



An exploration into the supply chain challenges facing automotive components manufacturers in the Brits and surrounding industrial areas

Thesis submitted in fulfilment of the requirements for the degree **Master of Business Administration** at The Independent Institute of Education (IIE/MSA).

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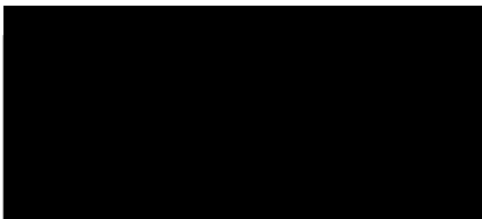
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30/09/2025

DECLARATION

I, Nndwakhulu Reuben Ramasunga, declare that this study, titled “An exploration into the supply chain challenges facing automotive components manufacturers in the Brits and surrounding industrial areas”, submitted for the Master of Business degree to The Independent Institute of Education is my own work and has not been previously submitted to another university or higher education institution for degree purposes. Any assistance that I have received has been duly acknowledged in the study.

Except where reference is made in the text, this study contains no materials published elsewhere or extracted in whole or in part from a thesis or study presented by me for another qualification. No other person’s work has been used without due acknowledgement in the main text of the study.



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ABSTRACT

Global unpredictable events – including the COVID-19 pandemic, the Russia–Ukraine conflict, and regional disruptions such as strikes and load-shedding – have intensified vulnerabilities in supply chains. Automotive component manufacturers (ACMs) in South Africa’s Brits industrial hub are particularly exposed, yet little research has examined their specific challenges. This study investigated how supply chain disruptions influence the organisational performance of ACMs.

A qualitative exploratory design was adopted, guided by the interpretivist paradigm. Seven senior managers, purposively selected from procurement and logistics departments across three ACMs, were interviewed, and data were analysed thematically.

Three themes emerged. First, internal and external uncertainties – such as machine breakdowns, IT failures, space constraints, port congestion, power shortages, and geopolitical conflicts – significantly disrupted operations. Second, supply chain challenges directly affected performance through rising costs, declining profitability, and reduced customer satisfaction, with participants highlighting cheap imports, theft, and volatile exchange rates. Third, difficulties in minimising disruptions were noted, with recommended strategies including backup power investment, staff training, supplier diversification, and safety stock. However, systemic issues such as crime, community unrest, and government inefficiencies have intensified risks.

This study extends the literature on supply chain resilience by identifying context-specific challenges in an emerging market. The study recommends agile management, greater supplier diversification, and integrated information systems to strengthen responsiveness and sustainability.

Key words: *Automotive Component Manufacturers, Organisational Performance, Supply Chain, Supply Chain Challenges, South Africa*

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LIST OF ABBREVIATIONS

ACM	Automotive component manufacturer
AIEC	Automotive Industry Export Council
APDP	Automotive Production and Development Programme
BMW	Bayerische Motoren Werke
COVID-19	Coronavirus disease
GDP	Gross domestic product
NAACAM	National Association of Automotive Component and Allied Manufacturers
NAAMSA	National Association of Automobile Manufacturers of South Africa
OEM	Original equipment manufacturer
RMI	Retail Motor Industry Organisation
SCM	Supply chain management
SMEs	Small and medium enterprises
VW	Volkswagen

CHAPTER ONE: INTRODUCTION

1.1 INTRODUCTION AND RESEARCH BACKGROUND

Modern supply chains operate in an increasingly turbulent environment shaped by unpredictable events – rare high-impact disruptions that are difficult to forecast (Taleb, 2010). Events such as the COVID-19 pandemic, natural disasters, and geopolitical conflicts have exposed vulnerabilities in global trade systems (Scott & Kvilhaug, 2023). The Russia–Ukraine War, for instance, disrupted access to semiconductors – critical for vehicle electronics – as more than 65% of the world’s neon gas used in semiconductor production originates from this region (Prievoznik & Strelcova, 2023). Shortages have had cascading effects on automotive supply chains, delaying production worldwide.

Disruptions manifest through production stoppages, port congestion, energy instability, rising fuel costs, and theft, eroding firms’ competitiveness and profitability (Weber, 2021). The automotive sector is particularly vulnerable because of its reliance on just-in-time practices and globalised supplier networks (Ikome, Laseinde, & Katumba, 2021). Original equipment manufacturers (OEMs) depend on automotive component manufacturers (ACMs) to supply specialised parts reliably. When ACM supply chains falter, OEMs face delays and escalating costs, highlighting the interdependence between these two groups.

This study investigates the supply chain challenges facing ACMs in Brits and surrounding industrial areas in South Africa and explores how these challenges influence organisational performance. By focusing on the intersection of global shocks and local systemic failures, the study aims to contribute to the body of knowledge on how ACMs in emerging economies can strengthen supply chain resilience.

The next section provides the research background and contextualises the South African automotive industry. The rationale and significance of undertaking this study, the research problem, objectives, and research questions are also unpacked. A brief overview of the study’s methodology and an outline of the dissertation’s chapters are also provided.

The concept of supply chain management (SCM) pertains to managing the flow of goods and services, transforming raw materials into finished products, and ensuring their timely delivery to end consumers (Fernando, James, & Eichler, 2024). As businesses operate in a difficult environment that requires flexibility to respond to changes (such as unplanned events, categorised as unpredictable events), they need to prioritise supply chain activities to optimise customer value and gain a competitive advantage in the marketplace (Scott & Kvilhaug, 2023). Unpredictable events are events that have potentially severe consequences (Scott & Kvilhaug, 2023). Unpredictable events, at times known as “black swan” events – such as natural disasters, the COVID-19 pandemic, conflict, and wars – have a severe impact on supply chain processes; for instance, the war between Russia and Ukraine has resulted in shortages of semiconductors. This has had a significant impact on supply chain activities as more than 65% of the neon used in the production of semiconductors comes from Russia (Prievoznik & Strelcova, 2023). Businesses place a reasonable focus on the future of the supply chain as they realise that they are operating in a globalised environment, with a need to expand their e-commerce capacity and adopt new technological advancements (Neboh, Nkeleme, & Winston, 2023).

The automotive industry plays an important role in the economy of South Africa; however, ACMS are facing many challenges, which include rapid technological advancements and innovations, increasing pressure to improve productivity to survive in the global marketplace, the challenge to reduce production costs without compromising quality, changing customer preferences, intensified competition in the global market, and the unreliability of rail transport (Ikome, Laseinde, & Katumba, 2021). As a result, OEMs and ACMS struggle to receive many of their part requirements at the right place and time, which affects the organisation’s overall performance (Ikome, Laseinde, & Katumba, 2021). The new geopolitical context resulting from the Russia–Ukraine War underscores the need for structured approaches and flexible strategies to support the reconfiguration of the supply chain in case of unpredictable events (Srai, Graham, Van Hoek, Joglekar, & Lorentz, 2023).

The automotive supply chain process mainly consists of small and medium enterprises (SMEs) that play a significant role in South Africa’s economic activities. As some

locally manufactured vehicles are destined for the export market, component manufacturers are forced to prioritise maintaining global competitiveness (Gonyora, Migiyo, Ngwenya, & Mashau, 2021). The South African automotive industry comprises 22 companies involved in the production of cars and commercial vehicles. From these 22, there are seven major vehicle manufacturers and several assemblers of medium and heavy commercial vehicles (InvestSA, 2024). Approximately 500 ACMs and 21 companies are involved in the import and distribution of new motor vehicles. The value chain is primarily driven by seven OEMs, namely BMW, Ford, Isuzu, Mercedes-Benz, Nissan, Toyota, and Volkswagen, with these companies making a significant contribution to the economies of the Gauteng, Eastern Cape, and KwaZulu-Natal provinces of South Africa (InvestSA, 2024).

South Africa is ranked as the 24th biggest vehicle manufacturer globally, accounting for more than two-thirds of vehicles manufactured in Africa. The Automotive Production and Development Programme (APDP) and the South African Automotive Masterplan (SAAM) 2035 provide guidelines for the industry's direction (Department of Trade, Industry and Competition, 2018). A well-developed SAAM contributes to the attractiveness and competitiveness of the local industry by offering support and incentives to OEMs and ACMs (InvestSA, 2024). However, the sector is facing various challenges that threaten its stability and survival as it is still trying to recover from the impact of the COVID-19 pandemic, which led to many companies experiencing production delays and financial and operational pressures. This was further exacerbated by the rapid increase of cheap imported components that have flooded the local market (Gonyora et al., 2021). Daniels (2023) argues that South Africa will experience an increase in maritime traffic as there is an ongoing crisis in the Southern Red Sea and the Gulf of Aden, as Iran-backed rebels continue to fire missiles and drones at vessels transporting imported goods from Asia and Europe. As these factors affect the overall sales performance of component manufacturers and extensively influence the entire automotive supply chain in South Africa, organisations operating in Brits and surrounding industrial areas are not exempt (Gonyora et al., 2021).

In Brits and surrounding industrial areas, companies manufacturing automotive components are also experiencing similar supply chain trends affecting their performance (Ebrahim, 2023). Supply chain issues affecting ACMs that manufacture

finished parts or products for OEMs in Brits and surrounding industrial areas include macro-environmental factors such as government regulations, which have a ripple effect on micro-environmental factors, for example, supplier networks (Wolhuter, 2022). Globally, supply chain disruptions have lasted longer than anticipated, hindering the recovery of economic activities and further exacerbating inflation due to the ongoing mismatch between demand and supply (Wolhuter, 2022).

Supply chain disruptions refer to unplanned and unanticipated events that disrupt the normal flow of goods and materials (Weber, 2021). These interruptions occur when suppliers fail to supply components to their customers for various reasons, which include but are not limited to energy shortages, transportation issues, skill shortages, communication infrastructure challenges, and unrest. During the COVID-19 pandemic, businesses struggled to deliver to their customers on time, owing to operational disruptions, resulting in lost potential sales revenue and customer dissatisfaction (Carroll, 2022).

The supply chain disruptions faced recently by organisations in the country have proven that traditional and historical supply chain processes are insufficient in contending with a constantly changing environment and new challenges. For example, a Bridgestone tyre-manufacturing plant confirmed that they were operating in a challenging business environment worsened by cheap imports and load-shedding, which made doing business unsustainable in areas such as Brits and surrounding industrial areas. This has made it difficult for companies to remain competitive in the current environment where ACMs are competing to deliver the right product at the right time (Ebrahim, 2023).

Various other chaotic disruptions have had an impact on supply chains in recent years, such as the blockage in the Suez Canal, the Russia–Ukraine War, and riots and unrest in various parts of the country (e.g. the riots and looting that took place in Durban, which saw warehouses being set on fire, leading to businesses facing backlogs and delay issues in the Port of Durban [Schoemaker, 2023]). Thus, this research study explored the supply chain challenges facing ACMs and the influence of these challenges on organisational performance in Brits and surrounding industrial areas.

South Africa is ranked 24th globally in vehicle production and plays a pivotal role in Africa's automotive sector (InvestSA, 2024). The industry is dominated by seven OEMs – BMW, Ford, Toyota, Volkswagen, Mercedes-Benz, Isuzu, and Nissan – and supported by approximately 500 ACMs, most of which are SMEs (InvestSA, 2024). Automotive component manufacturers are therefore integral to sustaining the industry's competitiveness and ensuring that OEMs can deliver both domestically and internationally.

Despite this importance, ACMs face mounting challenges. These problems include cheap imported components flooding the market, volatile exchange rates, rising input costs, infrastructural breakdowns, and load-shedding (Ebrahim, 2023; Gonyora et al., 2021). Geopolitical conflicts such as the Russia–Ukraine war and the Red Sea crisis exacerbate these challenges by disrupting global trade flows and increasing transport costs (Daniels, 2023). Collectively, these pressures undermine ACMs' ability to deliver consistently and competitively.

The Brits industrial hub is one of South Africa's key automotive manufacturing clusters, supplying critical components to OEMs. However, ACMs in Brits and surrounding industrial areas contend with both global and local disruptions. At the local level, this takes the form of strikes, community protests that block transport routes, freight hijacking, theft, and government inefficiencies in infrastructure provision (Wolhuter, 2022; Schoemaker, 2023). Combined with global pressures, these issues reveal the fragility of ACMs' supply chains.

Traditional supply chain processes have proven insufficient in this volatile environment. Automotive component manufacturers in Brits report difficulties maintaining reliability and competitiveness, as disruptions regularly cause production stoppages and delivery failures (Ebrahim, 2023). Against this backdrop, this study explores the supply chain challenges facing ACMs in Brits and assesses their implications for organisational performance.

1.2 PROBLEM STATEMENT

The South African automotive industry is experiencing mounting pressures that threaten supply chain stability and competitiveness. At the macro-level, firms contend with demand saturation, shifting customer preferences, intense global competition,

reduced profit margins, and rapid technological advancements (Naude & O'Neil, 2011). In addition, infrastructural inefficiencies, such as unreliable rail transport and high port costs, further erode competitiveness (Ikome, Laseinde, & Katumba, 2021). Recent unpredictable events – including the COVID-19 pandemic, the Russia–Ukraine War, and the Red Sea crisis (where Yemen Houthis have targeted cargo vessels in one of the world's busiest waterways) – have amplified these vulnerabilities by disrupting global logistics and inflating costs (Abdel-Razek, 2024).

From a supply chain perspective, the challenges facing the industry can be categorised into macro- and micro-environmental factors (Naude & O'Neil, 2011). Macro-level challenges include compliance with global safety standards, geopolitical shocks, and rising energy costs, whereas micro-level challenges encompass supplier network constraints, labour costs, strikes, theft, and inefficiencies in production systems (Wolhuter, 2022). For ACMs in Brits and surrounding industrial areas, these factors are particularly disruptive. For example, an unreliable power supply, load-shedding, and escalating electricity costs increase operational expenses and force production stoppages, limiting the ability of ACMs to compete internationally (Unterwegs International, 2023).

The automotive supply chain is highly complex: each vehicle comprises between 15 000 and 25 000 components, sourced globally and requiring precision in delivery and coordination (Logistics Business, 2024). When supply chain processes are disrupted – whether by material shortages, port congestion, or localised strikes – operational efficiency declines, leading to delays, higher costs, and reputational risks (Venter, 2023). In this way, supply chain challenges influence not only immediate operations but also the overall organisational performance of ACMs.

Despite the centrality of ACMs to South Africa's automotive sector, limited research has examined how global shocks and local systemic failures intersect to disrupt their supply chain processes and, in turn, influence organisational performance. Most existing studies highlight broad industry challenges but do not provide in-depth context-specific insights into ACMs operating in hubs like Brits. This study therefore addresses this gap by exploring the lived experiences of supply chain and logistics managers in ACMs located in Brits and surrounding industrial areas. By focusing on how supply chain challenges disrupt processes and cascade into organisational

performance outcomes, the study provides empirical evidence to guide both practice and policy in strengthening supply chain resilience.

