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Logistics service provider segmentation: a Kraljic matrix approach

Operations & Supply Chain Management
Master's thesis

Author:
Juho Marttila

Supervisors:
Associate professor Tomi Solakivi
D.Sc. Sini Laari

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Author: Juho Marttila

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The trend towards outsourcing and global complex supply chains has led companies to rely more on external logistics service providers (LSPs). As the number of LSPs in a company's partner base grows, structured approaches are needed to manage these relationships effectively. Supplier relationship management and supplier segmentation have been studied extensively in manufacturing and procurement contexts, but their application directly to logistics service providers has received little attention. This thesis addresses that research gap by developing a logistics service provider segmentation model. The challenge of managing logistics service providers is also visible in a Finnish publicly listed technology company (the Case Company), for whom the thesis has been done for as an assignment. The Case Company currently relies heavily on subjective measures in managing their partners and the thesis aims to increase objectivity in the process of decision making with the help of the model. To address the stated research problem, two research questions were formed.

1. What criteria are essential for the Case Company in evaluating logistics service providers?
2. How can these criteria be used to build a segmentation model that supports the management of logistics service providers in the Case Company?

The research was done as a constructive approach combining a systematic literature review with qualitative empirical data. Eight semi-structured interviews were conducted with logistics professionals within the Case Company's logistics organization. The data was analyzed using the Gioia methodology, producing data structures that captured first-order concepts. These first-order concepts were then merged into second-order themes and further into aggregate dimensions. These provided the empirical findings of the study.

The literature review identified a broad set of LSP evaluation criteria as well as strategic partner selection criteria. Comparing these against the empirical findings, nine criteria were finalized for the model: volume purchased, cost, delivery, information systems, sustainability, quality of relationship, substitution possibilities, specialized flexibility and location. Based on the literature review, the Kraljic matrix was selected as the segmentation framework due to its proven applicability, simplicity and customizability. The Case Company also already uses it in other areas of procurement, offering continuity across the organization. The original dimensions of profit impact and supply risk were reframed as value impact and complexity to better reflect the modern logistics context. Relational dimensions were integrated to address the relational shortcomings of the original model. Furthermore, the thesis investigated current logistics industry trends to make sure that the model represents the way the market works in the present day and remains relevant within the current operating environment.

The resulting model categorizes LSPs into four quadrants of non-critical, leverage, bottleneck and strategic partners, each associated with a distinct management approach ranging from transactional relationships to deep strategic partnerships. The model provides a more objective and transparent basis for partner selection and resource allocation. Theoretically, the study contributes to the scarce literature on logistics service provider segmentation and demonstrates how established procurement frameworks can be meaningfully adapted for the logistics context.

Keywords: Logistics outsourcing, Logistics service provider, Supplier relationship management, Supplier segmentation, The Kraljic matrix

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Trendi ulkoistamisesta ja globaalisti kompleksit toimitusketjut ovat johtaneet siihen, että yritykset tukeutuvat yhä enemmän ulkoisiin logistiikkapalvelun tarjoajiin (LSP). Kun yrityksen verkosto palveluntarjoajista kasvaa, tarvitaan struktuurisia lähestymistapoja näiden suhteiden tehokkaaseen hallintaan. Toimittajasuhteiden hallintaa (SRM) ja toimittajien segmentointia on tutkittu laajasti teollisuuden ja hankinnan konteksteissa, mutta niiden suora soveltaminen logistiikkapalvelun tarjoajiin on jäänyt vähäiselle huomiolle. Tämä tutkielma vastaa kyseiseen tutkimusaukkoon kehittämällä logistiikkapalvelun tarjoajien segmentointimallin. Haaste on ajankohtainen myös suomalaisessa pörssilistatussa teknologia-alan yrityksessä (Case-yritys), jolle tutkielma on tehty toimeksiantona. Case-yritys tukeutuu tällä hetkellä vahvasti subjektiivisiin mittareihin kumppaninhallinnassa ja tutkielman tavoitteena on lisätä päätöksenteon objektiivisuutta kehitettävän mallin avulla. Tutkimusongelman ratkaisemiseksi asetettiin kaksi tutkimuskysymystä:

1. Mitkä kriteerit ovat olennaisia Case-yritykselle logistiikkapalvelun tarjoajien arvioinnissa?
2. Miten näitä kriteerejä voidaan käyttää rakentamaan segmentointimalli, joka tukee logistiikkapalvelun tarjoajien hallintaa Case-yrityksessä?

Tutkimus toteutettiin konstruktiiivisella tutkimusotteella, jossa yhdistettiin systemaattinen kirjallisuuskatsaus laadulliseen empiiriseen aineistoon. Kahdeksan puolistrukturoitua asiantuntijahaastattelua toteutettiin Case-yrityksen logistiikkaorganisaatiossa. Aineisto analysoitiin Gioia-menetelmällä, jonka avulla muodostettiin datastruktuureita ensimmäisen asteen käsitteistä (first-order concepts). Nämä yhdistettiin toisen asteen teemoiksi (second-order themes) ja edelleen laajemmiksi kokonaisulottuvuuksiksi (aggregate dimensions), jotka muodostivat tutkimuksen empiiriset havainnot.

Kirjallisuuskatsauksessa tunnistettiin laaja joukko LSP-arviointikriteerejä sekä strategisen kumppanivalinnan kriteerejä. Vertaamalla näitä empiirisiin havaintoihin malliin valittiin lopulta yhdeksän kriteeriä: ostovolyymi, kustannukset, toimitusvarmuus, tietojärjestelmät, vastuullisuus, suhteen laatu, korvattavuus, erikoistunut joustavuus ja sijainti. Kirjallisuuskatsauksen perusteella segmentoinnin viitekehukseksi valittiin Kraljic-matriisi sen osoitetun sovellettavuuden, yksinkertaisuuden ja muokattavuuden vuoksi. Case-yritys hyödyntää matriisia jo muilla hankinnan osa-alueilla, mikä tarjoaa organisaatiolle yhtenäisyyttä. Alkuperäiset ulottuvuudet, ”profit impact” ja ”supply risk”, määriteltiin uudelleen termeihin ”value impact” ja ”complexity” vastaamaan paremmin nykyaikaista logistiikkakontekstia. Lisäksi malliin integroitiin suhteeseen liittyviä ulottuvuuksia alkuperäisen mallin puutteiden parantamiseksi. Tutkielmassa tarkasteltiin myös logistiikka-alan nykyisiä trendejä, jotta varmistettiin mallin vastaavan markkinoiden nykyistä toimintatapaa ja säilyvän merkityksellisenä tämänhetkessä toimintaympäristössä.

Tuloksena syntynyt malli luokittelee logistiikkapalvelun tarjoajat neljään kategoriaan: ”non-critical”, ”leverage”, ”bottleneck” ja ”strategic partners”. Jokaiselle neljännekselle on määritetty oma hallintatapansa, joka vaihtelee transaktioperusteisista suhteista syviin strategisiin kumppanuuksiin. Malli tarjoaa objektiivisen, läpinäkyvän perustan kumppanivalinnalle ja resurssien kohdentamiselle. Teoreettisesti tutkimus täydentää niukkaa kirjallisuutta logistiikkapalvelun tarjoajien segmentoinnista ja osoittaa, kuinka yleisiä hankintaviitekehyyksiä voidaan mielekkäästi soveltaa logistiikan kontekstiin.

Avainsanat: Logistiikan ulkoistaminen, logistiikkapalvelujen tarjoaja, toimittajasuhteiden hallinta, toimittajien segmentointi, Kraljicin matriisi

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1 Introduction

1.1 Key concepts of the study

The supply chain is the network of people, organizations, activities and resources involved in producing and delivering a service or a product to the end customer. An important part of the supply chain is logistics. The function of logistics extends across the entire organization from the management of raw materials to the distribution of finished goods. (Christopher, 2022; ErKayman et al., 2012).

Studies have identified logistics costs being a significant proportion of the total cost of production (Christopher, 2022). This phenomenon has led to the rise of logistics outsourcing, which began gaining momentum in the 1980s (ErKayman et al., 2012). Through outsourcing, companies transfer part of their business operations to specialized service providers with greater expertise in that area (Alkhatib et al., 2015). Whilst initially seen as a way to significantly reduce logistics costs, this approach also offers a lot of other benefits. Outsourcing allows the company to concentrate on their core competencies, restructure their supply chains and improve their efficiency and service quality (Christopher, 2022; Solakivi et al., 2013). The practice of outsourcing really has been on a rise since the eighties. By 2005 more than eight out of ten of Fortune 500 companies were already relying on external logistics service providers for their operations (ErKayman et al., 2012).

While suppliers are typically associated with providing raw materials or core components, the definition can be broadened to include **logistics service providers (LSPs)**, who supply crucial logistics services to the business (Selviaridis & Spring, 2007). Instead of goods, these companies supply for example the transportation of the product through their fleets or undertake other value-adding services such as packing (Christopher, 2022). Fabbe-Costes et al. (2008) point out that there is no universally accepted term for logistics service providers. One commonly used label is logistics services supplier (Fabbe-Costes et al., 2008), which emphasizes their role as a supplier within the supply chain. Logistics service providers can be divided into 2PL, 3PL and 4PL, which will be further discussed in the later chapters (Maersk, 2024).

As a company's base of suppliers grows, they require structured approaches to manage their supplier relationships effectively. **Supplier relationship management (SRM)** is the process of defining and governing how a company collaborates with its suppliers (Croxtton et al., 2001). SRM is a vital activity for any organization that depends on an efficient and effective supply chain. The core purpose of SRM is to cultivate closer, mutually beneficial relationships that can lead to win-

win improvements in supply arrangements with the suppliers (Christopher, 2022). One major element of supplier relationship management is the supplier's segmentation. **Supplier segmentation** helps companies determine how to manage and engage with each of their suppliers appropriately. The most widely used tool for this purpose is the Kraljic matrix, which was developed in the 1980s. (Montgomery et al., 2018).

The Kraljic matrix uses a portfolio matrix that classifies suppliers based on two dimensions. The first dimension concerns factors related to the complexity of supply, while the second one reflects the impact on the company's profit. This results in a 2×2 matrix with four quadrants: non-critical, leverage, bottleneck and strategic (Kraljic, 1983). This segmentation tool and its use enable companies to minimize supply risks while maximizing purchasing power and overall value creation (Montgomery et al., 2018).

1.2 Purpose and significance of the study

This Master's thesis has been conducted as an assignment for a Finnish publicly listed technology company. From the Case Company's perspective, the purpose of the study is to develop a model that supports decision making related to their logistics service provider management. Currently, the company gets invoices from approximately 700 logistics service providers but aims to reduce the number of partners to around 10-20. The reduction would be done by firstly segmenting and then selecting the most suitable logistics providers for each occasion. Through this, the company seeks to centralize spend, achieve more favourable contract agreements, simplify operational processes and establish a transparent way for partner selection. The Case Company already applies the Kraljic matrix framework in other areas of its supply chain management and therefore extending its use to the logistics sector would provide methodological continuity and strengthen strategic coherence across the organization.

From the academic point of view, supplier segmentation has been studied extensively whilst purely the segmentation of logistics service providers has received less attention. This thesis will add to the scarce existing literature on the identified research gap. On top of that, the application and adaptation of Kraljic matrix principles for the segmentation of logistics service providers will offer a new scientific contribution.

1.3 Research problem and questions

Increased outsourcing and supply chain complexity have forced companies to depend more on logistics service providers. The management of LSPs in the Case Company is currently based largely on rather subjective experiences. The aim of this thesis is to create a more objective model that can be used to support decision-making. The problem isn't only unique to the Case Company. Selection of suitable LSPs for company's needs is a challenging task in general (Alkhatib et al., 2015). Subjectivity in the evaluation process is also echoed in literature (Montgomery et al., 2018). Despite the challenge, necessity of effective LSP selection is clear. Failing the selection of partners leads to missed opportunities and wasting precious time and energy with the wrong partners (O'Brien, 2018). To mitigate these risks, a more objective model for segmenting LSPs is required. Managing a growing number of these partners requires a structured approach, yet the principles of supplier relationship management are rarely applied specifically to logistics providers. Such a model can be supported by performance measurement criteria, which are instrumental both for assessing the overall success of logistics outsourcing and for providing the data necessary to implement corrective actions (Selviaridis & Spring, 2007). This research problem is to be examined through two research questions and answering them will enable the research objectives to be achieved. The different topics significant for the research are linked to each other in the research questions

The research questions:

1. What criteria are essential for the Case Company in evaluating logistics service providers?
2. How can these criteria be used to build a segmentation model that supports the management of logistics service providers in the Case Company?

Question 1 will be answered by analyzing existing literature to identify suggested criteria for supplier evaluation. These criteria will then be compared against the input gathered from interviews conducted within the Case Company to determine which criteria align with the company's specific needs. Question 2 will be addressed through the literature review and its suggestions with addition of insights from the empirical part. This comparative analysis will enable the selection and finalization of the criteria to be incorporated into the proposed model.

1.4 Structure of the study

The introduction chapter is followed by a literature review. The literature review defines and discusses the key topics relevant to the study and connects their theoretical backgrounds. It consists of four main chapters (2-5), which address in order: outsourcing of logistics, the management of logistics service providers, the segmentation of logistics service providers and lastly the segmentation of logistics service providers using the Kraljic matrix. At the end of Chapter 5, the theoretical framework of the study is presented. The literature review and the theoretical framework provide the foundation for analyzing the findings presented in the empirical section of the thesis.

The purpose of the literature review included in the theoretical part is to identify existing research related to the study's research questions. Prior academic literature is examined, compared and critically analyzed in relation to the research topic. By reviewing established knowledge and perspectives within the field, the literature review aims to explore the various approaches and viewpoints that have been adopted, as well as to evaluate their strengths and weaknesses. (Eriksson & Kovalainen, 2016)

Following the theory-based introduction, Chapter 6 presents the empirical research process, describing the methods of data collection and the methodology of analysis. Empirical data can be collected by the researcher, for example, through interviews, observation, or surveys (Eriksson & Kovalainen, 2016). In this thesis, empirical data is collected through semi-structured interviews, after which the material obtained from the interviewees is coded using the Gioia methodology, introduced by Gioia et al. (2013). Chapter 7 analyzes the results derived from the data and presents the key findings. Finally, Chapter 8 synthesizes the theoretical and empirical content into a summary, which includes the conclusions, theoretical contributions and practical recommendations, as well as a discussion of the study's limitations and potential directions for future research.

2 Logistics outsourcing


2.1 Definition of outsourcing logistics

Supply chain management involves the management and design of value-added processes across organizational boundaries to meet the needs and requirements of the end customer. Logistics play a significant role in that (Erkayman et al., 2012). Logistics is a process of managing the movement and storage of parts, materials and finished inventory together with related information flows. Therefore logistics is not only trucks, ships and planes going from point A to point B (Christopher, 2022).

Outsourcing logistics means handing logistics related activities to a professional external party (Alkhatib et al., 2015). The management's task after outsourcing becomes to supervise the external parties, logistics service providers (LSPs), to ensure greater quality is provided and lower costs are achieved (Stank & Maltz, 1996). Logistics outsourcing originated in the 1980's (Erkayman et al., 2012) and ever since that it has only gained popularity (Premkumar et al., 2021). Already in 2005 no less than eight out of ten of the Fortune 500 Companies reported that they relied on logistics outsourcing (Erkayman et al., 2012). As the market becomes more global with broad distances, the rising use of logistics is seen as an important area where industries improve their supply chain's quality and can cut costs. Studies have identified logistics costs as a major contributor to the total cost of production (Erkayman et al., 2012). While logistics costs vary across industries and individual companies, the aggregate costs across the economy are estimated to be ten per cent of the gross domestic product (Christopher, 2022). Therefore, the possibilities for cost savings through outsourcing can't be overstated.

But even though cost savings play a huge role, the biggest reason for outsourcing today might not even be costs. Solakivi et al. (2013) surveyed logistics professionals in Finland to find out the importance of outsourcing motives. From their study, flexibility of logistics operations was seen as the most important factor. Cost savings came in the second place. Other important motives were related to increased efficiency, flexibility of costs, customer service improvement and enhanced expertise. Access to new technologies, re-engineering the processes, improved market knowledge and risk reduction were also mentioned as big contributors.

Table 1 Reasons for outsourcing (Solakivi et al., 2013)

<i>The importance of outsourcing motives for manufacturing companies</i>	
	High
	Flexibility of logistics operations
	Outsourcing offering cost savings
	Increased efficiency of the outsourced logistics function
	Flexibility of logistics costs
	Customer-service improvement
	Improved expertise
	Securing own market
	Concentrate on firm's core activities
	Risk reduction
	Access to new technologies
	The re-engineering of logistics processes
	Low
Improved market knowledge	

Outsourcing of logistics can refer to many different activities in different parts of the supply chain. Commonly outsourced activities to the external service providers include of course the transportation, warehousing and storage, but it can also include customer service, distribution communications, facility location, forecasting, inventory control, order management and packaging (Daugherty et al., 1996). The most commonly outsourced logistics function seems to be closer to the core of logistics – transportation related. In their study about Finnish logistics Solakivi et al. (2013) found out that over 85% of the companies had outsourced the majority of their domestic transportation activities. International transportation, freight forwarding and reverse logistics are also widely outsourced. After these transport-related activities, the most widely outsourced logistics function was the outsourcing of IT systems. The extent of outsourcing for materials management and related value-added services, including warehousing and notably inventory management, was lower by international levels. (Solakivi et al., 2013)

There is often a clear economic logic and other big benefits supporting the decision to outsource activities that have previously been performed in-house, but such decisions add to the complexity of supply chains (Bode & Wagner, 2015). When outsourcing, there are also more interfaces to be managed and those interfaces require a higher level of relationship management. (Christopher, 2022). These alternative costs are discussed in greater depth later on in the thesis.

