



**STRATEGIC MAKE OR BUY DECISION PROCESS IN CONSTRUCTION
INDUSTRY**

Lappeenranta–Lahti University of Technology LUT

Master's Programme in Supply Management, Master's thesis

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Alisa Misukka

Examiner(s): Professor Katrina Lintukangas

Sirpa Multaharju, University Lecturer

ABSTRACT

Lappeenranta–Lahti University of Technology LUT

LUT Business School

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Alisa Misukka

Strategic Make or Buy Decision Process in Construction Industry

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72 pages, 4 figures, 5 tables and 2 appendices

Examiner(s): Professor Katrina Lintukangas and Sirpa Multaharju, University Lecturer

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Decisions regarding in-housing and outsourcing business functions significantly have an impact on organization's overall performance. This master's thesis explores make or buy decisions in the construction industry, with a specific focus on a case study involving a smaller operator in the industry. The primary objective of the study is to scrutinize main motivating factors influencing the process of strategic make or buy decisions within the construction industry, emphasizing cost considerations.

The case study examines a specific make or buy decision executed by the case company during the operational season in 2023, revealing that the decision to shift from outsourcing transportation practices to in-house practices was strongly tied to cost considerations. Additionally, unexpected benefits emerged, such as operational flexibility and enhanced company reputation.

The thesis emphasizes a holistic approach to decision-making. Beyond cost considerations, it is crucial to weigh broader benefits and challenges, including workforce management, operational efficiency, and impact on company image. The results offer practical insights for construction companies contemplating transition from outsourcing to in-house transportation practices.

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Päätökset yrityksen liiketoimintojen sisäistämisestä sekä ulkoistamisesta vaikuttavat merkittävästi organisaation suorituskykyyn. Tämä kauppatieteiden pro gradu -tutkielma tarkastelee make or buy (osta tai tee itse) -päätöksiä rakennusteollisuudessa, keskittyen tapausyritykseen, joka on pienempi toimija rakennusalalla. Tutkimuksen ensisijainen tavoite on tarkastella päämotiiveja, jotka vaikuttavat tapausyrityksen strategiseen make or buy -päätöksentekoprosessiin rakennusteollisuuden alalla, painottaen kustannusharkintoja.

Tapaustutkimus tarkastelee yrityksen merkittävää make or buy -päätöstä toimintakaudelle 2023, jolloin yritys siirtyi ulkoistetuista kuljetuskäytännöistä sisäisiin toimintoihin. Tutkimustulokset paljastavat, että päätös siirtyä ulkoistetuista kuljetuskäytännöistä sisäisiin toimintoihin liittyy vahvasti kustannustekijöihin. Tutkimuksessa ilmeni myös odottamattomia etuja, kuten lisääntynyt operatiivinen joustavuus sekä parantunut yritysmielikuva.

Tutkielma korostaa kokonaisvaltaista lähestymistapaa päätöksenteossa. Kustannusharkintojen lisäksi on tärkeää arvioida laajempia hyötyjä sekä haasteita, mukaan lukien työvoiman hallinta, operatiivinen tehokkuus ja vaikutus yrityksen kokonaiskuvaan. Tulokset esittävät käytännön oivalluksia rakennusalan yrityksille, jotka harkitsevat siirtymistä ulkoistamisesta sisäisiin kuljetuskäytäntöihin.

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Table of contents

Abstract

Acknowledgements

1	Introduction	8
1.1	Background and context	8
1.2	Research problem and significance	9
1.3	Research objectives and questions.....	10
1.4	Theoretical framework.....	11
1.4.1	Make or buy decisions	12
1.4.2	Supply chain management and strategic management theories.....	15
1.4.3	Contribution to academic literature and industry practice	16
1.5	Key concepts and definitions	17
1.6	Scope and structure of the thesis.....	18
2	Literature review	20
2.1	Factors influencing make or buy decisions.....	21
2.2	The construction industry context.....	25
3	Research design and methodology	29
3.1	Case company	29
3.2	Research design	29
3.3	Data collection	30
3.3.1	Primary data.....	32
3.3.2	Secondary data.....	33
3.4	Sampling strategy	35
3.5	Limitations of the methodology.....	36
4	Empirical findings	40
4.1	Semi-structured interview findings.....	40
4.2	Document analysis findings.....	45
4.2.1	Financial profitability	45
4.2.2	Increased transportation needs.....	46
4.2.3	Cost discrepancies.....	47

4.2.4	Strategic outlook for season 2024.....	47
4.2.5	External document findings	47
4.3	Thematic analysis	48
4.3.1	Case company managers and the company head.....	49
4.3.2	Case company employees	52
4.3.3	Cross-cutting findings.....	53
4.4	Interests behind make or buy decisions	54
4.5	Benefits and challenges of make or buy decisions	55
4.6	Cost considerations of make or buy decisions	56
4.7	Discussion of key themes and patterns	56
4.8	Implications for construction industry	57
5	Discussion.....	58
5.1	Findings compared to previous research	58
5.2	Practical and managerial implications	59
5.3	Limitations of the research	60
5.4	Recommendations for further research.....	63
6	Conclusions	64
	References.....	66

Appendices

Appendix 1. Interview questions for case company head and management

Appendix 2. Interview questions for case company employees

LIST OF TABLES AND FIGURES

Table 1: Factors influencing make or buy decisions

Table 2. Interviewees of semi-structured interviews

Table 3. Categorization of themes from semi-structured interviews with case company head and management

Table 4. Categorization of themes from semi-structured interviews with case company employees

Table 5. Categorization of cross-cutting themes from semi-structured interviews with case company head, managers, and employees

Figure 1: Make or buy framework

Figure 2: A conceptual framework to evaluate make or buy decisions

Figure 3: Scope of the study

Figure 4: Step-by-step guide on how to conduct thematic analysis for research questions of this study

1 Introduction

This research aims to explore the effectiveness of make or buy decisions for companies operating in the construction industry. The objective of the study is to investigate and assess whether organizations should internally produce a specific service (make) or procure it from an external supplier (buy) (Arya et al., 2008). While the make or buy decision framework is applied practically in real-world business decisions, it also functions as a theoretical foundation for this academic study in the realms of strategic management and supply chain management. In this study, the application of the make or buy framework specifically concentrates on cost considerations. The framework's application aims to scrutinize critical factors influencing strategic choices between in-housing and outsourcing within the construction industry. Furthermore, the research delves into strategic decision-making, its integration into the operations of the case company, and the exploration of anticipated challenges and positive outcomes associated with organizational change originated from make or buy decisions.

1.1 Background and context

In the dynamic field of construction industry, enterprises continually aim to execute crucial strategic choices that mold their competitive standing and financial considerations. Among these strategic decisions, the make or buy dilemma emerges as a pivotal concern for companies (Brahm & Tarzijian, 2016). This dilemma, a cornerstone in the fields of strategic management and supply chain management, presents a multifaceted challenge within a construction industry characterized by its diverse range of materials, complex supply networks, and a constant demand for more cost-efficient solutions.

The construction sector plays a vital role in the global infrastructure development, encompassing a broad spectrum of materials and services, ranging from the production of cement and steel to the manufacturing of asphalt and the management of complex projects (Dubois et al., 2019). Construction sector's complex network of suppliers, manufacturers, contractors, subcontractors, and stakeholders endorses economic growth on a global scale.

Due to this complex web of relationships, companies within the industry struggle with a fundamental question of whether to produce essential components and services in-house or to source them from external suppliers. This choice carries throughout the sector, significantly influencing cost structures, supply chains, and ultimately, the ability to execute projects strategically and efficiently.

This study is framed within the context of business functions, focusing on management, procurement, and supplier interactions, with a specific emphasis on the construction sector. The study draws on insights from supply management and strategic management theories, exploring key concepts and the relationships between independent variables, primarily revolving around cost considerations, and dependent variables that center on make or buy decisions and their impact on business performance.

1.2 Research problem and significance

The research problem addressed in this master's thesis revolves around a comprehensive exploration of the main factors that shape make or buy decisions within the construction industry and an evaluation of the consequences that such as decisions have on overall business performance of an organization (Erdogan et al., 2016). While make or buy decisions are a predominant consideration in supply chain management and strategic management across various industries, they require particular scrutiny in the unique context of the construction sector.

This study implies a systematic examination of the construction industry, analyzing factors that guide make or buy decisions within the chosen case company, which is a smaller operator within the industry. Data collection methods encompass semi-structured interviews with the case company managers, the head of the company as well as employees (Simpson & Genovese, 2016). Analytical techniques are employed to detect the relationships between key variables and to derive meaningful insights regarding effective decision-making practices concerning make or buy decisions. This conceptual framework serves as the foundation for the study, outlining the theoretical framework, research context, key concepts, relationships, and the research problem. It emphasizes the importance of investigating make or buy decisions within the construction industry while positioning them within the broader

context of supply chain management and strategic management. Additionally, it outlines a structured research process that involves data collection and analysis to address the research questions and contribute to the existing knowledge in the field (Parmigiani, 2007).

At the core of this multifaceted industry, make or buy decisions stands as a focal point for strategic planning, supply chain management, and resource optimization (Vorster, 2014). Such as decision-making necessitates a comprehensive evaluation of cost considerations and strategic objectives that profoundly affects the construction industry. Despite extensive research on make or buy decisions in various contexts, this study seeks to capture their significance among the unique challenges presented by the construction industry.

The research problem of this study aims to understand primary factors influencing make or buy decisions in the construction industry, with a specific focus on the interplay of cost considerations that guide organizations' decision-making (Foerstl et al., 2016). By addressing this research problem, the study aims to provide valuable insights that can inform decision-makers, industry practitioners, and policymakers. Furthermore, it contributes to the broader fields of strategic management and supply chain management, demonstrating how these theories can be effectively applied within the context of the construction industry (Serrano et al., 2018).

1.3 Research objectives and questions

The primary objective of this master's thesis is to conduct a comprehensive examination of make or buy decisions within the construction industry. In order to obtain this goal, the study is guided by two specific objectives: to identify and analyse the key factors that influence make or buy decisions within the construction industry and to explore how cost considerations impact the decision-making process. The main research question is formulated to describe the research problem of this study. Additional sub question is generated to support the main research question and provide a more in-depth exploration regarding the financial implications associated with make or buy decisions. In pursuit of these objectives, the research is structured by the main research question as follows:

RQ: What are the main factors influencing the process of strategic make or buy decisions within the construction industry?

This primary research question is complemented by a sub-question of:

SRQ: How do cost considerations impact the make or buy decisions made by companies within the construction industry?

Together, these research questions provide a framed and well-defined framework for this academic study, facilitating a comprehensive exploration and analysis of the specific factors that shape make or buy decisions within the construction industry. These questions are designed to guide the research and provide a deeper understanding of the complexity in these strategic choices.

1.4 Theoretical framework

This study builds its theoretical framework by incorporating insights from existing prior research on make or buy decisions, supply chain management, and strategic management. However, it is important to adapt and extend these theories to suit the specific context of the construction industry (Moore, 2000). By conducting focused research within this context, this study aims to contribute to the academic literature by providing a more precise understanding of the main factors involved in make or buy decisions within the construction industry (Dubem et al., 2014). This study will fill a gap in the literature, offering valuable insights for industry practitioners, and contributing to the broader field of strategic decision-making.

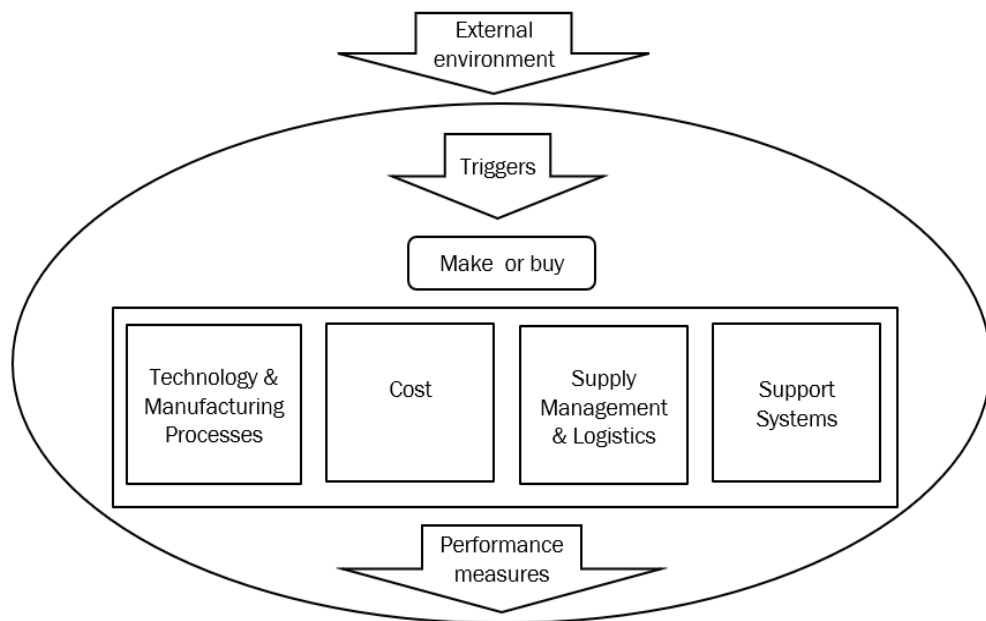


Figure 1. Make or buy framework, adapted from Canez et al., (2000)

Figure 1. presents a modified version of the make or buy framework originally proposed by Canez et al., (2000), suggesting an adaptation to suit the specific context of this study. The framework serves as a decision-making tool for organizations contemplating to execute make or buy decisions for various goods or services. The figure aims to capture the key components influencing the make or buy decision, potentially including cost considerations, resource availability, strategic alignment, and risk assessment.