1.3 RATIONALE

1.3.1 Rationale

Supply chain management is one of the main functions that businesses must manage effectively to succeed in the automotive industry, which significantly affects their overall performance; this has become even more crucial as businesses operate in increasingly uncertain environments (Daniels, 2023). Today's business environment is characterised by factors such as government trade policies and developments across the globe; for example, the war between Russia and Ukraine has resulted in a shortage of semiconductors as the majority of these products come from the Russia and Ukraine region. The rebels attacking cargo ships in the Red Sea interrupt operations and thus create shortages of components being exported and imported (Daniels, 2023). The supply chain process is at the core of the automotive industry's success, as effective management of the supply chain can reduce excess costs and aid in the faster and more efficient delivery of products and goods to customers (Fernando et al., 2024).

With global geopolitical tensions escalating and challenging global economic stability, the automotive industry is under pressure due to microchip shortages, devastating logistics capacities, and energy challenges (Habisch, Gottert, & Muller, 2022). Automotive component manufacturers operating in Brits and surrounding industrial areas have not been exempt from suffering various global supply chain-related challenges, such as the shortage of microchips/semiconductors in the 2019 and 2023 period (Furlonger, 2022).

The automotive industry is one of the most global industries, producing products around the world, although this is dominated by small companies that enjoy worldwide recognition. The industry comprises the world's largest manufacturing sector, with an output equivalent to the world's sixth-largest economy. The industry is a key aspect in advanced industrial nations, and its significance is increasing in emerging economies (Ambe & Badenhorst-Weiss, 2011).

In South Africa, the automotive industry is represented by various associations in manufacturing and retail, namely the National Association of Automobile Manufacturers of South Africa (NAAMSA), the National Association of Automotive Component and Allied Manufacturers (NAACAM), the Retail Motor Industry Organisation (RMI), and the Automotive Industry Export Council (AIEC) (Taiwan Trade Centre, 2016). In addition, NAACAM represents the interests of ACMs in the country and is nationally and internationally recognised as the spokesperson of South Africa's component manufacturers (Taiwan Trade Centre, 2016).

The automotive industry encompasses the entire supply chain of the automotive manufacturing process, from the research and design of all components required in the assembly process to manufacturing, logistics, and sales (Quanson, 2021).

Geopolitical developments, over which automotive manufacturers have no control, can cause disruptions in the flow of goods and materials. For instance, conflicts and tensions between countries can affect trade and tariffs on materials such as steel and aluminium, thereby increasing manufacturing costs (Logistics Business, 2024). In addition to geopolitical developments, unpredictable events can also contribute to production and supply issues for the industry, such as wildfires, disasters, earthquakes, or wars, all of which are unpredictable. As a result, this can affect transport networks, causing supply chain disruptions. These knock-on effects result in production delays and supply shortages (Logistics Business, 2024).

North West's manufacturing sector centres on the municipalities of Brits, Rustenburg, Potchefstroom, Klerksdorp, and Mahikeng, which account for more than 50% of the province's total manufacturing production. The industries in Brits concentrate on manufacturing and construction. In the manufacturing sector, automotive parts, machinery, and electronic, audio and medical equipment are manufactured using local materials and resources (InfoSA, 2024). Brits and surrounding industrial areas play a significant role in South Africa's automotive industry. Automotive component manufacturers in Brits and industrial surrounding areas such as Lanseria are strategically closer to Pretoria Rosslyn, where various OEMs such as BMW and Nissan are located, running up to the eastern side of Pretoria where Ford is located. These manufacturers supply OEMs efficiently through reducing the distance between themselves and their major customers (InfoSA, 2024).

The Brits industrial areas are surrounded by other industrial sites, such as Lanseria and Rosslyn, which also play an important role in manufacturing automotive components. Nestled in the heart of South Africa, Lanseria has evolved into a thriving commercial and industrial hub, offering businesses an ideal location for their office space needs (Anvil Property, 2024).

Reviewing the literature on the supply chain challenges facing ACMs highlights the fact that the supply chain is a key element influencing the automotive industry's competitiveness. However, the automotive industry, specifically component manufacturers, encounters numerous challenges (Ikome et al., 2022). Global supply chains were disrupted by the COVID-19 pandemic, which led to a national lockdown and port closures in many countries; as a result, there was limited movement of goods. Cargo did not arrive on time, which led to manufacturing companies failing to meet their production schedules due to a lack of components needed to assemble complete products. This forced companies to implement short-time work, which is a temporary reduction of working hours (Wolhuter, 2022).

Increasing operational complexities in the South African automotive industry, characterised by rising fuel prices, higher workforce costs owing to higher living costs, and an adverse economic climate, have led to a reduction in operations; other businesses have had to close down, resulting in job losses (Naude & Badenhorst-Weiss, 2011).

In addition, the literature suggests that South Africa, as a key player in the automotive industry, relies on efficient port management to facilitate the import and export of vehicles. Unfortunately, poor port management creates a bottleneck, causing delays and increased costs, thus affecting the industry as a whole (Unterwegs International, 2023). The Port of Durban experienced congestion and delays, disrupting supply chains and creating a ripple effect throughout the automotive manufacturing sector (Unterwegs International, 2023).

The supply chain is essential to overall organisational performance. Companies with well-managed supply chain processes can more easily maintain and control production, distribution, sales, and internal and vendor inventories, thereby reducing costs and eliminating unnecessary steps so as to deliver products to consumers on

time (Fernando et al., 2024). This highlights the importance of having good supply chain management (SCM) systems for ACMs in the Brits industrial region.

Consequently, a failure to understand ACMs' supply chain-related challenges could threaten organisational performance.

1.4 SIGNIFICANCE OF THE STUDY

Automotive component manufacturers face ongoing supply chain disruptions that hinder their ability to secure raw materials and sustain production, with significant implications for profitability and competitiveness (Andriatomanga, Bolhuis, & Hakobyan, 2023). Recent global shocks, such as semiconductor shortages linked to the Russia–Ukraine War and attacks on trade routes in the Red Sea, underscore the vulnerability of supply chains to black swan events (Scott & Kvilhaug, 2023; Venter, 2023). These disruptions have affected the global automotive sector, but their impact is particularly acute in South Africa, where ACMs are heavily reliant on imported inputs (Martin, 2022).

This study is significant because it directly investigates how supply chain challenges influence organisational performance among ACMs in Brits and surrounding industrial areas, which is a key automotive hub in South Africa. By examining both external and internal factors, the research provides context-specific insights into the realities facing ACMs, which are often underrepresented in global supply chain literature.

In addition to expanding academic knowledge, the study offers practical value. The findings provide recommendations for ACMs to adapt more agile supply chain strategies, innovate operational processes, and mitigate risks associated with both global and local disruptions. Furthermore, the study highlights how supply chain innovation has become a critical source of competitive advantage in the automotive sector (Agigi, Mocke, Carrim, & Keen, 2020).

Ultimately, this research contributes to the broader discourse on supply chain resilience by bridging the gap between global disruptions and their localised effects on ACMs in South Africa. In so doing, this equips both scholars and practitioners with insights to better anticipate, manage, and respond to supply chain challenges in volatile environments.

1.5 RESEARCH AIM/PURPOSE STATEMENT

The purpose of the research is to explore the influence of supply chain challenges on the organisational performance of ACMs in Brits and surrounding industrial areas. The study aims to identify these challenges and understand how they influence the organisational performance of the ACMs. In addition, the study seeks to determine how ACMs can effectively manage supply chain processes to minimise the impact on organisational performance.

1.6 RESEARCH QUESTIONS

1. What macro- and micro-environmental supply chain challenges are automotive component manufacturers (ACMs) in Brits and surrounding industrial areas facing?
2. How have supply chain challenges influenced the overall performance of the organisation?
3. How can ACMs effectively manage supply chain challenges to minimise the impact on organisational performance?

1.7 RESEARCH OBJECTIVES

1. To understand the macro- and micro-environmental-related supply chain challenges facing automotive component manufacturers (ACMs) operating in Brits and surrounding industrial areas.
2. To explore the extent to which supply chain challenges influence overall organisational performance.
3. To understand how to better manage supply chain challenges to minimise the impact on organisational performance.

1.8 RESEARCH METHODOLOGY

A research methodology is a way of systematically solving the research problem (Patel, 2019). The research design refers to the overall strategy chosen to integrate the study's components into a coherent and logical way of addressing the research problem (Maleka, 2016). This study used a qualitative and exploratory approach, as

the aim was to gain a broad understanding of the supply chain challenges affecting ACMS and to identify recurring themes and patterns in the findings.

1.8.1 Research philosophy

The research philosophy that guided the study was interpretivism. Nickerson (2024) argues that interpretivism is a social science paradigm which posits that reality is subjective as it is based on individual experiences.

1.8.2 Research approach to theory development

A deductive approach to theory development was used in this research. This ensured that the analysis remained focused on exploring and confirming the macro- and micro-environmental supply chain challenges facing ACMS and the influence this has on organisational performance, while also allowing for new information to emerge that may not have been reported on in the literature.

1.8.3 Methodological choice

A qualitative research methodology was employed to explore participants' subjective experiences of the phenomenon being investigated. An in-depth analysis was conducted on the participants' experiences.

1.8.4 Research strategy

This study adopted a qualitative research approach, using interviews to gather and explore participants' experiences of working in a supply chain environment in the automotive industry.

1.8.5 Data collection

The research population consisted of senior supply chain and logistics professionals and managers working in the automotive industry. Data were collected from senior managers working in three different ACMS in Brits and surrounding industrial areas through face-to-face and online interviews.

1.8.6 Data analysis

The data collected in the semi-structured interviews were analysed using a deductive thematic analysis, guided by predefined questions and concepts.

The research design and methodology are discussed in detail in Chapter 3.

1.9 SCOPE OF THE STUDY

The scope of the study encompassed senior supply chain and logistics professionals and managers working for ACMs operating in Brits and surrounding industrial areas at the time of the study. The study objectives were to understand the macro- and micro-environmental-related supply chain challenges facing ACMs operating in Brits and surrounding industrial areas, with a view to exploring the extent to which supply chain challenges influence overall organisational performance and understanding how to manage supply chain challenges to minimise the impact on organisational performance. In order to do so, the study focused on the views of senior supply chain and logistics professionals and managers working in ACMs. The geographical scope limitation is that the study focused only on Brits and surrounding industrial areas.

1.10 ETHICAL CONSIDERATIONS

Ethical clearance to conduct the study was obtained from the Postgraduate and Research Division at The IIE, as per Annexure 2 (IIE ethical clearance letter). The researcher gave the participants an informed consent form, as per Annexure H (a) (participant or respondent consent form), before the interviews commenced. The consent form informed the participants about the purpose of the study, the length of the requested interview, details of what would be required from them, and how the data collected would be used. The consent form further informed the participants that their responses would be kept anonymous and that their personal information would be kept confidential to protect their identities.

The researcher asked participants for permission to record the interviews so that transcripts could be made, as per Annexure H (b) (audio or video recording consent form). The interview data consisted of an audio recording for in-person meetings and a video recording of the interviews conducted online via Microsoft Teams. The

participants provided informed consent regarding their confidentiality and the storage of the interview recordings.

Participants were asked about the supply chain challenges facing ACMs in Brits and surrounding industrial areas. No vulnerable groups were interviewed, and no sensitive topics were covered; as a result, no significant ethical risks were identified.

The ethical considerations are covered in more detail in Chapter 3.

1.11 DEFINITIONS OF KEY CONCEPTS

The following provides an overview of the key concepts used in the study.

Automotive component manufacturers: ACMs are companies that manufacture and supply components to OEMs (Ikome et al., 2021).

Supply chain management: SCM refers to managing the flow of goods and services that involves converting raw materials into finished goods (Ikome et al., 2021).

Automotive Production and Development Programme: The APDP refers to the production incentive scheme that intends to promote the production of high volumes of products to create more jobs in the automotive value chain (InvestSA, 2024).

Original equipment manufacturers: OEMs produce vehicle components and parts identical to the parts used in the production of vehicles (InvestSA, 2024).

Businesses are classified as small and medium enterprises: SMEs are classified based on their revenue or the number of employees they employ (Ikome et al., 2021).

Coronavirus disease: COVID-19 is an infectious disease caused by the SARS-COV-2 virus (Scott & Kvilhaug, 2023).

Gross domestic product: GDP refers to a country's total annual value of goods produced and services provided (Shaw, 2023).

Bayerische Motoren Werke: BMW is a world-leading German provider of premium cars and motorcycles (BMW.com, 2019).

Volkswagen: VW is a German automobile manufacturer headquartered in Wolfsburg (Volkswagen Group, 2024).

National Association of Automobile Manufacturers of South Africa: NAAMSA is an automotive business council that exists to contribute directly to the sustainable development of the country's productive economy (Taiwan Trade Centre, 2016).

National Association of Automotive Component and Allied Manufacturers: NAACAM is a member organisation recognised as the voice of the South African automotive component industry (Taiwan Trade Centre, 2016).

Retail Motor Industry Organisation: RMI is a proactive retail and associated motor industry organisation that is recognised as a leading voice in South Africa's automobile aftermarket (Taiwan Trade Centre, 2016).

Automotive Industry Export Council: The AIEC is an umbrella body for the South African automotive industry's export promotion and development activities. It was established in 1999 to provide an effective link between the industry and the Department of Trade, Industry and Competition (Taiwan Trade Centre, 2016).

1.12 CHAPTER OUTLINE

The chapters of this thesis are outlined below.

Chapter 1 introduces the research problem and explains the rationale and significance of the study while outlining its purpose and objectives. The chapter further provides a brief overview of the research design and methodology used, ethical considerations, and definitions of key concepts. It concludes with a brief chapter outline.

Chapter 2 presents the literature review. It discusses the automotive industry in South Africa, placing supply chain challenges in a broader context by exploring both internal and external industry challenges and their impact on overall organisational performance. After exploring the topic, the Agarwal supply chain model is discussed as the guiding framework for the study. The chapter concludes with an overview of similar studies previously conducted.

Chapter 3 discusses the research design, methodology, philosophy, and strategy, and the data collection and analysis techniques used.

Chapter 4 presents the analysis and interpretation of the data collected from the semi-structured interviews. The findings are discussed in comparison to previous research theories.

Chapter 5 starts with a general overview of the research before summarising the empirical findings. Conclusions and recommendations are then provided based on the analysis of the findings. The chapter concludes with the study's contributions and limitations, and offers suggestions for future research.

1.13 CONCLUSION

This chapter introduced the research topic and the study problem, and explained the rationale and significance of the study, its purpose, and its objectives. The chapter further provided a brief overview of the research design, methodology, ethical considerations, and definitions of key concepts, concluding with a brief chapter outline.

Chapter 2 presents an overview of the relevant literature and the theoretical framework that guided this study.

CHAPTER TWO: LITERATURE REVIEW

Chapter 1 provided an introduction and background to the study, with specific reference to the supply chain challenges facing the ACMs in Brits and surrounding industrial areas. The chapter presented the research problem, explained the rationale and significance of the study, and stated the purpose and the research objectives. Moreover, the chapter provided an overview of the research design and methodology, the scope of the study, ethical considerations, and definitions of key concepts.

Chapter 2 elaborates on the introduction and background of supply chain challenges facing ACMs in Brits and surrounding industrial areas by contextualising and defining the internal and external environmental challenges. These challenges are also referred to micro- and macro-environmental challenges. Supply chain-related challenges are further discussed in a broader context, and terms such as “unpredictable events” are covered, engaging in how worldwide events could influence ACMs’ operations in South Africa. The study’s theoretical framework used the agile supply chain model by Agarwal, Shankar, and Tiwari (2006); other models, such as the Stevens (1989) model, are reviewed.