2.2 Types of logistics service providers

Supply chain management and logistics literature divides companies providing external logistics services into second-party logistics, third-party logistics and fourth-party logistics. Before diving deeper into those and what they mean, it might seem that the list is missing its first component – the first-party logistics. First-party logistics (1PL) includes companies that handle their own logistics operations internally. This means everything from transportation and inventory management to customer service (Maersk, 2024). By that definition, 1PL is not a part of outsourcing and neither does it involve logistics service providers.

Second-party logistics (2PL) involves the outsourcing of basic transportation services to a dedicated carrier, such as a trucking, airline or shipping company. These providers specialize in the efficient movement of goods, allowing the contracting company to free up resources and concentrate on its core business activities. While 2PL offers a limited scope and doesn't provide end-to-end solutions, it offers access to specialized resources and expertise (Maersk, 2024). The nature of 2PL is closer to subcontracting than outsourcing, as argued by (Christopher, 2022) but the thesis will conclude 2PL also as a form of outsourcing. This decision is supported by literature such as Maersk (2024). From the perspective of the Case Company, they currently utilize some 2PL partners for transportation needs.

Third-party logistics (3PL) is the most common and recognizable form of logistics outsourcing. 3PL providers act as an extension of the contracting business, managing and executing a wide array of supply chain functions. Services extend beyond basic transportation to include warehousing, order fulfillment, customs brokerage and value-added services such as packaging and labeling (Maersk, 2024). The rise of 3PL is often considered the defining moment of logistics outsourcing. Consequently, the terms "logistics outsourcing" and "third-party logistics" have frequently been used interchangeably in literature (Selviaridis & Spring, 2007). Most of the logistics service providers of the Case Company fall in the category of 3PL.

Fourth-party logistics (4PL) takes things to the next level. They function as strategic integrators that manage and optimize the client's entire supply chain. Unlike 2PLs and 3PLs, 4PLs do not own physical assets but instead act as strategic consultants. They design, manage and coordinate complex supply chains across multiple 2PLs and 3PLs. 4PLs use technology and data analytics to optimize the logistics network, focusing on increasing efficiency, reducing costs and enhancing supply chain visibility. Due to their strategic and complex nature (Christopher, 2022), 4PLs are

increasingly sought after by shippers looking for more integrated and strategic long-term partnerships (Maersk, 2024). The Case Company has some 4PL partners.

Table 2 1PL–4PL (Maersk, 2024)

	1PL	2PL	3PL	4PL
Example	The company delivering goods to end user using its own van and staff	The company hiring a shipper only for transportation	The company using an LSP for warehousing and delivery	The company using an LSP that manages all providers through the supply chain
Level of Outsourcing	None (Internal coordination)	Transportation or warehousing	End-to-end (multiple logistics functions)	Entire supply chain management
Control	High	Moderate	Low	Low
Complexity	Low	Low	Moderate	High
Scalability	Limited	Moderate	High	Very High
Expertise & Resources	Limited (internal)	Specialized in transportation	Broader logistics knowledge and network	Complete supply chain optimization

2.3 Trends in logistics outsourcing

Trends in logistics outsourcing from the past decade have been shaped a lot by the growth of it. Use of outsourcing solutions for logistics has been ever growing since its beginning in the 1980's (Marchet et al., 2018; Premkumar et al., 2021). A byproduct from the increased amount of outsourcing is complexity (Bode & Wagner, 2015). The degree of dependency on external suppliers has increased significantly and because these service providers rely on a web of second-tier suppliers and beyond, the overall supply chain structure has become more complex and fragile than what it has been (Christopher, 2022). Complexity leads to logistics outsourcing being handled with more of a strategic mindset, which can be seen as a big trend (Bode & Wagner, 2015).

Other drivers towards a more strategic view on outsourcing logistics have emerged too. With the promises of added value and enhanced experience from outsourcing, the customers' expectations are rising too. Logistics is being seen more and more as a strategic component providing value (Premkumar et al., 2021). On top of that, throughout industries there is a growing interest in collaboration and gainsharing between the partners (Premkumar et al., 2021). In the logistics outsourcing point of view a shift from transactional relationships to strategic partnerships offers

better relationships between LSPs and their clients (Premkumar et al., 2021). Stronger relationships between LSPs and their clients are likely to result in improved logistics services, driving optimization and delivering value through reduced costs, enhanced flexibility and increased responsiveness in supply chain operations (Mageto, 2022).

The only clear deviation from the trend of growth came during the Covid-19 disruption. In the midst of Covid many enterprises reduced their outsourcing activities. The reduction can be attributed to uncertainty and during a disruption enterprises like to control their logistics. With that they can achieve more agility and control (Mageto, 2022). In other words, the closer logistics is to the company, the more control the company has. This can also be seen from Table 2 above. Covid also provided real life examples on what added levels of complexity have done to the global supply chains and why a strategic view is gaining popularity. The complex nature of global supply chains was clearly demonstrated when operations halted worldwide due to local events occurring on the other side of the planet. (Magableh, 2021)

Other past decade key trends have involved increasing use of IT and digital services by LSPs (Premkumar et al., 2021). That trend will only be gaining momentum in the future, since information technology and its innovations through automation and especially artificial intelligence (AI) will be the major forces shaping future logistics. According to Lagorio et al. (2022) and Wanke et al. (2007) concrete IT capabilities that define modern logistics include foundational systems like electronic data interchange (EDI), warehouse management systems (WMS) and enterprise resource planning (ERP). Furthermore, advanced capabilities such as real-time tracking and tracing, RFID and high levels of information accessibility and security are now essential. The leading edge of this trend involves more technologies like digital twins and big data analytics, which together enhance visibility and operational intelligence across the supply chain (Lagorio et al., 2022).

AI will be used to automate processes such as evaluating supplier bids, analysing contracts, classifying spend and tracking compliance. The core intent of these types of investments is to control costs, shorten the procurement cycle and ensure business continuity in during disruptions (Muntala, 2021). In addition to these Nicoletti (2025) argues for the importance of AI-powered route optimization, optimizing reverse logistics and tracking emissions. The rapid improvement of AI will play a big part in the future, when companies figure out the best uses for it. Until now, more comprehensive literature on AI has not been found and companies are mostly in the testing era. Despite the potential of AI, many of the adoptions by organisations have fallen short of expectations, leading to unsuccessful implementations so far (Khanfar et al., 2025).

Other big trends in the near future include deeper sustainability focus and more risk management. Sustainability awareness is one of the biggest global trends across economic sectors. In the framework of logistics outsourcing, sustainability focus requires companies to reduce emissions related to logistics with compliant logistics service providers. Risk management is defined as the ability to quantify potential business threats and address them through risk transfer or sufficient preparation to reduce their impact. As global supply chains grow more complex and uncertainty persists, the emphasis on robust risk management strategies has intensified. (Mageto, 2022).

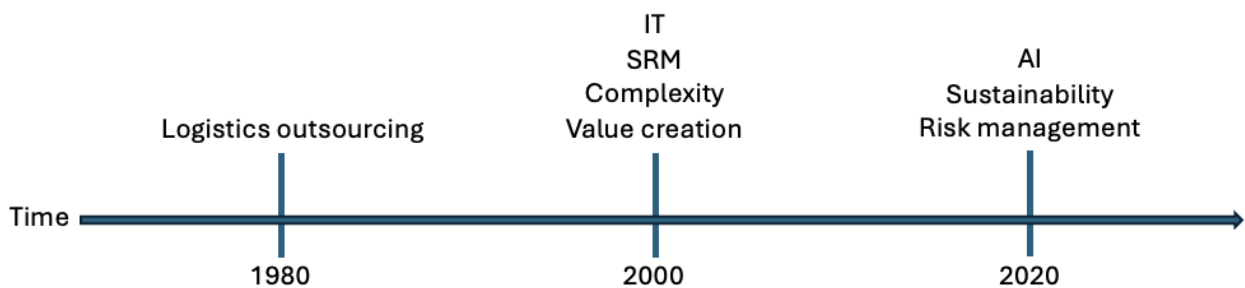


Figure 1 Trends in logistics outsourcing (Marchet et al., 2018; Mageto, 2022; Premkumar et al., 2021)

3 Managing logistics service providers

3.1 Foundations and evolution of supplier relationship management

Logistics service providers are not too different from other types of suppliers in the supply chain and therefore the common supplier relationship management (SRM) principles can be applied to them as well (Selviaridis & Spring, 2007). Supplier relationship management is a process that defines how a company interacts with its suppliers (Croxtton et al., 2001). Through time, SRM has evolved from a procurement activity to an essential strategic business function for competitive advantage in modern supply chains (Zhao, 2025).

The traditional approach to supplier interactions were largely transactional and they focused primarily on cost reduction and price negotiation (Zhao, 2025). The concept of supplier relationship management emerged in 1983 when a McKinsey consultant Peter Kraljic advocated for a more proactive approach to supply management among corporate buyers. Kraljic urged buyers to analyze the risk and profitability impact of their categories on the company and develop supplier management strategies that best meet these needs (Forbes, 2017; Montgomery et al., 2018). Mettler and Rohner (2009) argue, that SRM has its origins also in the late 80's, but basing on the seminal work of Dwyer et al. (1987) which discusses it through a relationship theory. The work of Dwyer, Schurr and Oh consists of explaining how buyer-seller relationships develop over time. Rather than viewing exchanges as isolated and price-focused events, they argue that most interactions are naturally relational. This reframing of perspective sees supplier management more as a strategic process in which adaptation, collaboration and relationship-specific investments become the key drivers for performance (Dwyer et al., 1987).

Even though Kraljic's impact on supplier relationship management cannot be overstated, as he is said to be the founding father of SRM (Gelderman & Van Weele, 2003; Montgomery et al., 2018), modern day SRM practices resonate more with the work of Dwyer, Schurr and Oh. In their 1998 paper Dyer et al. argued that supply chain management was evolving beyond Kraljic's focus on minimizing dependency and maximizing bargaining power. They stated that moving away from this approach, known as arm's length, toward a more strategic supplier engagement would become the new "best practice." (Dyer et al., 1998). These arm's length relationships are defined by next to no investment in assets with minimal information exchange. A typical example of a transaction conducted with this mindset is a simple point-to-point truckload shipment (Jagannathan et al., 2025).

Today's SRM ideology leans more towards the strategic approach, which consists of practices emphasizing collaboration, shared value creation and long term partnerships (Zhao, 2025). These practices align better with supply chain strategies aimed at achieving responsiveness and efficiency (Zhao, 2025). Christopher (2022) also argues for collaboration, stating that the whole purpose of SRM should be in developing closer and mutually beneficial connections with critical suppliers. The shift towards a more strategic SRM view is influenced by factors beyond academic literature. Specifically, globalization has expanded the geographical scope and complexity of supply chains, making strategic partnerships a necessary response to these management challenges (Zhao, 2025). The more advanced partnerships of increasingly complex services are handled with strategic alliances (Andersson & Norrman, 2002; Büyüközkan et al., 2008).

For logistics, the rise of SRM and the inherent complexity of modern supply chains have made the strategic management of logistics service providers crucial. The industry is actively moving away from simple transactional partnerships toward more strategic and collaborative models. The phenomena can be seen from the recent logistics trends, as argued by Büyüközkan et al. (2008), Mageto (2022) and Premkumar et al. (2021).

3.2 Relationship management practices in logistics

Traditionally all of logistics outsourcing had been managed in a highly transactional and arm's length fashion (Andersson & Norrman, 2002). This was once considered the best practice, likely reinforced by the principles of the Kraljic model. Premkumar et al. (2021) argue that maintaining an arm's length relationship between the LSP and the shipper significantly increases business risks. To facilitate better risk management, they highlight the need for collaborative relationships from this perspective too. The movement towards favouring strategic partnerships is transforming the supply chain into a confederation of organizations. These organizations align on common goals and contribute unique strengths to the overall value creation and delivery system. This evolution is being even further accelerated by the ongoing trend towards more outsourcing (Premkumar et al., 2021)

But then again, the strategic outsourcing should not be confused with subcontracting, where an activity or a task is simply handed over to a specialist (Christopher, 2022). For straightforward logistics tasks, such as those typically handled by a 2PL, companies often opt to subcontract the service instead of engaging in true outsourcing. This means that a strategic in-depth partnership is not required for such cases. For a company with multinational logistics and partners all over the world – like the Case Company, there is no time and resources for a strategic partnership in all

logistics operations. Time and resources are limited (O'Brien, 2018). Therefore, arm's-length relationships retain their place and necessity, a point supported by literature from Büyüközkan. Even in today's environment, the traditional purchasing of logistics services is typically conducted using this arm's-length model (Büyüközkan et al., 2008).

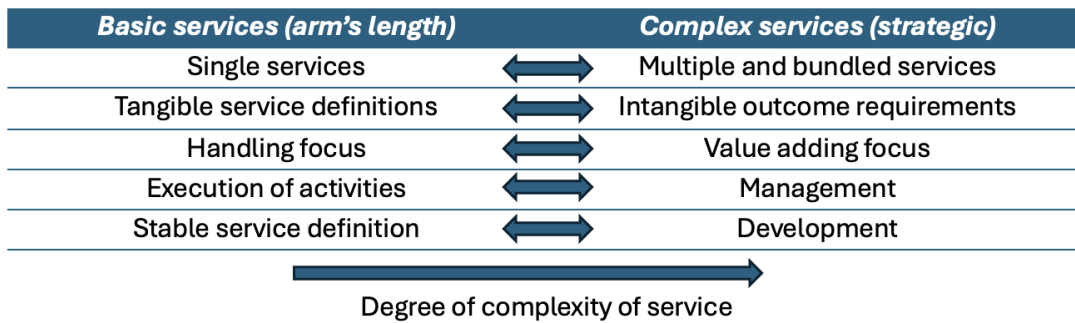


Figure 2 Arm's length vs strategic services (Andersson & Norrman, 2002)

According to Andersson and Norrman (2002), logistics purchasing will be dominated by two processes: seeking deep strategic alliances with a few providers for advanced services and making very fast transactional purchases with multiple providers for basic services. They believe that while not every company will follow exclusively to these extremes, many will rely on one or both of these models far more than they have done previously. Basic services are purchased within short-term transactional relations and complex logistics need strategic partnerships (Andersson & Norrman, 2002). Even though the statement became already in 2002, Andersson's and Norrman's hypothesis has stood the test of time. This can be confirmed with newer literature from O'Brien (2018), Christopher (2022), Mageto (2022) and Premkumar et al. (2021). The characteristics of the LSP industry are shown in Figure 3 below.

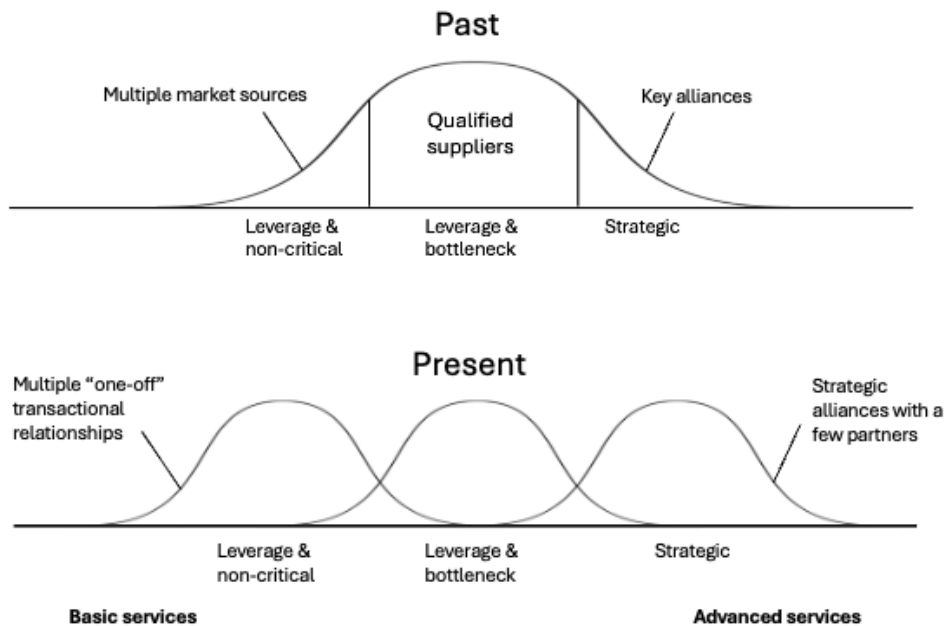


Figure 3 LSP industry characteristics (adapted from Andersson & Norrman, 2002)

What actions do these differing relationships require from the outsourcing company? No matter the type of relationship in question, Boyson et al. (1999) suggest a five-step guideline for managing the partners:

1. **Provider Identification:** Companies must identify potential LSPs by leveraging unbiased sources of information relevant to their business needs
2. **Internal Evaluation:** Companies must leverage their internal knowledge capabilities to evaluate the providers.
3. **Contracting Agreements:** Establish central, risk-averse outsourcing contracts using preventive measures with clauses defining charges, performance and responsibilities
4. **Internal Organization:** To manage the relationship effectively, companies should consolidate core logistics capabilities within a single office to maintain organizational control over the process.
5. **Monitoring & Auditing:** Ensure continuous improvement by utilizing knowledgeable in-house professionals for auditing and monitoring, supported by extensive metrics and regular review meetings. (Boyson et al., 1999)

This framework can be expanded by Aghazadeh (2003). He makes a crucial prerequisite step before moving on to number 2. Aghazadeh suggests that there would be need for another step where the company decides on how to evaluate the logistics service providers. These five plus one steps are suitable and essential for all logistics partnerships, no matter the type of relationship.

