." (I.12)*

> *"You're going to be one committee together running it. Whether you like it or not, that's the way it's going to be. And that's the collaboration and information sharing that you want to see." (I.10)*

> *"You have to communicate and it doesn't matter which department you are actually communicating in, you have to say these are the reasons, this is*

what's happening, this is what we can expect to happen." (I.16)

5.5.5 Concluding remarks on research question two

A heightened level of awareness in the team structure, sustained by a learning and growth environment, builds the collective intelligence and network of teams. This collective intelligence is created by bringing teams together in a space in which they are comfortable to interact and where the various teams and team members can engage in creative conflict. In addition, a structure with easy accessibility among teams further supports their ability to plan and make decisions collectively.

By collectively planning, teams engage with one another and share diverse perspectives. This enhances the individual team member's and teams' collective awareness of the situation and results in improved planning of the way forward. This plan provides a sense of certainty and, in turn, clarity, as to the way forward within the team structure that guides team interactions.

Clarity about the way forward further improves collective decision-making by enhancing input from managers in the form of better-informed concerns or valuable advice about decisions. This results in teams understanding the 'why' behind the decision, which reinforces the team's shared purpose. This decision-making approach leads to transparency as well as fairness and contributes to the perception of organisational justice in the team structure. Where collective decision-making is impossible, leaders could maintain team members' commitment by sharing the 'why' behind a decision.

5.6 Results: Research question three

RQ 3: What do managers do when leading their team through adversity?

This research question aimed to gain in-depth knowledge about how managers lead their teams through adversity to recover from disruptions with agility. Agile capabilities are developed over time. However, managers play a role in maintaining team cohesion to avoid the degradation of team collaboration in the face of adversity. Interview questions 10 to 13 were designed to extract insights into managers' experiences of navigating through adversities such as COVID-19, flooding, looting and the Listeriosis outbreak in South Africa. As the interviews progressed and the questions became more complex, interviewees made references to earlier insights. These insights were captured by the codes, sub-themes and themes outlined in table 8 and are presented further on in this section.

Table 8: Codes and sub-themes relevant to research question three

Themes	Sub-themes	Codes	Frequency
Communication Culture	Evidence-based discussion*	○ Evidence and data-based conversations	13
	Conducive communication spaces*	○ Navigate uncertainty with clear communication and iterative alignment	6
Leadership rapport-building	Setting the tone*	○ Filtering out noise in information and focusing on crucial objectives renews energy	6
	Maintaining fluidity *	○ Leadership role in facilitating collective clarity in uncertain and disruptive times	5
Team structure characteristics	Empathy*	○ When recovering from disruption, exercise empathy for the personal challenges people face	6
	Organisational justice*	○ Preserving motivation with clarity and fairness	7

Table 8 (Continued): Codes and sub-themes relevant to research question three

Themes	Sub-themes	Codes	Frequency
Systems thinking risk management approach	Framing risks	○ Diverse views and inputs	5
		○ Leveraging networks to understand better risks and approaches to risk	6
	Inclusive mindset	○ Identifying the right people to interpret the information	10
		○ Maintain neutrality when interpreting diverse perspectives	8
		○ Proactive followership	4
	Efficient resource utilisation	○ Balance potential risk impact with business action	12
		○ Prioritising deliverables to balance resources	7
4 Themes	9 Sub-Themes	13 Codes	95 quotes

* Shared amongst the three research questions, with additional sub-themes and codes applicable to the other research questions.

5.6.1 Communication culture
5.6.1.1 Evidence-based discussion

Consistent patterns among six supply chain-direct interviewees' responses suggested that evidence-based discussions are crucial to manage teams through adversity. Two interviewees from supply chain-support shared this sentiment. A common insight to emerge was that, in the face of adversity, there is a need to understand the disruption and its potential impact. The situation is usually surrounded by uncertainty which may lead to speculation by team members and conclusions that are based on perceptions. Managers therefore play a vital role in the team, re-establishing evidence and data-based discourse to clarify the situational context and the way forward. These narratives suggested that the individuals in companies value transparency and the use of data in decision-making. By encouraging open and honest discussions, and relying on data, the company can ensure that decisions are based on evidence and can be justified.

> "We're trying to encourage the managers to question each other and have these robust discussions. If there's an issue, you address it…we need to be able to have those hard discussions with each other because at the end of the day, to improve the business overall." (I.18)

"I understand things better when I have facts and figures. I got to know what all of those engineering facts and figures... I don't go with opinions." (I.2)

"We always speak to data because if you don't have data to speak to, most numbers are questionable thereafter." (I.7)

5.6.1.2 Conducive communication spaces

As new information is learnt about disruptions, teams must factor this into their plans and their approach to overcoming them. Supply chain-direct interviewees tended to emphasise clear and open communication during times of uncertainty and change. For example, interviewee I.11 highlighted the importance of informal communication when navigating large-scale changes and formalising communication in order to structure and implement ideas. This requires fluid communication as well as working iteratively and collectively through adversity to ensure alignment and re-alignment in turbulent contexts. In these situations, managers must establish open lines of communication among teams to ensure clarity with regard to the steps in the recovery process and responsibilities. In this way, individuals feel supported and informed, and ideas can be shared, structured and implemented effectively.

"Now, there are always going to be external factors, but it's about keeping calm, having a clear line of communication… we get, hopefully, the same normality knowing that the crisis averted." (I.3)

"If the individuals in the team were unsure of anything at any time, there was an open door policy to discuss and gain clarity. So it was quite a difficult thing to navigate." (I.6)

"It's communication. I tried to keep it reasonably informal, informal setting, because the theme was quite large. .. that was forward and backwards communication. Then we came up with idea, then we structured it, formalised it and implemented" (I.11)

5.6.2 Leadership rapport-building

5.6.2.1 Setting the tone

Five interviewees observed that the volume and velocity of information, as well as the perceived number of high-priority tasks, could be overwhelming in high-pressure times, which diminished the team's energy. In these instances, leaders acted as team protectors and assisted the members to prioritise business-critical tasks to mitigate debilitating pressures. Prioritising contributes to the sustainable division of team resources to protect team members from breakdowns and prevent the weakening of the team as a whole. This supports the concept of team members being comfortable with the team structure, which protects them from succumbing to overwhelming pressure or the adverse situation.

> *"When I walked in, I saw these guys absolutely battered and bruised from the magnitude of the workloads, if I can say that, but also the information going to them." (I.11)*

> *Now she actually resigned because of actually the hours a lot. So there it needed more support from my side. That's the one thing I can say. It needed more support from my side to say, okay, stop doing this. I will take that on and you can carry on with other stuff." (I.12)*

> *"Work-life balance also comes up and then it's about actually figuring it out, taking managers back to basics because sometimes they don't understand that workplace balance is not necessarily your workload, it's how you sometimes you're spending time on the wrong things" (I.13)*

5.6.2.2 Maintaining fluidity

In addition to maintaining the communication lines between teams, managers play a crucial role in maintaining a calm and interactive team climate, according to five interviewees. For example, interviewee I.19 highlighted the need for leadership to bring order and direction to the team during times of chaos to help them find a positive space and rebuild. These interviewee perceptions, shared by both supply chain-support and -direct managers, suggest that effective leadership is essential during times of crisis or chaos to promote workplace resilience. Leaders must bring order and direction to the team, stay close to them during times of stress, and bring the members together to keep them informed.

"It's finding that positive space when you are rebuilding this chaos. So you need to bring order in this chaos, you need to bring direction because people don't know, what we are going to do now" (I.19)

"I think pressure of the unknown is a big factor. And not everyone handles pressure the same way. But then it's up to the leadership to ensure that once they notice that there's a decrease in productivity while trying to cater to a crisis, they can then stay closer to that team to ensure that they persevere." (I.3)

"If the lead is not a team player to bring the team together and inform the teams, then everything is going to fall apart." (I.8)

5.6.3 Team structure characteristics
5.6.3.1 Empathy

During their recollections of experiences during adversity, six interviewees stressed that empathy and understanding individual emotions played a crucial role in their approach to managing their teams in a workplace setting. The interviewees suggested that employee challenges can become a shared burden and that an empathetic approach is necessary to deal with them and try to fix and improve the situation. An empathetic approach is helpful to troubleshoot and overcome challenges as it avoids the 'blame game' and the urge to single out individuals to deal with those challenges. Empathy also strengthens the perception of togetherness among teams and team members. Furthermore, team members who can collectively understand the feelings of other team members create a space in which they can recover from the personal impact of the adversities they faced.

"I think that is understanding that people are going to have bad days and good days, and it's allowing them to have bad days and good days and being empathetic because you need to understand that everybody's gone through a lot over the last couple of years and months." (I.14)

"If people want to talk about the challenges, there's a certain aspect of empathy that's also involved, especially in the last few years. If you're dealing with supply chain when there's a whole lot of disruptions. But it's also like almost like a shared burden kind of where, okay, this went wrong, how can we try and fix it and improve it?" (I.17)

"I would say, have daily conversations with that person or people. Just so to see where the level of mentality is that we are their emotional wellbeing at the moment and you have to be understanding. I think that's the most important. And again, you have to boost [motivate] them if you want productivity out of them." (I.9)

A climate of joy is usually decimated in a team when facing adversity because of the pressure of the unknown. Empathy within the structure enables honest discourse and information-sharing about the contextual factors, which clarify the future to some degree. This sense of clarity and feeling of togetherness within the team can keep team members motivated when faced with stressful adversity.

"I think that was a big aspect of it, transparency, because I think when you work in the dark and like I said, I myself was very stressed about it, is that if you don't know what's going on, how are you expecting to lead a team and guide them to yourself in the dark?" (I.13)

"I think being as direct and not secretive, all employees know exactly where they stand and exactly what the situation is. So in an event of a decision when being made that's not favorable to a certain selection of employees as more favorable to another selection of employees, they need to know why the decision has been made." (I.3)

"So you were never feeling as if you didn't know what was happening on site. And that did a lot to keep you, I would say, almost still in touch with the company. So that was very beneficial from a psychological perspective as well as from just company perspective and those regular updates." (I.15)

5.6.3.2 Organisational justice

Seven interviewees stressed the importance of teamwork, responsibility and accountability in the workplace. Interviewee I.8 highlighted the shift in mentality when individuals become more hesitant to get involved in specific issues as they do not want to be held responsible for fixing them. Interviewee I.11 highlighted the importance of leadership, and the need for leaders to lead by example and not to expect others to perform difficult tasks which they are unwilling to do themselves. This highlights the importance of the perception of fairness by the team, which appears essential to maintain teams' commitment to recovery efforts following adversity. A lack of accountability or clear responsibilities in the team structure results in a sense of unfairness that discourages involvement and participation by team members. This is anti-productive because when team members do not proactively participate by sharing knowledge or working towards a common collective, recovery efforts may be prolonged or unsuccessful.