2.1 SUPPLY CHAIN MANAGEMENT DEFINITION

Supply chain management monitors and optimises production and distribution to enhance efficiency and value through coordinating various processes, from raw materials to the finished product, while aiming to reduce waste, maximise customer satisfaction, and secure a competitive edge (Fernando, 2025). Larson and Rogers (2015) define SCM as the effort to produce and deliver a final product from the supplier to the customer.

The supply chain manager’s role is not only about traditional logistics and purchasing; they also have to find ways to increase efficiency and keep costs low while avoiding shortages and preparing contingencies for unexpected challenges (Fernando et al., 2024). Fernando et al. (2024) indicate that SCM has five phases: (1) *Planning* involves the process of matching supply with customers’ and manufacturing demands by predicting future needs; (2) *Sourcing* entails working with vendors to supply the materials needed throughout the manufacturing process, with sourcing requirements differing depending on different industries; (3) *Manufacturing* entails subtasks that

include assembly, testing, inspection, and packaging; (4) *Delivery* entails using good delivery channels to get products to the end customer; (5) *Returns* entails the process of reverse logistics, which is a valuable form of feedback that helps the company to identify defective products.

2.2 INTRODUCTION AND BACKGROUND OF SUPPLY CHAIN-RELATED CHALLENGES FACING ACMs

The following section defines and conceptualises macro- and micro-environmental challenges, unpredictable events, and supply chain disruptions.

2.2.1 Key micro- and macro-challenges affecting supply chain management in SA

2.2.1.1 *Micro-environment*

Khartit and Rathburn (2023) argue that the micro-environment refers to the factors in a company that affect its ability to do business. These factors are specific to a company and can influence both its operation and management's ability to meet the business goals (Bush, 2019). Agarwal (2023) indicates that it is important for businesses to focus on understanding the micro-environmental factors to identify opportunities, conduct risk assessments, and develop strategies. Furthermore, Agarwal (2023) indicates that the micro-environment is made up of various components, namely:

1. **Customers:** Businesses need to understand their customers' demographics and purchasing power, as customers are at the centre of the business.
2. **Suppliers:** Businesses should consider supplier reliability, pricing, and flexibility, as suppliers form part of the immediate business.
3. **Intermediaries:** These are the wholesalers, distributors, and logistics functions that are important for the distribution of products.
4. **The public:** Individuals, the government, and the media can have an impact on the operational performance of the business.
5. **Financial institutions:** These form part of the immediate business environment and provide support for resources through financing; for example, interest rate increases affect businesses.

6. Employees: Employees' skills, knowledge, and commitment directly influence organisational performance; therefore, businesses must invest in employee training.
7. Stakeholders: These are the individuals or groups with common interests in the activities of the business.

Shaw (2023) suggests that the common micro-environmental issues facing ACMs in Brits and surrounding industrial areas are the influx of cheaper imported components dumped on the market, resulting in increased competition among local manufacturers and high interest rates, which increase operational costs, thus affecting overall organisational performance.

2.2.1.2 Macro-environment

The macro-environment refers to external factors beyond the business's control that significantly affect its performance, strategies, and operations (Agarwal, 2023).

Quanson (2021) argues that various macro-environmental factors influence the automotive industry. These factors are commonly known as PESTEL: political, economic, sociocultural, technological, environmental, and legal.

1. Political factors consist of laws and legislation within which businesses operate, such as strict safety regulations in the automotive industry and emissions requirements imposed by politicians.
2. Economic factors are divided into macro- and micro-environmental factors, such as high living costs, unemployment rates, and decreasing disposable income. This results in consumers being unable to afford new cars, thus leading to decreased car sales, which affects ACMs' production orders.
3. Sociocultural factors consist of societal attitudes, norms, and trends. For instance, South Africa, as a developing country, is still in the process of ensuring accessible and reliable public transport for the vast majority of the population. Many of the working class resort to buying cars, and therefore ownership of cars in the country is a sociocultural element that affects ACMs because their production is influenced by demand for orders from OEMs.
4. Technological factors refer to adopting new technologies and standards, such as hybrid vehicles and improved global safety standards, which can have an

impact on local ACMS because they may be required to change their assembly lines, often at considerable cost, to align with OEM specifications.

5. Legal factors refer to the laws and legislation put in place by the government that businesses need to adhere to, such as compliance-related issues. For instance, car manufacturers must comply with the safety requirements of the International Organization for Standardization (ISO), which challenge ACMS to increase their focus on quality and safety checks.
6. Environmental factors concern the sustainability of the planet and regulations intended to manage climate change. For instance, the automotive industry is challenged to reduce emissions, thus reducing pollution. This creates a challenge for ACMS as they are expected to play their part in reducing emissions and ensuring that their components are within the OEMs' specifications.

The most prevalent macro-economic factors affecting South Africa's automotive industry's performance are inflation, currency, and interest rates (Moodley, 2023). In addition, Prievoznik and Strelcova (2023) argue that political factors affect South African ACMS. For instance, the war between Russia and Ukraine has led to shortages of semiconductors, which has interrupted production in several countries, including South Africa.

2.2.1.3 Unpredictable events

Unpredictable events refer to a phrase commonly used in the modern day to describe extremely adverse events or occurrences that are difficult to predict (Scott & Kvilhaug, 2023). There are various types of unpredictable events, including financial crises, pandemics, and wars. Unpredictable events may result in supply chain disruptions that could cause businesses to suffer financial losses (Loo & Schmidt, 2024).

2.3 OVERVIEW OF ACMS IN THE BRITS INDUSTRIAL SITE REGION

Automotive component manufacturers are the companies that manufacture the products used as inputs to the production of complex automobiles (Kagan, Khartit, & Kvilhaug, 2023). According to the Tshwane Economic Development Agency (TEDA, 2023), the automotive industry is one of the most important sectors in the South African economy, accounting for 30.1% of its manufacturing output and 6.9% of its GDP.

South Africa has seven vehicle manufacturers (OEMs): BMW, Mercedes-Benz, Volkswagen, Toyota, Ford, Iveco, and Nissan (TEDA, 2023). Various ACMs operate in Brits and surrounding industrial areas that supply vehicle manufacturers (i.e. the OEMs) with different finished components needed in the production of vehicles, thus creating employment in the region (Shaw, 2023). The ACMs operating in Brits and surrounding industrial areas are not in direct competition, as they manufacture and supply different components.

2.4 IMPORTANCE OF SUPPLY CHAIN EFFICIENCY

Supply chain efficiency refers to the ability of a company to effectively use its resources to produce and deliver goods to the right place, at the right time, for the lowest possible cost (Jenkins, 2022). Jenkins (2022) suggests that supply chain efficiency is a key part of any business's overall SCM as it saves the company money while keeping customers satisfied, enabling businesses to maximise profit. Taulia (2021) argues that supply chain efficiency refers to the optimal use of financial and technological resources. An efficient supply chain may feature reduced operational costs, lower lead times, and less time spent on management compared to an inefficient one. Thus, a supply chain is a complex combination of activities involved in producing and supplying goods and services to customers (Taulia, 2021).

Supply chain management is at the core of a business; as a result, businesses should ensure that they manage the impact that their supply chain operations have on the planet and society by focusing on strategic sourcing. This encourages the procurement of raw materials and components from suppliers that play their part in reducing harmful emissions throughout their supply chain; this enables waste reduction in various production stages, thus enabling efficiency in the supply chain, for instance, by promoting various clean energy initiatives (Biela-Weyenberg, 2023).

Guided by ISO standards, ACMs operating in Brits and surrounding industrial areas are promoting and implementing sustainable procurement initiatives that will enable environmental, social, and economic benefits for various stakeholders in the supply chain (Bridgestone, 2022).

Various factors influence supply chain efficiency: (1) *Environmental uncertainty* affects production schedules, quality, reliability, and customer satisfaction; (2) *Information*

technology affects SCM as real-time data analysis and optimisation constantly change; (3) *Supply chain relationships* with suppliers can change due to the violation of compliance-related topics; (4) *Manufacturing failure* to incorporate manufacturing expertise in the design phase can affect SCM processes; (5) *Supply chain management performance* disruptions affect the supply chain process, especially if the risks are not mitigated; (6) *Business management changes* in the business environment affects supply chains; and (7) *Customer satisfaction disruptions* have an impact on business performance (Zailani, Premkumar, & Fernando, 2008).

2.5 CONTEXTUALISATION AND DEFINITION OF SUPPLY CHAIN DISRUPTIONS

Supply chain disruptions can be defined as the inability of businesses to produce, deliver, and sell their products (Andriantomanga et al., 2023). Dungerwal (2022) argues that when the supply chain process is not well managed, or if there are interruptions to the supply chain process, organisations fail to efficiently deliver the right product at the right time to customers, thus affecting profits. Poor port management and persistent electricity challenges threaten the growth of South Africa's automotive sector (Unterwegs International, 2023). In addition, the efficiency of the supply chain is affected by increasing operational complexities in the automotive industry, rising fuel prices, higher workforce costs due to higher living costs, and increasing pressure from China and India to remain competitive (Naude & Badenhorst-Weis, 2011).

This study used the conceptual framework model of an SCM system proposed by Agarwal et al. (2006) to understand how ACMs can effectively manage supply chain processes in an agile manner to minimise interruptions. Agarwal's SCM model (Agarwal et al., 2006) guided the study in considering how to enable ACMs to effectively manage supply chain processes in a changing environment to minimise the impact on the overall organisational performance. Zhou and Li (2020) argue that business performance includes various aspects such as marketshare and innovation performance.

Note that the phrases "supply chain interruptions" and "supply chain challenges" are used interchangeably in this study.

2.5.1 Supply chain challenges in the South African context and the effect of globalisation

The automotive industry faces the most complex and challenging circumstances in its history as consumer confidence is at a record low and companies are desperate to reduce production and manufacturing costs (Kotler, 2009).

The widening instability in the Middle East, where the Red Sea shipping channel is under attack by Houthis, is affecting oil prices and increasing shipping costs. Shipping companies are now passing by the Cape of Good Hope to avoid being attacked, leading to the reprioritisation of the supply of items and component shortages (Wiggill, 2024). This diversion of vessels also causes delays that affect production schedules and increase operating costs for ACMs (Wiggill, 2024).

Managing the supply chain in the global landscape adds complexity to the process, in addition to various risks that supply chain managers must mitigate (Ambe, 2014). Moreover, Ambe (2014) states that SCM has been challenged by pressures relating to reductions in price and delivery time, improvements in quality, customer service, environmental friendliness, limited production, assembly capacities, lead time, and flexibility.

The automotive industry's success relies on efficient ports for ACMs to import the parts needed. Their current reliance on ports like the Port of Durban poses many challenges; for instance, Durban's harbour is congested, leading to delays and increased costs and threatening the industry's competitiveness (Unterwegs International, 2023). It is important that businesses adopt an agile supply chain model in the era of supply chain competition, where organisations no longer operate in isolation but are part of a supply chain which creates value delivery systems that are more consistent, reliable, and responsive to fast-changing markets (Ambe, 2010). A company's core capabilities lie in its ability to design and manage its supply chain to gain an advantage in a competitive changing market (Ambe, 2010). If organisations are to succeed in today's volatile markets, they must develop strategies to respond to ever-increasing volatility in demand (Ambe, 2010). In the modern business era, competition is no longer between organisations but among supply chains, as effective SCM has become a potentially valuable way to secure a competitive advantage and improve

organisational performance (Trkman, McCormack, Valadares de Oliveira, & Ladeira, 2010).

2.6 THEORETICAL FOUNDATION

Stevens (1989) proposed an early conceptual framework for SCM, which describes the interconnected flow of goods, services, and information from suppliers to end customers. The model emphasises six key elements: suppliers, transformation, distribution, customers, information, and integration. The model highlights the fact that supply chains require the effective coordination of material, information, and financial flows to achieve efficiency. This framework has been widely acknowledged as a seminal contribution to SCM theory, forming the basis for much subsequent research (Habib, 2010).

However, while the model of Stevens is foundational, it has limitations in today's context. Critics argue that it does not adequately incorporate digital technologies, global disruptions, and the need for agility in volatile and uncertain environments (Garay-Rondero, Martinez-Flores, Smith, & Aldrette-Malacara, 2019). Given the increasing complexity of global supply chains, scholars call for models that integrate flexibility, responsiveness, and resilience as core principles.

In response to these limitations, Agarwal et al. (2006), building on Yusuf, Sarhadi, and Gunasekaran's (1999) work, developed the agile supply chain (ASC) model. This framework emphasises four interlinked elements: (1) Market sensitivity and responsiveness, (2) Information-driven virtual integration, (3) Centralised and collaborative planning, and (4) Process integration and performance management. Together, these components provide the structural and operational agility required for firms to respond to disruptions and maintain competitiveness.

2.6.1 Relevance of the agile supply chain to this study

This study adopts the ASC framework (Agarwal et al., 2006) as its guiding theoretical lens. The decision is grounded in several considerations:

- 1. Evolution from Stevens (1989):** Although the Stevens framework remains foundational, it is too generic to address the volatile, uncertain, complex, and ambiguous (VUCA) environment in which ACMS now operate. The ASC

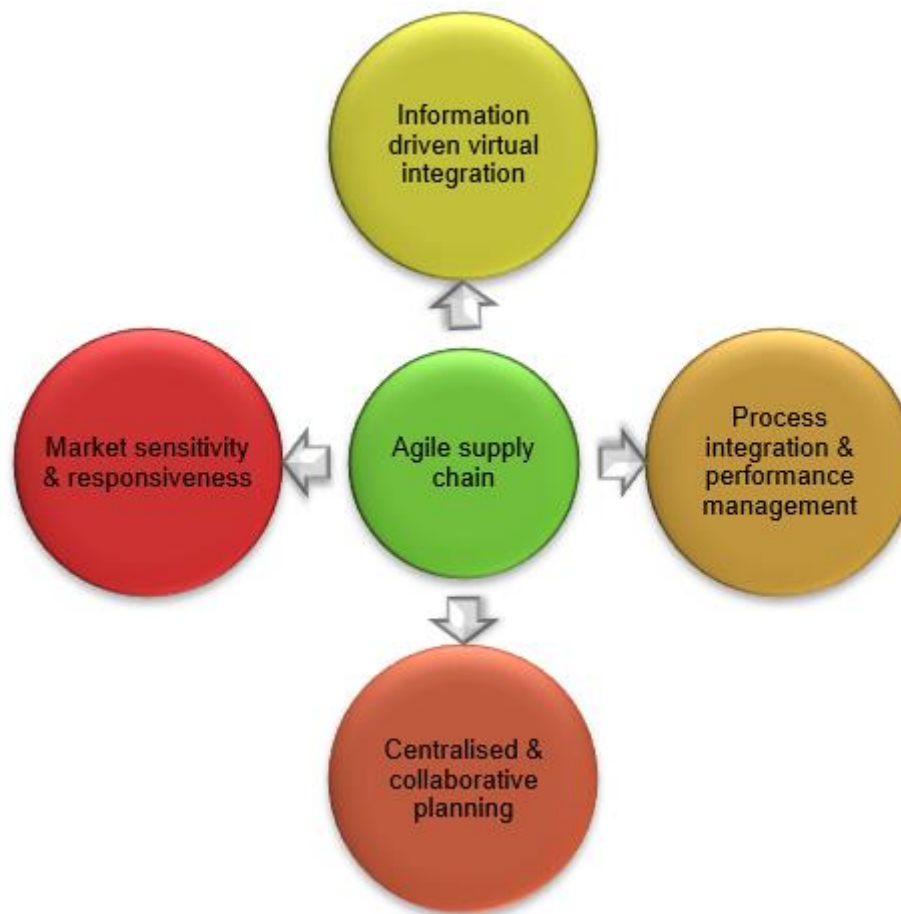
framework extends the work of Stevens by embedding responsiveness, integration, and collaboration – features that are crucial for ACMs facing black swan events such as the COVID-19 pandemic, geopolitical conflicts, and energy crises.