1.4.1 Make or buy decisions

The theoretical foundation for this study is based on the extensive body of research concerning make or buy decisions (Arya et al., 2008). Historically, the concept of make or buy decisions has been a cornerstone of strategic management and supply chain management (Brahm & Tarzajian, 2016). Scholars and practitioners have delved into this topic to detect the factors influencing an organization's choice to either produce a specific product or a service internally (the "make" option) or to procure it from external suppliers (the "buy" option) (Sutton, 2006). The significance of this decision-making process is emphasized by

its impact on various aspects of an organization, including cost management, resource allocation, and strategic alignment.

However, while existing literature on make or buy decisions has offered valuable insights, these studies have often focused on broader industrial contexts, comprehending diverse sectors and industries (Vorster, 2017). The construction industry represents a distinctive environment characterized by its intricacies, diverse materials, and complex supply chains (Dubem et al., 2014). As such, the theories and models derived from more general contexts need to be adapted and extended to better reflect the specific challenges and dynamics of this industry (Krzemińska, 2009).

In recent years, the construction industry has faced significant transformations driven by technological advancements, regulatory changes, and evolving market demands (Acocello & Caplice, 2023). These changes have deepened the complexity to make or buy decisions, necessitating a re-evaluation of traditional approaches and methods used by organizations regarding in-housing and outsourcing.

Furthermore, the industry of construction is major, including numerous of distinct corporations due their size, location, and specific nature in business. Therefore, research on a specific size, location, and a form of a business within the industry is crucial to explore and discover in order to determine specific characteristics of make or buy decisions. Understanding how such as factors interact, and influence decision-making processes is essential for developing adjusted strategies that effectively address the unique challenges faced by construction companies in navigating the make or buy dilemma.

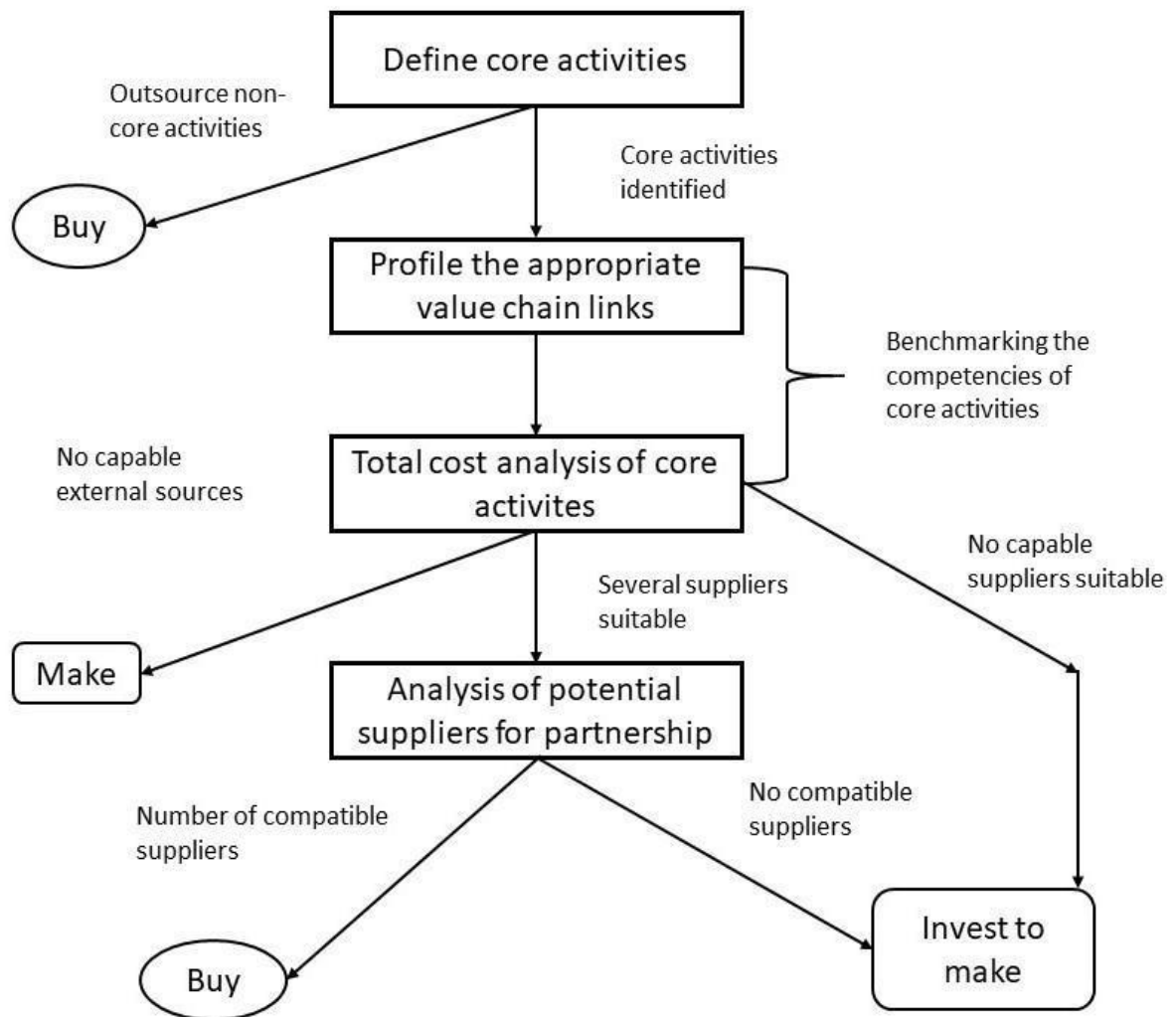


Figure 2. A conceptual framework to evaluate make or buy decisions, adapted from Humphreys et al., (2000)

Make or buy decisions are extensively complex choices that organizations make. Evaluating make or buy decisions in the form of a conceptual framework is illustrated in Figure 2. It encapsulates the complexity of such as decisions regarding make or buy, providing a visual representation of the nuanced factors that come into play when determining whether to internally produce goods or services or to seek them from external suppliers. This conceptual framework serves as a guiding map, offering insights into the factors and considerations that form the foundation of the decision-making process between making or buying.

This study seeks to address the research gap by concentrating on make or buy decisions within the construction industry from the perspective of a smaller operator (Parmigiani, 2007). By narrowing the focus by such merits within the sector, the theoretical framework must consider the industry, company size, and specific factors that influence these decisions (Arya et al., 2008). This adaptation is vital for a more precise understanding of the main factors involved in make or buy decisions within this unique context. It is not sufficient to only apply existing theories without considering the industry's distinct intricacies as well as the scale of a company.

1.4.2 Supply chain management and strategic management theories

In addition to the core theories related to make or buy decisions, this study also draws from the rich body of literature on supply chain management and strategic management. These two fields are essentially linked to the decision-making process within the construction industry (Brahm & Tarzajian, 2016).

Supply chain management theories provide a framework for understanding the complexities of sourcing, procurement, and logistics within the construction industry (Dubois et al., 2019). The construction sector relies on an extensive network of suppliers, manufacturers, subcontractors, and distributors (Erdogan et al., 2016). The dynamics within this supply chain play a pivotal role in the make or buy decisions made by companies. This study adapts supply chain management theories to explore how supply chain dynamics influence the choice between making and buying specific services.

Strategic management theories offer insights into how organizations develop and execute their strategies (Lynch, 2021). Within the construction industry, strategic goals, and long-term considerations are paramount (Arya et al., 2008). Companies must align their make or buy decisions with their overarching strategic objectives. This study extends strategic management theories to investigate how the alignment with strategic goals impacts the decision-making process and contributes to business performance.

By integrating these theories into the theoretical framework, this study aims to provide an all-encompassing understanding of the factors influencing make or buy decisions within the

construction industry from the perspective of a smaller operator (Parmigiani, 2007). This adaptation and extension of existing theories are essential to address the unique challenges and intricacies of the industry, filling a gap in the academic literature (Dubois et al., 2019). The theoretical framework will serve as a guide for the subsequent analysis and research design, enabling a comprehensive examination of the decision-making processes and their implications within this specific context.

1.4.3 Contribution to academic literature and industry practice

This study's theoretical framework serves a dual purpose: it contributes to the academic literature on make or buy decisions and provides practical insights for industry practitioners within the construction sector (Gomez, 2009). From an academic perspective, the adaptation and extension of existing theories to this specific industry context fill a critical gap in the literature (Arya et al., 2008; Brahm & Tarzajian, 2016). By providing a more precise understanding of the factors influencing make or buy decisions within the construction industry, this study enhances the body of knowledge in the field of strategic decision-making (Nyström, 2019). It contributes to the existing theoretical framework by addressing the unique challenges and dynamics of this industry (Parmigiani, 2007). From a practical standpoint, this research has the potential to offer valuable insights for industry practitioners and decision-makers (Gomez, 2009). The adapted theoretical framework, when applied to real-world scenarios, can help corporations to make more informed and context-specific make or buy decisions (Hartman et al., 2017). By considering the industry's distinct factors, companies can optimize their operations, control costs, and align their strategies with their overarching goals (Sutton, 2006). This, in turn, can enhance the competitiveness and efficiency of organizations within the construction industry (Moore, 2000).

Overall, the theoretical framework for this study is designed to adapt and extend existing theories on make or buy decisions, supply chain management, and strategic management to the specific context of the construction industry (Cáñez et al., 2000). This adaptation is critical to provide a more precise understanding of the main factors involved in make or buy decisions within this unique sector, ultimately contributing to both academic knowledge and industry practice (Lynch, 2021).

1.5 Key concepts and definitions

This section of the study introduces and defines key concepts essential for understanding and analysing make or buy decisions within the construction industry (Kyheröinen, 2020). These concepts include make or buy decisions, supply chain dynamics, strategic factors, external factors, and business performance (Simpson & Genovese, 2016). Understanding these concepts provides a solid foundation for the study and helps to clarify the specific context and factors that will be explored. Such ideas are as well crucial for the reader to be acknowledged in order to extensively follow this study.

Make or buy decision: Make or buy decision refers to the strategic choice made by companies within the construction industry regarding whether to internally produce (make) or externally procure (buy) specific products or services (Cáñez et al., 2000). This decision is influenced by factors such as cost considerations, supply chain dynamics, sustainability goals, and strategic alignment (Parmigiani, 2007). In the context of this research, specifically the choice of make or buy is concentrated into services.

Supply chain dynamics: Supply chain dynamics comprehend the complex interactions, relationships, and flows of materials, information, and resources within the construction industry's supply chain network (Dubois et al., 2019). These dynamics impact decision-making processes, affecting factors such as lead times, supplier relationships, and inventory management. In the context of this research, such as factors are crucial to investigate to find out reasons for strategic choices made regarding make or buy decisions.

Strategic factors: Strategic factors in the context of this study refer to longer-term considerations and goals that guide decision-making within the construction industry (Lynch, 2021). This includes elements such as cost-effectiveness, alignment with corporate strategy, and future market positioning which are important to be observed once make or buy decisions are to be considered.

External factors: External factors are external influences that can significantly impact make or buy decisions within the industry (Cáñez et al., 2000). These factors include market trends, regulatory changes, economic conditions, seasonal variations, and technological

advancements. Such factors require companies to adapt their strategies to remain competitive.

Business performance: Business performance refers to the overall effectiveness and success of companies within the construction industry (Nyström, 2019). It encompasses financial performance, operational efficiency, customer satisfaction, and other key performance indicators affected by make or buy decisions.