> *"I found is that the mentality is changing a little bit. I don't want to get involved, I don't want to be part of it or I don't want to complain about or advise on certain things because it's going to become my responsibility to fix. (I.8)*

> *"But the whole thing is you have to make sure that the team work well together and that you also give people equal opportunity as well as equal faith in every member that is there." (I.16)*

> *"I will be here with you guys. Because you cannot be expecting difficult things from people when you're not willing to do the difficult thing yourself." (I.11)*

5.6.4 Systems thinking risk management approach
5.6.4.1 Framing risk

Interviewees recognised that employees have conflicting views, opinions and perspectives that must be addressed in adverse situations. A consistent pattern of interviewee perceptions was that the team manager needs to understand the different viewpoints of all individuals and ensure the correct structures are in place to handle complex situations. The root cause of the risk needs to be framed in a manner that does not divide the management team based on the perceptions of different groups. This framing creates a space that enables creative conflict and alignment of differences in perceptions, and serves as a shared understanding to

inform decisions. Unified, clear communication of the risk to the broader teams is vital for an agile response to, and recovery from, adversity. This prevents team members from being overwhelmed by the stress of the unknown and stay committed to the organisation's purpose.

"I think, again, maybe some problems are not always going to be clearly defined so the next step is not going to be exactly clear as to how you handle that. But I think again, it's a matter of understanding maybe the different viewpoints in that sense from all individuals" (I.14)

"So you always have to try and bring it back to some kind of structure within the company, because in a management side, you can't pick sides as a manager, that's what you do... So you got to try to sort of bring people together, but you got to form relationships within the process." (I.11)

"So when it goes down to manager level, it's like, this is the situation that we have. What can each person bring to the table to counteract these forces or these influences that I've played? And then it gets into sort of tactical planning." (I.10)

5.6.4.2 Inclusive mindset

Both supply chain-direct and supply chain-support interviewees believed that it was important to consider different perspectives and voices in workplace decision-making. In addition, individuals must question and challenge risks and decisions made by leadership. Having various opinions helps to build a bigger picture and leads to better informed decision-making. The concept of consensus was also emphasised, with the idea that a significant degree of agreement among team members increases the likelihood of a successful outcome. The importance of asking questions was also highlighted, as this leads to a more comprehensive understanding of the situation and enables improved decision-making. These patterns suggested that promoting open communication, encouraging diverse perspectives and valuing critical thinking are essential for effective workplace decision-making. Furthermore, accurate framing of the identified risk results in an efficient and effective response strategy. In other words, allowing for or actively seeking out diverse inputs can prevent teams from taking irrational risk-mitigating actions.

"You don't want everybody to buy into your risk. You want people to poke holes at your risk as well, to poke holes into the decisions that you make. And I think that is maybe what we've done on it is you want somebody you don't want everybody to agree with what you do. You want somebody to say listen, something's not right. And then between that you find a happy medium." (I.14)

"You not really building a big enough picture and you'll often find that as your questioning sort of expands, you'll get contradictory information and when you have a large degree of consensus, then you can say, okay, well, this is most likely going to be what to expect. But when you don't have that consensus, that's really where you start asking more questions so that you have information available to properly deal with the situation." (I.10)

A pattern of insights from four supply chain-support interviewees suggested there is a need for a culture of open and safe communication within the company, in which all employees feel comfortable to express their opinions and ideas. Fostering this culture is likely to lead to better decision-making and more productive discussions. In a cross-functional team, managers must actively neutralise the environment to draw out diverse perspectives from all team members in the management forum. For example, interviewee I.15 suggested there may be a need for a person within the company to keep things on track and address any issues such as bullying or fear of speaking out.

"If one manager isn't giving their input on an open forum then go have a discussion with them separately to understand why they felt perhaps intimidated to share their opinion but still kind of their opinion." (I.1)

"Every company has that person, you get that person in and they sort of keep things on track. If they can see that this person is bullying this person and they're too afraid to talk, and then it would be a key to sort of just move things back on track." (I.15)

5.6.4.3 Efficient resource utilisation

The interviewees acknowledged the need for a balanced approach to risk-taking when recovering from adversity. The importance of establishing a task team with the necessary skills to carry out risk management projects was also stressed. Nine interviewees emphasised that prioritising risk management strategies is critical to ensuring their success. Interviewee I.11 also mentioned that having a clear understanding of priorities can bring new energy and motivation to the team. When faced with disruption, the pressure from stakeholders to recover may place overwhelming demands on teams. When teams perceive the workload as impossible, they may be demotivated and discouraged from acting. In these circumstances, managers must be aware of what is practically possible and the critical path to recovery. This assists teams to plot their contributing route to recovery so they can prioritise the order of attending to stakeholder demands. In addition, open communication about this critical path clarifies the expectations of the interdependent teams and, therefore, may mitigate conflict over competing team priorities. This could preserve the social cohesion of teams during adversity.

> *"I think the reason why we have grown is not because we throw caution to the wind, but because we are risk takers. I think it does come down to which is always a fine balance between managing your risk with the benefits." (I.14)*

> *"I think the key thing with a lot of these risk strategies and as they come up and they're deemed important, and they need to get focused on, there's always a process of establishing a task team of going through that process of who has the skills to carry out those projects" (I.15)*

> *"I could literally see a bit of new energy over the last two weeks where the guys got that breathing room where I would meet you, sit and say that's not a priority, this is not a priority, that's a priority." (I.11)*

5.5.2 Concluding remarks on research question three

As seen with the previous themes, the managerial decision-making team is diverse and each participant brings unique skills and expertise to the team. Awareness of the structure aids in an inclusive mindset by ensuring the relevant stakeholders' inputs are considered by the managers making the decision. Autonomous preservation of neutrality in the team structure supports decision-makers as they frame the risk in a more holistic manner. By managers communicating the details surrounding the decision-making process, and the 'why', managers create transparency, build trust within the teams and, in turn, provide clarity on the crisis response strategy and what are the expectations of each team member.

Chapter 6: Discussion of the results

6.1 Overview

In this chapter, the results presented in the previous chapter are discussed in conjunction with the literature reviewed in chapter two. The sections in this chapter answer the three research questions outlined in chapter three, and the discussion is presented within their applicable themes. The three foundational themes, communication culture, leadership rapport-building and team structural characteristics, have sub-themes and codes relevant to each research question. This is because the researcher, through the thematic coding analysis, noticed co-occurrence between these foundational concepts and other concepts that emerged later on in the interviews. The results presented in this chapter are largely common among both direct and support supply chain functions; this is evidenced in figure 5. As expected, trends were identified that were specific to each function, and the researcher observed unexpected trends specific to the seniority (middle or senior) of managers.
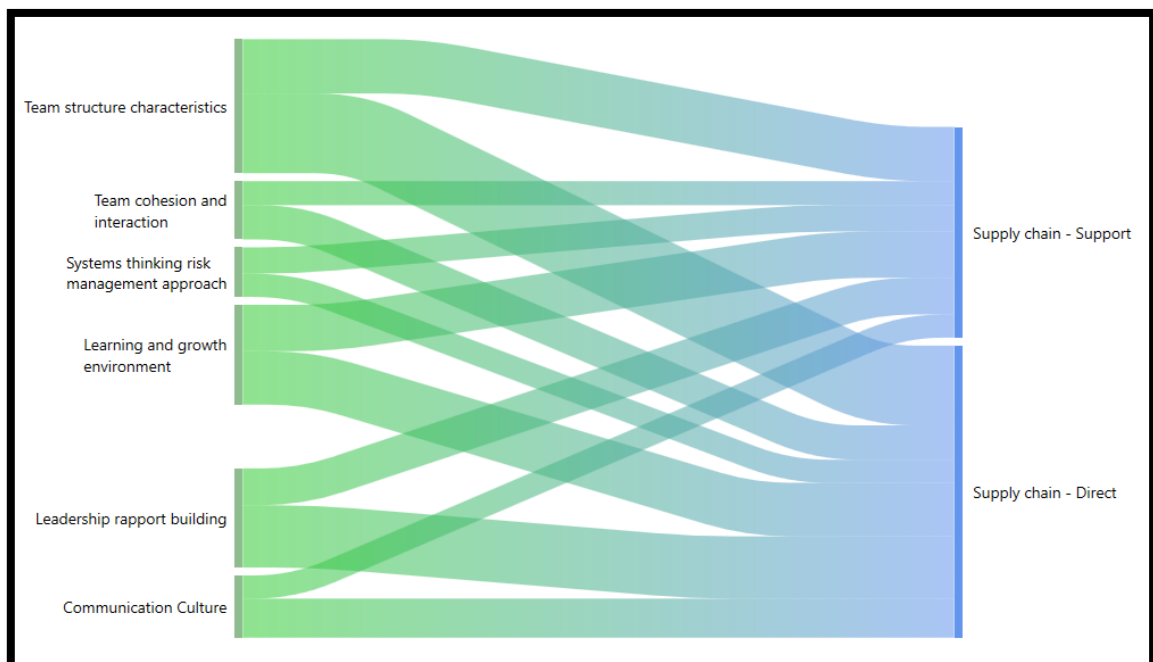

Figure 5: Sankey diagram of supply chain function and themes

6.2 Findings concerning research question one

> **RQ 1: What are the ways in which managers improve their team's collective awareness?**

This question aimed to derive insights from managers' lived experiences of how knowledge-sharing within a team is elevated to improve the team's collective awareness (Shashi et al., 2020). This guides the ambidextrous activities of the team. However, managers must first ensure that they protect the team's cognitive capabilities from increasing work complexity and intensity.