- 2. Fit to the automotive industry:** The automotive supply chain is characterised by complex supplier networks, just-in-time (JIT) practices, and a high dependency on global trade. Agility is particularly relevant here, as ACMs in South Africa must balance cost pressures, port inefficiencies, and political instability while competing in global markets. The ASC framework directly addresses these challenges by advocating adaptability, rapid information sharing, and collaborative planning.
- 3. Local context relevance:** In Brits and surrounding industrial areas, ACMs are strategically located near OEMs such as BMW, Nissan, and Ford. However, they face unique challenges like load-shedding, strikes, and theft, which disrupt supply processes. The ASC model provides a structured way to assess how responsiveness, integration, and collaboration can help ACMs to mitigate these risks and sustain organisational performance.
- 4. Consideration of alternatives:** Other frameworks, such as lean supply chain models or the traditional SCM framework of Stevens, were considered. However, lean models are often efficiency driven and less equipped to handle disruption, whereas the Stevens framework lacks the digital and agile elements required in today's globalised environment. Thus, the ASC framework was selected for its robustness in addressing uncertainty and its alignment with the objectives of this study.

2.6.2 Theory underpinning the study

By employing the ASC framework, this study is theoretically underpinned by the notion that supply chain agility mediates the relationship between disruptions and organisational performance. In other words, ACMs that exhibit higher agility in their supply chain processes – through information integration, market responsiveness, and collaborative planning – are better positioned to sustain performance despite

disruptions. This framing guides both the research objectives and the interpretation of findings in relation to external shocks and internal vulnerabilities.



Source: Agarwal et al., 2006

Figure 2.1: Agile supply chain model

2.6.3 Agile supply chain concept

The concept of an ASC was introduced to transfer and apply the agility strategy to the supply chain. Agility in the context of SCM focuses on responsiveness. Agile supply chains prioritise streamlined processes by improving logistics, warehousing, and transportation; this reduces lead times, enabling quicker delivery from production to the end consumer (Liquiditas, 2023). Adopting an agile supply chain in the automotive industry is important as the automotive supply chain consists of parties, links, and logistical processes that function together to deliver the end product to the final customer. Globally, the industry is very competitive, and world-class management philosophies and practices such as JIT production, total quality management (TQM),

and continuous improvement (CI) are already in use. However, the industry faces various challenges that affect delivery in terms of components being delivered to the right place on time and inventory holding at every stage of the supply chain if logistical services are unreliable and irregular (Naude, 2013).

The South African automotive industry compares favourably with similar industries in developing countries regarding infrastructure, raw material availability, emerging market cost advantages, flexible production capabilities, and government support; however, despite these positive aspects, the industry is under severe pressure due to high labour costs, poor infrastructure, and outdated technology (Naude, 2013).

2.7 THE SUPPLY CHAIN AND ITS INFLUENCE ON ORGANISATIONAL PERFORMANCE

Company performance is not determined only by the revenue it generates but also by other important non-financial factors that affect finances, such as the efficiency of the supply chain (Gordon, 2024). Furthermore, Gordon (2024) argues that the responsibility of the supply chain function is to ensure a smooth and efficient flow of goods, services, and information throughout the supply chain process.

Dungerwal (2022) states that various supply chain factors can influence a company's profitability: (1) *Management of inventory* is important as the right level of inventory ensures that the company has the stock it needs to meet customer demand, whereas too much or little inventory can potentially lead to missed sales opportunities and increased costs; (2) *Supplier relations* must be strengthened as poor supplier relations can lead to disruptions and increase costs, thus reducing profitability; (3) *Logistics* must be managed well as failing to do so results in failure to get the right product to the right place at the right time, causing delays and a loss of sales that could affect the business negatively; (4) *Forecasting* inventory needs and supplier performance is necessary for businesses to make informed decisions; for example, ACMs are contract manufacturers, therefore they are required to forecast inventory and align with customer demands.

2.8 SIMILAR STUDIES AND RESEARCH GAP

It must be noted that most studies that have investigated or explored supply chain challenges are rather general, are based on non-empirical studies only, and do not focus on Brits and surrounding industrial areas. For example, the study by Badenhorst-Weiss (2011) was generic in that it focused on general trends in the automotive industry, whereas Maleka (2016) specifically focused on the exploration of SCM practices in the West Rand District Municipality; the study found that the most implemented SCM practice in the municipality was demand management followed by acquisition management, whereas logistics, disposal risk, and performance management were least implemented. Maleka (2016) did not focus on ACMS, limiting this study to the public sector.

A study by Ambe and Badenhorst-Weiss (2011) on trends and challenges in the supply chain was generic, focusing on the broader South African automotive industry. These authors found that as much as the industry has been embracing technology and management practices that transform the manufacturing environment using cutting-edge designs and tools, the industry still experiences fragilities and various new supply chain-related challenges, such as recession and intensified global competition. The articles by these authors on theoretical and analytical approaches establish the fact that the South African automotive industry still has a long way to become a global role-player and needs to adopt a supply chain strategy that is responsive to customer demands and expectations (Ambe & Badenhorst-Weiss, 2011).

Nadine (2019) studied SCM, focusing on examining the connection between human resource (HR) management practices and effective SCM by means of a conceptual framework. Nadine (2019) found that the mode of transportation used in the supply chain process, limited skills, and inadequate technology pose challenges that hinder South Africa's automotive industry from being globally competitive. The study summarised the strong HR practices that facilitate the implementation of effective SCM. It also identified the weak HR practices that may hinder the implementation of effective SCM, further confirming that the supply chain environment should be reviewed and systems improved, including the remuneration structures of affected senior supply chain and logistics professionals.

2.9 CONCLUSION

This chapter provided a comprehensive review of the literature on the supply chain challenges facing ACMS, with a particular focus on the impact of unpredictable events and the interplay of macro- and micro-environmental factors. The discussion highlighted how global disruptions such as pandemics, geopolitical conflicts, and local challenges like energy insecurity and labour unrest collectively strain supply chain processes and threaten organisational performance.

In line with the purpose and title of this study, the review established the theoretical and empirical basis for identifying the supply chain challenges that are most relevant to ACMS in the South African context, particularly those operating in Brits and surrounding industrial areas.

The chapter also analysed findings from similar studies, identifying gaps in the literature – most notably the limited research on how ACMS in developing economies adapt their supply chains in volatile environments. These gaps informed the rationale for this study and underscored the need for further empirical investigation. By mapping existing knowledge, this chapter partially addressed the research objectives and questions introduced in Chapter 1, while laying the foundation for the empirical component of the study. The insights gained here informed the development of the research design and methodology, which are outlined in the next chapter.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

Chapter 2 focused on the literature review of the broader supply chain challenges facing ACMS in Brits and surrounding industrial areas. An introduction and contextualisation of supply chain challenges and a rationale for influencing company performance were considered. A description of models used for the study's theoretical framework was provided, followed by the micro- and macro-environment and the challenges experienced in the SCM process.

Chapter 3 introduces the research design methodology and covers the research philosophy, approach to theory development, methodological choice, research strategy, and data collection and analysis techniques.

3.2 RESEARCH PHILOSOPHY

A research philosophy is defined as a system of beliefs and values, a framework that guides how research is conducted (Mwita, 2025). There are four types of research philosophies, namely positivism, interpretivism, pragmatism, and critical realism, as illustrated by Mwita (2025). Sreekuma (2023) states that a research methodology describes the techniques and procedures researchers use to identify and analyse information on a specific research topic. Nickerson (2024) argues that interpretivism is a social science paradigm, asserting that reality is subjective as it is based on individual experiences. This philosophy enables a researcher to approach people or go to settings to physically observe and record behaviour in a natural setting (Bezuidenhout, David, & Du Plooy-Cilliers, 2021). For instance, in this study, the researcher met with participants to interview them so as to gain insight into their experiences of supply chains. Interpretivism emphasises the subjective understanding and social construction of reality (Ulz, 2023). This study adopted the interpretivism approach as it is common in social sciences where the understanding of people's beliefs, values, motivations, and reasoning are important in understanding what people believe (Mwita, 2025). The study acknowledges that participants' perceptions of how supply chain challenges influence overall business performance would be influenced by their individual viewpoints.

3.3 RESEARCH STRATEGY

The study followed a deductive thematic approach because it confirmed existing theory, and the interview guide used predefined questions that explored supply chain challenges in the context of ACMS and their impact on organisational performance (Saunders, Lewis, Thornhill, & Bristow, 2019). A thematic analysis can be conducted either inductively, where themes emerge from the data itself, or deductively, where the analysis is guided by existing concepts, models, or research questions (Braun & Clarke, 2006). In this study, a deductive thematic analysis approach was adopted because the coding and theme development were guided by the study's research objectives and the ASC model (Agarwal et al., 2006). This approach ensured that the data analysis remained focused on identifying and confirming supply chain challenges in the pre-established theoretical framework, while still allowing participants' voices to shape the findings.

A deductive approach was particularly appropriate for this study as it sought to understand how ACMS experience supply chain challenges in the context of an ASC framework. By aligning codes and themes to the research questions and theoretical constructs, the analysis ensured that the findings directly addressed the study's aims. Moreover, it provided a structured way of linking empirical data to existing theory, enabling the study to highlight consistencies, contradictions, and contextual nuances.

This study used qualitative interviews to gather and explore people's experiences of working in the supply chain in the automotive industry. Interpretivism was the research philosophy that guided the study.

3.4 METHODOLOGICAL CHOICE

The study employed a qualitative research methodology, which involves exploring participants' subjective experiences of the phenomenon being considered, meaning that an in-depth analysis is conducted of what the participant experiences, perceives, and attaches to a specific situation (Bezuidenhout & Strydom, 2021). The macro- and micro-environmental supply chain challenges that ACMS in Brits and surrounding industrial areas face should not be quantified, measured, or tested. Instead, they should be explored in depth to understand the reasoning behind these experiences, with the provision of meaningful recommendations. In addition, an authentic and

subjective understanding of the participants' experiences should be created, which is only possible with the qualitative method.

3.5 RESEARCH STRATEGY AND CONTEXT

Semi-structured interviews are a data collection method that relies on asking questions in a predetermined thematic framework, enabling the interviewer to prompt discussions and explore particular themes (George, 2023). To explore these phenomena, in-depth semi-structured interviews were conducted with senior supply chain and logistics professionals working for three different ACMs in Brits and surrounding industrial areas. Semi-structured interviews were deemed appropriate for this study to ensure that the specific agenda was followed so as to make provision for deeper investigations by asking additional probing questions.

Interviewing senior supply chain and logistics professionals working for three ACMs facilitated a comprehensive understanding of the supply chain challenges facing ACMs and their impact on overall organisational performance. The research participants from these ACMs were representatives of the targeted population. The ACMs selected for this study were selected based on their location, nature of business, and headcount.

3.6 DATA COLLECTION AND ANALYSIS

Several aspects relating to the study's research population, sampling method and size, interview questions, data collection, analysis, and ethical considerations are discussed in subsequent sections.

3.6.1 Research population

The research population is the entire group of people, objects, or elements in which the researcher is interested (Brink, Van der Walt, & Van Rensburg, 2018). The target population refers to the group of individuals from which the study intends to make conclusions (Bekele & Ago, 2022). In addition, the target population is a further subset of the population and is the actual focus or target of the study (Saunders et al., 2019). The researcher interviewed senior supply chain and logistics professionals working for three ACMs in Brits and surrounding industrial areas at the time of the study. The three ACMs varied in the size of their workforce, the components being manufactured, and

their resource capabilities. The study focused on Brits and surrounding industrial areas, as many companies that play a key role in the automotive industry are located here. The population target is summarised in Table 3.1.

The population included 11 senior supply chain and logistics professionals with expertise in SCM practices and included different genders, races, and ages. Participants were selected from this population based on their seniority and expertise in SCM practices.

The researcher was able to access at least nine participants from the total population of 11 that was targeted for the study, as per Table 3.1; however, data collection stopped at seven participants, as no new information emerged from the interviews.

Table 3.1: Target population and targeted sample

Specified ACM	Total no. of senior employees	Target
ACM 1	7	5
ACM 2	2	2
ACM 3	2	2
Total	11	9

The study excluded ACMs outside of Brits and surrounding industrial areas, lower-level SCM staff, and non-SCM senior supply chain and logistics professionals.

3.6.2 Sampling method

This study selected a portion of the target population, representing supply chain and logistics managers with relevant experience and perspectives that enabled the researcher to explore the phenomenon.

Sampling refers to selecting a part of a defined population for inclusion in a study (Boddy, 2016). Non-probability sampling, most suitable for qualitative research, refers to using a subjective non-random method to select units from the population (Leedy & Ormrod, 2015; Maleka, 2016; Saunders et al., 2019). Non-probability sampling was appropriate for this study as it allowed the researcher to intentionally select participants who could provide detailed perspectives rather than trying to generalise

from the larger population (George, 2023). This sampling method is less stringent, and samples are based on the subjective judgement of the researcher instead of random selection.

This study used non-probability sampling with a subjective method to select a specific group of individuals as the focus of the study. Purposive sampling is used to purposively select a specific group of people for analysis based on specific selection requirements to ensure the research objectives will be adequately met (Maleka, 2016). Bezuidenhout and Strydom (2021) indicate that purposive sampling is straightforward, thus making it a popular method as it allows researchers to choose participants who are readily accessible, which can enhance the efficiency of the data collection process. However, this approach may lead to bias as it does not guarantee that the sample will accurately represent the broader population. George (2023) notes that in non-probability sampling, participants receive a survey based on ease of access; as a result, there is a greater chance that they may not be representative of the greater population.

This study used purposive sampling to select senior supply chain and logistics professionals employed in ACMs in Brits and surrounding industrial areas. The aim was to understand their lived subjective experiences of the supply chain challenges they experienced and the meanings they attached to those experiences in their role in the supply chain department of the ACM. These individuals were key gatekeepers of information in the supply chain department of various ACMs.

3.6.3 Sampling size

The sample size is the number of participants included in a study (Institute for Work & Health, 2008). Sampling must stop when data saturation is reached. The data saturation stage is a point in data collection when new information no longer brings new perspectives (Webster, 2025). According to Guest et al. (2006), 6–12 interviews are enough for one qualitative study. Overall, nine participants were targeted for this study, with data collection ending when no new information emerged from the interviews. The researcher's familiarity with the ACMs where the participants were employed made it easier to obtain permission to interview them. Greater detail concerning the sample size and point of saturation is provided in Chapter 4.