1.6 Scope and structure of the thesis

This master's thesis is structured to comprehensively address the research problem, objectives and questions outlined in the previous section. This study is divided into several chapters, each dedicated to a specific aspect of make or buy decisions within the construction industry. The following provides an overview of the thesis structure. After this introduction chapter, literature review is addressed which introduces the significance of exploring make or buy decisions, highlighting their unique challenges together with identifying multifaced factors in the construction industry which all have an effect on decision-making processes. Chapter three is dedicated to research design and methodology where the research design, data collection methods and analysis techniques are stated together with sampling strategy and limitations of the methodology. The fourth chapter entails a case study that delves into the case company of the research operating in the construction industry, examining their process of strategic make or buy decisions in the context of transitioning from outsourcing to in-house transportation for their supply chain. In this chapter the empirical findings are addressed extensively. Discussion chapter is covered next where research findings are compared with previous research, practical as well as managerial implications are discussed, limitations of this master's thesis are addressed and finally, recommendations for further research are advised. The final chapter being conclusion, summarizes key findings of the study, provides contributions to knowledge and recommendations for industry practitioners. It also outlines directions for future research.

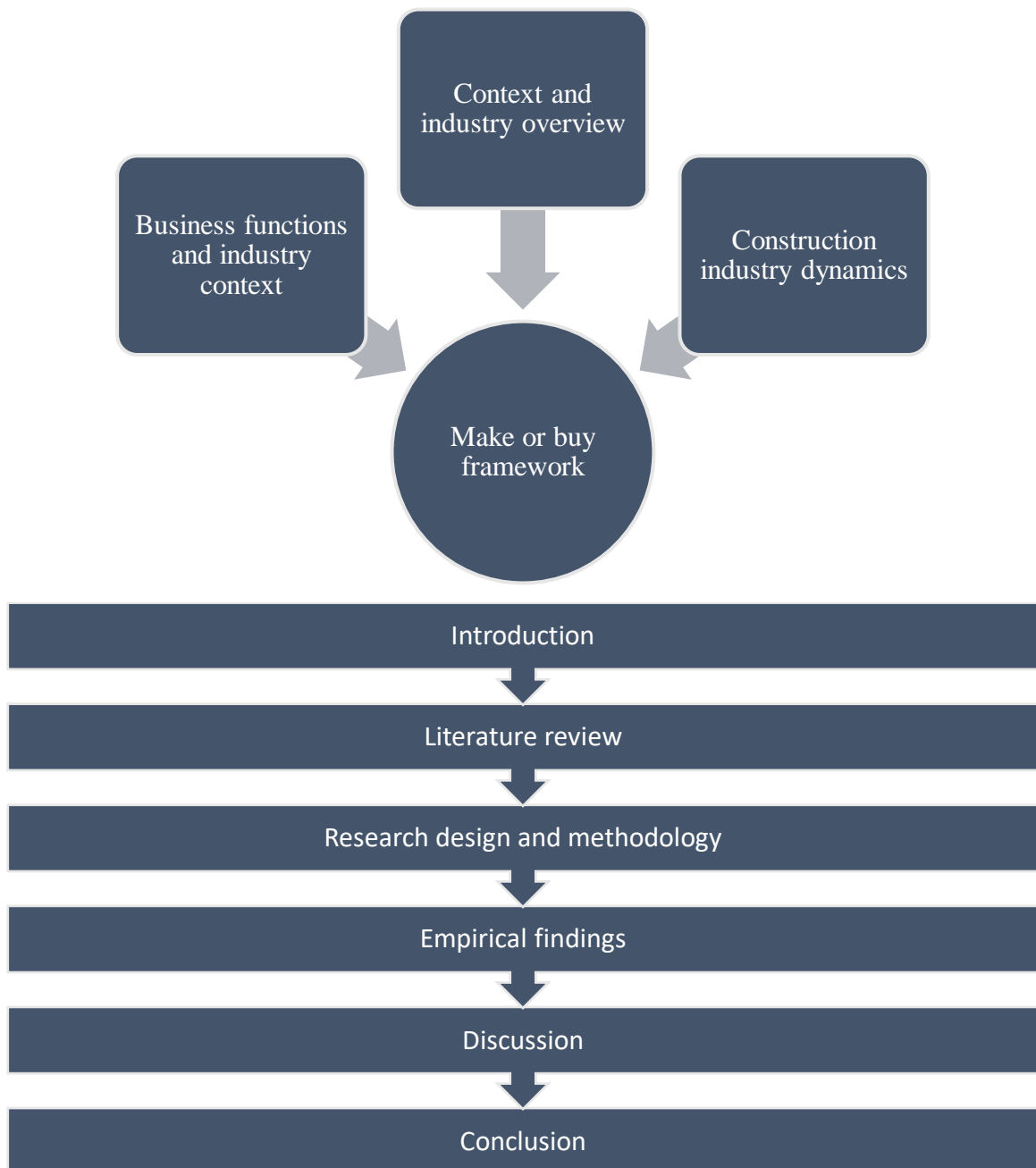


Figure 3. Scope of the study

Throughout the thesis, a qualitative research method is utilized to gain profound insights into the complex decision-making processes of organizations within the construction industry. Strategic management and supply chain management critically center around make or buy decision within the sector of construction. This study strives to unravel the complex factors influencing these decisions, contributing to the industry's strategic success.

2 Literature review

In recent years, make or buy decisions within the construction industry have gathered a significant attention (Arya et al., 2008; Dubois et al., 2019). While research has explored make or buy decisions in various industries, with a focus on cost-effectiveness, supply chain management, and strategic management, there exists a gap in the literature when it comes to the application of this decision framework within the construction industry, especially concerning smaller operators in the industry (Cáñez et al., 2000; Nyström, 2019).

This study's importance derives from the distinct challenges and dynamics found within the construction industry (Gomez, 2009). The sector encompasses both short-term and long-term projects, complex supply chains, and a wide range of materials and services (Erdogan et al., 2016). Existing research may not adequately address the industry-specific factors influencing make or buy decisions within this context (Parmigiani, 2007). By conducting a concentrated analysis within the construction industry, the study aims to fulfill this research gap by providing insights into the decision-making processes and to find out the primary factors that are unique to the construction sector (Simpson and Genovese, 2016).

Several reasons contribute to this research gap. Firstly, prior empirical research has generated mixed results concerning make or buy decisions, with some studies advocating for outsourcing and others for in-house production (Hartman et al., 2017). These disparities may be due to differences in industry contexts, company size, location, and research methodologies. This study is designed to investigate make or buy decisions in the construction industry from the perspective of smaller operators, with a specific focus on cost considerations (Vorster, 2014).

Another reason for this research gap lies in the potential conflict between theoretical approaches (Serrano et al., 2018). Theoretical approaches used in previous research may not align with the complexities of the construction industry. Therefore, adapting existing theories of supply management and strategic management to this precise sector is crucial (Ketoniemi & Mahoney, 2020).

Additionally, the evolving nature of the construction industry has led to the emergence of new challenges and considerations (Foerstl et al., 2016). Recent years have witnessed significant changes in the sector, including technological advances, the constant need for more efficient operations, and shifts in market dynamics (TINGASHARE, 2023). These developments significantly impact the make or buy decisions within the industry, particularly concerning cost considerations.

2.1 Factors influencing make or buy decisions

Factors influencing make or buy decisions are multifaceted and pivotal for strategic decision-making (Parmigiani, 2007). This section provides an in-depth exploration of such factors, including cost analysis, economies of scale, core competencies, risk management, strategic goals, capacity and capability, quality control, lead times, flexibility, intellectual property protection, environmental and ethical considerations, adherence to regulations, market dynamics, and technological progress (Foerstl et al., 2016).

In the realm of strategic decision-making, make or buy choices represent a pivotal consideration for businesses (Parmigiani, 2007). This decision-making process entails the consideration of whether an organization should internally produce a particular product, component, or service (making) or to acquire it from external suppliers (buying) (Simpson & Genovese, 2016). The judgment in this instance depends on a variety of influential factors, with each one playing a role in reaching the ultimate decision. The following are the key factors that have a significant influence over make or buy decisions:

Fundamental to this decision-making process is a comprehensive evaluation of costs (Cánez et al., 2000). Companies must delve into the cost dynamics involved in both in-house production and outsourcing. This encompasses a detailed scrutiny of raw material costs, labor expenses, overhead, equipment, and the financial implications of engaging external suppliers (Nyström, 2019).

The scale of production plays a pivotal role in this context. Businesses must explore whether the economies of scale come into play. Higher production volumes frequently lead to the

prospect of cost savings, thus making it a crucial factor in the assessment whether to make or buy (Stentoft et al., 2015).

A close examination of organization's core competencies is necessary (Arya et al., 2008). It necessitates discerning whether the contemplated product or service aligns with the unique strengths and expertise of the company (Simpson & Genovese, 2016). This factor is pivotal in making strategic choices that align with the core capabilities of the organization (Parmigiani, 2007). In case some, or a part of a core competence(s) is outsourced, a company should consider in-housing such operations to accomplish greater profits and to increase intellectual property.

Managing risks is a fundamental aspect (Arya et al., 2008). Each choice bears its set of risks. In-house production provides a sense of control but introduces potential risks such as equipment breakdowns, skill shortages, and capacity constraints. On the other hand, outsourcing poses its own set of risks, including supplier reliability, quality control, and intellectual property protection (Dubois et al., 2019).

The alignment with strategic goals is of paramount importance (Lynch, 2021). Companies must consider whether the decision resonates with the overarching strategic objectives. While some businesses may choose outsourcing to focus on their core competencies, others might prefer in-house control to meet specific strategic goals as well as to increase intellectual property of a business (Parmigiani, 2007).

The internal capacity and capability to execute certain business activity must be also assessed (Arya et al., 2008). This encompasses the evaluation of the availability of essential technology, skills, employees, and equipment within the organization (Cáñez et al., 2000).

Quality considerations weigh heavily in the decision (Simpson & Genovese, 2016). In-house production typically offers superior control over quality. Outsourcing, on the other hand, necessitates strict quality assurance measures and robust oversight of suppliers (Acocello & Caplice, 2023).

Lead times and flexibility are pivotal aspects. Companies must factor in lead times and the necessary flexibility for their operations (Stentoft et al., 2015). Outsourcing may offer shorter lead times and the flexibility to scale operations, while in-housing business activities in certain circumstances may demand longer setup times and could entail limited flexibility (Drauz, 2014).

Safeguarding intellectual property is a significant concern, particularly in outsourcing arrangements (Brahm & Tarzjian, 2016). Companies need to ensure that their proprietary information is adequately protected when engaging external suppliers.

The increasing prominence of environmental sustainability and ethical considerations necessitates a thorough evaluation (Gomez, 2009). Companies must scrutinize the implications for their brand and reputation associated with both options once making decisions.

Adherence to regulations and industry standards is non-negotiable. Compliance with legal and regulatory requirements must be ensured for both in-house and outsourced production methods (Parmigiani, 2007).

The reliability and stability of supplier relationships are pivotal. Companies should assess the track record, trustworthiness, and ability of potential suppliers to meet demand fluctuations (Serrano et al., 2018). The fluidity of market conditions, including demand fluctuations, seasonal fluctuations, competitive landscape, and evolving trends, can exert a substantial influence on the decision. The ability to adapt to changing market conditions is a critical consideration (Lynch, 2021).

The progress of technology is a dynamic element. Companies must consider whether emerging technologies can enhance their capabilities or reduce costs, thereby impacting the decision-making process (Ketonieni & Mahoney, 2020).

Geopolitical stability and the geographical location of suppliers also have an effect on considerations. (Nyström, 2019). The interaction of political factors and logistical considerations may influence the sourcing decision.

Make or buy decisions are intricate and multifaceted, and their relative significance can fluctuate according to specific circumstances and organizational objectives (Sutton, 2006). Therefore, a comprehensive and systematic examination of all these factors is indispensable in making well-informed decisions that harmonize with a company's strategic aims and financial interests (Simpson & Genovese, 2016). All factors influencing make or buy decisions of companies are identified from academic literature and illustrated in Table 1.