6.2.1 Communication culture

The literature review revealed that the way in which teams enhance resilience through dynamic and multi-level interaction, resulting in the emergence of team resilience (Han et al., 2020; Ozdemir et al., 2022), is unknown. The lived experiences of managers in this study revealed that communication spaces must be conducive to learning and growth. The data collected from interviews with senior managers within supply chain-direct functions showed that creating a safe, open and approachable communication environment is crucial for team success. A communication space in which team members can connect and build social cohesion can be achieved if managers neutralise the communication space and avoid politics in the discourse. This can eliminate the obstacle of an unsafe voice climate, identified by Brykman & King (2021), which deters team members from proactively sharing and discussing ideas. The connectedness and coherence principles of resilience play a pivotal role in this domain, as fluid information-sharing and diverse networking are required to enhance the team's collective curiosity (Han et al., 2020; Schoemaker & Day, 2021).

Secondly, Badhotiya et al. (2022) showed that information-sharing was the most influential driver of resilience. Supply chain-direct interviewees believed that democratising information, and providing employees with a clear understanding of the entire business, are crucial to build trust and increase transparency. This insight adds depth to understanding how managers can promote information-sharing among teams.

A nuanced view from supply chain-support interviewees, which did not appear in the literature reviewed and adds to the understanding of how to cultivate a participative voice climate that promotes information-sharing, is the need to use available information to underpin team discussions. These discussions are essential to create a comfortable space for team planning and to avoid confusion or uncertainty. In addition, this can motivate team members to speak proactively and discuss ideas as well as concerns.

6.2.2 Leadership rapport-building – Inspiring innovation

According to Liu et al. (2018), team managers play an essential role in effectively aligning teams to meet immediate demands and simultaneously adapting to reposition themselves. Contributing to the understanding of how team managers can guide this, interviewees emphasised the importance of open communication between management and employees to promote better understanding and address operational issues. Additionally, a perspective specific to middle managers was the importance of leaders who are confident in their beliefs and willing to stand up for them, which inspires and empowers other team members.

The findings highlight the importance of leaders fostering a culture of learning and growth, which inspires innovation among team members. Kuntz (2021) posited that challenges faced in achieving this include increasing job complexity and work intensity which lead to the physical and emotional depletion of team members. To address these challenges, interviewees suggested that team managers foster a supportive work environment in which employees feel free to express themselves and take ownership of their responsibilities. From the interviewees' perspective, this creates passion among team members across multiple levels, which Salas-vallina et al. (2022) suggested encourages collaboration and continuous improvement.

6.2.3 Team structural characteristics – Awareness

Teece (2016) argued that dynamic organisational capabilities are essential for organisations to respond to change, uncertainty and disruption. In his view, these capabilities allow organisations to detect signals of change early, putting them in a position to act sooner and seize potential opportunities, or respond more quickly in cases of disruption. This idea of earlier detection is closely related to team awareness and sensing capability. Advancing this idea, teams can act as external environment

sensors, allowing organisations to respond quickly to changes and adversity. A popular approach to achieve this, that emerged from the interviews, is to empower team members to make daily operational decisions. In addition, the interviewees emphasised the importance of centralised information that can guide decision-making and maintain stability in times of uncertainty.

A significant trend to emerge from the interviewees, and one that furthers the literature, is that team alignment is crucial to achieve team awareness. When managers enhance the shared understanding of the interconnectedness of different teams, and elevate awareness of individual team member's roles in achieving organisational objectives, teams are able to understand the impact of their roles on other teams. This, in turn, motivates and guides proactive information-sharing among the network of teams.

6.2.4 Learning and growth environment
6.2.4.1 Internal continuous learning
According to Kuntz (2021), managerial support for team members to adopt a growth mindset is crucial to enable the organisation to respond to uncertainty more effectively and benefit from a post-adversity growth trajectory. This is supported by the findings from the interviews. Interviewees saw team managers as playing a pivotal role in promoting knowledge-sharing, and aligning teams to meet immediate demands and adapt to changes in the business environment (Liu et al., 2018).

The insights from the interviewees also highlighted the importance of autonomous decision-making for team learning. For example, the researcher noted the trend in the insights shared by six supply chain-direct interviewees that if managers allow team members to exercise their discretion more frequently, this leads to the development of skills and capabilities to cope with increasingly complex tasks and handle adversity. On the other hand, micromanagement removes this opportunity and hinders the team's ability to interact autonomously. This contributes to the understanding of leadership and knowledge management capabilities which Han et al. (2020) noted had been neglected in the context of supply chain resilience.

The interviewees also recognised the importance of working with diverse types of people and resolving conflicts in the workplace. They believed that conflict is healthy and can help build respect between colleagues and set clear workplace boundaries, which concurs with the view of Naderpajouh et al. (2020). Furthering this concept, team managers who allow team members to work through challenges autonomously enable them to develop their emotional maturity and strengthen their social cohesion.

To strengthen a learning culture, which Chen et al. (2019) advocated as central to continuous improvement, the interviewees valued a supportive and learning-oriented environment in which individuals can learn from their mistakes and be positively reinforced to make decisions confidently. Managers can encourage reflection exercises and coaching to assist team members to learn from past mistakes, successes and conflicts.

6.2.4.2 Internal network learning

Interviewees suggested that knowledge-sharing and cross-functional collaboration were essential for building resilience and responding to organisational change and uncertainty. This is consistent with Schoemaker & Day's (2021) notion that fluid information-sharing and diverse networking enhance the team's collective curiosity and improve its ability to respond to adversity.

Shekhar et al. (2019) found that knowledge-sharing among team members enables organisations to build collective knowledge and improve their ability to respond to changes and uncertainty. Meanwhile, Ali & Gurd (2020) showed that higher knowledge-sharing could mitigate the adverse performance effects of operational risks. The interviewees' insights suggest that, to achieve these benefits, team managers should orchestrate cross-functional partnering where team members can share their knowledge and insights to help organisations develop contingency plans and strategies.

The data also supported the importance of multi-level learning and growth. The respondents stressed the need for regular catch-up meetings to ensure cross-functional communication and create a comfortable environment in which team members can learn and share information. Involving relevant team members in cross-functional discussions, and making them feel valued for their contributions, are crucial for transferring knowledge and promoting growth.

Managers can purposefully identify the team members who can contribute to, and benefit from, cross-functional interactions to increase the team's internal awareness and ability to solve complex problems by leveraging individual team member's expertise and skills.

6.2.4.3 Internal purposeful learning
Interviewees emphasised the importance of empowering and supporting team members to be confident in their abilities and contribute effectively to team discussions. They also stressed that purposeful mentoring and coaching was vital to build confidence and social skills in cross-functional team settings. Managers can leverage these to encourage team members to move out of their comfort zones and enhance their ability to respond to disruption. This enables team members to balance their exploitative and exploratory initiatives through diverse networking outside their comfort zones. This contributes to understanding team ambidexterity, which, according to Leeman et al. (2022), balances exploitative activities in current contexts and explorative activities outside comfort zones.

Additionally, interviewees suggested that team managers can formally measure improvement in team member's participation and interactions. For example, one method (outlined in section 5.4.4.3) is to use a contact matrix to capture the perceptions of randomly selected stakeholders of the team member. This measurement can help to assess the effectiveness of efforts to build dynamic team capability and enhance team member contributions to cross-functional collaboration.

6.2.4.4 External continuous network learning

The central concept that emerged from interviewees was the need for teams to have a well-established network of relationships within and outside the organisation. This is consistent with Shashi et al.'s (2020) finding that companies can improve resilience by having good relationships with suppliers and other supply chain stakeholders.

Team managers can actively extend internal networking and partnering outside the organisation by connecting team members with external stakeholders. This can help to elevate awareness of the extended supply chain and provide innovative alternatives when faced with unexpected disruption. Building relationships with external teams also facilitates earlier identification of signals in the external environment, enabling teams to assess and respond to these signals if necessary.

6.2.4.5 Purposeful external business research

Shashi et al. (2020) suggested that companies could increase their resilience by diversifying their supply chains. In support of this, the findings from the interviews revealed that purposeful business research could be a valuable tool to identify early signals of wicked problems, allowing teams to position themselves to seize opportunities or seek alternatives that align with the organisation's goals. In addition, supply chain-direct interviewees relied significantly on regular informal communication to detect early signals of changes in the operating environment. This is valuable given the faster pace of the operating environment which limits the opportunity to conduct formal research to inform the team's actions. Team managers can therefore purposefully encourage team members to make a habit of pursuing their curiosity and discretionally researching their operating environment.

6.2.5 Conclusion

Team managers can potentially grow their teams' collective awareness by instilling a growth mindset which promotes partnering and purposeful learning among team members. However, this requires a team foundation that promotes the free exchange of information among teams in their social interactions. Secondly, the team should inspire a passion among its members to sense the environment, continuously learn and proactively interact with each other. Table 9 depicts the researcher's critical findings in answering research question one.

Table 9: Findings relative to research question one

Foundational themes	Relation	Research question-specific theme	Influence	Result
Communication culture	Provides: 1) Safe and open communication. 2) Access to information 3) Clear evidence-based discussions. Receives: 1) More frequent team interactions 2) Creative conflict.	Learning and growth environment	1) Growth Mindset. 2) Team members networking and partnering. 3) Purposeful team learning	Sustained collective awareness among teams
Leadership Rapport-building	Provides: 1) Stimulate team members' passion and drive to collaborate. Receives : 1) Culture of learning from mistakes.			
Team structural characteristics	Provides: 1) Team members sense the environment. Receives: 1) Clarity and alignment. 2) Autonomous decision–making.			

> **RQ 2: What do managers do to support multilevel team and individual interactions?**

An exploration of how team managers support team capabilities and capacities was the central purpose of research question two. It is important to understand this in the field of team resilience because, according to Chapman et al. (2021), management support is a crucial factor that determines team functionality in adversity. Furthermore, by understanding how team resilience develops in less adverse and low stake contexts, this study responds to Ali & Gölgeci's (2019) call to explore management support.

6.3.1 Communication culture

The interviewees identified that team managers play a critical role in shaping communication by establishing communication channels and spaces, and by selecting the relevant team members. This is central to Chapman et al.'s (2021) concept of strengthening team resilience by binding team members' capabilities. The interviewees suggested that this could be achieved if managers demonstrated an active commitment to cross-functional collaboration and shaped multilevel team interaction, which supports team resilience (Han et al., 2020; Ozdemir et al., 2022).