Semi-structured interviews were conducted with participants working for three ACMs in Brits and surrounding industrial areas. The participants were selected using purposive sampling. Seven interviews were conducted, at which point data saturation was reached.

In the first interviews, the participants provided different answers about the supply chain challenges they had experienced, which was due to their different experiences being influenced by the nature of the companies they work for and the systems in place. However, as the interviews continued, participants began to mention similar supply chain challenges (from the fourth interview onwards), with data collection ending at the seventh interview as no new information surfaced.

3.6.4 Data collection

Various research tools were employed to collect data; however, they differ based on the research approach adopted (Maleka, 2016). For qualitative research, data can be collected using interviews, focus groups, and observations (Stahl & King, 2020). Interviews are a research method that involves a direct conversation between the researcher and the participant to gather deep insights on specific topics (Irvine, 2011). Interviews can be structured, semi-structured, or unstructured (Irvine, 2011). Interview formats range from face to face and telephonic to online conferencing platforms (Irvine, 2011).

The data for this study were collected between July and August 2024, using both face-to-face and online interviews. Semi-structured interviews were used to understand the respondents' perspectives of real-world situations. A semi-structured interview is a data collection method that enables the interviewer to use predetermined questions, allowing the conversation to flow while asking follow-up questions for clarity (George, 2023). Hilal and Alabri (2013) state that a semi-structured interview provides the interviewer with a clear framework that helps to guide the interview to focus on a specific exploration (see Annexure 1). Face-to-face and online interviews were used to accommodate participants' preferred communication medium, allowing them to use the platform with which they were most comfortable.

Based on the research question, an interview schedule was created, informed by the literature on the ASC conceptual framework of Stevens. The research supervisor and

higher degree committee reviewed the interview guide to ensure its clarity and correctness.

Each interview took approximately 45–60 minutes. Interviews took place at the participant's preferred location – their workplace or online using MS Teams. The interviews were recorded. Five participants were interviewed online, and two were interviewed in person. Informed consent to participate in the study and to record the interview was requested before the interviews started (see Annexure 5). No company names of participants have been mentioned in this dissertation.

The purpose of the study and its associated data collection and analysis method were explained to participants before they were interviewed. The interviews started with a few introductory questions about the participant's professional background to ensure that the interviewee met the criteria to participate in the study.

Effective listening describes a set of techniques designed to focus the attention of the interviewer on the speaker (Given, 2025). During data collection, an effective listening strategy was employed, meaning the researcher listened effectively to what the interviewee was saying during the interview to obtain the information needed. Unclear statements made by the participants during the semi-structured interviews were investigated further to obtain clarity, which ensured that the analysis was not based on assumptions. All participants allowed the researcher to record the interviews, which helped with effective listening, as keeping written notes of the participants' answers was unnecessary.

3.6.5 Data analysis method

Data analysis is the process of organising, interpreting, and assigning meaning to raw data to identify patterns, relationships, and insights about the phenomenon being studied (Hilal & Alabri, 2013). For this research, a *deductive thematic analysis* was employed, guided by Braun and Clarke's (2006) six-step framework. Unlike inductive analysis, which allows themes to emerge directly from the data, a deductive approach is driven by theory and questions, meaning that coding and theme development were shaped by the study's research objectives and the theoretical framework of the ASC model (Agarwal et al., 2006). This ensured that the analysis remained focused on

exploring the macro- and micro-environmental supply chain challenges facing ACMS and their influence on organisational performance.

The data analysis process followed Braun and Clarke's (2006) established phases:

- 1. Familiarisation with the data:** Interview recordings were transcribed verbatim, and observation notes were added. The researcher reviewed the transcripts multiple times to immerse themselves in the content, noting references to supply chain disruptions, resilience, and performance outcomes.
- 2. Generating initial codes:** Using a deductive approach, codes were derived from the research objectives and theoretical framework (e.g. "market sensitivity", "logistical inefficiencies", "supplier dependency", and "innovation and agility"). Data segments were systematically coded according to these predetermined categories.
- 3. Searching for themes:** Codes were grouped into broader categories that aligned with the study's focus, such as "macro-level disruptions" (e.g. geopolitical instability, infrastructure challenges) and "micro-level operational inefficiencies" (e.g. production delays, resource allocation).
- 4. Reviewing themes:** The themes were refined and validated by checking them against the coded extracts and the overall dataset to ensure coherence and the accurate representation of participants' perspectives.
- 5. Defining and naming themes:** Themes were clearly defined to capture both the participants' subjective experiences and their alignment with the ASC model, ensuring conceptual and contextual clarity.
- 6. Producing the report:** The findings were written up by integrating themes with participants' quotes and linking them back to the research questions, literature, and theoretical framework.

MS Excel was used as a digital tool to manage the coding and theme development process, allowing the researcher to track codes, categories, and themes systematically. An overview of the themes, categories, and selected codes is

presented in Table 4.2 in Chapter 4, with a full coding framework provided in Annexure F.

By applying a deductive thematic analysis, the study ensured that the data were analysed in a structured framework while remaining sensitive to participants' lived experiences. This approach provided a clear link between the empirical findings and the research objectives, offering insights into how ACMs in Brits can mitigate supply chain challenges to enhance organisational performance.

3.6.6 Trustworthiness

Trustworthiness is important in a qualitative study as it ensures the findings' credibility, reliability, and validity (Korstjens & Moser, 2017). The principles of credibility, transferability, dependability, and confirmability were used. These principles were followed to enhance the study's trustworthiness, quality, and validity. According to Stahl and King (2020), credibility, transferability, dependability, and confirmability constitute the trustworthiness of a research study following a qualitative research approach.

3.6.6.1 Credibility

Credibility refers to the accuracy of the data interpretation and focuses on how congruent the findings are with reality (Stahl & King, 2020). The criteria for meeting credibility consist of member checks and peer debriefing (Maleka, 2016). The researcher prolonged the engagement with participants by allocating 45–60 minutes for the interview and peer debriefing by discussing the results with the supervisor. In addition, this study employed purposive sampling, which is a non-probability sampling method that allows the researcher to use their expertise to select participants who meet the criteria. This ensured that the selected participants were people who had lived experiences and had been directly affected by supply chain challenges and witnessed its influence on the overall performance of the organisation. Selecting experienced professionals in the procurement and logistics department enhanced the credibility of the findings, as professionals in a field are able to contribute insightful perspectives. The transcribed data were given to participants to confirm their accuracy. In addition, several sources of information from the field, such as interview transcripts, were also used to establish identifiable patterns (Stahl & King, 2020).

3.6.6.2 Transferability

Transferability refers to the ability to expand understanding by transferring findings from one context to another (Stahl & King, 2020); in other words, the degree to which the results can be transferred to another population. This criterion was addressed by providing a detailed and precise description of the sampling method and specific criteria for selecting participants. The data collection and analysis methods have also been documented. The researcher selected participants who occupied senior positions in procurement and logistics departments in ACMs based in Brits and surrounding industrial areas. The participants represented a diverse profile when considering factors such as experience in the automotive industry, age, and length of service. The study established a focused sample that could offer rich and detailed insights applicable to similar contexts in the automotive industry.

3.6.6.3 Dependability

Dependability requires that a researcher adequately detail the data collection method, analysis, and theory gained to ensure the study can be scrutinised by peers and replicated under similar conditions to obtain similar results (Stahl & King, 2020). Dependability was ensured in the study by using a systematic and well-documented data collection procedure; creating an interview schedule that allowed for direct and interactive engagement with participants; having the academic supervisor review the methodology, transcribed data, and analysis techniques; and maintaining an audit trail. The principle of dependability relates to the integration process between the theory, data collection technique, and data analysis. The researcher provided a comprehensive and detailed presentation of the research design and plan to ensure the study's dependability.

3.6.6.4 Confirmability

Confirmability refers to the degree to which other researchers can confirm the study's findings, ensuring the findings are based on participants' responses (Korstjens & Moser, 2017). According to Saunders et al. (2019), confirmability in qualitative research relates to elements of neutrality and objectivity, which are fundamental to demonstrating that the findings are based on data collected instead of the researcher's biases. In this study, the researcher ensured confirmability by maintaining a detailed

audit trail documenting decisions made throughout the research process, such as recording the methods used for data collection and the criteria that were applied for coding. As this approach is systematic, it enables transparency, which allows others to trace how conclusions were reached, thus strengthening the integrity of the findings (Saunders et al., 2019).

Furthermore, the study confirmability was addressed using a thematic analysis to analyse the interview data. The researcher maintained the transparency, accuracy, and traceability of data, thus providing clear audit trails that can be examined by external researchers (Stahl & King, 2020). Confirmability was obtained in this study using a reflexive analysis, meaning that the researcher reflected on their assumptions and biases while maintaining a degree of awareness and openness towards a study.

3.7 ETHICAL CONSIDERATIONS

Ethical considerations refer to the ethical guidelines and principles that protect morality, guide researchers when conducting research, and ensure researchers are accountable, thus ensuring the proper use of funds to protect against research misconduct (Mazumdar, 2022).

This study followed the ethical guidelines provided by the Research and Post Graduate Studies Policy of The Independent Institute of Education and Monash South Africa (IIE MSA). The researcher was granted permission by the institution's Research and Postgraduate Office to conduct the study and was issued with the ethical clearance (see Annexure 2).

Permission to interview senior supply chain and logistics staff was obtained from managing directors and heads of supply chain and logistics departments of the various ACMS under review, as per the attached gatekeeper's letter template (see Annexure 3). Before the interviews commenced, the researcher issued informed consent forms to participants (see Annexure 4) and further reminded them that their participation in the study was voluntary and that they could opt out at any time. The consent form informed the participants of the purpose of the study, the length of the interview, what would be required of them, and how the data collected from them would be used. The consent form further ensured the participants' confidentiality and anonymity; consequently, the names of the participants and their organisations have not been

mentioned to protect their identity and anonymity. Participants were reminded that they would get an opportunity to proofread the transcribed data before the data were finalised. Furthermore, the participants were assured that they would not be exposed to any form of harm and that ethical guidelines and regulations would be followed.

The researcher asked participants for their permission to record and transcribe the interviews (see Annexure 5). The interviews were audio-recorded when in person and video-recorded when conducted online via a platform such as MS Teams. Participants were informed that their personal data would be protected and that the recording would be stored in a safe and restricted file on a USB drive, to which only the researcher and research supervisor would have access.

Participants were asked about internal and external supply chain challenges affecting their organisations. They were also asked to determine the influence of supply chain challenges on the overall organisational performance.

No vulnerable groups were interviewed, and no sensitive topics were covered. As ACMs in Brits and surrounding industrial areas are not in direct competition, no significant ethical risks were identified. The data collected were used solely for the purpose of the research, and the researcher refrained from offering any form of bribery to participants. The participants were not coerced and voluntarily shared their perspectives on and experiences of supply chain-related topics.

3.8 LIMITATIONS

The researcher extracted the data and was further responsible for ensuring the quality of the assessment and analysis. Only English publications were considered and, as a result, studies available in other languages were omitted. The study employed a qualitative research method that consisted of interviews, meaning the method was characterised by a certain level of subjectivity as the researcher's perspectives, opinions, and feelings could have potentially influenced how participants' responses were interpreted (Mwita, 2022). Another limitation of the study was its small sample size.

3.9 ELIMINATION OF BIAS

Galdas (2017) states that biases in qualitative research refer to any influence that distorts the study's results due to a researcher's personal or cultural prejudices. Galdas (2017) further asserts that it is important to eliminate biases in qualitative research to ensure that findings accurately represent the real-world situation. In this study, a peer review was conducted, and the researcher shared the findings with their supervisor throughout the study so as to identify any unintentional biases.

3.10 CONCLUSION

This chapter detailed the research design and methodology by covering important aspects of the research. To this effect, various decisions relating to the research philosophy, approach to the theory development, methodological choice, and research strategy were discussed. In addition, the data collection and analysis techniques and procedures employed in this study were explained and justified.

CHAPTER 4: ANALYSIS AND INTERPRETATION

4.1 INTRODUCTION

Chapter 3 provided a comprehensive overview of the research design and methodology applied in the study. The chapter also discussed the research philosophy, approach to theory development, methodological choice, research strategy, and data collection and analysis. The sampling method, sample size, and ethical considerations were also presented.

Chapter 4 presents the data collected in the interviews, which are analysed and interpreted in relation to previous empirical findings. First, an overview of the demographic profile of the respondents is given, including the sample size and description of the participants. The data collection strategies, their implementation, and the thematic data analysis process are discussed in detail. Chapter 4 concludes with a detailed explanation of the themes, categories, and codes generated from the dataset.

4.2 DEMOGRAPHIC PROFILE

This section includes the demographic profile of the participants and their descriptions. It also elaborates on participants' years of experience as supply chain and logistics managers in the automotive industry.

4.2.1 Description of participants

As mentioned in Chapter 3, the interviews started with a few introductory questions about the participant's professional background. These introductory questions were asked to ensure that the participants met the criteria for participation in the study and facilitated the provision of a short description of each respondent. A brief description of the participants is shown in Table 4.1.

Table 4.1: Participants' profiles

Participant	ACM	Main product manufactured	Job title	Years of experience in the automotive industry	Industrial area
Participant 1	ACM 1	Stators and brakes	Senior procurement specialist	35+ years	Brits industrial
Participant 2	ACM 2	Wiper arms	Managing director/general manager	40+ years	Lanseria industrial
Participant 3	ACM 1	Stators and brakes	Customer and material planner	20+ years	Brits industrial
Participant 4	ACM 1	Stators and brakes	General manager: Logistics (successor)	33+ years	Brits industrial
Participant 5	ACM 1	Stators and brakes	General manager: Logistics (retiring)	25+ years	Brits industrial
Participant 6	ACM 1	Stators and brakes	Senior commodity buyer	15+ years	Brits industrial
Participant 7	ACM 3	Moulding and component housings	General manager	30+ years	Brits industrial

Note: ACM 1, 2, and 3 refers to the three different companies.

Source: Researcher's own construction

Participant 1 worked in the automotive industry for over 20 years; at the time of the interview, they were employed as a customer and material planner based in the Brits industrial area. Participant 2 worked in the automotive industry for over 25 years; at the time of the interview, they were heading into retirement and handing over tasks to their successor. Participant 3 had more than 15 years of experience in the automotive industry and, at the time of the interview, had just completed their one-year work anniversary. Participant 4 started their career working in the automotive industry and had more than 33 years of experience. At the time of the interview, the participant was receiving a handover from the former manager, who was retiring. Participant 5 had

occupied various roles in the automotive industry for over 35 years, with more than 24 years in the procurement environment. Participant 6 worked at ACM 2 in the Lanseria industrial area as the general manager overseeing procurement, logistics, and operations. Participant 7 had a career spanning more than 30 years and managed ACM 3, based in the Brits industrial area.

In summary, the participants had vast experience and a good understanding of the dynamics of the automotive industry in South Africa. The participants' ages varied, and they had spent most of their careers working in Brits and surrounding industrial sites. The researcher observed that the automotive industry is male dominated; six out of seven participants interviewed were male, with only one female occupying a senior position. These participants had good knowledge, experience, and backgrounds to provide adequate insights into the supply chain challenges facing ACMs in Brits and surrounding industrial areas.