To further investigate partnership management, this thesis will specifically focus on the spectrum of simple versus complex logistics, contrasting arm's length and strategic partnerships. Simpler outsourcing relationships are defined as arm's length, characterized by minimal information exchange and little or no investment in relationship-specific assets (Hoyt & Huq, 2000). These basic arrangements typically require no specialized attention. The logistics services are easily defined and the purchasing decision is primarily driven by price (Andersson & Norrman, 2002).

However, complex logistics with strategic relationships require more attention. To optimize these partnerships embodying the characteristics of modern SRM and mutual benefit relationships, it is critical to manage the specific interfaces where physical goods or information are exchanged (Premkumar et al., 2021; Selviaridis & Spring, 2007). The strategic partnership is built on transparency, achieved through enhanced information sharing. This process creates a self-fuelling, two-way relationship where greater confidence leads to greater willingness to share information between the logistics service provider and the user (Khatri et al., 2023).

Tate (1996) goes even further, comparing strategic partnerships to a marriage. Both require constant hard work, compatibility, shared values and a mutual understanding of needs. Successful partnerships are long-term, collaborative and built on trust, commitment, fairness and flexibility (Tate, 1996). Furthermore, O'Brien (2018) reminds us that relationships exist between people, not between companies: "Companies don't have relationships with companies, it is the individuals within these companies that have relationships with individuals in the other company." The social interaction between these individuals is crucial, as it ultimately defines the nature of the business relationship and helps to foster positive, essential relations. (O'Brien, 2018)

3.3 Performance evaluation criteria

SRM is fundamentally about unlocking value from the supply base and to do this companies must identify who their important suppliers are (O'Brien, 2018). The evaluation and identifying of logistics service providers is an important element in the logistics outsourcing process. But the selection of suitable LSPs for the company's needs is not an easy decision and is associated with complexity and uncertainty (Alkhatib et al., 2015). This identification step is often the most

challenging part of SRM and it is easy to become overwhelmed by complex processes (O'Brien, 2018).

If the company gets it right, they can confidently direct its valuable resources where they will have the greatest impact. But if it is done wrong the company risks wasting time and energy in the wrong areas, missing crucial opportunities, or exposing itself to unnecessary risk (O'Brien, 2018). As mentioned previously a company with extensive amounts of logistics service providers is not capable of having a strategic relationship with all of them, like in the situation of the Case Company. Cutting down the number of partners is beneficial also, because dealing with a large number of suppliers requires disproportionately more effort from purchasing staff (Andersson & Norrman, 2002).

To differentiate between the LSPs companies need performance evaluation. Evaluation is instrumental for assessing the extent of logistics outsourcing success and identifying corrective measures (Selviaridis & Spring, 2007). Suppliers are evaluated by assessing them based on various criteria. There exists a lot of literature regarding what criteria to use in the evaluation. Perhaps the most comprehensive and recent research done is from Aguezzoul (2014). The paper reviews 67 articles on LSP selection, conducting a detailed analysis to identify the most frequently used criteria and methods in the selection process (Aguezzoul, 2014). Most common criterion and their subcriteria found from literature include:

Cost: price, operation cost

Relationship: reliability, dependence, compatibility

Services: specialization of services, variety of available services and value-added services.

Quality: commitment to continuous improvement and risk management.

Information systems: EDI, tracking and tracing, technology capabilities, information accessibility

Flexibility: capacity to accommodate, responsiveness to service requests, capability to handle specific business requirement and time response capability.

Delivery: delivery time, on-time delivery rate and defective deliveries

Professionalism: expertise, competence and experience.

Financial position: financial performance

Location: geographical specialization and market coverage

Reputation: opinion on the LSP in satisfying the needs

Based on the Pareto method, Aguezzoul (2014) concluded that the most frequently cited criteria – which are cost, relationship, services, quality, information systems, flexibility and delivery, account for 80% of the literature’s focus on LSP selection. The remaining criteria (professionalism, financial position, location and reputation) constitute the remaining 20% (Aguezzoul, 2014). This prioritized list strongly corresponds with the findings of other research, including studies by Alkhatib et al. (2015), Erkeyman et al. (2012) and Selviaridis & Spring (2007). For example, Erkeyman et al. (2012) had a panel of experts reduce thirty potential criteria to six essential ones: price, reputation, services, on-time delivery, information technologies and flexibility. All these criteria are reflected within the extensive categories provided by Aguezzoul’s comprehensive research.

Returning to the distinction between arm’s length (transactional) and strategic relationships, Marchet et al. (2018) observe that while the overall importance of competitive advantages remains similar across different partner types, the importance of specific factors varies significantly. Flexibility is strongly associated with subcontracting or arm’s length outsourcing. This shows that, in transactional relationships, companies prioritize the LSP’s ability to quickly cope with variations in demand, placing less emphasis on long-term improvement. Service level and innovation improvements, which align with the criteria of reputation and quality used in this thesis, are characteristic of strategic perspectives. These factors reflect more integrated, partnership-oriented supplier relationships (Marchet et al., 2018).

Oeser (2020) conducted a study to find out how German companies weight different criteria in logistic partner selection, focusing on strategic partners. The participants of the study rated the importance of 34 selection criteria. The list of criteria was concluded from comprehensive logistic partner selection literature, such as the article from Aguezzoul, which has been introduced earlier in the thesis. The most important criteria found for strategic partners were: operational collaboration, information technology, strategic collaboration, processes and services, quality, superficial characteristics (such as reputation), location and cost-performance ratio (Oeser, 2020).

Building on the research into strictly strategic partner selection, studies from Büyüközkan et al. (2008), Miettunen & Jämsä (2006) and Ho et al. (2022) have been utilized. Büyüközkan et al. have

grouped two different sets of criteria for strategic partner selection. The first group focuses on strategic alignment, looking for companies with similar values, goals and organizational cultures, while also considering financial stability and a proven track record of maintaining long-term relationships. The second group shifts the focus towards important aspects of the partner's business, measuring technical expertise, partners' performance, service quality and depth of managerial experience (Büyüközkan et al., 2008).

Whilst the second group of criteria align closely with the metrics identified by Oeser and Aguezoul, Büyüközkan's framework puts more emphasis on the organizational fit. Miettunen and Jämsä (2006) also mention similarities with the companies being a considerable criteria. Large corporations usually feel comfortable working with big logistics providers, seeing them as equals who can match their scale. However, smaller companies often feel intimidated by major service providers, worrying that the power gap will give the larger partner too much leverage during contract negotiations. This indicates that choosing a partner based on size is a strategic move to ensure both sides have equal bargaining power and a fair working relationship (Miettunen & Jämsä, 2006).

Quality, location and services are also subjects with closer attention on their studies. On quality Miettunen and Jämsä argue that carriage damages and operation quality should be carefully followed (Miettunen & Jämsä, 2006). Continuing on the delivery quality, Ho et al. state that delivery flexibility, delivery reliability, the delayed arrival rate and the price are important factors (Ho et al., 2022). Agreeing as Oeser (2020), Ho et al. (2022) underline the importance of location. When local businesses work together, they can create a more integrated and productive supply chain. However several obstacles make it difficult to choose local partners over international ones. Many local companies struggle with a lack of specialized experience and modern technology, while intense price competition and the market dominance of global logistics giants often push smaller players aside (Ho et al., 2022). The ability to offer varying and competitive services will become an increasingly important way for companies to stand out from their rivals. Mentzer et al. (2004) suggest that as basic logistics become more standardized, the specific service features a company provides will serve as the primary factor that differentiates them in a crowded marketplace (Mentzer et al., 2004).

Alkhatib et al. (2015) contribute to the LSP selection literature by moving beyond simply listing evaluation criteria to creating a categorization of common criteria. The LSP evaluation and selection process is multi-dimensional and therefore criteria of different kinds need to be considered

(Alkhatib et al., 2015). Alkhatib et al. (2015) write their work being notably one of the first to integrate these three dimensions into one comprehensive framework. The categorization provides decision makers with a more holistic view, making sure they select a balanced range of criteria and avoid focusing too much on a single aspect of a supplier's performance (Alkhatib et al., 2015).

The most relevant and critical factors, often found fragmentally in different logistics studies, can be aggregated into a comprehensive framework covering three main competitiveness dimensions (Alkhatib et al., 2015). The three main dimensions are 1) logistics performance which measures the operational efficiency and effectiveness of the LSP, 2) logistics resources and capabilities which assesses the physical and intellectual assets (for example equipment, it-systems, expertise) the LSP possesses and 3) logistics services which examines the width, specialization and value-added nature of the services offered (Alkhatib et al., 2015). Figure 4 showcases the framework provided by Alkhatib et al. (2015).



Figure 4 Categorisation of LSP assessment criteria (Alkhatib et al., 2015)

Despite the differences in focus, no major discrepancies exist regarding the general applicability of evaluation criteria. Selviaridis and Spring (2007) argue that whilst some criteria can be developed with specific client needs in mind, the most common cited criteria largely apply to all logistics outsourcing circumstances regardless of the situation.

3.4 Trends in criteria selection

When looking more into the trends that will shape future partner selection, partner selection will still rely on foundational criteria such as LSPs' on-time performance, service delivery, financial power, value-added services and special expertise (Mageto, 2022). However, future trends place critical emphasis on technological capabilities and sustainability. Technological factors, especially the use of artificial intelligence to integrate human like knowledge and vast amount of data are becoming vital. This means that the information systems criterion will hold significant weight. In addition to the technology in logistics, LSPs are expected to possess sustainability capabilities, including information technologies that offer real-time information sharing to enhance logistics efficiencies (Mageto, 2022). An easy criterion which sustainability can be measured is the amount CO₂ emitted in the transport (Qaiser et al., 2017; Wichaisri & Sopadang, 2013).

AI will not only be used by the LSP to enhance their operations, but it will also be used to enhance the whole process of selecting partners. To leverage this, criteria are often divided into quantitative and qualitative factors. AI can handle the mathematical quantitative factors and give correct suggestions, but it struggles with qualitative factors (Kumar & Vinodh Kumar, 2023). Aguezzoul (2014) also notes AI's capabilities in partner selection using quantitative factors. The term quantitative here refers to constraints such as price, logistics cost, defective deliveries and delivery time. Qualitative properties on the other hand refer to traits that characterize the calibre of the products or services offered by the supplier, such as relationship, quality and reputation among others (Kumar & Vinodh Kumar, 2023).

However, the deployment of AI-backed supplier selection models remains limited due to several challenges. These include the presence of undetected bias in the systems, the models' inability to adequately consider qualitative parameters, a lack of substantial datasets and ambiguity in the algorithm's decision-making process. Consequently, bias, fairness, transparency and causality are major concerns with existing AI systems. (Kumar & Vinodh Kumar, 2023)

4 Supplier segmentation

4.1 Principles of supplier segmentation

Supplier segmentation is one of the key activities in supplier relationship management. This approach allows companies with large numbers of suppliers to divide these suppliers into manageable number of segments. By doing so, the company can implement tailored SRM strategies for the specific segments, avoiding the inefficiency of managing every supplier on an individual basis (Fallah Lajimi & Majidi, 2021). Qualifying, segmentation, selection, monitoring and then controlling suppliers have become key factors in efficient supply chain management (Segura & Maroto, 2017). Managing a broad base of suppliers, each offering unique competitive advantages, becomes increasingly complex without a structured framework. Supplier segmentation addresses this by categorizing partners based on shared characteristics, using models that align with the specific priorities of the decision-maker. (Fallah Lajimi & Majidi, 2021).

Models serve as essential tools in decision-making, allowing professionals to improve accuracy, minimize errors and develop a more holistic understanding of complex problems (Pidd, 2010). As Fallah Lajimi and Majidi (2021) further note, models are the most common tools used to facilitate supplier segmentation. While specialized literature focusing exclusively on the segmentation of logistics service providers remains limited, research suggests that logistics partners are generally selected based on criteria similar to those used for other business partners (Miettunen & Jämsä, 2006). Because LSPs can be managed through the same strategic lens as traditional suppliers (Selviaridis & Spring, 2007), the thesis applies established general supplier segmentation principles to the logistics context.

Despite the utility and widespread application of portfolio models, they are not without significant limitations. A primary concern is that these models often lead to strategies that operate in isolation. They typically focus on categorizing individual products, customers or supplier relationships without accounting for the interdependencies between them. Furthermore, critics argue that portfolio models lack the prescriptive guidance necessary to prioritize between resulting strategies (Olsen & Ellram, 1997). Research suggests that portfolio models are most effective when applied with a clear understanding of their limitations, perhaps in conjunction with complementary analytical tools (Olsen & Ellram, 1997). Despite the limitations, segmentation relies heavily on these frameworks. Given that, the following section examines several of the most prominent

supplier segmentation models. This review will determine which specific approaches best align with the strategic requirements and operational needs of the Case Company.

4.2 The Kraljic matrix

From a chronological perspective, the foundational work widely regarded as the origin of both supplier relationship management and supplier segmentation, two inherently linked concepts, was developed by Peter Kraljic (Fallah Lajimi & Majidi, 2021; Gelderman & Van Weele, 2003; Montgomery et al., 2018). What is now commonly referred to as the “Kraljic matrix” categorizes suppliers based on the specific products or services they provide (Christopher, 2022). As noted by Montgomery et al. (2018), this represented the first comprehensive modelling approach within the field. Kraljic initially designed the matrix only for internal application within his own organization (Glöckner et al., 2005), specifically tailoring the framework for industrial manufacturing environments (Kraljic, 1983).

The framework employs a 2x2 matrix to categorize purchases based on two dimensions, the profit impact and the supply risk. This classification results in four distinct quadrants: non-critical (low supply risk, low profit impact), leverage (low supply risk, high profit impact), bottleneck (high supply risk, low profit impact) and strategic (high supply risk, high profit impact) (Kraljic, 1983). The fundamental objective of the Kraljic matrix is to minimize supply vulnerability while maximizing purchasing power, effectively aligning a supplier’s external resources with the internal requirements of the company. Beyond simple categorization, the matrix offers broader organizational benefits, such as enhancing cross-functional coordination, providing a visual roadmap for purchasing strategy and managing diverse power dependencies with suppliers. Consequently, the Kraljic matrix is often regarded as the most diagnostic and prescriptive tool available to organizations (Montgomery et al., 2018). While various portfolio models have gained traction in professional practice, Kraljic’s matrix remains the most widely adopted (Gelderman & Van Weele, 2003).

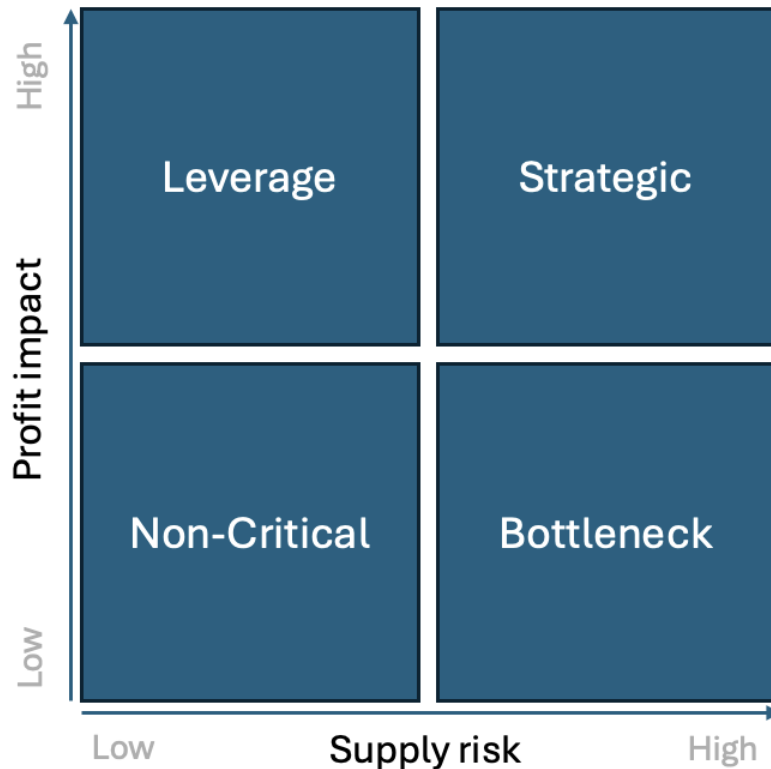


Figure 5 The Kraljic matrix (Kraljic, 1983)

The widespread popularity of the Kraljic matrix can be largely attributed to its simplicity and inherent flexibility (Montgomery et al., 2018). Beyond its design, various empirical studies have validated the practical utility of the matrix and segmentation analysis. Research from Montgomery et al. (2018) assessed the credibility of the model and the specific factors used to measure supply risk and value impact in real life scenarios. By analysing data from Dutch purchasing professionals, they identified both theoretical and practical scenarios where the matrix effectively guided strategies across various commodity groups.