According to Pype et al. (2018), managers must moderate team interactions in these spaces to avoid conflict and destructive behaviour. The interviewees supported this, noting that managers could achieve this by linking appropriate team members and enabling evidence-based discussions. For example, one of the interviewee's narratives explicitly recognised that leveraging each individual's strengths would introduce the appropriate information into the discussion and ensure clear team direction.

6.3.2 Leadership rapport-building

Pype et al. (2018) recognised that team attractors shape information-sharing within the team. In most instances, these attractors are the team managers who must deal with uncertainty and surprising behaviour; their handling of these shapes the team's interactions (Wieland & Durach, 2021). A consistent pattern of how important it is for managers to introduce positive energy into the team by leading by example emerged

from the interviews, further informing the role managers play in their capacity as attractors. One method of building positive team energy is for managers to build trust by setting the tone of the team's interaction in a manner that allows teams to voice their concerns and thoughts frequently.

Emerging from the researcher's discussions with interviewees were a number of deterrents to positive team interaction and autonomy; Ali & Gölgeci (2019), in their review of 155 research articles, concluded that this area had the potential for further exploration. The significant deterrents against which managers should protect their teams are listed below:

1) In an authoritative setting, team buy-in to the organisation's purpose is superficial. There is no incentive for team members to challenge the status quo and participate in continuous improvement initiatives.

2) Dismissiveness and a blame culture in the team make it less attractive for members to do more than the minimum requirements.

3) Competing objectives among teams and unhealthy competition incentivise team members to keep valuable information confidential and deter information-sharing.

Wieland & Durach (2021) described a social-ecological system as an interconnected collection of self-organising systems which continuously adapt and transform. The resilience of these systems can be enhanced through tighter integration (Shashi et al.,2020). Managers therefore need to protect against deterrents to team interaction and promote the fluidity of team interactions. Interviewees felt strongly about an ongoing leadership process to ensure that the default silo mentality of departments does not set in. Team managers can support the fluidity of team interactions by purposefully bringing teams together in a space in which they are comfortable to interact and build their collective awareness.

6.3.3 Team structural characteristics
6.3.3.1 Accessibility
Wieland (2021) viewed the supply chain as linked teams across different levels and spaces that continuously adapted through dynamic interactions in the network. Interviewees believed that flat organisational structures for team networking and partnering were beneficial for these dynamic team interactions. Supply chain-direct

interviewees were of the view that teams improve their crisis management capabilities if they continuously grow and strengthen their network of partners.

6.3.3.2 Empathy

According to Uhl-Bein & Arena (2017), team accessibility serves to create an enabling space to harbour creative conflict and support creativity. Adding to this concept, interviewees stressed that, in these conflict spaces, individuals need to feel comfortable to seek help and support from their peers without fear of judgment or retribution. A safe space fostered by team members is crucial because it supports the development of individual team member's capabilities and the team's collective capabilities. This is consistent with Kuntz's (2021) advocation for management support to create a sense of belonging and empathy for one another. Interviewees suggested that team managers can provide the necessary support to team members in this space by actively listening and understanding team members' feelings, and thus foster empathy within the team.

6.3.3.3 Clarity and organisational justice

Interviewees emphasised the need to understand the dependencies of the different stakeholders when team is tightly connected. This shows how the different stakeholders contribute to the shared purpose and Fasey et al. (2021) noted that mutual commitment underpinned by fairness is central to team members' overall commitment. Therefore team managers need to balance empathy and accountability within the teams. This presents an opportunity for team managers to hold team members accountable through constructive feedback.

6.3.3.4 Autonomous preservation

Evident from the interviewees' insights was the benefit to team social cohesion when team members are left to work autonomously and resolve conflict among themselves. In this regard, team managers should limit their involvement in team conflict resolution, allowing team members to practise their social skills and improve their connectedness and ability to overcome adversity. This is in line with Zhao et al.'s (2019) view that adaptive capabilities emerge when teams operate in a fluid and self-organising manner.

6.3.4 Team Cohesion and interaction

6.3.4.1 Collective planning

An overwhelming number of interviewees recognised the value of team members bouncing ideas off each other because this leverages the knowledge and skills within the team. This is extremely useful to frame risks from unorganised or ambiguous data. This is consistent with Brykman & King's (2021) proposition that team engagement in an iterative process of information elaboration can be used to capitalise on discrete knowledge held by specific team members.

Interviewees believed managers could achieve this by ensuring that team members collectively plan sessions for teams to engage with one another on available information. Interviewees emphasised the value of engaging in deep discussions and understanding feedback during these collaborative planning exercises, in order to identify potential risks and make informed decisions. Group brainstorming highlights the importance of considering diverse perspectives and interpretations to achieve a common goal, enhancing the team's collective intelligence and awareness. This supports an understanding of how team managers strengthen their teams' social cohesion and collaboration, which, according to Ali & Gölgeci (2019), better positions them to prepare for unseen disruptions. A critical antecedent to team collaboration, which emerged from the interviewees' insights, is easy accessibility among teams, which allows for collaborative planning.

6.3.4.2 Creating a sense of certainty

Han et al. (2020), and later Chapman et al. (2021), suggested that the flow of information clarifies for the team how resources, skills and abilities will be deployed in a contingency situation or recovery effort. Contributing to this, interviewees emphasised the need for regular scheduled meetings to share information and resolve conflicts, and thereby develop the best solutions. This builds on collective planning. In addition, interviewees emphasised that open, honest discussions between departments, with clear communication and understanding of facts, are crucial to align different departments' efforts towards common objectives. This is important because, according to Pype et al. (2018), team managers act as attractors who shape the team's multilevel interactions and influence the flow of information in these spaces.

From Fasey et al.'s (2021) perspective, frequent interactions strengthen the team's social coherence and enable it to adapt and develop collective efficacy. In addition to these benefits, interviewees noted that enhanced team social bonds facilitate team alignment and clarity about the way forward. The latter enhances the decision-making capabilities of the team and individual team members because these decisions are based on shared information and collective awareness.

6.3.4.3 Collective decision-making

Ozdemir et al. (2022) found that more agile supply chains are characterised by increased frequency of multilevel decision-making. Building on the sense of certainty within the team and contributing to the conceptualisation of multilevel decision-making, interviewees suggested that the decision-making of team members is better informed by leveraging team discussions informed by the discrete knowledge of specific team members.

This is important for team functionality because, as observed from the narratives of nine middle managers, understanding why a decision is made, and how it contributes to the shared purpose of the business, is key for team members to support the decision. Furthermore, when the decision is based on a shared understanding within the team, it advances transparency and fairness in the team structure and contributes to the perception of organisational justice. This is particularly important because sharing the details of the decision-making process and criteria helps to mitigate conflict and maintain team members' commitment to the overall team and organisational purpose. These findings can better inform team managers' decision-making processes, enabling them to simultaneously maintain the agility and commitment of the team.

On the other hand, a nuanced view of three interviewees highlighted the potential of using a collective decision-making process when the decision is complex. For example, this can be used when teams have more time to consider the factors around the decision and, as in collective planning, leverage the distinct capabilities of different team members to better inform the decision.

6.3.4.4 Shared purpose

Chapman et al. (2021) noted that binding the team's social resources together is

valuable to support the team's functionality when faced with adversity. However, the interviewees believed this team state was achieved over time. The efficacy of formalising team bricolage in job or task descriptions may be inadequate, in contrast to the view of Talat & Riaz (2020). Instead, interviewees suggested that guiding values and missions may be more appropriate, such as a shared purpose among the team. To this extent, the researcher observed a trend in the interviewees' responses that suggested that collective planning and decision-making processes reinforce the organisation's purpose among the teams and team members.

Supply chain-direct interviewees appreciated that team interactions improve when cross-functional teams are aligned on a shared purpose. These positive interactions increase the perceived complementarity of each team member and clarify their role within the team as well as the organisation's purpose (Pype et al., 2018; Uhl-Bien & Arena, 2017). The interviewees highlighted the importance of finding meaning and purpose in one's work, and its positive impact on personal motivation. Managers can therefore orchestrate heightened awareness of the shared purpose among teams in line with the view of Naderpajouh et al. (2020) that these micro-level systems shape how the organisation overcomes adversity.

6.3.5 Conclusion

Team managers can enhance multilevel team and individual interactions by demonstrating the importance of diverse perspectives through collective planning exercises. This, in turn, can improve the team's and team members' social bond and serve as a shared guide for autonomous decision-making. To achieve this, team managers need to foster cross-functional communication opportunities for an honest and factual discourse. Trust must also be built within the network of teams, which makes team members comfortable to participate honestly. Furthermore, honest discourse must be met with active listening for it to be meaningful in creating team social bonds. Lastly, in order to sustain teams' autonomous interactions, managers need to protect the level of perceived accountability; this can be achieved through constructive feedback. Table 10 depicts the researcher's main findings relative to research question two.

Table 10: Findings relative to research question two

Foundational themes	Relation	Research question-specific theme	Influence	Result
Communication culture	Provides: 1) Cross-functional communication spaces. 2) Honest and factual discussions. Receives: 1) Information elaboration.	Team cohesion and interaction	1) Appreciation of the value of diverse perspectives. 2) Improve team's social bonds. 3) Autonomous decision-making is based on the team's shared purpose and principles.	Multilevel team and individual interactions
Leadership rapport-building	Provides: 1) Positive energy and trust. 2) Comfortable interactions. Receives : 1) Meaningful and purposeful work.			
Team structural characteristics	Provides: 1) Intra-team accessibility. 2) Active listening. 3) Accountability. 4) Autonomy. Receives: 1) Collective team clarity.			

6.4 Findings concerning research question three

RQ 3: What do managers do when leading their team through adversity?

According to Wieland (2021), teams are part of a nested series of adaptive systems. These contexts shape the team's perception of the magnitude and complexity of adversity and how it can be overcome (Ali & Gölgeci, 2019). The purpose of research question three was to explore team managers' lived experience of how they preserved their team members' professional well-being during a crisis to rebound with agility (Naderpajouh et al., 2020; Pype et al., 2018; Zhao et al., 2019),

6.4.1 Communication culture

Bhaduri (2019) suggested that managers can inspire and motivate their teams to achieve a common goal in times of adversity through effective communication. Supply chain-direct interviewees provided some depth to this insight and stressed that open communication is key to enable teams to work collectively and iteratively through adversity. Therefore, during adversity, team managers can maintain the established communication spaces so that team members are informed, feel supported and implement shared ideas.