4.3 EMPIRICAL FINDINGS

The discussion of the data analysis and findings is based on the themes identified during the data analysis. Theme 1 concerns the uncertainties in the external environment that challenge the supply chain and aligns with the importance of market sensitivity and responsiveness in the ASC model. Theme 2 is about the supply chain challenges influencing performance and aligns with the integration and performance management of the ASC process. Theme 3 includes the difficulties experienced in minimising supply chain challenges regarding performance. The ASC model emphasises the importance of collaborative planning and process integration between customers and suppliers to manage supply chain challenges effectively. These themes correspond with the theoretical background explained in Chapter 2. The challenges experienced by participants working in supply chain and logistics departments were translated into the categories analysed in the sections that follow.

4.4 THEMES

Table 4.2: Table of themes

Sample interview questions	Raw data: Sample quotations	Examples of sample codes	Categories	Themes	Link to research questions (RQs)
What macro- and micro-environmental supply chain challenges are ACMs in Brits and surrounding industrial areas experiencing?	“I believe the biggest challenge we face internally is often low production volumes that result in failure to fulfil customers’ needs.” “We do not really have more internal supply chain challenges as we geared our business in a flexible way; however, the external environmental factors present various challenges such as delays of exported materials resulting from the port congestion.” “Production line stoppages resulting from machine breakdowns.”	Lack of business control over the external environment. Internal environmental challenges faced by ACMs differ depending on the size and resources of the organisation. Machine stoppages delay order fulfilment.	1.1 Uncertainties presented by internal and external environmental factors affect the supply chain process. 1.2 Internal factors influence how ACMs manage challenges. 1.3 ACMs are in control of internal supply chain challenges.	Macro- and micro-environmental factors in the supply chain	RQ1

Sample interview questions	Raw data: Sample quotations	Examples of sample codes	Categories	Themes	Link to research questions (RQs)
How do the supply chain challenges influence the overall performance of the ACM?	"[The] supply chain is the heartbeat of the organisation." "The high levels of unemployment and crime rate in the country result in theft of stock." "Terrible railway and road infrastructures play a role in the delays of raw materials and stock arrival." "Government is not doing enough to protect local businesses."	Supply chain interruptions result in low sales volumes. Socioeconomic factors bring uncertainties. Lack of well-maintained infrastructures. Governments need to impose strict regulations.	2.1 Supply chains have a direct impact on the overall bottom line. 2.2 The cost of living impact on the business. 2.3 Poor delivery of services. 2.4 Prioritise local businesses.	Supply chains' influence on organisational performance	RQ2
Which strategies can ACMs put in place to minimise supply chain challenges?	"We must invest in the supply chain system that enables easy communication between customers and suppliers." "Supply chain management systems must be integrated." "It is important to keep buffer stocks."	Real-time communication between the point of departure and the point of arrival. Need for more investment. The cost associated with warehouse storage.	3.1 Good tracking and monitoring of stock. 3.2 Uncertainties surrounding budgets. 3.3 Just-in-time is not always practical in developing economies.	Effectively manage supply chain challenges to minimise the impact on organisational performance	RQ3

Source: Researcher's construction

4.4.1 Theme 1: Macro- and micro-environmental factor challenges of the supply chain

The first theme concerns the supply chain challenges experienced by ACMs due to macro- and micro-environmental factors. This theme answers the first research question (RQ1). The theme concerns uncertainties presented by internal and external environmental factors. Wang (2017) states that supply chain uncertainties presented by external and internal factors are becoming more and more a business concern. Furthermore, Wang (2017) indicates that these uncertainties are challenging for businesses to forecast. According to the ASC framework, sharing information across supply chain partners is important for collaborative planning and other reasons. For a supply chain to be agile, it must consider market sensitivity. As an ASC process is closely connected to end-user trends, it must share information across all supply chain partners, collaborate with partners, and ensure end-to-end visibility. In addition, it must be network based and leverage the skills of specialist players; it must focus on core competencies; and it must feature process integration between the network members who collaborate on product design and co-manage inventory. Thus, if ACMs adopt the ASC framework, they will be better positioned to respond quickly and effectively to external and internal environment changes.

Participants had the following to share regarding internal and external environmental factors affecting their ACMs:

Internal factors: The main challenges influencing supply chain efficiency were storage and space constraints, inventory management, production planning challenges related to low volumes, machine and information technology (IT) system maintenance and reliability, quality defects, and material waste. However, one smaller ACM noted that the company size also plays a role in flexibility and control.

Participant 1 presented views citing the disadvantages that their ACM faced as a result of inefficient internal resources, stating:

“We did not have enough space to hold our stock, and then we had to outsource the warehouse a few kilometres from our manufacturing plant, and that increased our logistics cost.”

This participant's statement highlights the importance of having adequate internal storage infrastructure to prevent inefficiencies and to avoid additional costs. According to Roseburrough (2025), the primary concern associated with outsourcing is the potential loss of control over critical aspects of warehousing and fulfilment operations and challenges such as order inaccuracies, inventory discrepancies, or shipping delays. Participant 4 stated:

"We do find inefficiencies sometimes when we have overstocked, and in this case, we do go to our new product introduction (NTI) process and review it to make it more efficient."

In addition, Participant 4 indicated that:

"Logistics costs are variable, and the concept of logistics is well established, and we have very few logistics errors."

According to Kenton, Brock, and Perez (2024), a variable cost is an expense that changes depending on certain factors, for example, distance of travel, fuel prices, and mode of transport. The participant's views align with the literature on variable logistics costs.

However, Participant 5 experienced challenges of low volumes having an impact on production efficiency, stating that:

"Difficulties of supplying low volumes to customers result in many changeovers that often cause delays in production lines."

This finding is in line with the literature review. Fatfinger (2024) states that production changeovers can significantly affect manufacturing processes, influencing production time and overall operational efficiency.

Participant 3 stated that internal challenges facing their ACM related to machine maintenance:

"If machines break down, our customers get affected as we cannot produce the required quantities as a result of machine breakdown."

Participant 3 further stated:

“IT system failures result in a breakdown of communication between us and suppliers, making it difficult to trace stock.”

Participant 6 shared similar sentiments about the availability of the operating systems, mentioning:

“The system is old and outdated, which makes it difficult to find support in terms of development for a new project in the system, and the system is costly to maintain master data to enable accuracy.”

The ASC model emphasises the importance of information-driven virtual integration (Agarwal et al., 2006). These challenges underline the need for regular maintenance schedules and modern reliable IT infrastructure to support smooth operations; however, this will have an impact on the organisation’s costs.

Participant 7 indicated that quality defects were a significant challenge for their ACM:

“The big challenge we face internally is [the] high volume of scraps due to quality defects that waste material.”

Mushavhanamadi and Xundu (2018) state that a high volume of quality defects increases the funds spent on materials and that decreasing waste can increase profits.

Participant 2 expressed how the ACM size could dictate the strategy and direction that it could take:

“[Our] ACM is small in size, employing only about 120 to 130 employees. This makes [it] easier for management to internally control their systems in a way that enhances flexibility to manage challenges.”

Participant 2 further explained:

“We do not really have more internal supply chain challenges as we geared our business in a flexible way.”

Consequently, it seems that smaller ACMs might find it easier than larger ACMs to implement changes and maintain agility in response to internal issues, due to having a less complex organisational structure.

External factors: Logistical disruptions, political decisions, material shortages, and global conflicts have affected the ACMs' supply chain efficiency. The ACMs face increased operational costs, production delays, and supply shortages, ultimately having an impact on profitability and customer satisfaction.

Participant 1 indicated that their ACM does not have control over the external environment, and that poses a serious challenge to the business:

“Most of [the] challenges [in the] supply chain is that 99.9% of our suppliers are out of the North West province where we are based; when there are disputes in communities resulting in strikes and road closures ... it impacts transportation schedules.”

These disruptions can result in delays in material delivery, increased transportation costs, and production slowdowns. Consequently, the ACM may struggle to meet customers' demands, leading to potential revenue losses and reputational damage. NCOP (2021) indicated that unrest results in cost implications as trucks are torched, and the route closures affect employees and passengers, thus disrupting the supply chain.

In addition to road transport challenges, Participant 4 indicated the failures in the railway system and backlog issues in transport hubs as significant challenges, citing poor political decisions as the cause:

“... [P]olitical failures that led to the collapse of the railway and bad decisions that led to backlogs in the hubs.”

Participant 4 further stated:

“Our business is not affected by cheap imports as the industry is regulated and high-quality standards [are] maintained.”

With unreliable railway transport, ACMs are forced to rely on more expensive road transport, which increases operational costs and adds uncertainty to delivery schedules. According to Smart Procurement (2024), the theft of copper cables and rail components has disrupted rail services, resulting in costly delays and increased operational inefficiencies.

Participant 2 stated:

“Decisions made by politicians have [a] significant impact on our business.”

Participant 2 further noted that:

“External environmental factors ... present various challenges such as delays of exported materials resulting from the ports’ congestion.”

Participant 3 shared similar concerns:

“We currently have huge congestion at our ports; that is the biggest problem facing our supply chains in general.”

In addition, Participant 3 further stated:

“Material scarcity of critical components like the semiconductors seriously impact[s] our supply chain processes.”

Participant 3 recommended that:

“The government should be proactive to absorb the pressures posed by the external factors to try to limit the impact on organisations.”

Unstable policies can lead to unexpected changes in tariffs, taxation, or trade restrictions, making long-term supply chain planning difficult. Government inefficiencies in managing ports result in delays in receiving and exporting goods, thereby increasing logistics and storage costs, disrupting production timelines, and reducing overall competitiveness as companies struggle to maintain reliable delivery schedules. Such congestion forces companies to suffer financial and customer losses due to shipment delays or to seek alternative supply chain routes, which may be more expensive.

In addition to the local port challenges, material supply, government and political challenges, and international wars such as the war between Palestine and Israel and Russia and Ukraine have had a direct impact on many of the ACMs. According to Prievoznik and Strelcova (2023), the war between Russia and Ukraine has resulted in

a shortage of semiconductors, significantly affecting supply chain activities as more than 65% of neon used in semiconductor production comes from Russia.

Participant 5 stated:

“The Russia–Ukraine War resulted in interruptions of supply chains, and factories closed for weeks as there were shortages of materials from [the] Russia–Ukraine region.”

Participant 6 said:

“[The] Palestinian and Israel war is affecting vessels’ routes, and vessels now have to sail via a long route that increased [the] costs of logistics and [that] directly impacts us.”

According to Abdel-Razek (2024), the crisis in the Red Sea, where Yemen Houthis target large vessels and cargo ships in response to the ongoing war in Gaza, is disrupting the operations in one of the world’s busiest waterways, where an estimated global trade of more than USD 1 trillion passes through annually, further challenging supply chain initiatives.

Participant 7 indicated another external factor regarding the Russia–Ukraine War:

“[The] Russia–Ukraine War drove the gas price up, and that results in European suppliers increas[ing] costs and, as such, it is directly impacting us.”

Since the outbreak of the Russia–Ukraine conflict, global commodity prices such as oil and natural gas have significantly increased, affecting various countries and global energy trade (Sun, Cao, Liu, Cao, & Zhu, 2024).

The ripple effect of these disruptions has led to supply chain bottlenecks, increased procurement costs, longer production lead times, and increases in raw material and transportation costs, thus directly affecting businesses and forcing them to either absorb the costs or pass them on to consumers, which can influence market competitiveness. As a result, such disruptions emphasise the need for diverse sourcing strategies and alternative shipping routes to mitigate such risks.

4.4.1.1 Findings relating to the internal and external environment

The study found that some ACMs face the challenge of inadequate internal resources, such as space to hold enough buffer stock in case of supply chain interruptions. According to Agarwal et al. (2006), an ASC emphasises the importance of co-managed inventory to enhance the efficiency of inventory management.

- The study found that logistics costs are variable, and the logistics concept is well established. As a result, there are minimal logistics errors. Liquiditas (2023) states that an ASC prioritises streamlining processes and improving logistics, enabling quicker delivery from production to the end user.
- The study found that having an effective integrated supply chain system is important. Fernando et al. (2024) note that an effective SCM system provides control of internal inventory, production, and distribution.
- The study found that the failures in the railway system and backlog issues in transport hubs are significant challenges having an impact on ACMs. Ikome et al. (2021) argue that the South African automotive industry is experiencing challenges resulting from the unreliability of rail transport.
- The study further found that political decisions have a significant impact on ACMs. Logistics Business (2024) indicates that geopolitical developments that automotive manufacturers have no control over, such as conflicts and tensions between countries and trade tariffs placed on materials, can cause interruptions in the flow of goods and materials.

The findings identified during the literature review have been confirmed in this study, although some of the supply chain challenges were not found in the literature review.

4.4.2 Theme 2: Supply chain influence on organisational performance

The second theme relates to the influence of supply chain challenges on organisational performance. This theme answers the second research question (RQ2). The category under this theme is discussed below. The study found that supply chains have a direct impact on the overall bottom line.

A supply chain disruption is an unplanned and unanticipated event that disrupts the normal flow of goods and materials within the whole supply chain (Ebrahim, 2023). In addition, these disruptions affect the inventory and production plans and often carry substantial financial risks, thus impeding organisational performance (Ebrahim, 2023).

Participants noted that supply chain challenges have a negative impact on profitability through production disruptions, rising logistics and inventory costs, and competitive pressures. Electricity outages, material shortages, and theft increase operational expenses, whereas high logistical costs, exchange rate fluctuations, and cheap imports reduce profit margins.

Regarding the supply chain challenges influencing organisational performance, Participant 1 indicated that the poor delivery of services by the government, such as power cuts, affects their ACM's production schedules and consequently the performance of the business.

“The performance of the organisation is impacted by these challenges because when there is no electricity, there is no production, and that negative factor [has] a negative impact on our profit and the overall performance of the business.”

Participant 2 stated that cheap alternative imports coming into the country are affecting their sales, thus influencing their profitability and overall performance. They alluded to the fact that the government is not prioritising local businesses:

“Cheap imports in the country are affecting [the] profitability of some of [the] product line and [the] overall business performance.”

Participant 3 expressed how keeping more inventory affects business performance as it is associated with high warehousing costs. Similarly, Participants 6 and 7 emphasised the costs associated with holding inventory.

Participant 3 confirmed:

“The negative impact associated with high logistics costs affects the entire company's performance because even if other departments perform well, if we have high logistics costs, it impacts our profits. Keeping more inventory is also

costly as we end up having to pay high warehouse prices for keeping our inventory.”

Participant 6 stated:

“You need to keep more inventory to supply the demand of the customers, and this results in more cost of keeping the inventory, thus affecting the overall performance of the business.”

Participant 7 asserted:

“The cost of living is too high, with high unemployment and crime; this increases the risk of inventory getting stolen and transportation hijacked whilst carrying stock, resulting in production stoppages, thus impacting the bottom line.”

Participant 4 emphasised that material shortages lead to production stoppages that interrupt the production schedule, forcing their ACM to institute overtime to catch up:

“A shortage of components has [a] direct impact on [the] production schedule, which generates the stoppages in production, and that necessitates the company to institute overtime to catch up with [the] loss of production.”