Despite its widespread adoption and popularity, the Kraljic matrix faces critique in literature. A primary concern is that decisions derived from portfolio models are highly sensitive to the specific dimensions, factors and weights selected by the user. Measurement is often cited as the Achilles' heel of these model frameworks (Gelderman & Van Weele, 2003). Uncertainty remains regarding the exact definitions of profit impact and supply risk, as well as how these variables should be quantified in practice. Without a clear distinction between high and low risk, the classification becomes subjective, potentially leading to arbitrary recommendations. Montgomery et al. (2018)

add to the subjectivity by noting, that the positioning of commodities within the matrix is frequently based on the subjective judgment of decision makers rather than analytical rigor. This dependence on intuition over objective data can lead to inconsistent results and incorrect strategic outcomes. Critics also argue that the inherent complexity of business decisions may not be fully captured by a model relying on only two dimensions. Therefore, while the Kraljic matrix is a powerful conceptual tool, its effectiveness depends heavily on the quality and objectivity of the underlying data.

Olsen and Ellram (1997) offer further criticism, particularly regarding the strategic implications of the matrix. They argue that the matrix suggests companies to exploit their buying power whenever market conditions allow it. They argue that this is a potentially hazardous approach in a volatile global economy where market conditions can shift rapidly. Olsen and Ellram (1997) add on the lack of depth by emphasizing that if the dimensions used for categorization are overly simplistic, the model risks overlooking critical variables. For a portfolio model to be truly effective, it must incorporate all factors relevant to the company's strategic environment (Olsen & Ellram, 1997).

4.3 A portfolio approach to supplier relationships (Olsen and Ellram)

In addition to their critique, Olsen and Ellram developed an alternative tool for supplier segmentation. Their framework builds upon the groundwork established by Kraljic (1983) while also incorporating concepts from Fiocca (1982). Fiocca's original work proposed a portfolio approach for managing customer accounts, categorizing them based on their strategic importance and the difficulty of management. Within this model, accounts deemed of high strategic importance undergo further analysis in a second portfolio, which evaluates customer attractiveness and the strength of the buyer-supplier relationship (Fiocca, 1982). Olsen and Ellram adapted this logic to the procurement context by integrating it with Kraljic's principles. While Kraljic's model offers a foundational, single matrix perspective for classifying purchases based on profit impact and supply risk, Olsen and Ellram expanded this into a comprehensive three-step methodology designed to manage the entire portfolio of supplier relationships (Olsen & Ellram, 1997).

The essential distinction in this approach is the introduction of a second, descriptive matrix that evaluates the current state of the buyer-supplier dynamic. This analysis is based on two primary dimensions: relative supplier attractiveness and the strength of the existing relationship (Olsen & Ellram, 1997). Relative supplier attractiveness is assessed through financial -, performance-, technological- and organizational/cultural factors. The strength of the existing relationship is assessed through economic factors, character of exchange, cooperation and distance. By facilitating a comparison between normative strategy (inspired by Kraljic's classification) and the actual

4.4 Supplier potential matrix (Rezaei and Ortt)

Following the groundwork laid by Kraljic and the shift towards relationship management introduced by Olsen and Ellram, there are a lot of studies in supplier segmentation. Among these later contributions, the framework proposed by Rezaei and Ortt (2012) stands out as one of the most prominent in the literature, second only to Kraljic's original model in terms of academic influence. No other models have attracted the same attention from researchers. The research from Rezaei and Ortt (2012) is particularly noteworthy for paving the way for the integration of multi-criteria decision-making techniques into the segmentation process (Fallah Lajimi & Majidi, 2021).

The model developed by Rezaei and Ortt (2012) utilizes two primary dimensions focused on the supplier relationship: capability and willingness. Each dimension is supported by a specific set of criteria, allowing for a more nuanced evaluation of potential partners. Criteria used under capability include for example profit impact of supplier, quality, geographic location, technical capability and criteria used under willingness include for example relationship closeness, impression, ethical standards, dependency. Based on these two axes, suppliers are categorized into one of four distinct segments, identified as SM1 through SM4. A key feature of this framework is its dynamic nature. The model encourages buyers and suppliers to collaboratively enhance their relationship, providing a pathway for suppliers to transition into more favourable segments. In this way, the model serves as both a segmentation tool and a strategic foundation for supplier management and development initiatives.

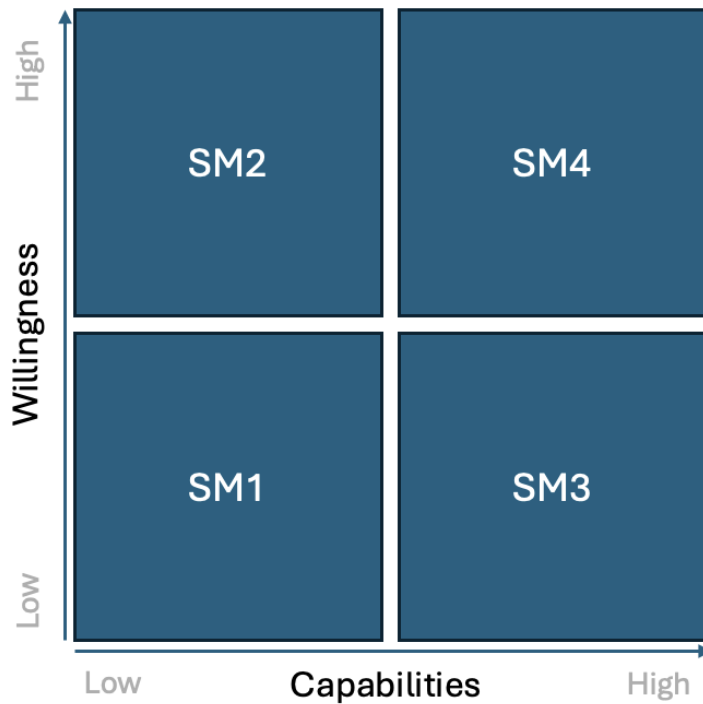


Figure 7 Rezaei & Ortt (Rezaei & Ortt, 2012)

A compelling application with the framework provided by Rezaei and Ortt is the potential to integrate it with other models, such as the Kraljic's matrix (Fallah Lajimi & Majidi, 2021). While both Kraljic's and Rezaei's and Ortt's models independently have four quadrants, combining them creates a more detailed system of 16 segments. Fallah Lajimi and Majidi (2021) suggest that the optimal level of segmentation depends largely on the size of the organization's supplier base.

While the research of Fallah Lajimi and Majidi (2021) identifies several contemporary models, these newer frameworks have yet to demonstrate significant academic impact or widespread practical application. Consequently, this thesis focuses on the three previously discussed models, Kraljic, Olsen and Ellram and Rezaei and Ortt, as they represent the most robust and validated tools in the field. Table 3 provides a concise comparison of these frameworks, outlining their origins, conceptual commonalities and distinct differences to illustrate how they collectively influenced supplier segmentation.

Table 3 Summary of the models

	<i>Kraljic matrix (1983)</i>	<i>Olsen & Ellram (1997)</i>	<i>Rezaei & Ortt (2012)</i>
Concept	Focuses on what is being purchased	Focuses on the dynamic of the relationship	Focuses on the behavioral traits and future potential
Dimensions	1. Profit impact 2. Supply risk	1. Difficulty of managing the purchase situation 2. Strategic importance & 1. Relative supplier attractiveness 2. Strength of relationship	1. Supplier capability 2. Supplier willingness
Model structure	Single 2x2 matrix	Three-step methodology with two distinct matrices	Single 2x2 matrix, often used for multi-criteria analysis
Objectives	Minimize supply vulnerability and maximize purchasing power	Resource-efficient management of relationships	Supplier development
Strenghts	Simple, flexible, and the most widely adopted foundational tool	Holistic	Dynamic, integrates multi-criteria decision-making
Critique	Potentially too simplistic for complex markets, focuses on power exploitation	Complex	Still waiting widespread practical application

5 Logistics service provider segmentation model

5.1 Selected model for the thesis

As indicated by the title of this research, the proposed framework is primarily based on the groundwork established by Kraljic. The decision to choose this exact model, despite the availability of other alternatives, is driven by its long-lasting relevance and widespread adoption. Since its establishment, the Kraljic approach has become the dominant framework for segmenting suppliers and is widely regarded as a foundational element of the profession. While other portfolio models are used in practice, Kraljic's matrix remains the most extensively utilized (Gelderman & Van Weele, 2003). By selecting this model, the thesis leverages a framework with proven success and demonstrated capabilities in real-world corporate environments.

Beyond its practical success, Kraljic matrix is the most established framework within academic literature (Montgomery et al., 2018). Over time, it has become a staple of purchasing and supply management textbooks (Gelderman & Van Weele, 2003) and is now considered a foundational theory that serves as an essential reference for professionals (Glöckner et al., 2005). Furthermore, the dominance of the matrix is reflected in its high citation frequency compared to other models (Fallah Lajimi & Majidi, 2021). This large quantity of existing research provides a solid academic basis, offering plentiful resources to further adapt and refine the framework to meet the specific needs of this study.

The popularity of the Kraljic matrix and another key factor for its selection in this study, stems from its simplicity and flexibility. Its simple design is a significant factor in its widespread adoption (Montgomery et al., 2018). While a less flexible and a more complex model can lead to overly complex results, the generic nature of the Kraljic approach allows for meaningful customization (Gelderman & Van Weele, 2003). As noted by Pidd (2010) a simple model is generally easier to implement and maintain, reducing the risk that the framework will be not used due to the difficulty. Furthermore, simplicity does not equate to a lack of capability. Malmborg et al. (2024) argue that simple models often perform as well as or even better than highly complex alternatives. By integrating multiple criteria into each dimension of the matrix, the framework from Kraljic can also incorporate the analytical depth of multi-criteria-decision-making, which necessity was stated in the work of Rezaei and Ort (2012).

On top of all of that, the Kraljic matrix has already been adopted by the Case Company for other parts of its supply chain. Implementing the same framework across the organization's operations

offers more continuity and consistency in strategic decision-making. The Kraljic approach is particularly well-suited to the company's current needs providing a tool to manage volume consolidation between leverage and strategic services. While the Kraljic Matrix was originally designed for the industrial manufacturing sector (Kraljic, 1983), its extensive adaptation across diverse industries confirms its inherent versatility (Montgomery et al., 2018). Segmentation tools tailored specifically for the logistics industry remain limited. However, as noted by Murphy and Daley (1994), logistics segmentation can be effectively facilitated by adapting proven techniques from industrial marketing and procurement. By leveraging these established frameworks, this study applies a tested methodology to the unique complexities of logistics service providers, bridging the gap between general supply chain theory and logistical practice.

While the previous sections scratched the surface of the Kraljic matrix, a more detailed inspection is required to effectively adapt the framework for the segmentation of logistics partners. It is important to emphasize that the matrix is not a moment shot but rather it requires continuous adjustment and periodic review to ensure optimal strategic results (Glöckner et al., 2005).

The model is structured around two dimensions, each defined by specific criteria that clarify its characteristics (Kraljic, 1983). Typically, the horizontal axis (X-axis) represents supply risk or the complexity of the supply market (Kraljic, 1983; Montgomery et al., 2018). The criteria for this dimension include supplier availability, competitive demand, make-or-buy opportunities, storage risks and the possibility of substitution (Kraljic, 1983). These variables are largely considered external factors, as they are determined by market conditions (Montgomery et al., 2018).

In contrast, the vertical axis (Y-axis) measures the importance of purchasing or profit impact. This dimension includes internal criteria such as the volume purchased, the percentage of total purchase costs, the impact on quality and overall business growth (Kraljic, 1983). Consequently, while supply risk accounts for external market dynamics, the importance of purchasing focuses on internal organizational factors (Montgomery et al., 2018). Mapping suppliers against these two axes results in the four previously mentioned quadrants: non-critical, bottleneck, leverage and strategic (Kraljic, 1983). The specific characteristics and further features of those quadrants are detailed in the Figure 8 below.

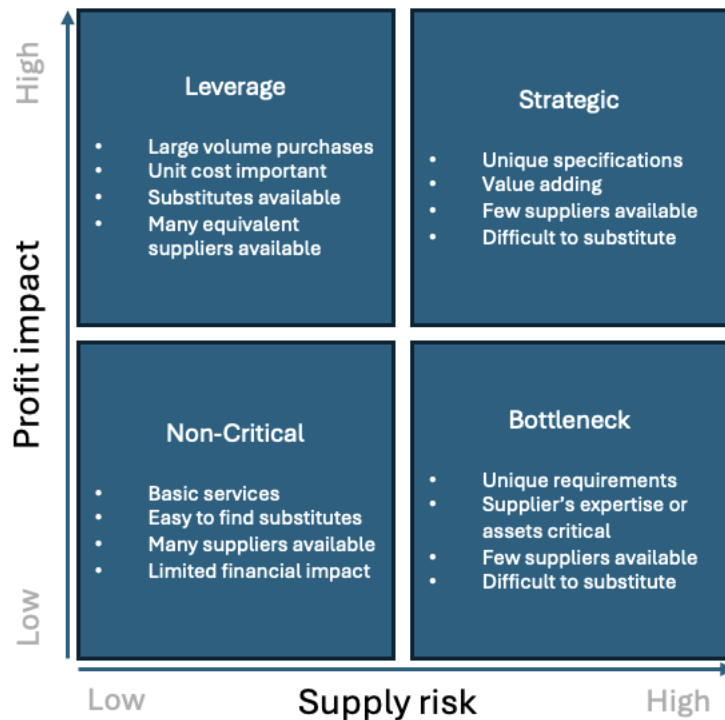


Figure 8 Quadrants of the Kraljic matrix (Montgomery et al., 2018)

When using the purchasing product portfolio to position traditional logistics services such as transportation or warehousing, those services would be at the border between leverage and non-critical for most companies (Andersson & Norrman, 2002). Looking at the “Profit impact”-axis, although logistics is a big cost factor in a lot of companies, it is rarely the major competitive advantage or cost element. Moving on to the “Supply risk”, it is often rather low since there are a large number of LSPs on the market and the buyer has a strong negotiating position (Andersson & Norrman, 2002).

The position regarding supply risk has been more towards the right with the rise of mergers and “Mega-Carriers” (Andersson & Norrman, 2002). The trend has made the logistics service providers gain more power due to the declining number of competitors, which also increases the risk for the buyer. The trend was argued to emerge already in 2002 by Andersson & Norrman and it can be seen come true with big mergers such as DSV acquiring Schenker (Jacobsen et al., 2024). Whilst in more complex and highly specialized transportations in challenging conditions or territories the supply risk has always been high, nowadays there is even more distribution across all services over Kraljic’s portfolio matrix.

5.2 Managerial implications of the Kraljic matrix

Positioning suppliers in the Kraljic matrix provides managers not only with a representation of trade-offs between suppliers but also with a structured basis for developing distinctive supplier management strategies. The categorization of suppliers enables companies to tailor managerial approaches to the specific characteristics of each quadrant (Montgomery et al., 2018). Existing literature on supplier segmentation offers several managerial implications on what to do with the results derived from the matrix. Common themes include identifying the main tasks, determining who and how to handle the relationships and evaluating potential strategic movements between quadrants (Kraljic, 1983).

It is important to note that the position of a supplier in the matrix is not set in stone. Companies may intentionally adopt strategies to shift suppliers toward a more desirable position or maintain existing ones. A recent empirical investigation into the practical use of the Kraljic matrix illustrates that purchasers distinguish between two strategic orientations: 1) strategies aimed at retaining the current position within a quadrant and 2) strategies focused on shifting suppliers to alternative positions (Caniëls & Gelderman, 2005). The following paragraphs outline the managerial implications for each quadrant in more detail.

5.2.1 Non-critical suppliers

Managerial activities for non-critical suppliers are typically revolving around operational efficiency. Tasks such as order volume monitoring, optimization and efficient administrative processing are central. These activities require access to a good market overview and short-term demand forecasts. The decision-making is usually delegated to lower organizational levels, such as buyers. (Kraljic, 1983). Rezaei and Fallah Lajimi (2019), both of whom have been discussed individually earlier in this thesis, collaborated on a study where they suggest that non-critical suppliers are best managed through an arm's length approach. This perspective implies that for such low-risk, low-impact partnerships, the organization should prioritize transactional efficiency and standardized processes rather than intensive relationship management.

Two strategic ways are possible. To move suppliers toward a more beneficial position, ideally closer to the leverage quadrant, companies may engage in pooling purchases. Consolidating non-critical purchases into larger volumes increases the company's buying power and may justify efforts toward standardization. This shift seeks to reduce both direct and indirect purchasing costs. (Caniëls & Gelderman, 2005; Gelderman & Van Weele, 2003)

If maintaining the current position is preferable, companies typically rely on individual ordering with high process efficiency. In this scenario, the primary goal is to reduce indirect administrative costs associated with ordering and procedures related to it (Gelderman & Van Weele, 2003). Given the low impact of these suppliers, literature suggests that companies should neither adopt an overly aggressive or a highly conservative purchasing approach (Montgomery et al., 2018). Instead, the emphasis lies on minimizing administrative burden without allocating unnecessary managerial attention (Glöckner et al., 2005).