Interviewees believed it was crucial that, when faced with adversity, the communication spaces continue to be forums for evidence-based discussions where team members can clarify the situational context and move forward into the recovery phase; the researcher did not identify this concept in the literature. However, this was important for interviewees because it prevents teams from speculating based on unfounded perceptions. In this regard, team managers can purposefully guide evidence- and data-based discussions among team members when overcoming adversity.

6.4.2 Leadership rapport-building

Several interviewees mentioned the volume of tasks perceived as high-priority by other teams and team members. This creates immense pressure which diminishes the team's energy and willpower to act. In these instances, Kuntz (2021) suggested that managers provide informational support to the team to manage stressors

effectively. Interviewees suggested that team managers could set the tone for the prioritisation of business-critical tasks, which would lead to a more sustainable workload for teams and protect them from breaking down.

When teams are faced with adversity, Badhuri (2019) suggested that transactional or transformational leadership is more suitable than shared leadership. The interviewees strongly concurred with a transformational leadership approach in a crisis. Based on the interviewees' experiences, team managers should give direction to the team by keeping them connected and informed.

6.4.3 Team structural characteristics

Hartmann et al. (2021) posited that a positive emotional team culture, underpinned by joviality, drives team members' willingness to interact with one another. However, interviewees pointed out that pressure of the unknown removes any climate of joy from the team. Instead, empathy within the team structure enables honest discourse and information-sharing. Firstly, team members can appreciate the hardships faced by individual employees and consider them in the team's recovery efforts. Secondly, teams can achieve collective alignment on the way forward and strengthen their togetherness. This contributes to the knowledge gap outlined by Pype et al. (2018) as to how managers can maintain their team's well-being and preserve the team's rational decision-making capabilities in a crisis.

Fasey et al. (2021) noted that, in a crisis, teams look for certainty about who does what and where accountability lies. The experiences shared by the interviewees show agreement with the need for fairness in times of crisis, and that team managers should lead by example to demonstrate their level of commitment to the team's recovery. A perception of fairness within the team is vital for team managers to be able to successfully guide teams out of adversity. The competencies managers need to do this include decision-making and risk-taking, according to Brykman & King (2021), and fairness within the team assists members to buy into team managers' risk-taking or decision-making. In addition, it encourages groups to proactively share knowledge with team managers that better inform these activities.

6.4.4 Systems thinking risk management approach

6.4.4.1 Framing risk

Badhotiya et al. (2022) posited that teams must grow unpredictably to overcome unpredictable risks and adversity. Team members therefore need to bricoleur to assess the most appropriate manner of responding to disruptions. Talat & Riaz (2020) suggested that teams can do this through collective sense-making of adversity. A consistent pattern that emerged from the interviews was that the team manager has a role to bring a structured approach to framing the root cause of a complex problem. How managers do this should unite the team and foster creative conflict. This leads to unified communication about the risk to broader teams, which facilitates team bricolage. This creates clarity about the way forward, prevents teams from being overwhelmed by uncertainty and, therefore, can contribute to the team's efficient recovery.

6.4.4.2 Inclusive mindset

In a supply chain setting, teams are essential to combine various skills to undertake complex tasks (Ozdemir et al., 2022). The insights from interviewees emphasised the value of team members challenging and questioning decisions, as this results in better informed decisions. These interactions depend on a communication culture that is open and safe, and in which team members are comfortable to express themselves (outlined in the foundational themes). Absolute reliance on team managers deprives the team of being able to harness their collective creativity to enhance their problem-solving capabilities. What emerged from interviewees' perspectives was that when diverse perspectives are sought out, the team's critical thinking capability is elevated, which is essential for effective decision-making. Therefore, for cross-functional teams operating in adversity, team managers can actively draw out and introduce diverse perspectives. This is crucial because team members' autonomous decision-making is significantly based on their judgment. According to Fahimnia et al. (2019), this managerial practice of seeking out diversity better informs team members' judgement. In addition, interviewees expressed the view that unified communication from the management team to the broader teams and team members concerning the decision-making process, and the rationale for the decision, builds trust and maintains the team's commitment to the organisation's shared purpose.

6.4.4.3 Efficient resource utilisation

When recovering from adversity, managers are only likely to be equipped to handle some adversities by themselves. Shashi et al. (2020) proposed using a road map approach to tackle the most critical challenges. This idea was seconded by the interviewees, who cited the importance of prioritising essential activities on a shared risk management plan. This protects the team from the overwhelming demands of stakeholders in high pressure and adverse situations. Team managers can collectively agree on and communicate the road map to recovery, which would result in transparent management of teams' and stakeholders' expectations. Furthermore, this can protect the team's social cohesion from damage by conflict in high-pressure situations in which there are competing objectives.

Interviewees also cited a balanced approach to risk-taking, suggesting that the resources employed should be relative to the adversity faced. However, Chapman (2021) noted that the magnitude of the effects of adversity measures resilience capacity. Given the unpredictability of adversity, it is impossible to appraise the team's resilience capacity as it is subject to an unknown comparison point. Therefore, managers can interpret a balanced approach to risk-taking as evaluating whether overcoming adversity in the present context is worthwhile or growing the team in a previously unintended manner is more beneficial because of the unpredictable contextual changes.

6.4.5 Conclusion

To recover from adversity, team managers need to respond in unpredictable ways. This involves a balanced risk-taking approach. First, the success of the approach is subject to the team managers' and teams' critical thinking capabilities, which are enhanced by diverse inputs that prevent narrow-mindedness. This is essential as the team is embedded in a meta-system with multiple factors to consider. Secondly, teams must effectively bricoleur and gather the necessary capabilities and capacities to act efficiently according to the recovery plans. Finally, to support these activities in times of crisis, when teams interact in cross-functional communication spaces, there must be empathy to maintain their psychological well-being and prioritise their physical well-being. These are the cornerstones of maintaining teams' professional well-being and supporting their autonomous decision-making capabilities. Lastly,

team managers must ensure fairness to preserve team members' motivation and commitment to the recovery effort. Table 11 depicts the researcher's critical findings in answering research question three.

Table 11: Findings relative to research question 3

Foundational themes	Relation	Research question-specific theme	Influence	Result
Communication culture	Provides: 1) Iterative communication in established spaces 2) Data and evidence-based discourse Receives: 1) Cross-functional communication.	Systems thinking risk management	1) Teams bricolage. 2) Team critical thinking based on an inclusive mindset. 3) Balanced risk-taking.	Agile recovery from adversity
Leadership rapport-building	Provides: 1) Team prioritising 2) Team connectedness 1) Trust building			
Team structural characteristics	Provides: 1) Empathy 2) Fairness Receives: 1) A shared understanding of adversity			

Chapter 7: Conclusion

7.1 Principle findings

In chapter six, the findings derived from the lived experiences of managers in the supply chain were discussed in line with the concepts identified in the literature review. The researcher viewed team resilience from a social-ecological perspective because the team network is considered to be a set of complex adaptive systems (Wieland, 2021). This led to an exploration of managers' lived experiences through the three phases of resilience: alertness, preparedness and agility (Li et al., 2017). The managers in this study were from direct and support roles in the supply chain and were either middle or senior managers. Based on their insights, there was consensus as to what cultivates team resilience. However, the researcher noted nuances specific to certain groups – at a sub-thematic level.

7.1 Theoretical contribution

The data derived from interviewee insights contributes meaningfully to the literature and, in addition to confirming most of the literature reviewed (appendix 7), advances our understanding of team resilience in two ways.

The first contribution actually contradicts the existing literature. While Hartmann et al. (2021) posited an emotional culture of joy, which is challenged in the face of adversity, the interviewees in this study emphasised the importance of team clarity and awareness. Similarly, Talat & Riaz's (2020) proposal of formalising team bricolage through job descriptions contradicts the interviewees' perceptions that creating a shared purpose among team members is more beneficial. These findings suggest that different approaches may be practical in different contexts and that multiple factors influence team resilience. The findings of Hartmann et al. (2021) were based on teams in administrative, consulting and childcare functions, while those of Talat & Riaz (2020) were based on teams in the information technology sector. By contrast, this study focused on managers within the supply chain.

The second meaningful contribution of the study is to add the following insights to the literature and enhance the understanding of team resilience:

1) Ali & Gölgeci's (2019) systematic review of 155 research articles noted that only 0.6% of them explored the barriers to team collaboration, which is an essential component of resilience. Through understanding managers' lived experiences, this research identified three idiosyncracies which are significant deterrents to autonomy. These are an authoritative team setting, a blame culture and competing team objectives.

2) Salas-vallina et al. (2022) suggested that involving team members in participative decision-making can reinvigorate and enhance team energy. However, when faced with adversity, participative decision-making may not be possible. An alternative approach was derived from the data from this research. Transparency in the decision-making process is also able to keep employees motivated during adversity. This finding highlights the importance of clear communication and transparency in the workplace. When employees understand the reasons behind a decision, the team's acceptance of the decision is authentic.

3) In the review of the extant literature, the researcher did not detect the concept of perceived fairness in the team when overcoming adversity. However, the importance of this concept to team resilience emerged from the interviewees' insights. When team members perceive that they are being treated fairly, they are more likely to feel a sense of loyalty and commitment to the recovery efforts. They are also more likely to engage in behaviours that benefit the organisation, such as participating in continuous improvement initiatives.

4) Badhuri (2019) advised that a transactional or transformational leadership approach be used in the recovery phase after experiencing a disruption. This research suggests that a transformational leadership approach is more beneficial for agile team recovery.

5) Diverse perspectives are essential to support teams' problem-solving capabilities, according to Chapman et al. (2021) and Naderpajouh et al. (2020). Taking this further, this study revealed that team managers can expect to enhance team members' critical thinking capabilities by exposing them to diverse perspectives in a cross-functional space.

7.2 Implications for management

As shown in the team resilience framework (figure 6 below), this research recommends the following for team managers to support the emergence of team resilience in a supply chain context:

1) Gauging resilience is subjective and therefore limited in value. Therefore managers should embrace adaptation over certainty in the supply chain. This can be achieved by adopting a growth mindset in the team to guide continuous improvement initiatives.