Participant 5 indicated that the exchange rate concept does not guarantee that the company will not be directly affected:

“We have a relationship with customers, and we agree on [the] exchange rate concept; however, the exchange rate concept does not exempt us from feeling the impact of the exchange rate.”

Political uncertainties, corruption, and instability discourage direct foreign investment. A stable political environment attracts investment, strengthening the rand against the dollar, and mitigates the impact of exchange rate fluctuations on ACMs.

The study found that the government's poor service delivery affects ACMs. According to Unterwegs International (2023), ACMs operating in Brits and surrounding industrial sites encounter unreliable power supply, load-shedding, and high electricity costs.

- The study found that some ACMs operating in Brits and surrounding industrial areas are affected by cheap imports, thus causing supply chain disruptions. Shaw (2023) suggests that the common micro-environmental issue facing ACMs in Brits and surrounding industrial areas is the influx of cheaper imported components dumped on the market.
- Further, the study found that keeping more inventory affects business performance as this is associated with high warehousing costs. Ebrahim (2023) states that supply chain disruption affects inventory and production plans, and often carries substantial financial burdens that slow down the entire organisation's performance.

The findings identified during the literature review have been confirmed in this study.

4.4.3 Theme 3: How do ACMs effectively manage supply chain challenges to minimise the impact on organisational performance?

The third theme is how ACMs can effectively manage supply chain challenges to minimise the impact on organisational performance. This theme answers the third research question (RQ3).

The first category for Theme 3 concerns minimising uncertainties in the supply chain. Supply chain management is a complex process that requires proper communication so as to minimise uncertainties posed by the macro- and micro-environment. In the supply chain process, ACMs employ various strategies depending on their resource capabilities, the size of the ACM, and the type of products manufactured. Participants shared the following regarding minimising uncertainties in the supply chain process.

Participant 1 presented their views, citing the cost that their ACM incurred in an attempt to provide a solution by reducing their reliance on municipality services:

“Our company installed four generators that cost us R 5.2 million at the time and installed solar panels. The company is trying to go off the grid slowly, as relying on the local municipality affected us; when there is no electricity for two days, our plant used to stand still; now, with the generator and solar panels, we manage to continue running production.”

Participant 1's view highlights the importance of having a sustainable off-the-grid energy solution to minimise supply chain uncertainties.

Participant 2 indicated that they manage supply chain challenges effectively to minimise the impact on the organisation by doing the following:

“Investing in high-end equipment, train[ing] [the] staff well, focusing on service, [having] pride and expertise and [having] good quality patrollers. In addition, the factory spent a lot of money to get backup generators to enable the factory to run even when there is no electricity.”

This view highlights the importance of having a backup energy system to avoid supply chain interruptions caused by load-shedding. In addition, having people with suitable expertise and continuously re-training them equips them to better manage supply chain interruptions. Having standard procedures and systems helps to guide supply chain practitioners in minimising supply chain uncertainties. Regarding methods for minimising supply chain uncertainties, Participant 4 stated:

“If you have a clear system and well [sic] criteria on quantities you can supply the customer, you can minimise cost.”

Participant 5 indicated:

“Have procedures in place for every eventuality, such as keeping three days [of] stock. That will help you to have enough stock to transport to customers on the days the machines break down.”

Participants 6 and 7 addressed their issues by having numerous suppliers at their disposal and ensuring effective and up-to-date communication between them and their suppliers.

Participant 6 stated that their ACM minimises supply chain uncertainty by:

“Spreading the risk through using suppliers from various parts of the world such as China, Europe, etc.; in addition, localise certain parts to avoid [the] volatility that comes with [the] shipment of parts from one country to the other.”

Automotive component manufacturers with enough resources diversify suppliers to minimise the risk of relying on one supplier, and they use local suppliers to minimise delays and costs associated with transporting stock.

Participant 7 stated:

“We minimise supply chain challenges through ensuring that we effectively communicate with our suppliers and update each other on important information.”

This highlights the importance of an integrated supply chain system that provides real-time communication and stock tracing.

Communication is an important factor for the success of a supply chain for various reasons, such as coordination and collaboration, demand forecasting, quality control, customer satisfaction, and efficiency (White, 2023). Furthermore, White (2023) indicates that it is important to minimise supply chain uncertainties where possible.

The findings identified in the study align with the literature review; however, some of the supply chain challenges were not found in the literature review.

- The study found that load-shedding results in ACMs' failure to produce, thus affecting their profitability and overall performance. According to Unterwegs International (2023), ACMs operating in Brits and surrounding industrial areas face an unreliable power supply and high electricity costs, increasing operational costs.
- The study found that some ACMs are spending vast sums of money to buy generators and other methods that can reduce reliance on the municipal electricity supply.
- The study found that effective communication between ACMs and their suppliers is important for an ASC, highlighting the importance of information on actual demand, driven by virtual integration (Agarwal et al., 2006).

4.5 CONCLUSION

This chapter provided an overview of the participants' demographic profiles, the sample size, and a description of the participants. It also included a detailed discussion

of the themes, categories, and codes generated from the dataset. The data analysis resulted in three themes. The majority of the challenges identified during the literature review have been confirmed in this study, although some of the supply chain challenges were not found in the literature review.

One possible reason for newly discovered challenges affecting ACMs operating in Brits and surrounding industrial areas is the high unemployment rate, which has led to a high crime rate. As a result, ACMs are affected by stock theft and by trucks transporting components being hijacked.

Another finding not confirmed in the literature review is the relationship between the ACM's size and the impact of internal environmental factors. Small ACMs may find it easier than larger ACMs to implement changes and maintain agility in response to internal issues due to less complexity in the organisational structure.

The last finding not found in the literature review is that the automotive industry in South Africa is well regulated, and the quality standards are high. As a result, the ACMs operating in Brits and surrounding industrial areas have little to no impact as a result of cheap imports.

The next chapter presents the conclusions and recommendations based on the study's findings.

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

Chapter 4 presented the analysis and interpretation of the data collected in the semi-structured interviews, which included an overview of the demographic profile of the participants. The chapter concluded with a detailed explanation of the themes and categories generated from the dataset.

Chapter 5 discusses the conclusions and recommendations of the study. This chapter starts with a general overview of the research, its purpose, and the achievement of the research objectives. The findings are then summarised, and conclusions and recommendations made based on the findings. The chapter concludes with the study's practical and theoretical contributions, limitations, and a proposal for future research.

5.2 OVERVIEW OF RESEARCH

This study explored the supply chain challenges facing ACMs in Brits and surrounding industrial areas. The following section briefly outlines the research process followed in this study. In addition, this section focuses on how each research objective was achieved in answering the research questions.

5.2.1 Research process

A literature review was conducted on the supply chain challenges facing ACMs in Brits and surrounding industrial areas; and the extent to which supply chain challenges influence overall organisational performance was explored. The literature review included a contextualisation of supply chain challenges facing ACMs in Brits and surrounding industrial areas. In addition, it sought to provide recommendations on how to better manage supply chain challenges to minimise the impact on organisational performance. Further, supply chain challenges facing ACMs in Brits and surrounding industrial areas were analysed using the conceptual framework of SCM systems of Stevens (1989) to describe interconnected relationships in the flow of goods, services, and information from start to finish – until finished goods reach the customers. Agarwal et al. (2006) reviewed a conceptual model of an ASC presented by Yusuf et al. (1999), suggesting that there are four elements that the supply chain process must consist of in order to be considered agile. These models provided the theoretical framework for

this study. After presenting the model, the challenges identified in the literature were presented, in alignment with the theoretical model of this study, meaning the supply chain challenges facing ACMs in Brits and surrounding industrial areas.

Following the literature review, a suitable research design and methodology were developed so as to answer the research question. This study adopted an interpretivist philosophy and a deductive research approach. As a result, the research was qualitative, and semi-structured interviews were conducted with seven participants working for three different ACMs based in Brits and surrounding industrial areas. The research instrument required was used correctly, and the interviews started with the researcher introducing the background of the study, followed by a discussion, with the aim of getting to know the participants. Subsequent to the introduction was a set of questions intended to identify the supply chain challenges facing ACMs based in Brits and surrounding industrial areas. Following the data collection, the data were analysed using a thematic analysis; the findings are presented in Chapter 4.

The following section will present an overview of how each research objective was achieved.

5.2.2 Research objectives addressed

Table 5.1 shows how each research objective and question was achieved in the study by providing theoretical evidence, related questions in the interview, empirical findings, and recommendations.

Table 5.1: Research questions and objectives addressed in the study

Research objective (RO) and research question (RQ)	Theoretical evidence	Data collection: Interview questions	Data analysis: Empirical findings	Recommendations and conclusions
RO1: To understand the macro- and micro-environmental-related supply chain challenges facing automotive component manufacturers operating in Brits and surrounding industrial areas. RQ1: What macro- and micro-environmental supply chain challenges are automotive components manufacturers in Brits and surrounding industrial areas facing?	2.2.1.1 2.2.1.2	Section B, Question 1 Section B, Question 3	4.5.1	5.3.3.1
RO2: To explore the extent to which supply chain challenges influence the overall organisational performance. RQ2: How have the supply chain challenges influenced the overall performance of the organisation?	2.7	Section C, Question 1	4.5.2 4.5.2.1	5.3.3.2

RO3: To understand how to better manage supply chain challenges to minimise the impact on organisational performance. RQ3: How can ACMs effectively manage supply chain challenges to minimise the impact on organisational performance?	2.6.1	Section D, Question 3	4.5.3 4.5.3.1	5.3.3.3
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Source: Researcher's own construction

5.3 SUMMARY OF EMPIRICAL RESULTS

In the following sections, the empirical results are summarised. First, a summary of the participants' demographic profiles are given, followed by a brief overview of how this study addressed the issue of trustworthiness.

5.3.1 Profile of participants

The study sample consisted of nine participants; however, data saturation was reached after seven participants. Of the seven participants, six were male and one was female. Their years of experience ranged from 15 to 40 years. All seven participants were employed in ACMs based in Brits and surrounding industrial areas.

5.3.2 Trustworthiness of the study

In order to ensure the trustworthiness of this study, the principles of credibility, transferability, dependability, and confirmability were applied. To ensure credibility, the researcher asked every participant if they wanted a copy of the interview recording, and the participants' direct quotes were presented in Chapter 4. The context and data collection methods are described in detail in Chapter 3 to achieve the transferability of the study. The researcher provided a transparent and detailed presentation of the research plan and design in Chapter 3 to ensure the dependability of this study. In addition, the researcher ensured the principle of dependability by using a reflexive approach throughout the research process.

5.3.3 Discussion from thematic analysis

The following sections discuss the six themes that constitute the findings of the thematic analysis. In addition, based on the findings, conclusions and recommendations are given that address the identified challenges.

5.3.3.1 Theme 1: Macro- and micro-environmental factor challenges of the supply chain

Based on the study's results, the most important internal challenges relating to Theme 1 were storage and space constraints, inventory management, production planning challenges related to low volumes, machine and IT system maintenance and reliability, quality defects, and material waste. These were the main challenges influencing supply chain efficiency.

External challenges relating to Theme 1 included logistical disruptions, political decisions, and geopolitical issues. Theme 1's findings revealed that an ACM's size and resource capabilities influence how it manages and responds to supply chain challenges. Theme 1 answered RQ1.

To address supply chain challenges posed by the internal and external environment, ACMs must invest in other forms of energy to reduce reliance on municipal services and invest in effective and integrated systems that enable stock monitoring and real-time communication. These recommendations confirm the findings that ACMs face similar challenges resulting from the external environment, over which they have no control; however, the ACMs are in control of the internal environment, and their response to internal challenges differs based on their strategy, size, and resource capabilities. In conclusion, and based on the findings presented in Chapter 4, having an effective inventory management system is a key recommendation for overcoming supply chain interruptions. In addition, effective quality methods reduce material waste.

5.3.3.2 Theme 2: Supply chains have a direct influence on organisational performance

The second theme highlights the impact of supply chain interruptions on the ACMs' profits and answers RQ2. The key challenges in Theme 2 were rising logistics costs,

inventory costs, a high exchange rate, electricity outages, the theft of stock, and a lack of essential service delivery. Theme 2's findings highlight the fact that poor service delivery resulting in power cuts adversely affects the ACMs' production schedules. This results in them failing to meet their customers' requirements, thus affecting overall business performance. Moreover, a stable political environment that supports the rand being stronger against the dollar reduces the impact of the exchange rate felt by the ACMs.

These findings confirm that the ACMs operating in Brits and surrounding industrial areas are affected by the lack of municipal service delivery, the high exchange rate, and political decisions and policies. In addition, the cost of living is increasing while salaries remain stagnant, which leads to crime associated with the hijacking of trucks carrying goods and theft. The challenge of stock being stolen is that materials or products do not arrive at their intended destinations on time. Supply chain challenges facing ACMs in Brits and surrounding industrial areas therefore affect the ACMs' profitability.

5.3.3.3 Theme 3: How do ACMs effectively manage supply chain challenges to minimise the impact on organisational performance?

The third theme is how ACMs minimise uncertainties in the supply chain process. This theme answers RQ3. To minimise supply chain challenges posed by macro- and micro-environments, ACMs employ various strategies depending on their size and resource capabilities. The findings of Theme 3 highlight the importance of having backup power to reduce supply chain disruptions during load-shedding. This highlights the importance of an ACM having backup energy to keep production running, thus meeting customers' requirements even during load-shedding. These recommendations indicate the importance of having sustainable off-the-grid energy solutions to minimise supply chain uncertainties.

In addition, ACMs should have good tracking and monitoring of stock using a system such as material requirement planning. This runs on Systems Applications and Products in Data Processing (SAP) software, taking the releases received from OEMs and uploading them to the bill of materials. ACMs should also maximise the use of engineering change requests to forecast and determine estimated volume

requirements when new tooling or projects are planned. In addition, ACMs should rely on a newly updated stock tracking system that is well integrated into the OEMs to enable agile real-time coordination. These recommendations can assist ACMS in avoiding overstock that could end up having an impact on the supply chain costs associated with the warehouse.

5.4 RECOMMENDATIONS

- The first recommendation in line with inventory management is for ACMs to use an effective inventory management system and processes to optimise supply chains and avoid unnecessary costs.
- Regarding low volumes and production line changeovers, ACMs should employ efficient production planning to maintain production flow, particularly in handling low-volume runs.
- With the challenge of outdated supply chain systems, a recommendation is for ACMs to conduct regular maintenance schedules, frequently update supply chain systems, and employ reliable IT infrastructure to support smooth operations.
- When it comes to quality defects, ACMs should prioritise quality control systems and develop and implement checks and procedures to help to minimise defects and reduce material waste.
- Regarding the external factor-related challenges of port congestion and material scarcity, the recommendation is that the government should be proactive in absorbing the pressures posed by external factors in an attempt to limit the impact on organisations. In addition, the government should establish a working committee consisting of government and supply chain leaders from both the public and private space to discuss supply chain-related trends, following policies and objectives the committee will adopt.
- The recommendation to ACMs to reduce supply chain disruptions caused by conflict on the global stage is for companies to explore diverse sourcing strategies and alternative shipping routes to mitigate risks. In addition, ACMs

should spread the risk by using suppliers from various parts of the world, such as China and Europe, and possibly source local suppliers.