5.2.2 Bottleneck suppliers

Bottleneck suppliers represent low value but high-risk purchases. Managing them requires ensuring supply continuity through volume assurance, which might potentially come at a cost premium. Other activities include capacity security and continuity planning. These tasks demand high-quality market data and medium-term supply and demand forecasts, typically overseen by higher level managers such as department heads. (Kraljic, 1983)

Companies may attempt to move bottleneck suppliers into the non-critical quadrant by reducing complexity or identifying alternative suppliers. Because bottleneck suppliers inherently pose supply risks, searching for substitutes and developing new suppliers can decrease dependency (Caniëls & Gelderman, 2005; Gelderman & Van Weele, 2003). This aligns with recommendations to diversify the supply base and systematically explore substitute solutions (Glöckner et al., 2005; Montgomery et al., 2018).

If movement is not possible, companies must accept the dependence and focus on supply assurance. Maintaining the position often involves risk analyses, long-term contracts emphasizing reliability and quality. In such situations, the objective becomes managing and mitigating risks rather than eliminating them. (Caniëls & Gelderman, 2005; Gelderman & Van Weele, 2003)

5.2.3 Leverage suppliers

Leverage suppliers offer high profit impact combined with low supply risk, making them crucial targets for optimizing purchasing power. Managerial tasks include supplier selection, price negotiations and the effective use of a mix between contract and spot purchasing. These decisions require robust market data, short- to medium-term demand planning and price forecasts, typically handled at medium managerial levels such as chief buyers (Kraljic, 1983).

Maintaining the leverage position allows companies to exploit their strong market position. Common approaches include competitive bidding, short-term contracting and pricing strategies that capitalize on the company's bargaining power. In this context, suppliers are often treated as partners of convenience, reflecting the primarily transactional and arm's length (Andersson & Norrman, 2002) nature of the relationship. (Caniëls & Gelderman, 2005; Gelderman & Van Weele, 2003)

Movement out of the leverage quadrant is rare and generally pursued only when the supplier shows potential to contribute to the company's long-term competitiveness. In such cases, a strategic partnership may be developed, shifting the supplier into the strategic quadrant. However, this transition requires a highly capable and committed supplier and is considered an exception rather than the norm (Gelderman & Van Weele, 2003). In general, companies aim to exploit their leverage advantage through either aggressive or collaborative means (Montgomery et al., 2018) while also recognizing the possibility of cultivating a more advanced partnership when it aligns with strategic objectives (Glöckner et al., 2005).

5.2.4 Strategic suppliers

Strategic suppliers are characterized by high supply risk and high profit impact, requiring elaborate and long-term management. Key tasks include accurate demand forecasting, detailed market research and continuous development of long-term relationships. Additional activities such as contract management, risk analysis and continuity planning play a vital role. Managing these suppliers relies on highly detailed market intelligence and long-term trend analyses, typically undertaken by top-level decision-makers. (Kraljic, 1983)

Companies aiming to maintain their position within this quadrant often pursue strategic partnerships founded on mutual trust, commitment and transparent information exchange (Gelderman & Van Weele, 2003). These practices echo with the current practices of SRM (Premkumar et al., 2021). Such partnerships can enhance competitive advantage and create substantial value for both parties, although empirical studies suggest that truly successful long-term partnerships remain relatively rare. (Caniëls & Gelderman, 2005; Gelderman & Van Weele, 2003)

However, not all strategic relationships are voluntary. In some cases, companies become locked into strategic partnerships due to patents, monopolistic markets, high switching costs or by the directions of a major customer. These "accidental" strategic positions necessitate continued cooperation, even when the conditions are unfavourable. (Caniëls & Gelderman, 2005; Gelderman & Van Weele, 2003)

Movement out of the strategic quadrant becomes necessary when supplier performance plummets or when the partnership no longer contributes positively to company value. In such cases, terminating the relationship and identifying new suppliers becomes essential, even though this process can be complex and painful. (Caniëls & Gelderman, 2005; Gelderman & Van Weele, 2003)

Generally, companies managing strategic suppliers should avoid both overly aggressive and overly conservative approaches, instead seeking a balanced relational strategy (Montgomery et al., 2018). Managerial recommendations also include maintaining relationship quality while continuously scanning the market for potential alternative suppliers to combat the supply risk (Glöckner et al., 2005).

5.3 Suitable evaluation criteria

Research indicates that logistics partners are generally selected using the same fundamental criteria as other business partners. Specialized criteria unique to the logistics sector have not significantly diverged from traditional procurement standards (Miettunen & Jämsä, 2006). But as Kraljic (1983) originally observed, no single list of evaluation criteria is universally applicable to every industry. The precise definition of selection criteria is a critical prerequisite for accurate market analysis. While the literature acknowledges a distinction between the procurement of standard commodities and the acquisition of advanced logistics services, the underlying models for logistics segmentation remain similar to generic purchasing frameworks (Selviaridis & Spring, 2007). This proves that with specific criteria calibrated to the logistics context the Kraljic matrix can be effectively applied to logistics.

Current research suggests that the most common selection criteria for logistics partners are broadly applicable across various outsourcing scenarios, regardless of specific buyer characteristics or specialized requirements (Selviaridis & Spring, 2007). Regarding the number of criteria to include, literature indicates that simple models often perform as well as, or even better than, more complex and highly parameterized frameworks (Malmborg et al., 2024). The final set of criteria and their amount for this thesis will be refined based on insights gathered from the interviews.

The selection process of criteria will consider the ones previously identified in this study, acknowledging that some are suited for transactional logistics service provider selection, while others are aligned towards strategic partnerships or future industry trends. Table 4 showcases all the criteria stated, which are followed by a short explanation of what they encompass and then the

literature in which they are mentioned. To facilitate a structured selection, these criteria will be organized into three distinct categories, derived from Alkhatib et al. (2015):

- 1) Logistics performance
- 2) Logistics resources and capabilities
- 3) Logistics services

This categorization provides decision-makers with a more holistic perspective, ensuring a balanced range of criteria that avoids over-emphasizing a single dimension of supplier performance (Alkhatib et al., 2015). Ultimately, LSP selection is a complex process requiring the simultaneous evaluation of both tangible and intangible factors (Aguzzoul, 2014).

Table 4 Criteria for logistics partners assessment

Criteria	Explanation	Literature
1) Logistics performance		
Cost	Price, operation cost	Aguezzoul (2014), Erkayman et al. (2012), Kumar & Vinodh Kumar (2023), Oeser (2020), Selviaridis & Spring (2007)
Quality	Continuous improvement, risk management, service quality	Aguezzoul (2014), Büyüközkan et al. (2008), Kumar & Vinodh Kumar (2023), Marchet et al. (2018), Oeser (2020), Selviaridis & Spring (2007)
Delivery	Delivery time, on-time delivery rate/delivery reliability and defective deliveries	Aguezzoul (2014), Erkayman et al. (2012), Ho et al. (2022), Kumar & Vinodh Kumar (2023), Miettunen & Jämsä (2006), Selviaridis & Spring (2007)
Flexibility	Capacity to accommodate, responsiveness to service requests, capability to handle specific business requirement	Aguezzoul (2014), Erkayman et al. (2012), Kumar & Vinodh Kumar (2023), Marchet et al. (2018), Selviaridis & Spring (2007)
Financial position	Financial performance, financial stability	Aguezzoul (2014), Büyüközkan et al. (2008), Selviaridis & Spring (2007)
Sustainability	CO2 emissions	Qaiser et al. (2017), Wichaisri & Sopadang (2013)
2) Logistics resources and capabilities		
Relationship	Reliability, dependence	Aguezzoul (2014), Büyüközkan et al. (2008), Kumar & Vinodh Kumar (2023), Miettunen & Jämsä (2006)
Information systems	EDI, tracking and tracing, technology capabilities, information accessibility, IT innovation	Aguezzoul (2014), Büyüközkan et al. (2008), Erkayman et al. (2012), Mageto (2022), Oeser (2020)
Professionalism	Expertise, competence, and experience depth of managerial experience	Aguezzoul (2014), Büyüközkan et al. (2008),
Location	Geographical specialization and market coverage	Aguezzoul (2014), Ho et al. (2022), Oeser (2020)
Reputation	Opinion on the LSP in satisfying the needs	Aguezzoul (2014), Erkayman et al. (2012), Kumar & Vinodh Kumar (2023), Marchet et al. (2018), Oeser (2020), Selviaridis & Spring (2007)
Organizational fit	Similar values, goals and organizational cultures, size	Büyüközkan et al. (2008), Miettunen & Jämsä (2006)
3) Logistics services		
Services	Specialization of services, variety of available services	Aguezzoul (2014), Erkayman et al. (2012), Mentzer (2004), Oeser (2020)

To preserve the core structure of the Kraljic Matrix, it is essential to acknowledge the original criteria in it. By balancing the original criteria with logistic industry-specific criteria, the matrix maintains its general strategic purpose while gaining new relevance for logistics partner segmentation. The foundational criteria for supply risk and market complexity include supplier availability, competitive demand, make-or-buy opportunities, storage risks and substitution possibilities. Complementing these are the profit impact criteria, which focus on the volume purchased, the percentage of total procurement costs, the impact on quality and overall business growth. Together with the logistics service provider criteria, these original variables allow the framework to provide a robust analysis that is both theoretically sound and practically applicable to the Case Company's needs.

5.4 Linking criteria to the Kraljic matrix

The two dimensions which the Kraljic Matrix is built are key to its use. To ensure the framework's effectiveness in segmenting logistics partners, it is necessary to tailor the dimensions, just like the criteria, to make sure they accurately reflect the characteristics of the industry. In the original model, these two axes are defined as supply risk/market complexity and profit impact. For the purposes of this study, these will be refined to complexity and value impact, respectively.

Focusing purely on complexity rather than supply risk provides a more comprehensive perspective. As the complexity of a logistical network increases, so too does the inherent supply risk (Christopher, 2022; Mageto, 2022). Given the emphasis this thesis has placed on the complicated nature of modern supply chains, maintaining this terminology offers consistency and a more holistic view. Similarly, shifting the focus from profit impact to value impact reflects a broader shift in management theory. As Christopher (2022) observes, one significant change in strategic thinking over the last several decades has been the perspective on supply chains impact in value creation, moving further from only maximising profit. Modernizing the term ensures the model aligns with contemporary business goals that move beyond cost savings.

While Olsen and Ellram (1997) caution that these dimensions should not be overly complicated, it is equally important that this simplicity does not come at the expense of too simple variables (Rezaei & Ortt, 2012). By tailoring these axes while maintaining their core logic, the framework remains closely aligned with Kraljic's proven simple but proven to be useful framework. This continuity also ensures that the four original quadrants, non-critical, bottleneck, leverage and strategic, remain applicable and effective for the final analysis. Figure 9 below illustrates how these changes appear in the matrix.

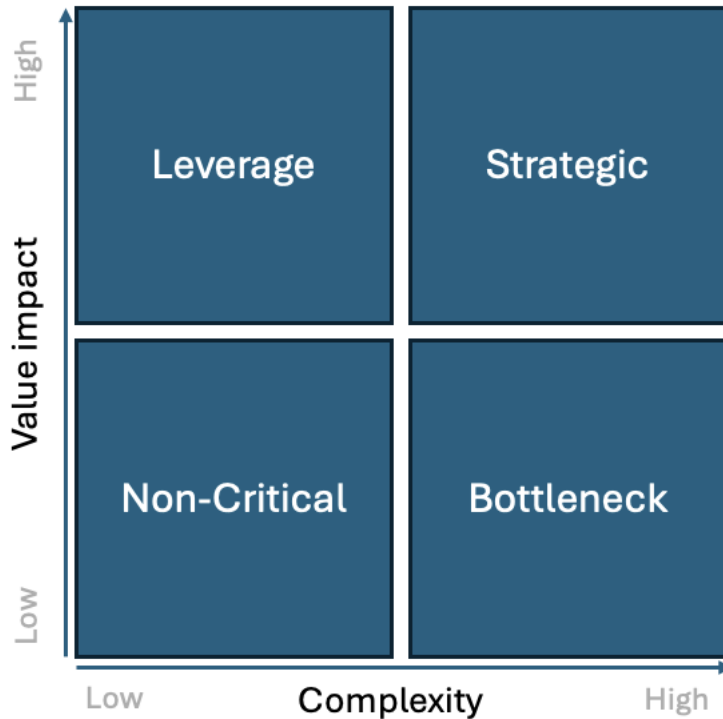


Figure 9 Tailored dimensions for the Kraljic matrix

Continuing the work regarding criteria and the dimensions, this chapter will divide the previously categorized logistics selection criteria and the foundational variables of the original Kraljic matrix into their respective dimensions in the matrix. While the original criteria are maintained within their established axes, the newly introduced logistics factors have been aligned by evaluating their impact on either value, or complexity. The internal-external framework provided by Montgomery et al. (2018) has also been taken into consideration. This systematic alignment ensures that the tailored matrix remains theoretically grounded whilst providing the needed specialisation for the logistics sector.

It is important to note that certain original criteria, such as make-or-buy opportunities and storage risk have been excluded, as they do not align with the Case Company's current business model and the specific requirements of a logistics framework. The resulting framework of criteria, refined for the logistics context, is presented below in Table 5:

Table 5 Criteria for the matrix

Value impact	Complexity
Volume purchased	Supplier availability
Percentage of total costs	Competitive demand
Business growth	Substitution possibilities
Cost	Flexibility
Quality	Financial position
Delivery	Location
Information systems	
Professionalism	
Services	
Sustainability	
Relationship	
Reputation	
Organizational fit	

The final set of criteria will be derived from this comprehensive list based on the empirical data gathered during the research. This integration represents the final step in constructing the proposed model. Such a high degree of tailoring is possible due to the generic nature of the Kraljic approach, which inherently allows for strategic customization, as noted by Gelderman and Van Weele (2003). By grounding the final framework in actual organizational data, the model evolves from a general theoretical tool into a practical instrument specifically calibrated for the company's logistical landscape.

5.5 Theoretical framework of the study

As Puusa & Juuti (2020) observe, the theoretical framework of a study matures as the researcher gains a deeper understanding of the existing literature and relevant theories. Based on the established research, several key premises have been found. First, supplier segmentation is recognized as a fundamental activity within supplier relationship management. This approach enables organizations with extensive supplier bases to categorize partners into a manageable number of segments. By doing so, the company can implement tailored SRM strategies for specific groups, thereby avoiding the inefficiencies associated with managing every supplier on an individual basis. Consequently, segmentation allows partners to be categorized based on shared

characteristics using models that align with the decision-maker's strategic priorities. (Fallah Lajimi & Majidi, 2021)

Furthermore, while various portfolio models have gained traction in professional practice, Kraljic's matrix remains the most widely adopted and validated framework (Gelderman & Van Weele, 2003). Finally, continuous evaluation through criteria is instrumental in assessing the success of logistics outsourcing and identifying necessary corrective measures (Selviaridis & Spring, 2007). Guided by these insights, the theoretical framework for this study is established. Figure 10 serves as an extension and conceptual clarification of the research problem introduced in Chapter 1.3, integrating these theoretical foundations into a cohesive structure.

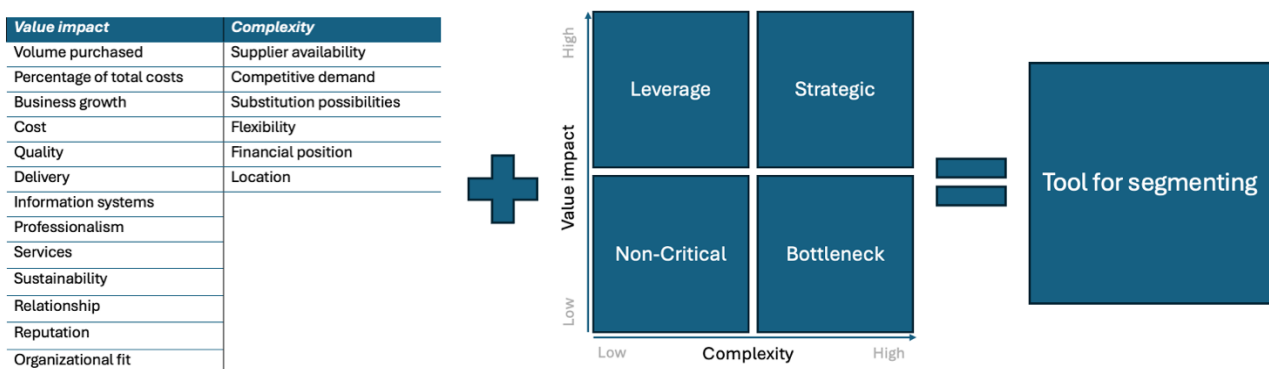


Figure 10 Theoretical framework of the study

The proposed framework operates across three distinct phases:

- 1. Identification:** This initial stage involves selecting relevant logistics service provider selection criteria from existing literature, as detailed in chapters 3.3 and 3.4.
- 2. Segmentation:** Using the Kraljic matrix, these providers are classified into four strategic quadrants. The theoretical application of this segmentation is discussed in chapters 4.1 and 4.2.
- 3. Application:** The final phase links these segments to specific managerial strategies. For example, strategic LSPs necessitate high-level relationship management and transparent information exchange, whereas non-critical partners are managed through arm's length relationships. These strategies are explored in chapters 5.1 and 5.2.

This model is designed to address the research problem: currently, LSP selection within the Case Company relies heavily on subjective experience. The purpose of this thesis is to transition toward a more structured and more objective model to support informed decision-making. Research question 1, which concerned the essential criteria for the Case Company in evaluating logistics service providers, can be answered after the data is gathered from the interviews within the Case Company, since the model is to be tailored for especially their needs. Research question 2, which was about how these criteria can be used to build a model supporting the management, will be answered based on the existing literature and results from the interviews. These themes and the resulting findings are examined in depth later in chapters 7 and 8. The next chapter, chapter 6, details the implementation of the empirical study, outlining the research strategy, methodology and the methods used for data collection and analysis, while also evaluating the overall quality of the research.