2) Predetermined response plans are helpful for known risks within the team's current context. However, managers can benefit by developing teams with higher critical thinking and bricolage capabilities, that remain resilient in situations of unknown risks or those not yet experienced in the supply chain.

3) To support the team's social bond, which is an antecedent to team resilience, managers can proactively promote fluidity and safeguard the team against deterrents to autonomous interactions. Major deterrents identified in the research are an authoritative team setting, a blame culture and unhealthy competition stemming from competing objectives.

4) Empowering team members through autonomous decision-making can spark the interest of team members in contextual factors. This, in turn, can create heightened awareness within the team, which helps detect early disruption signals. A second benefit is that team members can build their capabilities and undertake more complex tasks.

5) Team managers can cultivate positive team interactions by building trust through honest communication that is met with active listening.

The researcher's literature review revealed no evidence of a framework based on the social-ecological definition of team resilience and the view of the supply chain as a complex adaptive system. The researcher therefore conceptualised a framework to support the emergence of team resilience, based on interpretation of the literature and inferences from the managers' lived experiences. The framework of team resilience, presented in figure 6 below, is intended to better inform team managers in their approach to creating team resilience and improving their teams' chances and capabilities to overcome adversity.

7.2.1 Team ethos

The foundation of the framework, called team ethos, refers to the team's instilled manner of working. The first concept at this level is the team's communication culture, which encompasses cross-functional as well as data- and evidence-driven (Shekhar et al., 2019) discourse among the team network. Access to information should be eased and simplified to support the quality of evidence-based discussions among teams.

The second concept at this level is leadership rapport-building. The team manager's role in inspiring passion for work is the first facet. Managers can potentially achieve this is by the daily introduction of positive energy into the team. A second facet is the manager's role in building trust among the team and setting the tone of how team members interact. The final critical role of team leaders is to maintain the comfort and fluidity of team members' interactions by breaking down silos and protecting the team against deterrents to autonomy.

The final concept at this level is the team's structural characteristics that need to be fostered and maintained by team managers. This concept is critical to achieve a balance between empathy and accountability. Empathy can be enhanced by team members actively listening to each other to better inform their interactions with each other. On the other hand, accountability in the team is enhanced through clarity about team members' responsibilities and the fairness demonstrated. This is central to keeping teams motivated and committed, contributing to their connectedness and awareness of their surroundings (Han et al., 2020; Ponomarov & Holcomb, 2009; Schoemaker & Day, 2021).

7.2.2 Discretional activities

This is the second level of the framework and refers to the activities, or concepts, that team managers can promote in times of normality (Chapman et al., 2021). These concepts are supported by and rely on the foundational concepts for successful execution by team members. The first concept is learning and growth, which refers to a mindset inculcated among team members. A growth mindset refers to team members learning continuously on the job, expanding their network and purposefully researching signals. By driving these ideologies within their teams (Chen et al., 2019), managers can ensure collective and autonomous improvement of team members. This grows the team's knowledge base and stimulates knowledge-sharing,

creating a more alert and aware team, which, according to Ali & Gurd (2020), mitigates the negative impacts of adversity.

The second concept is team cohesion and interaction, which speaks to multilevel (teams from different levels and departments) connectedness and interactions. Managers can achieve team connectedness and coherence, demonstrating the value of diverse perspectives, through collective planning activities. This can strengthen the team's social bond and alignment on shared purpose. This is beneficial because team members are sufficiently informed and therefore able to judge others' decisions. This is valuable when agile decision-making is necessary because team members are more likely to support decisions they understand.

7.2.3 Adversity response

The final level of the framework involves the need for teams to grow in unpredictable ways to overcome unpredictable risks (Badhotiya et al., 2022). Team members' critical thinking capabilities are essential at this level; this is influenced by human judgement, which may be constrained during adversity (Pype et al., 2018). By building on the inclusive mindset that values diverse perspectives, fostered prior to adversity, team managers can support team members' cognitive capabilities by setting the team's tone. They can do this by prioritising recovery efforts using a roadmap approach and maintaining a culture of communication. Once the recovery plan is established, teams will rely on their accessibility to bricolage. Maintaining teams' motivation during adversity will depend on the balance of empathy and accountability within the team structure. This enables teams to take a recovery approach that balances the risks by considering as much of the supply chain system as possible in the time available.
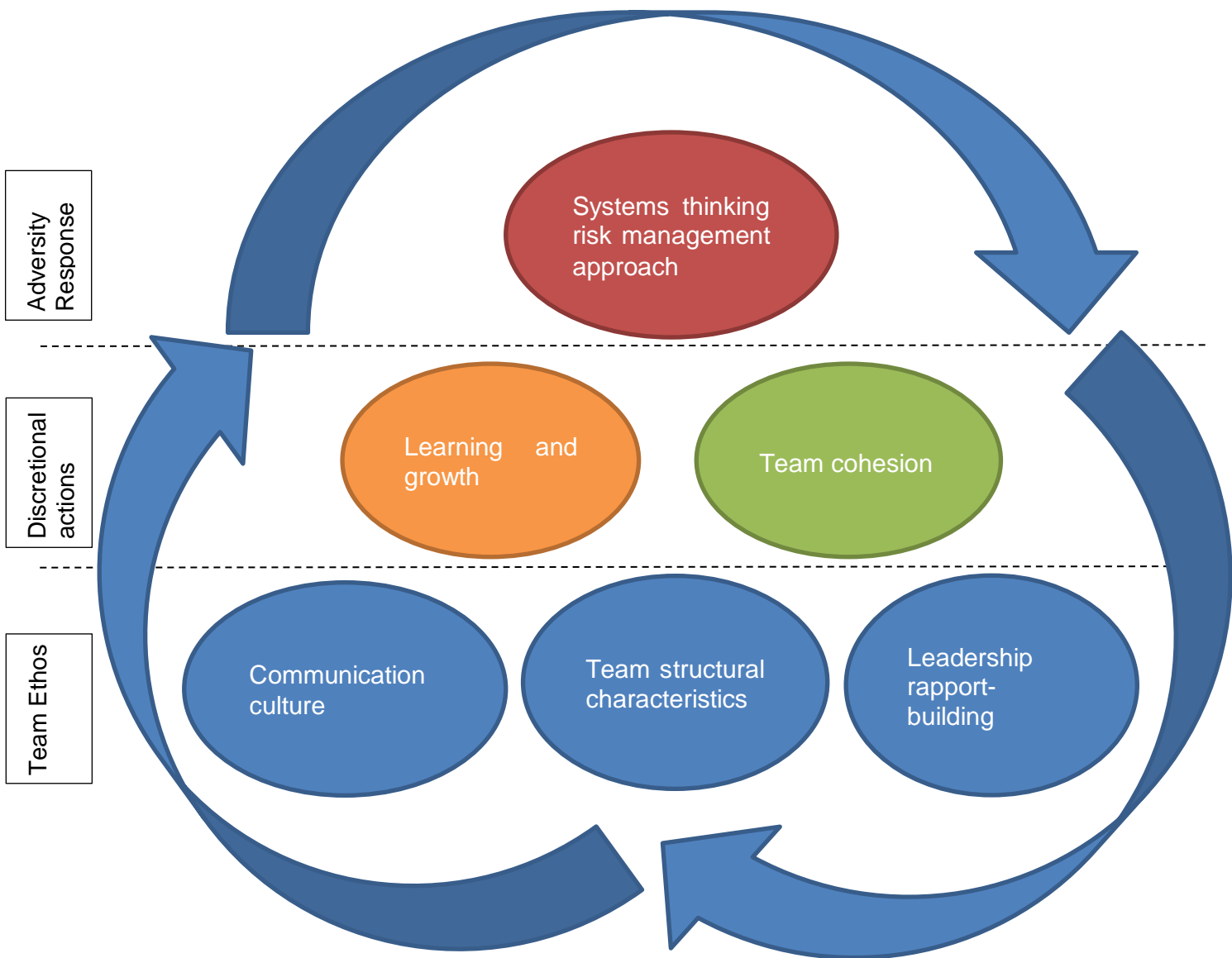
Figure 6: Team resilience framework

<u>7.3 Limitations of the research</u>

The research focused on the past lived experiences of middle and senior team managers in the supply chain. This resulted in short to medium-term reflections; this is usually the time frame for reacting and beginning the recovery phase post-adversity. Based on this, the following limitations have been identified:

1) When reflecting on past experiences it is easier to understand and reflect on what worked well and what did not. However, when faced with adversity and uncertainty, it may not be clear how teams should align on a recovery approach when there is incomplete information and high stakes.

2) All the interviewees were from South Africa and their perspectives were influenced by the national culture and contexts of South Africa. The insights derived may therefore not be applicable for teams operating outside the country.

3) Insights were gathered from no more than two managers from each organisation. This is a limitation because the perspectives of in-group managers were not assessed against the perspectives of related out-group managers.

4) Finally, the team resilience framework is conceptual and has not been empirically tested to establish rigour and confirm validity. However, it is difficult to test it empirically as the measure of resilience is against a perceived risk and its expected impact, which are completely unpredictable when it comes to black swan events.

<u>7.4 Suggestions for future research</u>

The research revealed that the team's social bond is central to its resilience. Therefore, to advance the field of team resilience and bring some certainty to the measure of resilience, further research should be conducted into key performance indicators that measure the efficacy of team knowledge-sharing and team connectedness. This could be along the lines of the contact matrix mentioned by interviewee I.11, which measures the impact of team members' interactions and networking.

Team members' ability to network with other teams is key to their ability to bricolage. The research identified team members' confidence to network outside their comfort zones and cross-functional communication spaces as critical factors for inter-team

collaboration. Further quantitative research could be carried out into which factors impact teams' bricolage capabilities.

Talat & Riaz (2020) posited that team bricolage can be promoted formally through team member job and task descriptions. However, evidence from the interviewees suggested that a team's shared purpose might be more beneficial when it comes to team members partnering and overcoming adversity. Empirical testing of the impact of these two factors would clarify which of them has a more significant impact and would add value to managerial attempts to cultivate collaboration.

Critical thinking is vital to be able to manage complexity and overcome adversity. This research suggested that teams' critical thinking capabilities can be enhanced by fostering an inclusive mindset that considers diverse perspectives. Empirical testing of the influence of inclusive mindsets on a team's critical thinking capabilities would strengthen team managers' understanding of how to build this capability.