Table 1. Factors influencing make or buy decisions

Factor	Reference
Cost analysis	Cáñez, Platts, & Probert (2000); Nyström (2019)
Economies of scale	Stentoft, Mikkelsen, & Johnsen (2015)
Core competencies	Arya, Mittendorf, & Sappington (2008); Simpson & Genovese (2016); Parmigiani (2007)
Risk management	Arya, Mittendorf, & Sappington (2008); Dubois, Hulthén, & Sundquist (2019)
Strategic goals	Lynch (2021); Parmigiani (2007)
Capacity and capability	Arya, Mittendorf, & Sappington (2008); Cáñez, Platts, & Probert (2000)
Quality control	Simpson & Genovese (2016); Acocello & Caplice (2023).
Lead times	Stentoft, Mikkelsen, & Johnsen (2015); Drauz (2014)
Flexibility	Drauz (2014)
Intellectual property protection	Brahm & Tarzajian (2016)
Environmental and ethical considerations	Gomez (2009)
Adherence to regulations, market dynamics and technology progress	Parmigiani (2007); Serrano, Ramírez, & Gascó (2018); Lynch (2021); Ketoniemi & Mahoney (2020); Nyström (2019)

Table 1. outlines various factors that influence the decision-making process regarding whether to make or buy goods or services. In addition, relevant references of each factor used in this study are addressed. Each factor plays a crucial role in determining the most suitable approach for a particular situation. Factors such as cost analysis, core competencies,

risk management, and adherence to regulations highlight the multifaceted considerations involved in this decision. Additionally, aspects like quality control, lead times, and flexibility underscore operational concerns that can significantly impact the decision-making process. Moreover, factors such as intellectual property protection, environmental and ethical considerations reflect broader strategic and ethical considerations that organizations must evaluate when planning to execute make or buy decisions.

2.2 The construction industry context

In the construction industry, the consideration of make or buy decisions is a crucial strategic step that directly impacts project execution, financials, competitiveness as well as overall performance of a company (Dubois et al., 2019). These choices ultimately revolve around the fundamental decision of whether to execute certain business activities in-house, to obtain them from external suppliers or to use a model utilizing both of these alternations (Moore, 2000). A variety of factors and considerations guide these choices within the unique context of the construction industry.

Quality and specification control are crucial within this specific industry. Many construction firms prefer to choose in-house production when the quality of a particular product, components or a service must be closely monitored (Vorster, 2014). This is particularly true for critical elements and core business activities, where adherence to project requirements, tight timetables and industry standards are paramount. In addition, when it comes to the construction industry, especially in the case of the case company of this study, business tend to be rather seasonal which requires better quality and specification control since the duration of operational working time within a year is limited.

Specialized expertise is often a requirement in specific construction projects and businesses. A unique nature of business regarding processes may necessitate in-housing due to the need for specialized skills and an extensive understanding of a specific business or project intricacies (Erdogan et al., 2016). Service wise, as the need for a service increases, it requires more precise roles for employees to achieve a more efficient division of labor. Specialization enables employees to become more talented in their specific tasks which correlates with increased productivity and efficiency.

Economies of scale come into play in construction with substantial volumes. In such scenarios, in-house production may be the preferred choice due to the cost advantages that arise from large-scale operations (Dubem et al., 2014). For instance, in case of services, outsourcing transportation practices can be found to be more cost effective to establish in-house in a larger scale due numerous of reasons. One of the reasons being the spread of fixed costs. As the need for more transportation instances increases, these fixed costs are spread over a more extensive need of the service, leading to lower the average cost per transportation instance.

Cost and budget constraints can lead the decision towards either external sourcing or in-housing. In situations where budgetary limitations are a concern, competitive pricing offered by external suppliers can be an attractive proposition (Kyheröinen, 2020). By procuring ready-made materials or outsourcing specific services, companies can manage initial costs more effectively and no big investments need to be made. On the other hand, in case a company produces are particular good or a service inhouse, they grow the business and in a long term, cost are cut, and economies of scale is increased. (Vorster, 2017).

Regulatory compliance is non-negotiable in the construction industry, given the need to adhere to specific requirements, environmental regulations, and safety standards (Erdogan et al., 2016). External suppliers who have already met these regulatory requirements can be a preferred choice to avoid potential compliance issues associated with in-house production. Conversely, in case a company invests in regulatory compliance issues in-house, they might be more easily supervised.

Lead times and project timelines are critical in construction, where deadlines are often stringent. In-house production setup or a breakdown of machinery may consume valuable time. In order to meet tight project schedules, the option to “buy” from established suppliers with shorter lead times may be the most practical choice (Foerstl et al., 2016). However, the supplier might not always be as reliable as in-housing even though outsourcing may offer a quicker solution. Additionally, there is a trade-off in terms of control over the outsourced service or a component.

Seasonal and variable demand is a common feature in the construction sector. To manage fluctuating demand effectively, companies may choose to procure materials externally rather than maintain excess in-house capacity. This flexibility enables a more agile response to market dynamics and demand fluctuations (Jeter, 2009). In case of services, a company may decide to in-house as an example the service of routine maintenance of its specialized equipment crucial for core activities of the corporation. During peak construction seasons, when the demand for equipment maintenance is high, having an in-house team or expertise allows the company to swiftly address repairs and preventive maintenance. However, during off-peak seasons, maintaining a full-time, in-house maintenance team or an expert might be cost-inefficient due to reduced demand.

Risk mitigation is another factor to consider, as the construction industry involves various different uncertainties, from machinery breakdowns to supply chain disruptions (Arya et al., 2008). Diversifying the sources of supply by "buying" certain services or components can serve as a risk mitigation strategy. This approach minimizes the impact of unforeseen challenges. In-housing can be a good idea in the construction industry due to the need for effective risk mitigation. The construction sector is inherently exposed to various uncertainties, ranging from machinery breakdowns to disruptions in the supply chain (Arya et al., 2008). Opting for in-housing, or managing certain services and components internally, allows a construction company to directly control and mitigate the risks associated with these uncertainties. For example, when a construction company chooses to handle critical components or services in-house, such as maintaining its machinery or managing key aspects of the supply chain, it gains a higher degree of control over potential risks. Companies can implement preventive maintenance programs to reduce the likelihood of machinery breakdowns and to establish contingency plans to address supply chain disruptions. This proactive approach minimizes the impact of unforeseen challenges, contributing to enhanced resilience and stability in the face of industry uncertainties.

Supplier relationships are extremely valuable in the construction industry. Building strong and reliable relationships with suppliers can be a strategic asset (Vorster, 2014). Many construction firms establish long-term partnerships with trusted suppliers known for consistently delivering high-quality materials or services. These relationships can significantly influence the decision to "buy" rather than to "make." On the other hand, by

not taking risks and operating similar way as in the past, the most cost-effective way of doing might be missed. Therefore, it should be noted for companies to make profitability calculations regarding in-housing and outsourcing regularly (Vorster, 2014).

In the construction industry, the most effective approach often involves a carefully considered blend of making and buying, tailored to meet the specific requirements of individual needs of a company (Nyström, 2019). A nuanced understanding of the factors at play and a thorough evaluation of each component's suitability for in-house production or external sourcing are necessary. Make or buy decisions should align closely with project goals, goals of an organization, budget constraints, timelines, company size, company resources and quality benchmarks, ultimately contributing to the success and competitiveness of construction firms in this dynamic and demanding industry.

3 Research design and methodology

This section of the research introduces the case company as well as delves into the chosen research design and methodology. The selection of a qualitative research method is made to effectively capture and articulate the implementation of this research. Firstly, a thorough introduction to the case company and research design are provided, followed by an exploration of the data collection process encompassing both primary and secondary data utilized in this study. Additionally, the sampling strategy for the primary data, specifically in relation to semi-structured interviews, is outlined. Finally, the limitations inherent in the chosen methodology are addressed.

3.1 Case company

The case company of this study is a smaller operator within the construction industry. The company was founded in 2013 and can be regarded as a seasonal company aiming that weather conditions have a significant impact on its operations and activities. Transportation is one of the core activities within the case company and throughout its entire history, the company has relied on outsourcing regarding transportation practices. However, during the year 2023, the company made a strategic shift in their strategy and decided to in-house transportation practices hoping to gain financial benefits.

3.2 Research design

In this study, an exploratory case study approach is employed in the research design to gain a comprehensive understanding of the decision-making processes associated with make or buy decisions within the construction industry (Acocello & Caplice, 2023). This approach facilitates a detailed examination of a specific company and its contextual factors. The chosen case company, operating in the construction sector, represents a smaller operator within the industry under investigation (Nyström, 2019).

The research methodology utilizes a qualitative research method to explicate the decision-making event (Patton, 2002), concentrating on interpreting the underlying meaning of the

event. This case study approach is particularly convenient when the researcher has limited control over the events, and the primary emphasis is on contemporary phenomena (Devers & Frankel, 2000). In the case of the scrutinized case company, the make or buy decisions are internally managed by the company's managerial personnel, emphasizing that the author does not influence these decisions. Furthermore, the make or buy decision under investigation occurred relatively recently, categorizing them as contemporary occurrences.

The primary purpose of this case study is exploratory, with a key objective being the identification of motivating factors behind insourcing decisions, focusing specifically on strategic management and supply management theories. Besides the key objective, the study aims to explore how cost considerations have an effect on whether the case company chooses to in-house or outsource a specific service. The study aligns with prior research recognizing qualitative case studies as a suitable and valuable research method in this field, especially when exploration is the primary goal (Gentles et al., 2016). It is emphasized that the case study approach has the potential to generate rich and meaningful data, which holds significance in the realms of supply chain management and strategic management (Simpson & Genovese, 2016).

3.3 Data collection

This case study utilizes both primary and secondary data sources. Primary data was gathered through semi-structured interviews and secondary data through document analysis as part of this master's thesis research. Interviewees consisted of key decision-makers within the case company, including managers, the company head, and employees (Gill et al., 2008). These interviews aimed to explore their perspectives, experiences, and the company's underlying motives regarding the make or buy decision made by the case company, with a particular focus on in-house service provision. To guide these interviews, a comprehensive interview guide with open-ended questions was developed, emphasizing aspects related to cost considerations, strategic factors, and execution of the make or buy decision made that all impact company performance (Leavy, 2014).

The document analysis component involved the review of essential internal and external documents, such as company reports, industry publications, scientific research, and

regulatory documents (Brahm & Tarzajian, 2016; Cánez et al., 2000). Internally, the specific focus was on how a precise make or buy decision made by the case company during the 2023 season affected company performance. Externally, industry publications, scientific research, and regulatory documents were scrutinized to gain a broader perspective on industry-specific make or buy decisions (Erdogan et al., 2016). The aim was to analyze these documents to extract valuable insights, historical trends, and contextual information related to make or buy decisions, thereby complementing the data obtained from the semi-structured interviews.

The data collection plan for this study outlines a comprehensive qualitative research approach aimed at unraveling the complexities of make or buy decisions within the construction industry, contributing valuable insights to the field (Groenland & Dana, 2020; Hartman et al., 2017). The data collection process comprised five phases. The first phase, the preparation phase, involved the development of the research proposal, research questions, and objectives. Furthermore, potential participants within the company were identified, and necessary approvals and permissions were obtained (Devers & Frankel, 2000; Krzemińska, 2009). The second phase was the data collection phase, during which semi-structured interviews were conducted with selected participants, and relevant documents were gathered for analysis. Subsequently, the data analysis phase followed, which encompassed the transcription of interview recordings, coding and analysis of data using thematic analysis techniques (Gentles et al., 2016; Gill et al., 2008). This phase involved a continuous comparison of findings with the research questions and objectives. The fourth phase centered on reporting and writing, with the drafting of thesis chapters that included the methodology, literature review, findings, and conclusions (Leavy, 2014). Key findings were presented, supported by quotes and examples, and their implications for the construction industry were discussed. The final, fifth phase involved the completion of the thesis, which entailed reviewing, editing, and proofreading to ensure compliance with academic standards, including proper citations and references (Patton, 2002; Simpson & Genovese, 2016). Feedback from the case company was also sought in this phase.

3.3.1 Primary data

Primary data for this study was acquired through semi-structured interviews, concentrating on a specific make or buy decision made by the case company, related to in-house service provision (Gill et al., 2008). The interviewees comprised of key decision-makers within the company, such as managers, the company head, and employees engaged in the decision-making process. The utilization of semi-structured interviews was instrumental in extracting insights from these key decision-makers. These participants shared valuable perspectives on decision-making processes, motivations, and the factors influencing in-house service provision. The discussions were guided by an interview guide featuring open-ended questions, fostering a comprehensive understanding of the subject.

Thematic analysis, employed as a qualitative research method, was utilized to discern themes, patterns, and key findings within the interview transcripts (Leavy, 2014). To manage and organize the data efficiently, qualitative analysis software ATLAS.ti was employed. This software streamlined the coding process, facilitating data organization and supporting the generation of reports and representations for interpretation.