6 Empirical research process

6.1 Research approach

This study is conducted using a qualitative research design. The nature of the themes similar to this study require the depth provided by qualitative methods, such as interviews. By examining the research problem empirically, the study captures the perspectives of employees within the Case Company. According to Eskola and Suoranta (1998), the objective of qualitative research is to understand specific activities, describe events, or provide a theoretically grounded interpretation of a phenomenon. Similarly, Puusa and Juuti (2020) emphasize that such research seeks to describe the phenomenon from the perspective of the participants. Consequently, this study focuses on the experiences, insights and professional interpretations (Puusa & Juuti, 2020) of the interviewees regarding supplier segmentation.

While it is possible to analyze this topic through quantitative metrics, such an approach would be less effective in this context. The research requires an in-depth analysis of expert perspectives, organizational context and internal operational reasoning, which are factors hard to capture with numbers alone. Furthermore, given the limited pool of interviewees available for data collection, a qualitative approach is the superior solution, as it prioritizes the underlying rationale for selection criteria over purely numerical data.

Based on the research approach typology developed by Neilimo and Näsi (1980) which was further adapted by Lukka (2014) this study is classified as a constructive research approach. The research approach typology can be seen in Figure 11 below.

	Theoretical	Empirical
Descriptive	Conceptual analytical research approach	Nomothetic research approach Action analytical research approach
Normative	Decision-making methodological research approach	Constructive research approach

Figure 11 Research approaches (Lukka, 2014)

The constructive approach is suitable for this study, as it is a methodology designed to produce innovative constructions aimed at solving real-world problems while contributing to scientific discourse (Lukka, 2014). Constructions can be for example organizational structures, commercial products and diagrams, or as in this thesis, strategic models. These constructions are defined by the fact that they are developed and invented rather than discovered. By creating a framework that synthesizes existing theory with specific case-study needs, something new is produced. The core features of a constructive research approach require that it:

- focuses on real-life problems that are perceived as necessary to solve in practice
- produces an innovative construct intended to solve the original real-life problem
- involves very close teamwork between researchers and practitioners
- is carefully linked to existing theoretical knowledge
- pays particular attention to reflecting empirical findings back into theory (Lukka 2014).

6.2 Process and methods used

The methods used in a study are the actual tools for conducting the study and enable the approach to the subject under investigation, ultimately answering the defined research questions. Methods are used to collect and analyze data in the study (Puusa & Juuti 2020). Data collection was carried out using semi-structured interviews, which allowed for a more in-depth exploration of issues related to the use of analytics. In this way, the research can produce insights and recommendations based on context-specific understanding, rather than being limited to numerical correlations or general statistical observations. The semi-structured interview method means that all interviewees were asked the same main questions, but there were no predetermined answer options in the interviews, allowing the interviewees to freely express their views and answers in their own words (Eskola & Suoranta, 1998).

The study used an appropriate sampling method to ensure maximum variation. The data was collected through interviews with people working in different logistics categories within the Case Company. Variation was achieved by selecting individuals from each different category. One interview was conducted per interviewee. The criteria for selecting interviewees were that they work in logistics categories and are involved in LSP selection. With maximum variation, the study sought to ensure sufficient triangulation.

Triangulation is the combination of two or more data sources, investigators, methodological approaches, theoretical perspectives, or analytical methods within the same study (Thurmond, 2001). Using triangulation can reduce or balance the insufficiency of a single strategy and increase the ability to interpret results (Thurmond, 2001). Although triangulation in the thesis is not at its maximum, with appropriate sampling data source triangulation can be ensured. According to Carter et al. (2014), data source triangulation is achieved if the study utilizes a collection of data from different sources. The different sources are employees in different logistic categories, ranging from in-house logistics and warehousing to project logistics and customs brokerage. By adding triangulation, the study produces more comprehensive data, which supports more credible conclusions from the research results (Heale & Forbes, 2013).

The saturation point refers to the point at which a sufficient amount of data has been collected. In reality, it is difficult to accurately assess when data saturation has been reached in individual qualitative studies, as research settings are not universally applicable (Fusch & Ness, 2015). In this study it was increasingly difficult to assess whether the saturation point was reached, as the

respondents diverse job duties led to variation in their answers. However, for questions where the job description was not as significant, the saturation point was reached early in the study.

6.3 Data analysis

Research methodology defines the systematic approach used to gather and interpret information regarding the research topic and its participants (Puusa & Juuti, 2020). In this study, the data gathered was managed using NVivo, which facilitated the transcription, encoding and detailed thematic analysis of the interview material. The qualitative analysis followed the established data structure proposed by Gioia et al. (2013), which categorizes information into three progressive levels: first-order concepts, second-order themes and aggregate dimensions.

The construction of the data structure begins with an initial analysis phase focused on the specific terms, codes and categories used by the interviewees. These are organized into first-order concepts, which typically emerge in high volumes during the preliminary stages. The process then involves a comparative analysis of these concepts identifying similarities and differences to reduce the data to a more manageable set of categories. In the second stage, the analysis shifts to a theoretical level. The emerging ideas are tested against existing literature to identify new conceptual links and explanatory models. These second-order themes are then synthesized into aggregate dimensions, enabling deeper theoretical reflection. This structured approach serves as both a visual guide and a logical roadmap, illustrating how raw data is transformed into theoretical constructs while enhancing the accuracy and credibility of the qualitative findings (Gioia et al., 2013).

Despite its widespread use, the Gioia methodology has faced academic criticism that need to be taken into consideration in the thesis. Mees-Buss et al. (2022) argue that although the methodology offers a popular and standardized recipe for qualitative research, it is based on naive induction, which assumes that participants' meanings are readily available and can then be brought out in theory through procedural coding. They highlight three primary challenges: 1) interpreting subjective field data, 2) confronting researcher subjectivity in the theorizing process and 3) establishing plausibility of theoretical conclusions. However, the Gioia methodology remains the most appropriate choice for this thesis due to three key factors. It provides a well-defined step-by-step recipe for managing complex qualitative data. The use of "box-and-arrow" models and tabular citations creates a clear audit trail, allowing readers to trace theoretical conclusions directly back to the raw interview data. The method has become the "house style" for leading academic publications, such as the *Academy of Management Journal*.

6.4 Research quality

Evaluating the quality of research is a fundamental component of the scientific process. The purpose of quality assessment is to evaluate the research conducted and to justify to the reader that the research is reliable and that the results mentioned in it are valid (Lincoln & Guba, 1985). Eriksson and Kovalainen (2008) suggest that for qualitative studies, the framework established by Lincoln and Guba (1985) offers the most suitable alternative to traditional reliability metrics. Therefore, the quality of this study is assessed through the concept of trustworthiness, as defined in the widely accepted work of Lincoln and Guba (1985). The framework of trustworthiness evaluates research quality across four distinct dimensions: dependability, transferability, credibility and confirmability.

Dependability refers to the researcher's responsibility to provide sufficient information to demonstrate that the research process has been logical, traceable and documented. These measures reinforce the overall reliability of the study (Eriksson & Kovalainen, 2008). In this research, dependability is ensured through a clear and systematic documentation of the study's progression. The interviews were conducted using a single interview structure, ensuring that the data collection method remained consistent and comparable across all participants. Furthermore, the analysis methods were specifically selected to align with the qualitative research, making sure that every stage of the process is traceable and justified. The transparency of this process is further supported by the strong link between the research questions, the interview themes and the resulting data structures following the Gioia et al. (2013) methodology.

Transferability concerns the responsibility of the researcher to demonstrate how the study or its components relate to existing research, establishing a connection with previous findings. Rather than a direct replication, transferability means the ability to identify other contexts in which the research results may be applicable to some extent (Eriksson & Kovalainen, 2008). In this study, transparency in the analytical process and the extensive use of direct quotations in the results section allow the reader to assess the extent to which the findings can be applied to other organizations. Although the research is tailored to the needs of the Case Company and no previous logistic service provider segmentation models exist, the emerging solutions and themes are likely recognizable in other organizations in sourcing and supplier segmentation contexts. Because the theoretical framework is derived from established literature, the results can be evaluated against other existing theories. While this work represents a new construction rather than a replication, it maintains strong, traceable ties to the current literature.

Key themes in assessing credibility include the researcher's knowledge in the subject, the sufficiency of the data to support the conclusions and the presence of logical links between observations and interpretations. Another key factor is whether another researcher could arrive at roughly the same interpretations based on the material or agree with the results and conclusions presented. (Eriksson & Kovalainen, 2008). The credibility of this study is established through a comprehensive literature review that clarifies core concepts of logistics service provider segmentation and also justifies the choices made in the study. To ensure comprehensive data, information was gathered from a diverse group of employees across various logistics categories. Furthermore, direct quotations from interviewees are used extensively to support the empirical findings. These quotations form the basis of the data structures, linking raw data to the final themes. This transparent deductive process ensures that the interpretations are grounded in evidence and could be repeatable by other researchers.

Confirmability ensures that the findings and interpretations are not only the result of the researcher's own biases. It requires that the results and conclusions can be clearly linked to the original data in a way that is understandable and followable for others (Eriksson & Kovalainen, 2008). The confirmability of this research is made possible by the detailed description of the methods employed. The use of the Gioia et al. (2013) methodology reduces a vast amount of qualitative material into a simplified, understandable format. Additionally, the clear and direct link between the findings and existing literature confirms that the results align with established literature. The data structures illustrate how specific concepts were formed from direct quotes and how they connect to the dimensions of supplier segmentation identified in the literature.

In discussing the quality of research, it is also essential to consider issues of research ethics. This research follows ethically sustainable practices regarding data acquisition and reporting. All citations and references follow the guidelines of the Turku School of Economics and no plagiarism was used in the study. All contributors and supervisors associated with the study are clearly acknowledged. Regarding confidentiality and data protection, interview recordings were stored exclusively for the researcher's use for the duration of the project. The information gathered will not be used or published in a manner that allows the identity of the company or the interviewee to be connected to the data or events discussed in the interview. Furthermore, the researcher does not hold any confidential corporate secrets. The interviews were conducted mostly in Finnish to facilitate fluent communication and minimize the risk of linguistic misunderstandings between the researcher and the participants. Quotes from the interviews have been translated into English

without changes to their content. Finally, the accessibility of the thesis has been ensured by following guidelines provided by the University of Turku.

7 Results

7.1 Overview of the empirical data

The data collected through the semi-structured interviews is analyzed in this chapter by their theme. The interviews were conducted according to the Table 6 below.

Table 6 Interview data

Title	Date	Duration	Conducted on
Category Manager	11.2.2026	45 min	Teams
General Manager, Global Customs & Manager, Global business development and customs compliance	13.2.2026	49 min	Teams
General Manager, Logistics	25.2.2026	38 min	Teams
Logistics Architect	4.2.2026	40 min	Teams
Manager, Global Distribution	11.2.2026	39 min	Teams
Manager, Strategic Transports & Logistics	9.2.2026	66 min	Teams
Senior Manager, Strategic Logistics	13.2.2026	63 min	Teams

The results from the interviews were gathered and analyzed using NVivo -software, where the findings were categorized into data structures based on three themes derived from the interview structure: current state, evaluation criteria and contextualization. The interviews resulted in a total of approximately 206 pages of transcripts. Additionally, 104 direct descriptive quotes were identified, from which 53 first-order concepts were derived. These figures reflect the comprehensive nature of the empirical data collected to address the research questions in this chapter.

The empirical results are presented using the data structure method presented by Gioia et al. (2013) to provide a visual representation of the findings with direct quotes. The structure remains consistent across all data structures to ensure logical readability and traceability. The order of all the data structures from left to right is quote, first-order concept, second-order theme and lastly aggregate dimension, following the Gioia methodology (Gioia et al., 2013). For technical reasons regarding the presentation, the data tables shown in the text begin directly from the first-order concepts. The direct quotes, which can be found in the full tables in the appendix, aim to provide deeper context and increase the reliability of the results. Finally, the criteria were categorized toward the aggregate dimensions of the matrix according to value impact and complexity.

7.2 Current state, expectations for the model and challenges

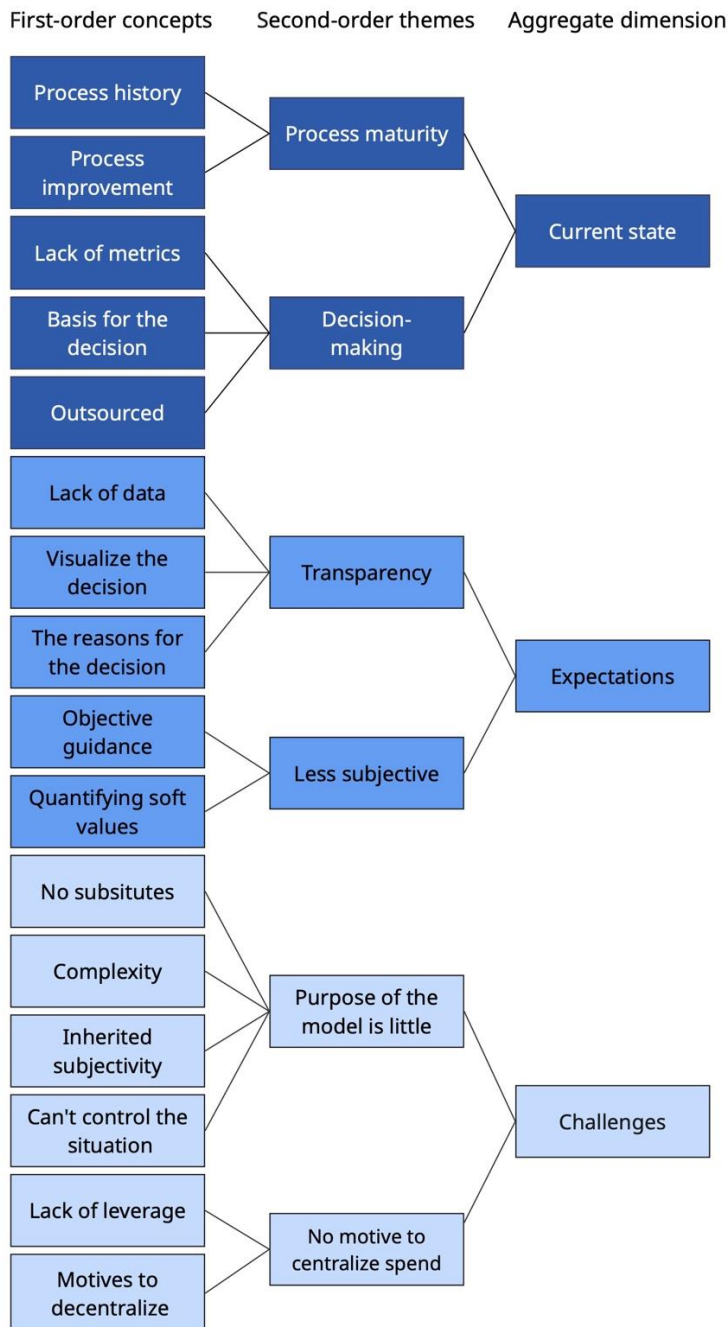


Figure 12 Current state, expectations for the model and challenges

The current state of partner segmentation and selection varies through teams in the Case Company. Some categories utilize a 4PL provider and therefore do not directly select their own partners, as the 4PL generally employs providers at their own judgment. In other areas, such as projects and customs, which are more expertise-oriented and complex, selection is based entirely on subjective decision-making, with almost no specific metrics in use.

A few categories do utilize metrics, focusing primarily on the accuracy of deliveries and emissions reporting, which in turn influences partner selection. These measurements mainly target operational performance, not focusing on capabilities more suitable for strategic partner selection. Currently, there are no metrics in use specifically suited for strategic selection, nor are there established criteria or sources for strategic selection processes.

Regarding the expectations for the model voiced in the interviews, there is a clear need for a framework that provides transparent justification for partner selection, which would align with the company's code of conduct. By utilizing such a model, the Case Company could more effectively reason why certain LSPs are selected more frequently than others. Furthermore, the model is expected to help quantify soft values, which, when combined with hard criteria, would reduce the inherent subjectivity of the decision-making process and lead to more balanced outcomes.

However, the implementation of the model faces several challenges, as some view segmentation very impractical due to highly complex logistics. In these instances, the selection is often based on subjective reasoning and detailed technical requirements that are very hard to capture in a simple matrix. Logistics was often described as a "people business," which led many to point out that a certain level of inherited subjectivity is unavoidable. To incentivize the model, in these complex scenarios the purpose of the model is not necessarily to dictate a decision, but to identify which partners and relationships require more attention, even suggesting a strategic partnership. This is also relevant in situations where only one provider is available for a specific service. In these, the model serves to highlight the critical importance of that single partner.

At least one team noted that a 4PL handles the choices of partners for them. For those teams the model may not be needed for direct LSP segmentation, but it can provide insights into how the 4PL relationship itself should be managed. Even the interviewee noted that dependency on the 4PL could be looked at with more caution. Additionally, actual partner segmentation and the resulting centralization of spend are not always viewed as the most favorable solutions. Some categories prefer to diversify their projects and keep multiple options open to avoid the risks associated with relying on a single provider. There is also a concern that even if spend were centralized, it might not grant the Case Company enough leverage to significantly influence the market, making the flexibility of diversification more attractive than the perceived benefits of centralized spend.