The findings from this research were derived from managers within South Africa. Reproduction of the research in a different context, or an empirical test of the framework presented in figure 6, would confirm or disprove the generalisability of the findings.

7.5 Conclusion
This study was conducted to explore the lived experiences of team managers in the supply chain when faced with adversity and after recovery. The literature guided the exploration of the phenomenon of team resilience, which was therefore firstly based on the interpretation of the supply chain as a complex adaptive system of teams. The second lens of interpretation applied by the researcher was the social-ecological definition of resilience, which refers to adaptation and transformation in the face of change. There is uncertainty about teams' resilience to unpredictability. However, team managers can cultivate social bonds to strengthen the team's critical thinking capabilities and bricolage. These antecedents can enable teams to grow unpredictably which increases their chances of overcoming adversity.

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APPENDICES

<u>Appendix 1: Interview guide</u>

Varun Misra

Supply chain team resilience: Interview guide

Interviewee pseudonym _____

Awareness
IQ 1: (A) What guides the focus of you and your team?
IQ (B) What would you say is your contribution in influencing the focus of the team?
IQ 2: How does external information enter the team and how do you facilitate this information flow in your team and amongst related teams?
IQ 3: How is external information assessed as relevant by the team and how do you and your team commonly define and agree on potential risks arising from external information?
IQ 4 (a): How do you establish and assess risk mitigation strategies with your team?
IQ 4 (b): How do you achieve team buy-in to this process?

Preparedness

IQ 5: How does your team identify other teams and stakeholders that are significant to its effective functioning, and what is your role in this process?

IQ 6: What is your role in strengthening the relationships and communication channels between your team and its network of interdependent teams?

IQ 7: What supports self-organisation amongst your team and interdependent teams when pursuing proactive strategies and recovering from disruption and how do you support this?

IQ 8: What contextual factors work against open and free interactions of your team within the network and how do you overcome these factors?

IQ 9: How do you deal with intra- and inter-team conflict and what has the result been?

Agility

IQ 10: How do you and your team restore business processes to normal function in situations of crisis?

IQ 11: What are the factors within your control, that positively influence your team's perceptions of their responsibility and ability to act autonomously when faced with adversity?

IQ 12: What are factors that deter your team from assuming responsibility and discourages their confidence in their ability to act autonomously?

IQ 13: How do your preserve the motivation and commitment of your team when you need to make an unpopular decision?

Appendix 2: Consistency matrix

Research questions	Literature review	Data collection tool	Analysis
RQ 1 - What are the ways in which managers improve their team's collective awareness?	**T1** Alertness and anticipation (Badhotiya et al., 2022; Li et al., 2017) (Naderpajouh et al., 2020) (Ozdemir et al., 2022) (Schoemaker & Day, 2021)	Semi-structured interviews	Thematic analysis of process attributes that impact the team's alertness and anticipation.
RQ 2 - What do managers do to support multilevel team and individual interactions?	**T2** Preparedness and resistance (Badhotiya et al., 2022; Li et al., 2017) (Chapman et al., 2020) (Chapman et al., 2021) (Han et al., 2020) (Hartwig et al., 2020) (Wieland & Durach, 2021) (Wieland, 2021)	Semi-structured interviews	Thematic analysis of managerial practices that impact the team's preparedness and resistance.
RQ 3 - What do managers do when leading their team through adversity?	**T3** Agility, response and recovery (Badhotiya et al., 2022; Li et al., 2017) (Pype et al., 2018) (Naderpajouh et al., 2020) (Uhl-Bien & Arena, 2017) (Zhao et al., 2019)	Semi-structured interviews	Thematic analysis of key considerations during decision making that impact the team's agility, response and recovery.

Appendix 3: Research concept map

Topic	The role of managers in the supply chain to promote the emergence of team resilience.
Problem	Increased levels of uncertainty and complexity in the supply chain necessitates the development and substance of team resilience
Primary research question	How do managers in the supply chain support the emergence of team resilience? Theoretical frameworks omit the process of creating resilience and sustaining dynamic interactions amongst teams and individual team members (Chapman et al., 2020; Hartwig et al., 2020).

Theme	Knowledge Gap	Research Question	Interview Questions
Processes Li et al (2017) **Alertness**	Ambidexterity balances exploitative and exploratory initiatives (Leemann et al., 2021). This ability better guides the teams' proactive resilience-building and innovative activities to ensure that the organisation's reactions to the disruption are well-prepared and informed (Chapman et al., 2021; Pettit et al., 2019). Team managers can promote knowledge sharing by effectively aligning teams to meet immediate demands and concurrently adapting to position themselves favourably to benefit from changes in the business environment (Liu et al., 2018). The difficulty in achieving this is outlined by Kuntz (2021), whereby the increase in job complexity increases work intensity and, in turn, reduces the team's cognitive. Ozdemir et al. (2022) advocate for further qualitative analysis into the success and failure stories of critical innovations undertaken and decisions taken in building resilient supply chains. However, the central antecedent to identifying these innovative undertakings is collective team awareness, which depends on information sharing (Shashi et al. (2020).	**RQ 1 - What are the ways in which managers improve their team's collective awareness?**	**IQ 1: (A)** How would you describe the orientation of the team you lead before and after Covid-19 **(B)** What would you say is your contribution in shaping the orientation of the team? **IQ 2:** How does external contextual information enter the team and how do you stimulate and moderate this information flow in your team and amongst related teams? **IQ 3:** How is this information assessed as relevant and relative by the team and what is your established mechanism of collectively framing the risk in your team? **IQ 4:** How do you guide the discussion to ensure that the countermeasures are derived, reviewed from multiple perspectives and achieves team buy-in?

Theme	Knowledge Gap	Research Question	Interview Questions
Managerial practices Li et al (2017) **Preparedness**	A team's ability to seize opportunities is the most influential factor in preparing the organisation for future disruptions (Badhotiya et al., 2022; Li et al., 2017; Ozdemir et al., 2022; Wieland, 2021). Building the team's social resources binds the capabilities and capacities, which is valuable in supporting the team's functionality in adversity (Chapman et al., 2021). Chapman et al. (2021) recognise the need to explore the emergence of team resilience where the stakes are low and adversities are less frequent and of a lower magnitude to understand further how managers prevent teams from slipping into the mundane. Ali & Gölgeci (2019) posit the need for more exploratory studies regarding management support in fostering team resilience. This sentiment is supported by Talat & Riaz (2020), who conclude that traditional management practices are insufficient to foster team resilience continuously.	**RQ 2 - What do managers do to support multilevel team and individual interactions?**	**IQ 5:** How does your team identify cross-team interdependencies and what is your role in fostering this mind-set and behaviour? **IQ 6:** What is your role in strengthening the relationships and communication channels between your team and its network of interdependent teams? **IQ 7:** What would you say are your mechanisms in the team you lead that encourage and support self-organisation amongst interdependent teams when pursuing proactive strategies and recovering from disruption? **IQ 8:** What contextual factors work against the fluid and dynamic interactions of your team within the network? How do you overcome these factors? **IQ 9:** What are your ways of fostering healthy and creative conflict amongst the team you lead and the network your team is embedded in?

Theme	Knowledge Gap	Research Question	Interview Questions
Decision-making behaviour Li et al (2017) **Agility**	Managers appreciate that their organisation and team function within a greater system and that the solution to adversity is subject to the internal context of the team and the external environment. This approach in team managers and their teams responding to adversity has immense potential for further exploration (Ali & Gölgeci, 2019). What is unknown is how conflicts and disruptions impact the professional well-being of teams and team members. It is potentially counterproductive to rational decision-making in specific contexts, especially when faced with pressure emanating from disruption (Pype et al., 2018). Seeking to understand how managers decide on responsive strategies to disruption in a manner that preserves the functionality of a complex adaptive system, the literature prompts further research into team managers' lived experiences of leading a team through adversity (Naderpajouh et al., 2020; Pype et al., 2018; Zhao et al., 2019).	**RQ 3 - What do managers do when leading their team through adversity?**	**IQ 10:** When faced with adversity, what is the responsibility felt by you and your team in order to stabilise the system? **IQ 11:** What are the contextual factors within your control, that support your team's perceptions of their responsibility and ability to act autonomously when faced with adversity? **IQ 12**: what are factors that deter your team from assuming responsibility and discourages their confidence in their ability to act autonomously? **IQ 13:** How do your preserve the motivation and commitment of your team when you need to make an unpopular decision?

Gordon Institute
of Business Science
University of Pretoria

Letter of informed consent

Dear Madam/Sir

My name is XXXXXX and I am currently a student at the University of Pretoria's Gordon Institute of Business Science and completing my research in partial fulfilment of an MBA. I am conducting research on the emergence of team resilience in uncertain and complex contexts. The purpose of the research is to understand how managers in the supply chain proactively prepare for and navigate through adversity.

I would greatly appreciate your time and willingness to participate in this study in the form of a semi-structured interview. The interview will be approximately 60 minutes. I request your permission to record the interview and transcribe our dialogue to capture the content of the interview and to be used in academic analysis. The interview will be kept strictly confidential and the source, individual or organisation will be stored without any identifiers. Your participation is voluntary, and you can withdraw at any time without penalty. Please note that all data used in the research report will be reported without any identifiers to ensure the confidentiality of the participants once the report is available in the public domain. On request, a copy of the research findings will be made available to you. With your permission and by signing below, you give your consent to participate.

If you have any concerns, please contact my supervisor or me. Our details are provided below.