- A shortage of components directly affects the production schedule, which leads to stoppages in production and necessitates companies instituting overtime to catch up on lost production. In order to avoid this, the recommendation is for ACMs to focus on implementing an effective and efficient material management system and to proactively conduct environmental scanning for possible events that could affect material shortages. This environmental scan should align with the ASC method of co-managing inventory to ensure synchronous supply.
- In order to minimise uncertainties through the application of procedures, it is recommended that ACMs proactively minimise supply chain risks by conducting supplier audits to assess the quality, on-time delivery, and potential risks and issues that can affect the efficiency of their supply chain.
- To minimise the impact on overall performance, ACMs must collaborate and maintain an effective flow of communication between and across various stakeholders through efficient processes and systems. This recommendation is in line with integrated communication in the ASC.
- To minimise the impact on ACMs' performance, ACMs need to invest in high-end equipment; train their staff well; focus on service, pride and expertise; and have good quality patrollers.
- To mitigate against international conflicts and wars affecting global trade, governments should invest in establishing progressive peacekeeping organisations that are objective in resolving the Russia and Ukraine crisis.

5.5 CONTRIBUTION OF THE STUDY

This study contributes to the existing body of knowledge on supply chain challenges facing ACMs operating in Brits and surrounding industrial areas from both the theoretical and the practical perspective. The practical perspective relates to the various recommendations offered in Section 5.3.3, which can be valuable for ACMs that want to effectively manage supply chain challenges to minimise the impact on

organisational performance. From a theoretical perspective, the existing theory has been confirmed in this study, and new challenges not identified in the literature review have been disclosed.

The identification of the new challenges significantly contributes to the existing body of knowledge for ACMs in the Global South. In the section that discusses the direct impact of supply chain challenges on the overall bottom line, a new finding was identified, indicating that the cost of living is high, resulting in high unemployment and crime. This increases the risk of inventory getting stolen and trucks being hijacked, resulting in production stoppages that affect the ACMs' bottom line. This supply chain uncertainty hinders the ACMs from meeting customers' requirements.

In addition, this study identified the fact that large ACMs are not affected by cheap imports as the industry is well regulated and high-quality standards are maintained, thus making it difficult for cheap imports to replace the quality components manufactured locally.

5.6 LIMITATIONS OF THE STUDY AND RECOMMENDATIONS FOR FUTURE RESEARCH

Although this study closed the gap in the current research, it has limitations. The first limitation is the narrowing of the sampling frame. The sampling frame was limited to ACMs operating in Brits and surrounding industrial areas. The interviews were conducted with professional supply chain and logistics practitioners working in three different ACMs. Consequently, this study is not necessarily representative of the whole of South Africa, as the supply chain challenges facing ACMs operating in different parts of the country may differ regarding the hijacking of vehicles carrying components, load-shedding, and ineffective service delivery. These challenges may be specific to Brits and surrounding industrial areas. As a result, caution should be exercised when generalising the findings of this study, as the participants' subjective opinions and experiences could have influenced the identified challenges.

In addition, the supply chain challenges identified in Brits and surrounding industrial areas can differ from the challenges facing ACMs in other parts of the country. A recommendation for future research would be to conduct a similar study to include other ACMs across South Africa.

The study findings can be used to inform a quantitative study where the findings can be generalised to all ACMS. Further, the sample size led to a point of saturation, but the sample was small, with only seven participants, and the majority of participants were male. Thus, a recommendation for future research would be to conduct the same study with a larger sample and a more diverse team of males and females to obtain more representative findings.

A final recommendation would be to conduct a quantitative study on the supply chain challenges facing ACMS operating in Brits and surrounding industrial areas. In this instance, the challenges identified in the present study could be empirically tested using a deductive approach and survey strategy, therefore adopting a positivistic research philosophy. A study of this nature could further explore categories that had limited support regarding the codes identified in the study.

5.7 CONCLUSION

This study aimed to explore the supply chain challenges facing ACMS in Brits and surrounding industrial areas. The study was guided by the research question: “What are the supply chain challenges facing ACMS in Brits and surrounding industrial areas?” The literature review revealed several challenges that ACMS face regarding the supply chain. The literature review further provided the background on supply chain challenges facing ACMS and the theoretical concepts and theories important to understanding the challenges.

Semi-structured interviews were conducted with seven participants employed by three different ACMS in Brits and surrounding industrial areas, following interpretivism. The data collected in these interviews were analysed using a thematic analysis. The analysed challenges were compared to the challenges identified in the literature, and recommendations were provided to overcome these challenges in the future. The study’s findings indicate that participants experienced several challenges, some of which have already been identified in the literature review, whereas others were in addition to the challenges extracted from the existing body of knowledge. These challenges confirmed and eventually closed the research gap outlined in Chapter 1.

To conclude this study, it can be said that the interviewed participants experienced several supply chain challenges at their ACMS in Brits and surrounding industrial

areas. Many participants indicated that geopolitical issues significantly affect ACMs' overall performance. Although ACMs face similar supply chain challenges on a geopolitical scale, those operating in Brits and surrounding industrial areas are experiencing different challenges posed by the internal environment.

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ANNEXURE 1: INTERVIEW GUIDE

Interview questions

Section A: Get to know the participants.

1. What is your job title?
2. How long have you been working in the automotive industry?

Section B

Intends to understand supply chain challenges facing automotive component manufacturers in the Brits and surrounding industrial areas.

- 1) What internal supply chain challenges are impacting your organisation? Please elaborate.

Probe:

- Customer
- Suppliers
- Intermediaries
- Public, focus on individuals, government, and media
- Financial institutions
- Employees
- Stakeholders
- Supply chain processes and systems
- Market sensitivity and responsiveness – communication & feedback.

- 2) What external supply chain challenges are impacting your organisation? Please elaborate.

Probe:

- Political, economic
- Sociocultural
- Technological
- Environmental
- Legal factors
- Unpredictable events, Russia–Ukraine War, Israel/Gaza conflict, Red Sea conflict, port congestion, Suez Canal
- Cheap imports
- Inflation, currency rates, and interest rates
- Local governments
- Geopolitical issues.

3) Please elaborate: how do these challenges affect your ACM and your role?

Section C

To determine the influence of supply chain challenges on organisational performance.

1) What is the influence of the supply chain challenges noted above on the organisational performance of your ACM?

Probe:

- Production schedule
- Order book
- Financial and non-financial indicators
- On-time delivery
- Customer/Supplier relationship
- Logistics
- Inventory.

Section D

To understand how to better manage supply chain challenges to minimise the impact on organisational performance.

- 1) Please share with me some strategies you have employed in your role to help minimise the effect of these challenges in your organisation.

Probe:

- Practical solutions
 - Perspectives
 - Business's ability to respond to changes.
-
- 2) Reflecting on the strategies you have employed in the past to minimise supply chain challenges impacting your role and organisation, what new recommendations would you recommend on how best ACMs can plan and better manage these challenges?

ANNEXURE 2: IIE ETHICAL CLEARANCE LETTER



Our Ref: M. 280624
Enquiries: research@iie.ac.za

27 June 2024

Outcome of Ethics Clearance Application for Master of Business Administration

Student name: Reuben Ramasunge
Student number: [REDACTED]
Brand and campus: IIE/MSA

Dear Reuben,

Thank you for submitting the ethics clearance application for the study: *Supply chain challenges facing Automotive Components Manufacturers in the Brits industrial site region, and its influence on organisational performance perspective*.

The Head of Postgraduate Studies and Dean of Research and Postgraduate Studies reviewed the resubmission of Ethics Application as requested by the HDC Committee sitting in April 2024. We are pleased to inform you that ethics clearance has granted. This means that you may proceed with data collection. If you are collecting data from a specific organisation, ensure that you have a gatekeeper's letter that confirms their approval of the data collection being done.

You are reminded to inform the IIE's Higher Degrees Committee of any changes made to the research methodology or title of the research prior to examination. Kindly ensure that all ethical considerations are duly applied whilst collecting, analyzing and interpreting the data for the completion of your research.

If you have any questions, please feel free to contact your programme team or supervisor directly.

All the best with your research.

[REDACTED]

Dr Willy Engelbrecht
Chair: Higher Degrees Committee



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ANNEXURE 3: GATEKEEPER'S LETTER TEMPLATE

Consent form to conduct research at company/organisation/association	
I, [INSERT FULL FIRST AND LAST NAMES OF REPRESENTATIVE], in my capacity as [INSERT FULL TITLE/DESIGNATION] of [INSERT COMPANY/ORGANISATION/ASSOCIATION NAME], grant permission to Reuben Ramasunga to conduct research at the [INSERT SPECIFICATIONS SUCH AS WHERE AND ON WHICH GROUP(S)] pending the outcome of the ethics committee of the IIE on the envisaged research. The student may only engage with members of the organisation/ company/ association if they can produce the Ethics Letter from the IIE. This research has been explained to me and I understand what participation in this research will involve for the people I represent. I also reserve the right to remind the people I represent that their participation in this study is completely voluntary and that this permission does not imply their participation. I reserve the right to withdraw this permission at any time. I also understand that research reports are made available in IIE Libraries as well as on the IIE Repository. The below conditions must be applied whilst writing up the research report:	
Conditions concerning the anonymity of the company/organisation/association:	
The company/organisation/association must be kept <u>anonymous</u> in the research report.	☐
The company/organisation/association may be <u>identified</u> in the research report.	☐
Conditions concerning the publication of the research report:	
The research report will be made available on the IIE Repository... <u>Immediately</u> after completion.	☐
<u>After</u> a specified number of months has elapsed.	☐
Number of months, if selected:	
Signature	Date

ANNEXURE 4: PARTICIPANT OR RESPONDENT CONSENT FORM



ANNEXURE H (a): PARTICIPANT OR RESPONDENT CONSENT FORM

Explanatory information sheet and consent form for participants To whom it may concern, My name is Reuben Ramasunga and I am a student at The IIE's Monash SA. I am currently conducting research under the supervision of DR. Shamola Pramjeeth about An exploration into the supply chain challenges facing Automotive Components Manufacturers in the Brits industrial site region. I hope that this research will enhance our understanding of supply chain challenges facing ACMs and recommend possible strategies to ACMs to better manage and minimise the impact of supply chain challenges. I would like to invite you to participate in my study. In order to explain to you what your participation in my study will involve, I have formulated questions that I will try to fully answer so that you can make an informed decision about whether or not to participate. If you have any additional questions that you feel are not addressed or explained in this information sheet, please do not hesitate to ask me for more information. Once you have read and understood all the information contained in this sheet and are willing to participate, please complete and sign the consent form below. What will I be doing if I participate in your study? I would like to invite you to participate in this research because Your experience in the field of supply chain contribute significant value to this research endeavour and add value to the existing body of knowledge and provide ACMs with strategies to better manage and minimise supply chain challenges in the future. If you decide to participate in this research, I would like to schedule our discussion either in a physical setting or through online platform, whichever you prefer. The interview will take between 30 minutes to an hour. The Interview will be recorded to assist me in capturing your thoughts and view points accurately. You can decide whether or not to participate in this research. If you decide to participate, you can choose to withdraw at any time or to decide not to answer particular interview questions. Are there any risks/ or discomforts involved in participating in this study? Whether or not you decide to participate in this research, there will be no negative impact on you. There are no direct risks or benefits to you if you participate in this study. You might, however, indirectly find that it is helpful to talk about your experience in the field of supply chain may lead us to broader insights. If you find at any stage that you are not comfortable with the line of questioning, you may withdraw or refrain from participating. The researcher will abide to protection of personal information through storing data in a password protected file only accessible by the researcher for the period of 5 years, and in terms of anonymity when the research findings are being written, the researcher will refer to participant 1, instead of participant names. ACM names will not be disclosed in the final report.
--

Do I have to participate in the study? • Your inclusion in this study is completely voluntary; • If you do not wish to participate in this study, you have every right not to do so; • Even if you agree to participate in this study, you may withdraw at any time without having to provide an explanation for your decision.
Will my identity be protected? I promise to protect your identity. I will not use your name in any research summaries to come out of this research and I will also make sure that any other details are disguised so that nobody will be able to identify you. I would like to ask your permission to record the interviews, but only my supervisor, I and possibly a professional transcriber (who will sign a confidentiality agreement) will have access to these recordings. Nobody else, including anybody at IIE Monash SA, will have access to your interview information. I would like to use quotes when I discuss the findings of the research, but I will not use any recognisable information in these quotes that can be linked to you.
What will happen to the information that participants provide? Once I have finished all interviews, I will write summaries to be included in my research report, which is a requirement to complete my Master Business Administration. You may ask me to send you a summary of the research if you are interested in the final outcome of the study.
What happens if I have more questions about the study? Please feel free to contact me or my supervisor should you have any questions or concerns about this research, or if there is anything you need to know before you decide whether or not to participate. You should not agree to participate unless you are completely comfortable with the procedures followed. My contact details are as follows: Reuben Ramasunga  The contact details of my supervisor are as follows: Dr. Shamola Pramjeeth 

Participant or respondent consent	
I, _____, agree to participate in the research conducted by Reuben Ramasunga about An exploration into the supply chain challenges facing Automotive Components Manufacturers in the Brits industrial site region. I hope that this research will enhance our understanding of supply chain challenges facing ACMs and recommend possible strategies to ACMs to better manage and minimise the impact of supply chain challenges. This research has been explained to me and I understand what participation in this research will involve. I understand that: • I agree to be interviewed for this research. • My confidentiality will be ensured. My name and personal details will be kept private. • My participation in this research is voluntary and I have the right to withdraw from the research at any time. There will be no repercussions should I choose to withdraw from the research. • I may choose not to answer any of the questions that are asked during the research interview. • I may be quoted directly when the research is published, but my identity will be protected.	
Signature	Date

ANNEXURE 5: AUDIO OR VIDEO RECORDING CONSENT FORM



ANNEXURE H (b): AUDIO OR VIDEO RECORDING CONSENT FORM

Consent form for participants	
I, _____, agree to allow Reuben Ramasunga to audio record my interviews as part of the research about an exploration into the supply chain challenges facing automotive components manufacturers in the Brits and surrounding industrial areas. This research has been explained to me and I understand what participation in this research will involve. I understand that: • My confidentiality will be ensured. My name, personal details or any other identifiable information will be kept confidential; • The recordings will be stored in a password-protected file on the researcher's computer; and • Only the researcher, the researcher's supervisor(s) and possibly a transcriber (who will sign a confidentiality agreement) will have access to these recordings.	
Signature	Date

ANNEXURE 6: TURNITIN REPORT

ANNEXURE 7: LANGUAGE EDITOR CERTIFICATE



ONE STOP SOLUTION
Professional Editing Services

Proofreading Certificate

It is hereby certified that this dissertation has been proofread and edited for spelling, grammar and punctuation by a professional English language editor from www.OneStopSolution.co.za

Client

Reuben Ramasunga

An exploration into the supply chain challenges facing automotive components manufacturers in the Brits and surrounding industrial areas

Editor

Matthew Harvey

.....

Name



.....

Signature

28 March 2025

.....

Date

I cannot guarantee that the changes that I have suggested have been implemented nor do I take responsibility for any other changes or additions that may have been made subsequently. The track changes of the language editing will be available for inspection upon enquiry, for a period of one year.

Contact

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