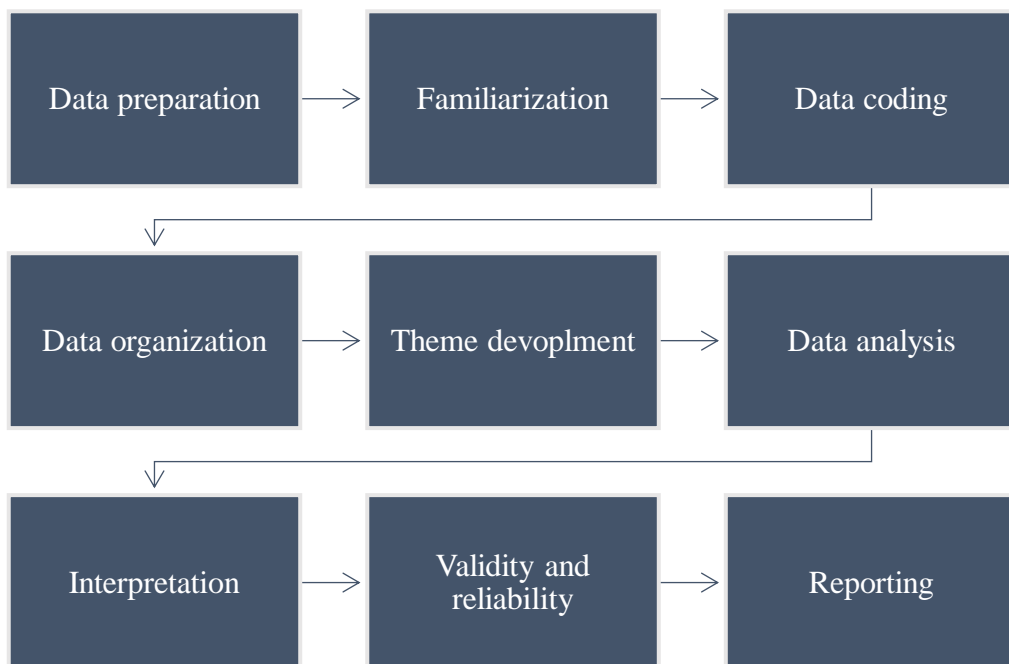


Figure 4. Step-by-step guide on how to conduct thematic analysis for research questions of this study

The thematic analysis process comprised data preparation, familiarization, data coding, data organization, theme development, data analysis, interpretation, validity, reliability, and reporting. This systematic approach ensured a thorough exploration of make or buy decisions, yielding actionable insights to enhance supply chain management practices (Gentles et al., 2016; Bobby, 2016). The thematic guide additionally helps in identifying, categorizing, and interpreting themes, patterns, and key findings within the set of data.

3.3.2 Secondary data

In this research, the analysis of documents stands as a critical secondary data source, especially when examining intricate business decisions related to make or buy choices within a company (Cáñez et al., 2000). Document analysis entails a careful examination of diverse range of documents, encompassing both internally generated financial records concentrating on profitability calculations and external sources such as industry publications, scientific research, and regulatory documents (Dubois et al., 2019). This inclusive array of documents includes financial reports, academic studies, and government regulations.

The primary objective of analyzing external documents was to gather valuable insights, trace historical trends, and acquire contextual information pertaining to make or buy decisions (Arya et al., 2008). This analytical process proves that it is essential to provide a comprehensive understanding of the historical factors that have shaped these decisions and the broader landscape within which these decisions are formulated.

Internal company reports offer a firsthand account of the company's operations, strategies, decision-making procedures, and financials (Gentles et al., 2016). The scrutiny of internal documents aimed to ascertain the impact of a specific make or buy decision on company performance during the 2023 season in comparison to previous two seasons (years). In the context of make or buy decisions, these reports often offer crucial insights into the company's financial performance, resource allocation, and overarching business objectives. Analyzing these reports allows researcher to identify factors shedding light on the company's past decision-making regarding service procurement in this case (Leavy, 2014). Additionally, scrutinizing internal documents enabled the creation of a comparison regarding cost considerations made by the case company.

Industry publications function as external repositories of market dynamics, emerging trends, and best practices within a given industry, providing a valuable external perspective (Simpson & Genovese, 2016). These publications furnish comparative data on the advantages and disadvantages of making or buying specific services, allowing researcher to comprehend how similar companies have approached these decisions and the outcomes of their choices.

Academic studies, particularly those in the realm of scientific research, contribute empirical data and theoretical frameworks exploring the economic, strategic, and operational effectiveness of make or buy decisions (Arya et al., 2008). This wealth of knowledge can be utilized by researcher to contextualize findings and ground analysis in relevant theoretical frameworks (Devers & Frankel, 2000).

Regulatory documents, whether at the national or international level, play a crucial role in understanding the legal and compliance aspects of make or buy decisions (Acocello & Caplice, 2023). These documents provide details on environmental regulations, safety standards, and trade policies that may influence a company's decision-making, aiding in identifying regulatory constraints or incentives that may have influenced decision-making processes on a broader scale (Brahm & Tarzajian, 2016).

The document analysis process involves an explicit review and systematic categorization, with researcher critically assessing the content of each document to determine its relevance to the research question (Jeter, 2009). Subsequently, the gathered information is systematically organized, enabling researcher to identify recurring themes and patterns (Cáñez et al., 2000). This synthesis of information through document analysis emerges as a valuable tool for comprehending the historical and contextual factors that have shaped make or buy decisions.

Document analysis proves to be an effective method for investigating make or buy decisions within a company (Arya et al., 2008). By scrutinizing a diverse array of both internal and external documents, researcher can unearth a wealth of insights, track historical trends, and gain contextual information contributing to a comprehensive understanding of these

decisions (Simpson & Genovese, 2016). This method complements other research techniques, such as interviews, by providing a comprehensive backdrop against which current decision(s) can be assessed.

3.4 Sampling strategy

Sampling strategy is a crucial aspect of research methodology, playing a pivotal role in shaping the credibility and accuracy of research outcomes (Devers & Frankel, 2000). It involves a careful selection of a subset of individuals, items, or data points from a larger population or dataset. This process enables researcher to make informed inferences and draw meaningful conclusions about the broader population. A precisely designed sampling strategy is vital to ensure that research results accurately mirror the characteristics and trends of the overarching population of interest.

The key components of a sampling strategy encompass population definition, sampling frame, sampling method, sample size, sampling bias, data collection, and data analysis (Bobby, 2016; Erdogan et al., 2016). Defining the population of interest marks the foundational step in establishing a stable sampling strategy. The population represents the entire group or phenomenon to which the research findings are intended to apply. A precise definition of the population is essential to ensure the sample's representativeness (Patton, 2002). The sampling frame serves as the source or a list from which the sample will be drawn. It should closely align with the population of interest, and its completeness and accuracy are critical for the sample's validity (Gentles et al., 2016). In certain circumstances, practical constraints may lead to slight disparities between the sampling frame and the population.

Various sampling methods are accessible, each presenting distinct advantages and limitations (Devers & Frankel, 2000; Gomez, 2009). The selection of a sampling method is contingent on research objectives, available resources, and population characteristics. For this study, a convenience sampling method was adopted, involving the selection of readily available individuals, namely company managers, the company head, and employees (Devers & Frankel, 2000; Gill et al., 2008). Although less precise, this method was deemed practical for the study.

Determining an appropriate sample size is critical (Bobby, 2016). A sample size that is too small may lack statistical power and representativeness, while an excessively large sample may be resource-intensive and unnecessary. Calculating the sample size involves considering factors such as the desired confidence level and population variability (Bobby, 2016).

Safeguarding against sampling bias is crucial. Sampling bias can manifest in various forms, including selection bias, response bias, and nonresponse bias (Bobby, 2016). These biases have the potential to compromise the accuracy of research findings. In this study, the sample size comprises seven participants within the case company.

The importance of the sampling strategy is underscored by the fact that a well-established and designed strategy holds significant implications for research (Leavy, 2014). Firstly, generalizability enables the derivation of valid conclusions about a population based on a representative sample. Secondly, efficiency is vital as it optimizes resource utilization in terms of both time and cost. Thirdly, bias mitigation involves careful considering of the sampling strategy to minimize various forms of bias that can undermine research integrity (Leavy, 2014). Lastly, ethical considerations dictate fair and respectful treatment of participants, and a well-conceived sampling strategy contributes to equitable participant representation.

3.5 Limitations of the methodology

The chosen research methodology for this study is qualitative research. Qualitative research stands out as a valuable approach for delving into the complexities of human experiences and perspectives, providing nuanced insights into intricate phenomena (Leavy, 2014). Nevertheless, like any research methodology, qualitative research comes with inherent limitations. This section of the study aims to address these limitations, particularly in the context of the present study, which utilizes semi-structured interviews and thematic analysis to explore make or buy decisions within a specific case company.

Firstly, a notable limitation of qualitative research is its reliance on a small sample size (Bobby, 2016). In this study, seven participants were interviewed, while acknowledging that small sample sizes are customary in qualitative research (Bobby, 2016), it's crucial to recognize the potential limitation in generalizing findings. The insights derived from a limited number of participants might be specific to the context and not easily transferrable to other companies or industries. Nonetheless, it's important to note that the focus of this thesis is on the construction industry, particularly from the viewpoint of a smaller operator, making a smaller sample size somewhat unavoidable.

Moreover, the challenge of limited representation in the participant pool necessitates attention in this study. The investigation primarily involves individuals in various roles, including employees, management, and the company's head (Devers & Frankel, 2000). While the insights from these perspectives are undoubtedly valuable, it's essential to acknowledge that they may not comprehensively capture the diversity of viewpoints within the organization. The selected group may inherently carry a bias toward the company's objectives, potentially overlooking alternative perspectives (Gill et al., 2008). Nevertheless, given the case company's status as a smaller operator with a limited workforce and resources, the composition of the participant pool for this study aligns with practical constraints.

Another critical consideration in qualitative research is the issue of subjectivity and bias (Silverman, 2013). The processes of interpreting data and identifying themes inherently involve subjective elements. Researcher may inevitably bring their own biases and preconceived opinions into the analysis, influencing the outcomes of the research (Gentles et al., 2016). Transparency about researcher's positions and biases is crucial to minimize their potential impact on the research. Moreover, as previously stated, the make or buy decisions are internally managed by the company's managerial personnel, emphasizing that the author does not influence these decisions. Despite such matter, the possibility of author including one's own biases, pre-existing opinions or hypothesis to the study must be scrutinized.

Additionally, qualitative research presents challenges in terms of time and resources (Bobby, 2016). The labor-intensive nature of conducting semi-structured interviews as well as document assessment, transcribing them, and subsequently performing thematic analysis can

be resource demanding. In the context of a master's thesis, where scope and resources are inherently limited, these challenges may constrain the depth and breadth of the research (Leavy, 2014). Researchers often face difficult decisions regarding the focus and extent of their investigation.

Qualitative research, renowned for its exploration of profound human experiences, encounters a notable challenge due to its inherent lack of easily measurable or statistically analyzable quantitative data. This limitation presents difficulties in asserting statistically significant claims or correlations, particularly when attempting to identify causal factors in make or buy decisions (Parmigiani, 2007; Patton, 2002). The intricate nature of establishing firm causal connections through qualitative research becomes evident in the absence of quantifiable metrics.

Moreover, the document analysis aspect of qualitative research comes with its unique set of constraints. While it holds the potential to furnish valuable contextual information, concerns arise regarding the reliability and accessibility of pertinent documents. Not all internal and external documents may be readily available or comprehensive in addressing the specific research questions and the nature of the study (Groenland & Dana, 2020; Leavy, 2014). However, in this study when it comes to case company's internal documents, their accessibility was discussed in the early stages of the research making all necessary documents more accessible.

In addition to these challenges, qualitative research places a premium on in-depth understanding over generalizability. The context-specific nature of findings derived from qualitative research poses a challenge in applying them to diverse settings, limiting the broader applicability of research outcomes (Gentles et al., 2016; Simpson & Genovese, 2016).

Ethical considerations also take precedence in qualitative research. Safeguarding the anonymity and confidentiality of participants, as well as protecting against potential harm to both participants and the company's interests, is of utmost importance (Dubem et al., 2014; Gill et al., 2008).

Lastly, it is crucial to acknowledge the potential influence of the researcher's biases and perspectives on data collection and analysis. Researcher must remain constantly aware, being conscious of their biases and taking precautionary measures to minimize their impact on the research process (Silverman, 2013; Sutton, 2006).

Exploring qualitative research provides valuable perspectives on the complexities regarding decisions to make or buy within a company. It is crucial to acknowledge and tackle such as inherent limitations, as emphasized by Köhler et al. (2022) and Nyström (2019). In the realm of understanding business dynamics, these scholars highlight the significance of recognizing and addressing the constraints associated with qualitative research in decision-making processes.

4 Empirical findings

This chapter delves into the empirical findings obtained through semi-structured interviews and document analysis with the case company regarding the transition from outsourcing to in-house transportation within its supply chain management. The semi-structured interviews with key stakeholders, including the company head, management, and employees, offer valuable insights which are categorized into themes utilizing the thematic analysis method. The document analysis further complements these insights, providing a comprehensive understanding of the make or buy decision and its implications.