	Researcher	Research Supervisor
Email	21819034@mygibs.co.za	
Phone		

Signature of participant: _____
Date: _____

Signature of researcher: _____
Date: _____

Appendix 5: Thematic map

Themes	Sub-theme code groups	Codes	Quotes
Communication Culture - Totals	**3 Sub-themes**	**11**	**68**
	Conducive communication spaces	6	32
	Easing access to information	2	13
	Evidence based discussion	3	23
Leadership rapport-building - Totals	**6 Sub-themes**	**16**	**94**
	Deterrents to autonomy	6	26
	Setting the tone	3	21
	Inspiring innovation	3	21
	Prioritising	2	13
	Maintaining fluidity	2	13
	Deterrents to autonomy	6	26
Learning and growth environment - Totals	**5 Sub-themes**	**22**	**94**
	Internal continuous learning	6	35
	Purposeful external business research	4	24
	Internal purposeful learning	5	24
	External continuous network learning	5	19
	Internal network learning	2	11
Systems thinking risk management approach - Totals	**3 Sub-themes**	**8**	**50**
	Inclusive mindset	5	30
	Efficient resource utilization	1	12
	Framing risks	2	8
Team cohesion and interaction - Totals	**4 Sub-themes**	**11**	**65**
	Shared purpose	4	24
	Creating a sense of certainty	3	16
	Collective planning	2	14
	Collective decision making	2	11

Themes	Sub-theme code groups	Codes	Quotes
Team structure characteristics - Totals	**8 Sub-themes**	**17**	**133**
	Awareness	3	48
	Empathy	3	33
	Clarity and monitoring	3	14
	Organisational justice	2	14
	Accessibility to other teams	4	13
	Autonomous preservation	2	11
Grand Total	26 Sub-themes	85 Codes	523 Quotes

Appendix 6: Code book

Themes	Sub-themes	Code	RQ	Quotes	Interviewee appearances
Communication Culture	**Conducive communication spaces**	○ Communication platform demonstrated by leadership	RQ 2	9	8
		○ Communication platform must be free of politics and based on trust to enable swift information sharing	RQ 1	4	4
		○ Communication with the relative stakeholders present	RQ 2	6	5
		○ establish informal work communication forums - WhatsApp	RQ 1	3	3
		○ Navigate uncertainty with clear communication and iterative alignment	RQ 3	6	5
		○ Communication flow through established channel	RQ 2	4	4
	Evidence based	○ Evidence and data based	RQ 3	13	8

Themes	Sub-themes	Code	RQ	Quotes	Interviewee appearances
	discussion	conversations			
		○ evidence based vetting of which partners to target	RQ 2	5	5
		○ Managements role to provide comfort with the use of evidence based discussions	RQ 1	5	4
	Easing access to information	○ Self organisation based on open communication and proactive information sharing	RQ 2	2	2
		○ Transparency and democratizing information	RQ 1	11	7
Leadership rapport-building	**Setting the tone**	○ Continous trust building	RQ 2	8	5
		○ Filtering out noise in information and focusing on key objectives renews energy	RQ 3	6	4
		○ leading by example	RQ 2	8	6
		○ referent power underpinned by trust which is	RQ 2	5	4

Themes	Sub-themes	Code	RQ	Quotes	Interviewee appearances
		grown daily			
	Deterrents to autonomy	○ Authoritative and transactional networks	RQ 2	7	3
		○ blame culture discourages team member autonomous working	RQ 2	2	2
		○ Hero leadership and micro management	RQ 2	3	3
		○ Personal characteristics and contexts	RQ 2	4	4
		○ pressure of the unknown and lack of clarity	RQ 2	3	2
		○ Hierarchy and unhealthy competition	RQ 2	7	5
	Inspiring innovation	○ Freedom and autonomy to be creative and impactful	RQ 1	10	8
		○ Innovation around the customer experience	RQ 1	2	1
		○ Leadership role to influence curiosity and forward thinking	RQ 1	9	8

Themes	Sub-themes	Code	RQ	Quotes	Interviewee appearances
	Maintaining fluidity	○ Leadership role in breaking down silo's and creating an interactive environment	RQ 2	8	5
		○ Leadership role in facilitating collective clarity in uncertain and disruptive times	RQ 3	5	5
Team structure characteristics	**Awareness**	○ empowered teams collectively sensing the environment	RQ 1	7	6
		○ Organisational alignment	RQ 1	8	7
		○ Shared understanding of internal business interdependencies	RQ 1	33	17
	Empathy	○ comfort within the structure to interact	RQ 2	21	12
		○ Intentionally connecting with team members emotionally	RQ 2	6	6
		○ When recovering from disruption exercise empathy for the personal	RQ 3	6	6

Themes	Sub-themes	Code	RQ	Quotes	Interviewee appearances
		challenges people face			
	Clarity and monitoring	○ Clear understanding of the structure	RQ 2	6	5
		○ KPI Focused functionality	RQ 2	6	5
		○ Structured end to end value chain monitoring	RQ 2	2	2
	Organisational justice	○ Accountability in the structure	RQ 2	7	5
		○ Preserving motivation with a clarity and fairness	RQ 3	7	7
	Accessibility to other teams	○ Flat system encouraging fluid communication	RQ 2	3	3
		○ In an operational settings the structure needs to allow for networking and partnering	RQ 2	3	3
		○ Leveraging external team leaders and their networks to expand your own teams network	RQ 2	2	2
		○ Stakeholder	RQ 2	5	5

Themes	Sub-themes	Code	RQ	Quotes	Interviewee appearances
		partnership to prepare and respond better to uncertainty			
	Autonomous preservation	○ healthy conflict resolution strengthens social cohesion	RQ 2	6	7
		○ Structure reinforced through informal communication	RQ 2	5	3
Systems thinking risk management approach	**Inclusive mindset**	○ Identifying the right people to interpret the information	RQ 3	10	6
		○ maintain neutrality when interpreting diverse perspectives	RQ 3	8	8
		○ Proactive followership	RQ 3	4	3
		○ Trust in capabilities of team connected teams	RQ 3	3	3
	Efficient resource utilisation	○ Balance potential risk impact with business action	RQ 3	12	6
		○ prioritising	RQ 3	7	7

Themes	Sub-themes	Code	RQ	Quotes	Interviewee appearances
		deliverables to balance resources			
	Framing risks	○ Communication about a risk is subject to the risk itself to prevent panic	RQ 3	2	2
		○ Diverse views and inputs	RQ 3	5	4
		○ Leveraging networks to better understand risks and approaches to risk	RQ 3	6	5
Team cohesion and interaction	Shared purpose	○ Business purpose embedded in the culture	RQ 2	6	6
		○ intrinsically motivated by a sense of duty and commitment to that duty	RQ 2	3	3
		○ Link between the role and the greater purpose of the business	RQ 2	10	8
		○ Proactive information sharing beyond formal reports to align on strategy motivated by	RQ 2	5	5

Themes	Sub-themes	Code	RQ	Quotes	Interviewee appearances
		purpose			
	Collective planning	○ Collaboration and brainstorming to create a strategy and identify stakeholders	RQ 2	2	2
		○ Collective scenario planning to decide on the best option	RQ 2	12	9
		○ Partnering relationship with stakeholders to be aware of business developments	RQ 2	6	6
	Creating a sense of certainty	○ Commonly defining the problem amongst the team	RQ 2	4	3
		○ Communication with the relative stakeholders present	RQ 2	6	5
		○ Senior leadership framing external information in terms of internal business impact	RQ 2	6	5
	Collective decision	○ Collective decision making	RQ 2	3	3

Themes	Sub-themes	Code	RQ	Quotes	Interviewee appearances
	making				
		○ transparency in the decision making process	RQ 2	8	8
Learning and growth environment	Internal continuous learning	○ Autonomy to deal with daily challenges to develop capabilities to navigate complexity	RQ 1	7	7
		○ emotional maturity to maintain healthy conflict	RQ 1	8	6
		○ empower team members to strengthen their confidence to act when faced with adversity	RQ 1	3	3
		○ Informal learning from mistakes balanced with open and timely corrective action	RQ 1	7	5
		○ Positive affirmation	RQ 1	3	3
		○ Social skills - The need to build and cultivate influential	RQ 1	7	6

Themes	Sub-themes	Code	RQ	Quotes	Interviewee appearances
		relationships			
	Purposeful external business research	○ be aware of signals in the business environment	RQ 1	7	6
		○ Deep understanding of the external environment to recover effectively	RQ 1	9	8
		○ draw a stakeholder map to identity important partners	RQ 1	3	3
		○ informally communicating about the general business environment	RQ 1	5	4
	Internal purposeful learning	○ coaching and feedback to develop social skills in junior team mates so they participate in discussions	RQ 1	2	2
		○ Continuous improvement and learning to build spring capacity	RQ 1	9	9
		○ Empower through mentorship	RQ 1	3	2

Themes	Sub-themes	Code	RQ	Quotes	Interviewee appearances
		○ learn from past adversity with constructive negative feedback	RQ 1	8	6
		○ preserving the human capital	RQ 1	2	1
	External continuous network learning	○ Actively getting the team invested in the customers business - Knowledge sharing	RQ 1	4	3
		○ area experts self networking to improve performance	RQ 1	2	2
		○ Informally maintaining partnerships in the network	RQ 1	7	5
	Internal network learning	○ Identifying the right people and supporting them	RQ 1	6	4
		○ Multilevel learning and growth	RQ 1	5	5

<u>Appendix 7: Summary of research findings compared to literature</u>

Category	Narrative
Contradicts literature	Based on the findings of this project, Hartmann et al.'s (2021) ideology of an emotional culture of joy to underpin team resilience is challenged in the face of adversity and uncertainty. Interviewees suggested that team clarity and awareness are more beneficial.
	Talat & Riaz (2020) posit formalising team bricolage through job descriptions. However, the insights from interviewees reveal that creating a shared purpose among team members is more beneficial.
Adds to literature	Ali & Gölgeci (2019), in their systematic review of 155 research articles, noted that only 0.6% of these articles explore the barriers to team collaboration. This study drew out managers' lived experiences of significant idiosyncrasies that curtail team autonomy.
	The involvement of team members in participative decision-making can reinvigorate employees' energy, according to (Salas-vallina et al., 2022). However, from the interviewee's experiences, in the absence of shared decision-making, management transparency in the decision-making process can also keep employees motivated in adversity. Furthermore, managers sharing the empathetic side of the decision-making process facilitates the team's collective understanding and acceptance of the decision.
	The researcher's literature review on this phenomenon did not reveal the importance of fairness and organisational justice in the team's resilience. However, from the data collected, organisational justice maintains the team's motive to identify and part-take in continuous improvement initiatives discretionally.
	Badhuri (2019) suggest that a transactional or a transformational leadership approach is appropriate for crisis recovery. However, the evidence from interviewees suggests a stronger preference for transformational leadership which brings the team together and keeps them connected whilst overcoming adversity.
	Chapman et al. (2021) and Naderpajouh et al. (2020) appreciate that seeking diverse perspectives enhances the team's problem-solving capabilities. In addition, the insights from this research suggest that team members' critical thinking capabilities are enhanced with an inclusive mindset.