The challenges identified in the interviews are reflected in existing literature, which highlights various partnership inefficiencies alongside the difficulties of segmentation. Even though many companies outsource their logistics functions and recognize the importance of supplier relationship

management, establishing truly collaborative relationships with LSPs remains a challenging task (Premkumar et al., 2021). Commonly cited difficulties include a lack of understanding regarding the client's supply chain needs, insufficient expertise in specific products or markets and unrealistic customer expectations. Furthermore, issues often arise from poor descriptions of service levels, a lack of logistics cost awareness by the client and a not enough innovation (Selviaridis & Spring, 2007).

Tsai et al. (2012) categorize these problems into three distinct types of risks: relationship, asset and competence risks. Relationship risks involve factors such as vendor opportunism, poor communication and asymmetric power, while asset risks relate to resource utilization and dependence. Competence risks involve the decline in service quality, a potential loss of control and poor strategic development (Tsai et al., 2012). Despite the popularity of alliances across all business sectors, a significant number of those fail, often due to incompatibility between partners. While selecting the right partner can provide substantial competitive benefits, the failure to establish shared objectives or communicate effectively can lead to unsolvable problems. Consequently, the selection of a suitable partner is a critical factor that directly impacts the performance and success of strategic alliances within the logistics value chain (Büyüközkan et al., 2008).

7.3 Criteria for the model

This section presents the criteria identified within the data structures derived from the interviews using the Gioia methodology. Each criterion is supported by direct empirical quotes and key arguments from the relevant literature. The criteria are addressed according to their categorization within the model, beginning with value impact and followed by complexity.

7.3.1 Value impact criteria

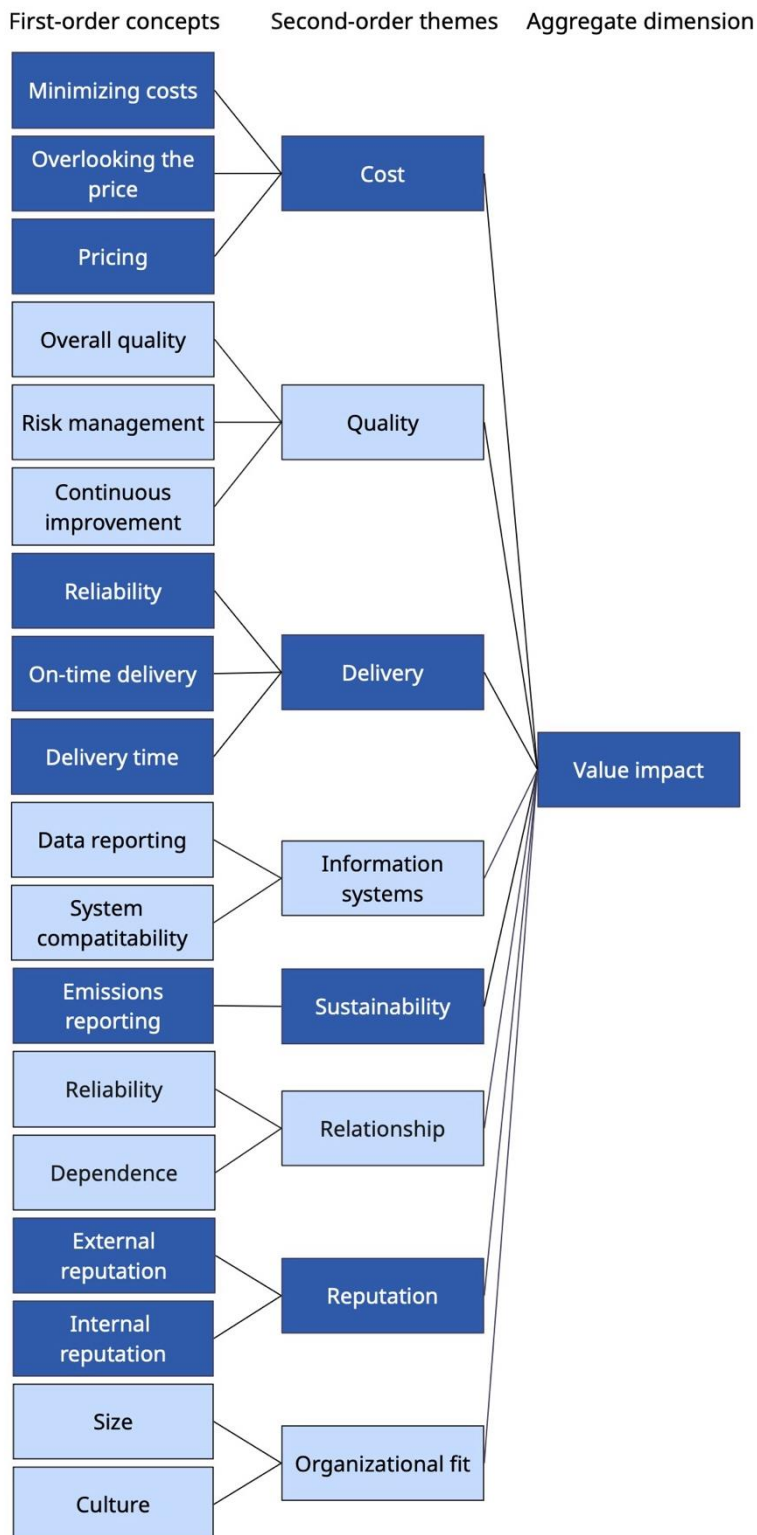


Figure 13 Value impact criteria

Cost: Recognized as a primary criterion in both the literature and the interview data, cost remains a fundamental consideration in LSP selection. Participants emphasized its central role, noting it could even be the most important criterion. However, it was also observed that cost is not always the sole deciding factor, as certain strategic needs may take precedence.

“Price is probably always the first consideration -- it’s probably the most important criterion of all”

“We’ve made the decision to take the most expensive partner”

Despite these exceptions, cost is consistently factored into the selection process in one way or another. This aligns with the findings of Aguezzoul (2014), who identifies according to the Pareto method cost makes it in the 80% of most used criterion in the reviewed literature, as well as the research of Erkayman et al. (2012). Furthermore, the cost-performance ratio is particularly significant when selecting strategic partners (Oeser, 2020). As a quantitative measure, this criterion directly influences the value dimension by moderating total logistics costs.

Quality: In the interviews quality received less attention than what is typically found in the literature. While only a few specific comments addressed the topic, the interviewees acknowledged its overarching significance and the strategic dimensions of quality.

“Quality affects everything. In fact, quality is one of the most important factors”

“Risks, risk management and the quality of communication regarding them is important”

“It’s definitely a plus in a partnership if you have the ability and desire to develop things together with us”

This relatively limited emphasis in the empirical data contrasts with existing literature, where quality is cited widely. For example, it is included within the 80% list identified by Aguezzoul (2014), indicating its prominence in previous research. Additionally, Mageto (2022) emphasizes the critical role of risk management in the risk-prone supply chains of today for future logistics operations. Marchet et al. (2018) further argue that continuous innovation and operational improvements, which align with the definition of quality used in this study, are characteristic of strategic partnerships that reflect more integrated and collaborative supplier relationships.

Consequently, quality serves as a vital differentiator for identifying strategic partners. This is supported by Oeser (2020), who identifies quality as one of the most critical criteria for evaluating

strategic partners within logistics segmentation models. Quality is a qualitative metric, but it can be assessed through various indicators, which are detailed further in this study. Ultimately, a high level of quality within a relationship translates to increased innovation, continuous improvement and more robust risk management, thereby driving higher overall value for the partnership.

Delivery: During the interviews some participants confused the concept of quality with delivery performance. This tendency likely explains why quality in the context of risk management or continuous improvement received fewer specific mentions. Nevertheless, delivery quality remains a cornerstone of strategic partnerships. Miettunen and Jämsä (2006) argue that carriage damages and delivery quality should be monitored rigorously, an idea echoed across the literature. This criterion is also included in the 80% list identified by Aguezzoul (2014) and is supported by Alkhatib et al. (2015), Erkeyman et al. (2012) and Selviaridis and Spring (2007). Furthermore, on-time performance and reliable service delivery are expected to remain highly relevant for future partner selection (Mageto, 2022). These theoretical perspectives were strongly reflected in the interview

“OTD is what we stand up with and go to bed with of course, so on time delivery performance”

“And then delivery time is probably the second most important factor, that’s how I’d put it”

Broadly defined, delivery encompasses factors such as on-time delivery, estimated time of arrival and actual time of arrival, which together make up the partner’s overall performance (Büyüközkan et al., 2008). The importance of these specific measurements was highlighted by an interviewee who observed:

“Yeah the actual time of arrival, which is when the goods arrive at their destination. -- Then we have something like an estimated time of delivery. -- And I wonder what else was there... oh, there are also complaints. Well, those were probably the most important ones”

As these are highly quantitative measures, they allow for precise evaluation. Punctual delivery creates significant value for both the shipper and receiver by enabling better reputation and cost savings through reduced storage requirements and the prevention of project delays.

Information systems: Information systems are considered critical due to their role in data reporting, a sentiment frequently voiced throughout the interviews. The ability to leverage data for optimization is viewed as a primary driver of value.

“Yeah, I think data is the alpha and omega of everything”

“Information systems, in other words, they have really strong data reporting capabilities”

“Information and data are becoming increasingly important. They enhance transparency, which allows us to identify opportunities for optimization and that is a huge deal. -- Accurate data also helps generate the right decisions”

While system compatibility was noted as important, it primarily concerns the LSP’s ability to utilize the Case Company’s existing platforms. It is important to distinguish this from IT integrations that might reduce substitutability. Since no such deep technical integration was mentioned in the interviews, this criterion remains categorized under value impact rather than complexity. If the company had deep system integrations with an LSP and wanted to utilize their capabilities, the criterion would have more complexity dimension properties.

Oeser (2020) identifies information technology as a vital criterion for strategic partners. The prominence of IT is further supported by its inclusion in the Pareto 80% of Aguezzoul (2014) and the work of Erkeyman et al. (2012). While digital transformation has been a dominant trend for some time (Premkumar et al., 2021), it is currently gaining further momentum through the expansion of AI-driven possibilities (Nicoletti, 2025). The evaluation of information systems is both quantitative, in terms of whether the necessary infrastructure exists and qualitative, based on the proficiency and reliability of the service provided.

Sustainability: Sustainability was often viewed as a threshold factor for the Case Company, particularly regarding emissions reporting.

“Another important point is that they are able to report emissions for every single trip”

While often a prerequisite for a provider to be accepted, sustainability also plays a vital role in active value creation. Brozović et al. (2020) argue that integrating sustainability into operations generates economic, social and environmental value. Partnering with sustainable LSPs directly supports the Case Company’s broader corporate emissions targets and reinforces its brand position as a leader in environmental responsibility. This strategic focus was also reflected in the interviews.

“I forgot one important thing. These days, we’re also monitoring emissions. So we have to be very green and to get greener and greener all the time.”

Ultimately, an LSP that provides more sustainable transportation options at a competitive price delivers the highest overall value. This aligns with a significant industry trend identified by Mageto

(2022). Sustainability is a quantitative criterion, measured through specific CO2 emission data per shipment.

Relationship: The relationship between parties is a cornerstone of logistics, characterized by reliability and mutual trust. Because logistics is fundamentally considered a “people business”, maintaining a strong relationship is essential to operational success.

“You need to have mutual trust that what you agree on will happen -- If that trust isn't there or disappears for some reason, it means bad news for your business together”

“Relationships like I said, it's a people business. Meaning that you can trust which partners can handle our products and matters related to them”

This empirical view is mirrored in the literature, where relationship-based criteria are included in Aguezoul's (2014) 80% of the most used criteria. Oeser (2020) further identifies the relationship as a key criterion for strategic partner selection within operational collaboration. The importance of the bond between parties is also central to the alternative segmentation models discussed earlier in this study. Both Rezaei and Ortt's supplier potential matrix and Olsen and Ellram's portfolio approach to supplier relationships rely heavily on the evaluation of the relationship itself. The relationship dimension also encompasses the concept of dependence. Interviewees highlighted the importance of being a prioritized customer to ensure service continuity.

“And we won't be left behind when it comes to deliveries. They see us as a good customer and rank us among the top”.

This sense of dependence is closely linked to organizational fit, which is addressed in more detail in the following sections. As a highly qualitative and subjective measure, the quality of a relationship is nearly impossible to quantify. Nevertheless, it remains a critical value-adding factor that ensures operational smoothness, reduces friction in business dealings and enhances long-term reliability.

Reputation: In one interview compliance was identified as a core component of an LSP's reputation. Participants emphasized that compliance is non-negotiable. Whilst compliance is a primary measure for them, its role varies across the organization. In some instances, it functions more as a threshold criterion, a binary requirement that must be met to proceed, rather than a point of differentiation. In this sense, compliance is an objective "gatekeeper" for entering a business relationship.

“What we also need to emphasize there is the compliance aspect. From a compliance perspective, reputation rises. It’s absolutely essential that compliance is strong and there must be no hint of any kind of corrupt activity or anything else of that nature”

“There isn’t really any compliance aspect, at least not right now. I can bring any company here, I mean, there’s nothing stopping me from doing so. Of course, we’ll make sure it isn’t on any blacklist, but other than that, you’re free to bring it in”

Beyond formal compliance, an LSP’s internal reputation within the Case Company was also mentioned. Interviewees noted that the shared perceptions of various teams often influence selection.

“Well reputation, sure. We do talk about that in the category teams too, what everyone thinks”

This internal standing is highly qualitative and subjective, functioning similarly to the relationship criterion. Actually, reputation and relationship can be viewed as mutually reinforcing. A strong relationship enhances internal reputation and a positive reputation fosters a better relationship. This connection was explicitly noted by one participant. On top of that, professionalism was identified as being linked to reputation.

“And these, well, these reputation and relationships, they are important”.

“And professionalism goes hand in hand with reputation. That’s probably one of our biggest decision-making drivers right now”

These findings align with established literature, as reputation is a recognized criterion in the work of Aguezoul (2014) and Erkeyman et al. (2012). Regarding strategic partnerships, reputation is included in Oeser’s (2020) list of strategic criteria, while Marchet et al. (2018) argue that it is primarily utilized during the selection of strategic partners rather than transactional ones.

Organizational fit: Comments regarding organizational fit frequently centered on the size of the partner. Interviewees observed that a degree of mutual dependency enhances both the relationship and overall business performance, reinforcing the points made previously regarding the relationship criterion. One participant dove deeper on the benefits of interdependence.

“Large companies have massive machinery and one person is always just a single cog in that machinery -- But then again, when we’re dealing with a medium-sized company like that, they

usually have a certain level of dependence in this business relationship as well -- But that trust also comes from that interdependence. If they see that Case Company is a really important customer, they'll do everything they can to make sure Case Company succeeds, so I'd rather take on a client like that than a slightly bigger one"

These sentiments align with the work of Miettunen and Jämsä (2006), who argue that organizational similarity is a significant criterion in strategic partner selection. They emphasize that equal bargaining power and a fair working relationship are essential (Miettunen & Jämsä, 2006). While a lack of dependency may result in a lack of incentive for the provider to improve, excessive dependency can also become unhealthy. Cultural alignment was also identified as a potential factor in this fit.

"And how does that fit into our organization? I think that's important, too. In other words, organizational fit".

While the size of the partner is a straightforward quantitative measure, cultural alignment is qualitative. Size contributes to value by ensuring the Case Company is prioritized and receives better service. A similar culture increases operational fluency and reduces friction.

7.3.2 Complexity criteria

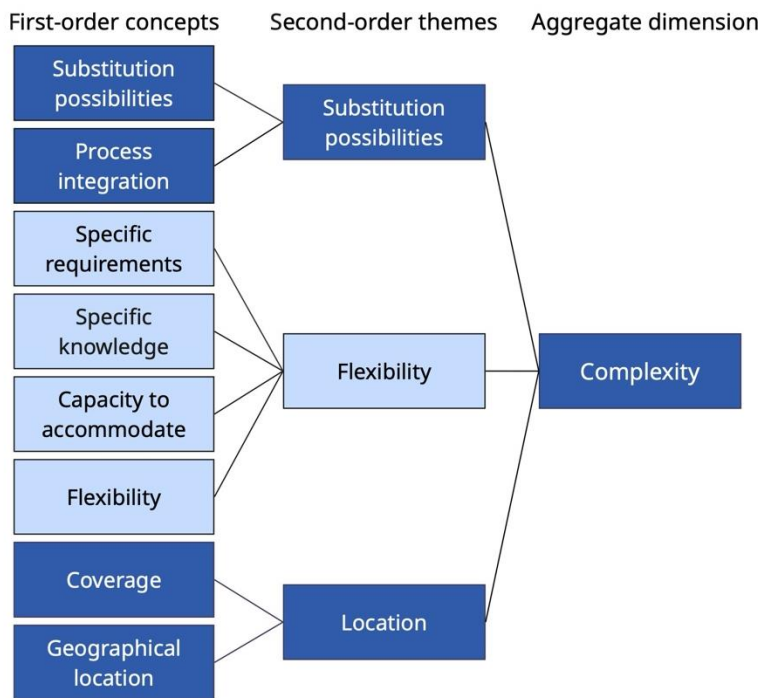


Figure 14 Complexity criteria

Substitution possibilities: Substitution possibilities mean the number of available LSPs on the market. In scenarios where few service providers are available, supply risk and complexity increase. This scarcity is often driven simply by a lack of market participants, a factor that is critical to assessing supply risk. One participant described the operational reality of such constraints.