4.1 Semi-structured interview findings

The empirical findings from the semi-structured interview data with case company head, management as well as employees reveal insightful information regarding transitioning from outsourcing to in-house transportation as a part of their supply chain management. Seven individuals from the case company were interviewed. One being the head of the company, two persons in managerial positions and four employees closely involved with company's daily operational activities. Analysis of all interviews are structured into key themes, as outlined in Table 3 and Table 4, providing a comprehensive overview of the findings. The following thematic analysis of interview transcripts cover key themes of transition factors, impact on operations, opportunities and benefits, cost considerations, decision factors, challenges together with solutions, supply chain optimization, workforce management, lessons learned and employee perspectives.

Table 2. Interviewees of semi-structured interviews

Interviewee number	Job position
1	The head of the company (owner)
2	Operations manager
3	Financial administration manager
4	Employee
5	Employee
6	Employee
7	Employee

The study utilized ATLAS.ti qualitative software for the analysis of semi-structured interviews with case company personnel. The process began by importing the gathered data from the semi-structured into the system of ATLAS.ti. Despite the rather smaller sample size, the software was utilized to manage and organize datasets to guarantee that the data was analyzed comprehensively. The next step of the analysis consisted of creating coding system representing themes to systematically categorize and analyze the gathered data. After the coding was established, thematic analysis could be executed to identify patterns and relationships within the coded data in order to explore patterns from the interviews. ATLAS.ti enabled to compare responses across different interviews and to write notes during the analysis process. Such as notes contributed to the overall transparency of the data.

Together with the qualitative software and manual analysis, the following themes were scrutinized from the interviews with the case company head and managers: transition factors, impact on operations, opportunities and benefits, cost considerations, decision factors, challenges and solutions, supply chain optimization, workforce management and lessons learned. Additionally, the themes captured from the interviews with case company employees consisted of daily tasks and responsibilities, changes in workflow, challenges, benefits, workflow optimization and quality and efficiency. All themes are categorized into table three and four.

Transitioning factors cover both main drives as well as fuel price impact. Regarding main drivers, it is stated that the decision to transition to in-house transportation from outsourcing was primarily driven by cost considerations, including cost savings and the continuous

availability of material transport. Another transition factor was the rise in fuel prices which played a significant role, prompting a re-evaluation of transportation strategies for the case company.

“The discussion about the possible transitioning from outsourcing to in-housing regarding our transportation practices began already in 2020–2021 when transportation costs rose significantly due to fuel price increases. We started considering the potential savings and whether in-housing would also bring relief to transportation planning. The key considerations were cost savings, streamlining transportation, and saving time.” (Interviewee 3)

The decision to in-house transportation practices had an impact on operational work entailing maximum utilization and staffing adjustments. Maximum utilization of transport capacity and easier overall planning were reported, showcasing operational benefits. What it comes to staffing adjustments, hiring a dedicated driver for the purchased truck to operate the in-house transportation impacted payroll costs but on the other hand, contributed to a smoother equipment relocation.

“Our transport capacity has been utilized to the maximum extent.” (Interviewee 1)

Opportunities and benefits include two categories of unexpected advantages and expected outcomes. Unexpected advantages marked increased visibility of the case company and a professional appearance. Also, potential for additional dedicated truck as an addition to carrying out transportation in the supply chain of the case company was identified as unexpected benefits. Regarding expected outcomes, the case company identified cost savings, continuous availability of transportation and improvements in reliability of transportation practices and anticipated benefits.

“The company appears to be growing in the eyes of outsiders, and indeed, it is growing with the investments. Additionally, the corporate image has shifted in a more positive direction. I cannot fully answer which benefits this transition gained us, but I could imagine that the transportation practices and relocations has been more seamless, also this change has brought much-needed flexibility to transportation planning. Whether there have been unexpected opportunities, I cannot answer just yet.” (Interviewee 2)

Cost considerations detect essential factors as well as data for future planning. Cost is noted to be a critical, if not the most critical, factor driving the make or buy decision made. In addition to essential factors, a focus on eliminating external service costs was another essential factor that was detected. In-house transportation provided valuable insights for future planning and decision making.

“The company can eliminate external services from its usage. If we consider transportation as an external service cost factor, it had a significant impact. Although the acquisition of one own vehicle does not completely eliminate the use of external services, it provides valuable data for future planning.”
(Interviewee 3)

Decision factors were multi-faced. While costs were stated to play a significant factor in the decision making, other considerations included continuous availability of transportation and internal advantages since the control of own transportation was more accessible and therefore, no constraints were faced.

“In operational efficiency, our company has been able to operate much more efficiently in daily work, thanks to quick transitions and rapid relocation of equipment. Maximizing capacity in raw material transport enhances efficiency in fieldwork. I believe that the hourly rate with our own vehicle is significantly cheaper.” (Interviewee 2)

“Communication is effective, team spirit is good, and the transport equipment is excellent.” (Interviewee 4)

Challenges and solutions can be divided into optimization challenges and then addressing the challenges. Optimization challenges included optimal utilization of the hired truck driver together with the truck, increased salary costs and organizational adjustments that were rather necessary to be made due to changes in the company strategy and operations. Challenges were addressed and acknowledged by the case company. Solutions involved efficient time management, maximizing resource utilization, and addressing salary and fuel matters.

Supply chain optimization concentrates on operational improvements that are noticeable improvements in operational efficiency. Additionally, swift equipment relocations contributed to an optimized supply chain efficiency.

“The truck and its driver have contributed to enhancing work by making it more convenient and efficient.” (Interviewee 7)

Key theme of workforce management addresses impacts on increased salary costs due to the need for hiring a dedicated truck driver and considerations of traffic permits and other necessary training for the dedicated truck driver.

“Professional competence courses had to be executed, and there has also been an increase in salary costs. Also, investigation of traffic permits took its own time and effort.” (Interviewee 5)

Lessons learned concentrates on strategic insights. Such lessons include considerations of seasonal demand, potential extension of the operational season for cost reasons, if possible, and more precise strategic planning within the case company in future regarding likewise investments.

“If the demand for this season had been known, it would have been worthwhile to purchase another truck, perhaps a used one.” (Interviewee 1)

Employee perspective’s theme includes such as impact on daily tasks, workflow enhancement as well as perceived benefits. Employees reported that the organizational change had no significant impact on their daily tasks. However, changes in operational workflow were seen as enhanced, making work more convenient and efficient. Benefits included timely transfer of case company machinery which made everyday life easier as well as positive impacts on overall workflow.

“The truck and carriage are always available immediately; there's no need to pre-order as with external transport services. The equipment is precisely optimized for its purpose. Flexibility in changing situations is beneficial.” (Interviewee 6)

These empirical findings provide a comprehensive understanding of the factors influencing the make or buy decision within the case company’s internal supply chain. The insights and perspectives gained from the case company head, management and employees contribute to

a nuanced view of the challenges, benefits and considerations involved in the transition to in-house transportation practices.

4.2 Document analysis findings

Document analysis consisted of internal case company records from years 2021, 2022 and 2023. The core aim of the document analysis was to calculate as well as evaluate how beneficial the make or buy decision made by the case company for operational season in 2023 was, when compared to two previous years. The hypothesis by the case company was that in-housing the transportation practices would be more beneficial for them, as compared to outsourcing the transportation practices. The make or buy decision made by the case company was scrutinized from various different perspectives in order to support reliability of this study.

The document analysis thoroughly explored the intricacies surrounding the case company's make or buy decision made, with a specific emphasis on the financial implications and strategic considerations. This involved a careful examination of internal records from the operational seasons during years 2021, 2022, and 2023. The core aim of this analysis was to discern the advantages originating from the company's choice to internalize transportation services during the operational season of 2023, as compared against the outsourcing approach adopted in the preceding years.

By scrutinizing the make or buy decision from diverse perspectives, the document analysis aimed to reinforce the reliability of the study. The core objective was to calculate and evaluate the overall benefits accrued from the strategic shift, providing a comprehensive understanding of how this decision unfolded over the specified period. Profitability calculations will be opened up and detailed in the subsequent chapters.

4.2.1 Financial profitability

The most pivotal finding from the document analysis revolves around the financial profitability associated with the make or buy decision. Through precise examination of internal company records from 2021, 2022, and 2023, it became evident that case company

in-housing their transportation practices was a financially advantageous move. The costs incurred in purchasing, human resources, and maintaining a dedicated transportation infrastructure were outweighed by the savings achieved in contrast to the expenses associated with outsourcing during previous years.

Comprehensive profitability calculations factored in working hours, financial outlays, and various other pertinent information related to transportation practices. These profitability calculations provided a robust foundation for evaluating the cost-effectiveness of insourcing, highlighting a tangible reduction in overall expenses compared to outsourcing.

4.2.2 Increased transportation needs

The second noteworthy finding from the document analysis pertains to the unexpected surge in the case company's demand for transportation services during the 2023 operational season. A comparative analysis of transportation needs in 2022 and 2023 revealed nearly doubled requirements. This unanticipated growth prompted considerations for potential expansion, including the possibility of investing in expanding the transportation practices with additional trucks for future operational seasons. However, it is essential to highlight that the case company functions within a seasonally fluctuating environment, making it challenging to accurately anticipate the workload for the upcoming years. Additionally, as such finding is compared with the semi-structured interviews with case company head (interviewee 1), a similarity can be detected since it was stated that there might be a possibility to purchase another truck to carry out all transportation practices internally in the future.

Recognizing the heightened demand, the case company, despite its strategic shift towards insourcing, found it necessary to outsource a significant portion, almost a half, of their transportation practices within the supply chain since the workload during season 2023 was greater than anticipated. This adaptive approach of combining both in-housing as well as outsourcing allowed them to address the immediate needs while contemplating future investments to meet growing demand.

4.2.3 Cost discrepancies

A critical aspect of the document analysis involved a detailed examination of the costs associated with in-housing once compared with outsourcing. The findings indicated that, overall, working hours were more cost-effective when transportation practices were in-housed. Despite the acknowledged challenges, including increased managerial involvement and planning demands, the financial benefits associated with insourcing were evident.

The analysis served to underscore the importance of considering not only immediate financial gains but also the long-term strategic implications of the make or buy decision. While acknowledging the time-consuming nature of implementing new practices, the document analysis suggests that, for the case company, the strategic investment in insourcing transportation services could yield substantial benefits, particularly if a willingness to increase investments regarding overall transportation practices in the future.

4.2.4 Strategic outlook for season 2024

Looking ahead to season (year) 2024, the case company faces a decision point. The observed surge in transportation practices' needs during 2023 prompts a consideration of a potential investment in supplementary equipment, another dedicated truck and a driver. The strategic outlook involves a delicate balance between managing current demand, exploring expansion opportunities, and maintaining financial foresight. As the company contemplates its future, the document analysis lays a solid foundation for informed decision-making, highlighting both the financial gains and strategic considerations associated with the make or buy decision in the dynamic landscape of the construction industry and transportation.

4.2.5 External document findings

Exploring external documents was necessary to support and give wider perspective for this study. A comprehensive examination of industry publications, scientific research and regulatory documents related to transportation costs and historical outsourcing data was conducted. These external documents provided valuable insights into the broader context of make or buy decisions within the construction industry.

Industry publications contributed valuable data and trends related to make or buy decisions, offering a broader understanding of industry dynamics. Insights from publications such as Acocello & Caplice (2023) highlighted key considerations in truckload transportation procurement, aligning with the financial motivations discussed in the study.

Analysis of regulatory documents, including the Handbook on the Implementation of the Services Directive (European Commission, 2022), provided a regulatory perspective on outsourcing and insourcing dynamics within the construction industry. Understanding the regulatory landscape is crucial for contextualizing the decision-making process (ISBN 978-952-267-458-6:2023:en).

Scientific research, exemplified by studies like Arya et al., (2008) and Parmigiani (2007) offered theoretical foundations and insights into concurrent sourcing and the strategic aspects of make or buy decisions. These findings contributed to a more nuanced understanding of the decision-making framework.

The integration of external document findings underscores the multidimensional nature of make or buy decisions in the construction industry. This broader perspective, informed by industry publications, regulatory documents, and scientific research, complements the primary data obtained from semi-structured interviews.

4.3 Thematic analysis

Thematic analysis was applied to this study in order to better analyze the gathered empirical data for this research. Thematic analysis provides a comprehensive understanding of case company's make or buy decisions in their supply chain, addressing the main research question and sub-question of this master's thesis. The insights and perspectives gained from case company personnel, the head of the company, managers, and employee, contribute valuable information for decision-making in the construction industry.

The head of the case company as well as managers were interviewed with different questions and employees were interviewed with questions of their own. Such as ability grouping was

executed in order to compile more adequate answers from each interviewee. The aim was to accumulate interview questions for interviewees so that one's job description would better match the interview questions and so, the most valuable information could be gathered, and findings drawn up. In addition, since the make or buy decision was made by the head of the company together with company managers, it is necessary to differentiate the interview questions to receive right kind of information from each interviewee. The following sections cover thematic analysis of interview transcripts gathered from case company managers and the company head together followed by thematic analysis gathered from case company employee and lastly cross-cutting themes between all interviewees are stated. Cross-cutting themes cover answers from interview transcripts in which all of the participants provided similar answers and information.

4.3.1 Case company managers and the company head

The following findings are generated from interview transcripts with the case company managers together with the head of the company regarding their make or buy decision as a part of their supply chain management operations. All data is categorized into themes using thematic analysis. Next, themes are introduced, and the content of all findings is addressed.

The first theme scrutinized is transition factors. Factors leading to transition are addressed in this theme including cost savings, continuous availability of material transport and rising external transportation costs due to fuel prices.

Impact on operations is the next theme that entails utilization of transportation capacity, operational planning as well as changes in workflow. Utilization of transportation capacity covers maximum utilization of the transportation capacity. Operational planning was found easier regarding overall planning. When it comes to changes in workflow, hiring a dedicated driver added up to payroll costs, but smoother equipment relocation and decreased reliance on external services were noted.

Opportunities and benefits are the third theme covering both unexpected opportunities as well as expected benefits. Increased visibility and a more professional appearance with case company-branded transportation equipment was discovered as an unexpected opportunity.

Expected benefits on the other hand included cost savings, continuous availability of transportation, and improved reliability in transportation planning.

The next theme interpreted is cost considerations. Under cost considerations, there are two subjects being essential: decision factor and elimination of external services. Essential decision factor was significantly dedicated to being cost. Elimination of external services regarding transportation practices also affected the decisions since in-house transportation helps eliminating external service costs and providing valuable data for future planning. Regardless that the case company had to outsource a part of their transportation practices due to high volume of workload during season 2023, unnecessary external services were still able to be eliminated.

The fifth theme detected was decision factors that is concentrated on additional factors. Such as additional factors entail continuous availability of transportation, precision in transportation, time efficiency, and potential benefits from using company owned transportation equipment.

Challenges and solutions are the sixth theme to be addressed. Optimal utilization of the hired dedicated driver, increased salary costs and organizational challenges were identified as challenging by the case company. Solutions for the identified challenges cover optimal utilization of resources, effective time management, and addressing salary as well as fuel consumption concerns. Such as challenges can be more easily managed and addressed during the next operational season due to prime information from season 2023.

Supply chain optimization is the next theme covering improvements. These improvements were stated to be noticeable regarding case company's operational efficiency, swift in equipment relocations, and increased capacity in raw material transport.

Theme number eight is about workforce management. Workforce management theme covers effects on workforce such as increased salary costs, considerations of traffic permit together with other necessary trainings, and finally, the need for hiring the dedicated driver.

The last theme is lessons learned. It covers insights including consideration of seasonal demand, extension of the operational season due to cost reasons if possible, and strategic planning regarding investments etcetera for the upcoming two-to-three-year period. However, even the extension of the operational season was stated by an interviewee, it may be difficult to execute in practice due to seasonal uncertainties.

Table 3. Categorization of themes from semi-structured interviews with case company head and managers

Theme	Content
Transition factors	Cost savings, continuous availability of material transport, fuel prices
Impact on operations	Maximum utilization of transportation capacity, easier overall planning
Opportunities and benefits	Unexpected: Increased visibility, professional appearance Expected: Cost savings, continuous availability of transportation
Cost considerations	Essential factor, elimination of external services, valuable data for future planning
Decision factors	Cost savings, continuous availability of transportation, internal/external advantages
Challenges and solutions	Optimal utilization of the hired truck and the driver, increased salary costs, organizational challenges
Supply chain optimization	Noticeable improvements in operational efficiency, swift equipment relocations
Workforce management	Increased salary costs, considerations of traffic permit, need for hiring a dedicated truck driver
Lessons learned	Consideration of seasonal demand, extension of operational season, strategic planning over a 2–3-year period

Table 3. displays key themes found crucial regarding the research questions of this study. It distinguishes transition factors including factors leading to the transition from outsourcing to in-house transportation. Impact on operations entail the impact on company processes, operations, and daily workflow. Opportunities and benefits cover both unexpected as well as expected opportunities and benefits from this transition. Cost considerations cover the impact and reasons behind cost considerations. Other factors influencing the make or buy decisions are addressed in decision factors. Column regarding challenges and solutions include challenges in implementing the in-house transportation and how such challenges were addressed. Supply chain optimization scrutinizes optimization of the transportation supply chain and improvements. Effects on workforce, including staffing, training, and skills go under workforce management. Lastly, lessons learned address insights for future decision-making.

4.3.2 Case company employees

From the interviews with case company employees, the following findings can be concluded. The make or buy decision had no significant effect concerning the employees' daily tasks or responsibilities. This is due to hiring a new employee that was in charge of operating the truck used in case company's transportation practices as well as driving the truck. When it comes to changes in workflow, majority of the employees stated that the make or buy decision had enhanced convenience and efficiency of overall operational workflow. Since the company had previously completely outsourced their transportation practices, during the operational season in 2023 when in-housing occurred, it was stated that a challenge was long working hours for the hired truck driver since the season 2023 was considered high of workload. As it comes to benefits, the employees pointed out that timely transfer of equipment made every day operational work easier and therefore, brought markable advantages. Workflow optimization was as well perceived a positive impact on overall workflow. Quality and efficiency overall as well perceived a positive effect, especially with the hired permanent truck driver.

Table 4. Categorization of themes from semi-structured interviews with case company employees

Theme	Content
Daily tasks and responsibilities	No significant effect reported
Changes in workflow	Enhanced convenience and efficiency
Challenges	Likely long working hours for the truck driver
Benefits	Timely transfer of machinery, everyday life made easier
Workflow optimization	Positive impact on overall workflow
Quality and efficiency	Positive effect, especially with a trusted permanent driver

In Table 4. all themes gathered from semi-structured interviews with case company employees are presented. Daily tasks and responsibilities entail effects of the transition on day-to-day tasks and responsibilities of employees. Changes in workflow cover all possible changes in operational processes and workflow from the perspective of employees. Challenges in this context entail challenges noticed after the execution of in-house transportation. Benefits on the other hand include all benefits noticed after in-housing transportation. Workflow optimization covers perceived impact on overall workflow. Finally, quality and efficiency include perceived effect on the quality and overall efficiency of work.

4.3.3 Cross-cutting findings

The following cross-cutting findings combine answers from semi-structured interviews provided by both employees and managers together with the head of the company. Cross-cutting themes were scrutinized as financial benefits, flexibility, availability, and impact on company image. All parties highlighted financial advantages as benefits. Factors that in-housing transportation practices provided were concentrated on flexibility and availability regarding reducing lead times. Lastly, the impact on company image captures the use of company branded transportation equipment that positively influenced the case company's

brand image and awareness. All cross-cutting findings are illustrated in the following Table 5. which categorizes the themes together with their content.

Table 5. Categorization of cross-cutting themes from semi-structured interviews with case company head, managers, and employees

Theme	Content
Financial benefits	Cost savings, increased efficiency, and overall financial visibility
Flexibility	Reduced lead times
Availability	Accessibility and reliability of resources
Impact on company image	Branding, reputation, and increased awareness

Overall, the insights cover the decision to in-house transportation practices which was primarily driven by cost considerations. The transition resulted in operational improvements, cost savings, and positive effects on the company's image. When it comes to challenges, it includes workforce management, salary costs, and organizational adjustments that were recognized once the make or buy decision was made, but the scale of such challenges could not be fully scrutinized in the first place. Findings are consistent across multiple sources, reinforcing the credibility of the results. Implications on recommendations cover consideration of further discussions on internal/external advantages to inform future decision-making together with evaluating the potential extension of the operational season, in case possible, and leasing options for future strategic decisions regarding equipment.

4.4 Interests behind make or buy decisions

The semi-structured interviews with case company head, managers, and employees detects various interests that underpin the company's decision-making process in transitioning from outsourcing to in-house transportation. Primarily, the key interest detected driving this strategic shift is the pursuit of cost savings. The overall rise in fuel prices, identified during seasons between 2021 to 2023, became a critical factor prompting discussions about the

potential acquisition of in-housing the transportation practices. This aligns with the broader industry trend in which construction companies seek to optimize costs and reduce dependence on external service providers.

Furthermore, a continuous availability of material transport, which is one of the most essential operational activities within the case company, emerged as another driving interest. The case company recognized the strategic advantage of having its own transportation practices, ensuring a reliable and more timely precise transportation process within their chain of supply. Such interest is rooted in operational efficiency and underscores the importance of supply chain reliability in the construction industry. The interviews as well highlighted the interest in improving overall planning and streamlining transportation practices in future, emphasizing the need for a more controlled and responsive approach to logistics.

4.5 Benefits and challenges of make or buy decisions

The transition from outsourcing to in-house transportation brought both benefits as well as challenges for the case company. In terms of benefits, the company experienced enhanced visibility and a more professional image through the usage of company branded transportation equipment. This positive shift in the corporate image is deemed valuable, contributing to the company's growth, and attracting goodwill from external stakeholders. In addition, the unexpected benefits reveal increased flexibility and responsiveness in transportation planning, reinforcing the strategic decision.

However, this transition entailed challenges besides the benefits. It could be detected from the interview transcripts that hiring a dedicated driver and addressing increased salary costs presented immediate challenges. Optimal utilization of the hired truck driver and the truck itself required careful planning and management. Moreover, the organizational adjustments needed to accommodate the in-house transportation posed challenges. Such as conflict between benefits and challenges underscores the complexity inherent in strategic decisions within the construction industry.

4.6 Cost considerations of make or buy decisions

Cost considerations played a central role in case company's decision-making process, aligning with existing literature on make or buy decisions in the construction industry. The interviews emphasize that the rise in fuel prices was a critical factor triggering the examination of transportation costs. The decision to in-house transportation practices was as well driven by the company's desire to eliminate external service costs associated with transportation.

However, the interviews also revealed that while cost was a significant factor, it was not the only determinant in the decision-making process. The company aimed to derive additional benefits beyond cost savings, such as increased flexibility and responsiveness. This nuanced approach to cost considerations aligns with the literature, which suggests that construction companies often consider a range of factors beyond immediate cost implications in strategic decision-making.

4.7 Discussion of key themes and patterns

The key themes extracted from the semi-structured interviews illustrate the multifaceted nature of the case company's transition in their supply chain. Transition factors, including cost considerations and the impact of fuel prices, highlight the external influences on decision-making. The benefits and challenges underscore the intricate balance companies must navigate when implementing strategic changes. Cost considerations, while essential, are connected with a broader set of objectives, reflecting the complexity of the construction industry.

Supply chain optimization emerged as a consistent theme, indicating the case company's commitment to enhancing efficiency and operational performance. Workforce management themes, including hiring a dedicated driver and considerations of traffic permit, highlight the human resource aspects tied to strategic decisions. Lessons learned, such as the consideration of seasonal demand and the extension of operational seasons, showcase the company's

reflective approach to decision-making emphasizing the multifaceted nature of decision-making in the construction industry.

4.8 Implications for construction industry

The empirical findings from the case company have significant implications for the construction industry. The emphasis on cost savings and operational efficiency reflects a broader trend within the industry where companies seek to enhance competitiveness through internalizing critical processes. The positive impact on case company's image and responsiveness to market demands also suggests that strategic shifts can have consequences beyond immediate cost considerations.

The consideration of workforce management implications, including hiring and training dedicated personnel, points to the human resource challenges associated with strategic changes. This implies that companies in the construction industry need to invest not only in operational aspects but also in developing and managing their workforce to ensure successful transitions.

The lessons learned, particularly regarding seasonal demand considerations and strategic planning over a multi-year period, highlight the importance of foresight in decision-making. This has implications for industry stakeholders, emphasizing the need for a proactive approach to adapt to changing market conditions and demands.

5 Discussion

The following chapter discusses the empirical findings in the context of existing research within the construction industry, comprehensively presenting results and drawing comparisons. Practical and managerial implications are as well illustrated offering industry specific recommendations. Lastly, limitations and recommendations for further research are recognized to enhance credibility and to provide direction for future research in the field of construction.

5.1 Findings compared to previous research

The findings from the case company align with existing literature on make or buy decisions within the construction industry. The emphasis on cost savings, as driven by rising fuel prices, resonates with literature that underscores the financial motivations behind strategic shifts (Krzemińska, 2009). However, even though cost savings were an essential factor, the study indicates that the decision-making process was not only determined by financial significance. It was founded that the case company sought additional benefits partly unwittingly. The consideration of unexpected benefits, such as enhanced company image and flexibility, reflects literature suggesting that companies often gain unanticipated advantages from in-house practices (CDO Group, 2021).

Existing literature contributes to a broader understanding of make or buy decision in the construction industry. As stated by Arya et al., (2008) and (Alvala & Heikkilä, 2023) the importance of simultaneous sourcing or the mix of making and buying should be considered by companies. This study adds knowledge by presenting motivations behind such as strategic shift and uncovering both unique benefits as well as challenges that companies may face during their transition phase from outsourcing to in-housing their transportation practices.

Challenges faced by the case company, particularly in optimal resource utilization and workforce management, align with broader discussions on the complexities of implementing strategic changes in the construction industry. Additionally, the nuanced approach to cost considerations, where financial factors are weighed alongside operational and branding

benefits, aligns with literature emphasizing the multifaceted nature of decision-making among the industry.

This study emphasizes a holistic decision-making process and acknowledges that cost considerations are not the only determinant to execute make or buy decisions. The recognition of the multifaceted decision-making approach in the construction industry focusing on other factors such as workforce management, operational efficiency and overall company image contributes to diverse understanding of make or buy decisions. Such as approach discharges from research that may only cover cost consideration regarding make or buy decisions.

Moreover, the cross-cutting findings between the perspectives of case company employees once compared with case company head and managers adds depth to the study. Financial benefits, flexibility, availability, and the impact on case company's overall image emerged as cross-cutting themes. This holistic approach of including various organizational levels differentiates the research when compared to other likewise studies made that only focuses on specific organizational level.

5.2 Practical and managerial implications

The practical implications of the findings suggest that construction companies contemplating a shift from outsourcing to in-house practices should adopt a holistic approach to decision-making. While cost considerations are crucial, management must also weigh the broader benefits and challenges associated with the transition. This includes considerations of workforce management, operational efficiency, and the potential impact on the company's overall image.

Managers should carefully plan, and address challenges associated with hiring dedicated personnel, optimal resource utilization, and organizational adjustments. Furthermore, the emphasis on supply chain optimization implies that companies should continually assess and refine their processes to ensure maximum efficiency.

From a managerial standpoint, the lessons learned from the case company highlight the importance of strategic planning and a proactive approach. Managers within the industry of construction should consider the long-term implications of their decisions, including seasonal variations, market trends, and potential changes in external factors such as fuel prices in this study.

Overall, the empirical findings provide valuable insights for construction industry practitioners and decision-makers. The nuanced approach to decision-making, considering a range of factors beyond immediate cost implications, offer a blueprint for strategic shifts within the industry. The emphasis on workforce management, supply chain optimization, and long-term planning provides a holistic perspective that can guide managerial decisions in the dynamic and competitive construction landscape.

5.3 Limitations of the research

This master's thesis was conducted as single research incorporating a single case study with the case company, scrutinizing a specific make or buy decision made by the case company, and evaluating how beneficial the decision was for the case company. Therefore, it is essential to realize that the results of this study may not be applicable for all companies operating in the construction industry but only to this single case study. The findings point out generalisable features within the construction industry but are not generalisable as a whole among the industry. However, this does not mean that make or buy decisions should not be further researched.

As it comes to temporal limitations, the study's findings may be based on data and circumstances up to a certain point in time, and changes occurring after that period may not be considered. Research is conducted within a specific timeframe and industry conditions can evolve rapidly. Recognizing this limitation, the study aims to provide insights based on the available data up to a certain point.

This research heavily relies on historical records and reports of the case company, a smaller operator in the construction industry, to trace its specific make or buy decision made in season 2023 compared to two previous seasons (years). However, the availability and

possible incompleteness of historical data can be challenging to ensure comprehensiveness. Some historical records may be limited or missing, potentially introducing gaps in the analysis.

The study conducted primary and secondary data generated from semi structured interviews and reviewing internal and external documents such as industry publications, scientific research, regulatory documents, and reports of the case company related to transportation costs, and historical outsourcing data from previous years. It must be noted that historical records and reports of the case company may be incomplete or limited, leading to gaps in the analysis.

Due to practical constraints, such as resource availability and accessibility, the study's sample size may be relatively small. Interviews and data collection are focused on a specific case company, which may limit the extent of perspectives and experiences considered. While the insights from this case study provide valuable depth, they may not capture the full spectrum of make or buy decision scenarios within the industry (Tomazewski et al., 2020).

Semi-structured interviews involve self-reporting by key personnel within the case company. The responses may be influenced by individual perspectives, recall bias, or subjectivity. While we have strived to ensure objectivity in the research analysis, the potential for subjective elements in the data should be acknowledged (Dlesk & Bell, 2006).

The construction industry is a dynamic, subject to evolving by market trends, regulatory changes, and technological advancements. The historical data used in this study may not fully capture the current state of the industry or anticipate future developments.

This study primarily focuses on the make or buy decisions of the case company itself. Insights into the strategies and decisions of competitors or industry peers are beyond the scope of this research. A comprehensive industry-wide analysis would require additional data sources and a broader research scope.

The study may not account for regional variations in the construction industry, and the findings may not be universally applicable. Different regions may have distinct market

dynamics, regulations, and supplier landscapes. The study focuses on providing insights applicable to a broader industry context even though case company mostly operates in a specific regional area. Still recognizing that regional differences exist.

While the study examines the make or buy decision from the perspective of the focal company, it does not delve into a comprehensive analysis of individual suppliers or their capabilities. Examining every possible supplier in detail is resource-intensive and beyond the scope of this study. Instead, the study aims to provide a strategic overview of the decision-making process.

Scope of decision factors are crucial to be scrutinized. The study may not comprehensively cover every potential factor influencing make or buy decisions in the construction industry. For example, certain region-specific considerations may not be fully addressed. Due to the complexity of the industry, it may be impractical to account for every factor. The focus is on identifying and analyzing the most prominent and widely applicable factors.

The findings and insights derived from this study are primarily based on the context of a smaller operator in the field of construction industry. The unique characteristics, market conditions, and resource constraints of the case company may not be entirely representative of the broader construction industry, to larger companies or multinational corporations. Therefore, the generalizability of the conclusions of this study to larger or more diverse firms within the industry may be limited.

Despite these stated limitations, this study aims to provide valuable insights into the process of make or buy decisions within the construction industry, with a particular focus on the case company. The findings aim to contribute to a deeper understanding of the complexities involved in such strategic decisions within the specific context of this case company. Understanding and acknowledging these limitations is crucial for maintaining the validity and reliability of the study. It's important to communicate these limitations transparently in the thesis and discuss their potential impact on the generalizability and applicability of upcoming findings to different contexts within the construction industry.

5.4 Recommendations for further research

Building on the insights and limitations, future research in the field of make or buy decisions within the construction industry is recommended. Further research regarding comprehensive industry wise analysis could be conducted in which the investigation would be emphasized on a broader industry wide analysis involving multiple companies to provide a more comprehensive overview of decision-making processes.

Research on make or buy decisions, especially with an emphasis on motivating factors among different industry practitioners has not been researched to a large extent. The motivating factors are impacted by various of different characteristics and therefore, may vary between companies especially between organizations operating in different regions (Tita, 2008). Hence, another further research object could be to address the motivating factors for make or buy decisions in the contraction industry and to compare them between different organizations among the industry.

Lastly, as briefly mentioned, location is a crucial element when it comes to make or buy decisions in the construction industry. The case company of this study mainly operates in one specific region that might affect the results of this study. Additionally, the notion of locations is not included in this research since it was not deemed necessary. Future research concentrating more on location-centric approach investigating the interconnection between location and make or buy decisions, considering regional variations and their impact on decision-making process could be conducted in future.

By addressing these areas, future research can deepen our understanding of the complexities inherent in make-or-buy decisions within the construction industry, providing valuable insights for industry practitioners and decision-makers.

6 Conclusions

This master's thesis delves into the complex landscape of make or buy decisions within the construction industry, focusing on a detailed examination of the case company, a smaller operator in the industry. The case company transitioned from outsourcing their transportation practices into in-housing during the operational season during the year 2023. Operational season 2023 was compared between two previous seasons 2021 and 2022 by using semi-structured interviews with case company personnel as well as internal and external document analysis including profitability calculations. The primary focus of the study was to find out the main factors influencing the strategic make or buy process in construction industry, with a secondary emphasis on understanding the impact of cost considerations.

The empirical findings align with existing literature, highlighting the importance of a holistic approach to decision-making. Beyond immediate cost implications, strategic shifts should consider broader benefits and challenges, encompassing aspects such as workforce management, operational efficiency, and impact on overall brand image of a company. Noteworthy key findings include a holistic decision-making, strategic planning together with proactive management and nuanced cost considerations. Firstly, holistic decision-making findings interprets that construction companies contemplating a transition from outsourcing to in-house practices can derive practical insights from the study. Secondly, regarding strategic planning, proactive management, and continual assessment of supply chain optimization, emerged as crucial elements in navigating such transition successfully. Lastly, nuanced cost considerations in this study revealed that a nuanced approach to cost considerations, considering financial factors alongside operational and branding benefits, is crucial in the multifaced nature of decision-making within the construction industry.

The rise in fuel prices emerged as a critical factor to boost the examination of in-housing case company's transportation practices. Such as decision was partly driven by case company's desire to optimize costs generated from transportation practices as well as to reduce the dependency on external service providers. However, even though cost was

detected to be the key factor to in-house transportation practices, it was not the only determinant in the decision-making process.

The study emphasizes the importance of operational efficiency regarding make or buy decisions. The case company recognized the strategic advantage of in-housing their transportation practices simultaneously ensuring accessibility and reliability of resources. In-housing transportation practices was a strategic shift ensuring reliable and more timely precise transportation process within the chain of supply, enhancing case company's ability to respond to changing market conditions and unforeseen challenges. The operational efficiency aligns with broader trend within the construction industry where companies tend to seek enhance one's competitiveness through internalizing core processes.

Using company branded transportation equipment positively influenced case company's overall brand image as well as awareness. Such as outcome is indicated to be beyond the key factor of in-housing transportation practices due to cost considerations. Companies operating in the field of construction may consider branding implications as a part of their transportation practices when making such as make or buy decisions.

Based on the key findings, the following recommendations are offered to industry practitioners. Firstly, it can be suggested to adopt a holistic approach when contemplating a shift from outsourcing to in-house practices, weighing cost considerations alongside broader benefits and challenges. Another notable recommendation is concerned with engaging in strategic planning, proactive management style, and continual assessment of supply chain optimization to ensure successful transitions together with long-term benefits. Last suggestion is concerned with optimizing workforce management. It is advisable to address challenges associated with hiring new dedicated personnel, optimal resource utilization, and organizational adjustments to overall optimize workforce management.

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Appendix 1: Interview questions for case company head and management

1. Can you describe what were the main factors that led your company to transition from outsourcing to in-house transportation for your transportation supply chain in 2023?
2. How has this strategic decision impacted the overall processes, operations, and day-to-day workflow of your company during season 2023?
3. Were there any unexpected opportunities or benefits that emerged from this strategic shift in transportation practices?
4. What expected opportunities or benefits emerged after this strategic shift in transportation practices?
5. How did cost considerations have an impact to the decision to inhouse transportation practices?
6. Were cost considerations the only reason why your company decided to inhouse transportation practices? In case not, what other factors had an impact to this make or buy decision?
7. What specific challenges did your company face in implementing the in-house transportation for your transportation supply chain, and how were these challenges addressed(tackled)?
8. How has your company optimized your transportation supply chain after this strategic make or buy decision to inhouse transportation practices? Have you noticed improvements in operational efficiency, cost-effectiveness or in skills required?
9. How has the transition to inhouse transportation practices had an affect o workforce management? Including changes in staffing, training, or skill requirements?
10. Have there been any lessons learned or insights gained from strategic make or buy decision that could inform future decision-making regarding make or buy choices in your company?

Appendix 2: Interview questions for case company employees

1. Has the transition to in-house transportation for the company's supply chain affected your daily tasks and responsibilities? How?
2. Can you describe any changes in the workflow or operational processes that you have noticed since the company started handling majority of their transportation in-house?
3. From your perspective, have you noticed any challenges that have emerged after the company began in-housing the majority of their transportation practices?
4. What benefits have you noticed after the company began in-housing the majority of their transportation practices?
5. Do you see that in-housing the transportation practices have optimized overall workflow?
6. Do you see that in-housing transportation practices would have had a positive effect on the quality and efficiency of work?