“It might be that it’s such an exotic location that there aren’t many options there. It could be that we send out five requests for proposals, but we only get one bid, which means we often don’t really have a choice other than the one who submitted the bid”

One thing that reduces the players on the market is handing the whole process to a 4PL. The risks associated with being "locked in" due to integration were also noted. In these cases, a substitution can become near impossible, as mentioned by an interviewee.

“What I would like to change is also how depending we are on our 4PL. So we’ve been working with them now for well over 10 years -- but we are sort of stuck with them because of all kinds of system integration and that our processes are really far integrated -- we now see that for over a lot

of years they have not been innovating at all -- my priority would not be so much again in that carrier pool -- but I would like to become way more independent from any 4PL”

The criterion of substitution possibilities operates at the market level, measuring the number of credible alternatives available to the buyer. Substitution possibilities are highly linked to the criterion of services, which according to Aguezzoul (2014) can be defined as variety of available services. Having services other don't provide makes substituting hard. The criterion is among one of the most used, making the 80% of most used (Aguezzoul, 2014) but didn't get mentioned in the interviews. However, with substitution possibilities the criterion of services can be seen involved. It is a quantitative measurement counting the players in the market. This assessment is largely independent of the current relationship with a provider. In instances where a 4PL manages the entire logistics chain, their position restricts all the other players from accessing the market, thereby increasing the buyer's dependency and overall supply risk.

The importance of substitution possibilities is well-documented in literature concerning the original Kraljic matrix, where the number of available market players is considered a necessary aspect of assessing supply risk (Caniëls & Gelderman, 2005; Gelderman & Van Weele, 2003; Glöckner et al., 2005; Kraljic, 1983; Montgomery et al., 2018).

Significant differences between logistics categories regarding substitution possibilities were frequently noted during the interviews. It can be argued that certain categories inherently lean toward a more strategic sourcing mindset simply due to the restricted nature of their specific supply markets.

Flexibility: Flexibility, defined as the capacity to accommodate specific business requirements while maintaining high responsiveness to service requests, was a recurring theme in the interviews. While maybe not captured by the traditional definition of flexibility, the definition provided by Aguezzoul (2014) emphasizes the capability to handle specific business requirements, which plays a key role in how the criterion is used in the thesis. These specialized capabilities were frequently highlighted by participants.

“Of course, when it comes to project logistics, this is entirely a people business, so the people who are familiar with our products, who understand how they're installed and who know the requirements and handling procedures for our other products. Those are the ones who usually end up becoming our partners”

“Our partner’s expertise and, in a way, their know-how in the country where we operate. At the end of the day, it’s a people business”

Substitution becomes difficult when niche expertise is required to handle specific types of transportation. This reinforces the view that strategic logistics is inherently a "people business," where specialized knowledge acts as a big differentiator. While this limits the number of favourable partners in the market, it is important to note that this is far less restrictive than a 4PL integration.

Flexibility functions as an internal, relationship-level criterion. It assesses whether a specific provider has developed knowledge, processes or other capabilities that are difficult for market alternatives to replicate quickly. While highly specialized providers are often difficult to substitute, the two criteria, substitution possibilities and flexibility are different. Substitution possibilities reflect market-level availability and specialized flexibility reflects provider-specific capability. The importance of niche providers and their role in flexibility was mentioned in the interviews.

“We always have that local provider who offers that flexibility. A more flexible partner, so to speak, who can handle these kinds of special requests”

“So I think uncertainty is the only certainty in logistics. So that that requires being flexible”

The significance of flexibility is well-supported by literature, including Aguezzoul (2014) as mentioned and also Erkeyman et al. (2012). Flexibility becomes particularly critical when specific knowledge is required that competing providers can’t offer. This is a key criterion for both general evaluation and strategic partner selection, with Büyüközkan et al. (2008) emphasizing the importance of “technical expertise and depth of managerial experience”. Similarly, Mageto (2022) argues that specialized expertise will play a major role in the selection of LSPs in the future.

While Marchet et al. (2018) suggest that flexibility is typically linked to basic subcontracting or managing simple demand fluctuations, positioning it primarily as a factor of value impact, this study proposes a more strategic interpretation. When an LSP combines rapid responsiveness with the capability to handle highly specialized needs, the service moves beyond standard outsourcing and enters the area of a complex strategic partnership. This ability to manage unique requirements makes a provider significantly harder to substitute and deepens the interdependence between parties.

To distinguish this expertise-driven approach from standard operational agility, the criterion can be named “specialized flexibility.” This term describes the provider’s role in modern logistics and

differentiates the capacity to handle unique requirements more accurately. Specialized flexibility is a qualitative measure and relies on the expert evaluation and professional judgment of the company's employees.

Location: Global coverage can become a decisive factor in executing complex deliveries. Providers capable of offering holistic, global logistics services are increasingly difficult to substitute. This shift is highlighted by the rise of "Mega-Carriers" which move the role of the LSP toward more integrated, strategic partnerships (Andersson & Norrman, 2002). This trend has granted logistics service providers greater leverage due to a declining number of viable competitors, which, in turn, increases the supply risk for the buyer. Consequently, stakeholders at the Case Company have begun to prioritize global reach in their selection process:

"Another area where we've clearly focused our efforts is the global reach of our partners. The fact that they aren't just local operators, but that we also have the opportunity to start building operations with them in other places as well"

Literature on strategic partner selection, including Oeser (2020) and Ho et al. (2022), underlines the importance of location for securing better local knowledge, improving communication and navigating cultural or time-zone-related challenges. The criterion is also listed by Aguezzoul (2014).

In summary, the criteria identified through the interview process comprise the following: cost, quality, delivery, information systems, sustainability, relationship, reputation, organizational fit, substitution possibilities, specialized flexibility and location. The following chapters will detail how these criteria can be effectively tailored within the matrix to meet the specific requirements of the Case Company, establishing the core framework for this thesis.

7.4 Contextualization for the Case Company

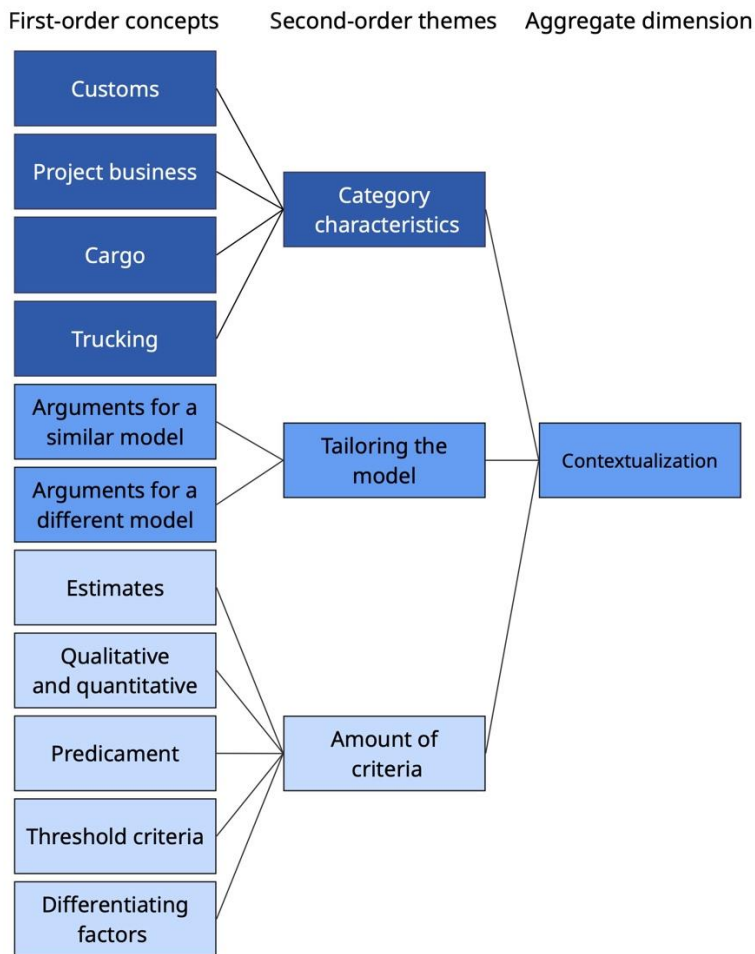


Figure 15 Contextualization

The Case Company has divided its logistics organization into different categories, including for example inhouse logistics & warehousing, inbound transportations and project logistics. Each category operates under a different set of principles. Customs operations rely heavily on soft criteria, while project logistics is characterized specifically as a "people business." In contrast, traditional road transport is viewed as a streamlined process where competition is driven by cost, lead times and delivery reliability, whereas maritime logistics emphasizes the criticality of scheduling. These variances highlight the diverse requirements within the logistics industry and raise the question of whether a single standardized model can be effectively used across all logistics teams.

There are strong arguments for a standardized model, as certain fundamental requirements remain consistent across logistics as a whole. The Case Company's internal goal to harmonize operations across teams supports the implementation of only one model. This perspective is strengthened by

literature from Selviaridis and Spring (2007), who argue that the most common metrics generally apply to all logistics outsourcing scenarios regardless of the context.

However, significant operational differences remain, as highlighted by interviewees. The scope of work ranges from high-volume, small-package shipments to massive global projects, demonstrated by one quote, “We have pizza boxes going from the Netherlands to Germany and we have shipments of 15 containers going to, uh, I don’t know, Alaska”. Another interviewee noted that the variety of business needs underlines the difficulty of a one-size-fits-all approach. Based on the literature, a universal model is achievable, though its practical utility and the potential need for further refinement can only be confirmed after it has been tested in practice.

Determining the optimal number of criteria is a complex task. The model must focus on factors that provide genuine differentiation between logistics service providers, which was strongly suggested in one interview. To further examine the situation, the study categorizes criteria into quantitative and qualitative groups. Quantitative metrics, which are cost, delivery, substitution possibilities, location and sustainability, are generally easier to assess and can be included in greater numbers. Qualitative criteria, which are quality, relationship, reputation and specialized flexibility, often lead to more subjective discussion and must be used more selectively. The amount of qualitative criteria mentioned is quite high and the interviewees also indicated some of the soft criteria overlapping or influencing one another. This suggests a need for more attention in the amount and use of qualitative criteria to ensure the model remains efficient. Information systems and organizational fit are somewhere in the middle, depending on what is being focused on, as discussed earlier.

Regarding the specific number of criteria, interviewees suggested that while having up to ten quantitative metrics is manageable, qualitative criteria should be limited to a maximum of three to five, to avoid excessive subjectivity. Although the suggested total number of criteria ranged a bit, a set of total five to ten criteria received the most support. This preference for a lean framework aligns with findings by Malmborg et al. (2024), who indicate that simple models often perform as well as, or even better than, highly complex and parameterized frameworks (Malmborg et al., 2024). The balance of qualitative and quantitative criteria is supported by Thurmond (2001) and Aguezzoul (2014), who both state that LSP selection is a complex process requiring the simultaneous evaluation of both tangible and intangible as well as qualitative and quantitative factors (Aguezzoul, 2014; Thurmond, 2001).

7.5 Compiled results and comparison to literature

Continuing the work on the amount of soft qualitative criteria, merging quality, reputation, relationship and organizational fit would significantly enhance the model's usability, as many of these factors address overlapping themes and are inherently interconnected. Interview findings suggest that reputation, professionalism and trust are viewed as inseparable. One participant noted that trust comes from a combination of professional competence and the nature of the relationship itself. Another one bundled up reliability, reputation and relationships mentioning all of them at once being important. As for professionalism, an important criterion mentioned by Aguezzoul (2014), it was mentioned once and hence why didn't make the data charts as its unique criteria. A participant said that professionalism and reputation go hand in hand. With bundling, professionalism can also be seen as acknowledged.

Furthermore, factors such as reliability and dependence are closely linked to organizational fit and especially company size. In relationships characterized by mutual dependence, quality tends to increase as both parties invest more heavily in risk management and collaborative development. A successful relationship also enhances a provider's internal reputation within the Case Company. Consequently, bundling these elements under a single criterion, such as "quality of relationship", provides a more holistic and efficient measure for the evaluation process.

This approach of bundling up criteria is well-supported by established literature. For instance, Olsen and Ellram (1997) evaluate relationship strength through a combination of economic factors, cooperation and the character of exchange, while Rezaei and Ortt (2012) categorize relationship closeness, ethical standards and dependency under the broader heading of "willingness."

Incorporating these dimensions also addresses long-standing critiques of the original Kraljic matrix. Rezaei and Ortt (2012) note that Gelderman and van Weele (2003), who are also cited frequently in the thesis, found that experienced users often supplement the original matrix with information regarding a supplier's capability and willingness. This improves on the weaker points of the matrix and aligns the model more closely with modern supplier relationship management practices. From the criteria linked to quality of the relationship, quality, dependence and reputation cover most of the parts in it. Quality involves continuous improvement, risk management and service quality. Dependence means a good reliable relationship, also consisting of organizational fit in the size aspect. Reputation comes from the opinion on satisfying the needs, whilst similar values also help on achieving a good reputation.

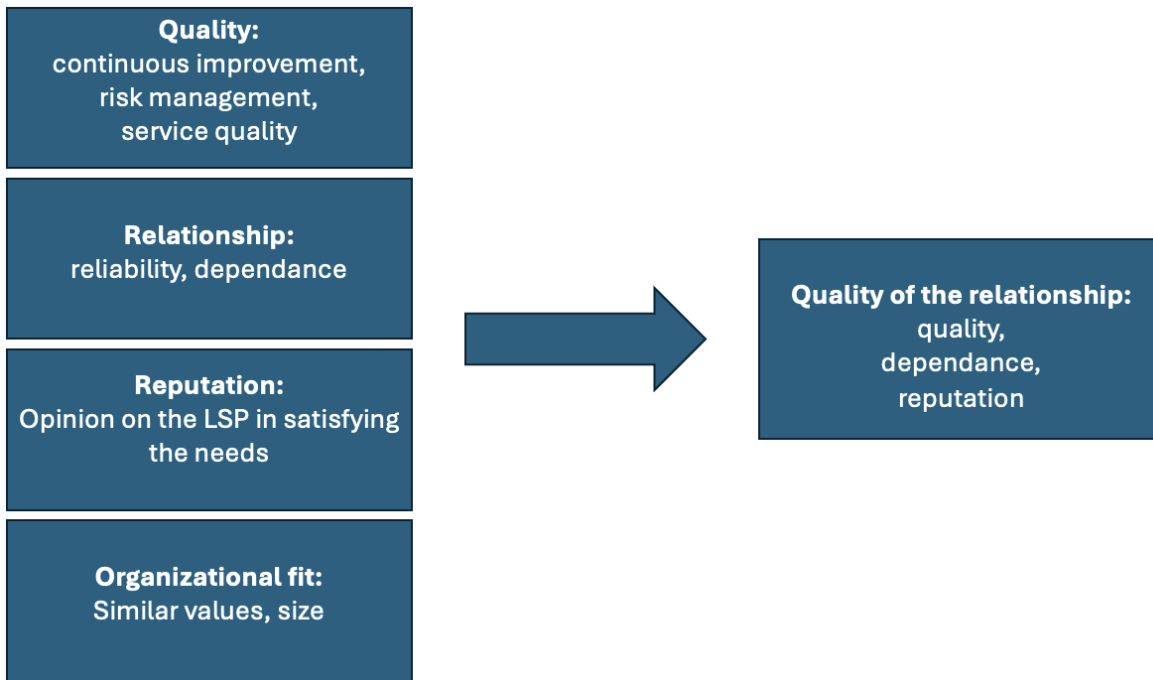


Figure 16 Quality of the relationship

Despite the benefits of merging criteria, the quality of a relationship remains the most subjective component of the model. While Montgomery et al. (2018) argue that positioning within a portfolio matrix will always involve subjective judgment, minimizing this variability is a key objective for the Case Company. To provide a more objective basis for scoring, managers can utilize specific indicators such as those suggested by O'Brien (2018). These include evaluating risk management actions, the volume of new innovations or ideas offered by the partner and the consistency of communication and follow-through on promises. While reputation remains inherently difficult to quantify and often requires comparative judgment between LSPs, these specific metrics help ground the assessment in observable performance. This subjectivity presents both a challenge and an advantage; although it requires qualitative reasoning, it also provides a vital opportunity for logistics experts to apply their specialized knowledge and professional judgment to the evaluation process.

The remaining criteria function on their own and as described in section 7.3, with each factor contributing to the positioning of an LSP along the matrix dimensions. However, determining a weighting for these criteria proved difficult. As Gelderman and Van Weele (2003) suggest, weighting is often the "Achilles' heel" of the Kraljic matrix. In this study, the interview responses regarding the most critical criteria varied too significantly to draw a singular conclusion. This

variance is largely a result of the distinct operational characteristics and requirements of the different logistics categories.

In comparison with the original Kraljic matrix, volume purchased which wasn't endorsed in the interviews, is a necessary addition to the value impact dimension. Since a higher level of spending naturally correlates with a greater impact on the value, including volume purchased is crucial for the model's logic (Kraljic, 1983). The volume purchased criterion also ensures the proposed framework remains grounded in its foundational principles while maintaining its practical functionality for the Case Company.

From these, a final list of criteria can be concluded. The criteria were identified during the literature review, then selected and tailored to match the Case Company's needs based on the data gathered during the interviews. With these, the model can be finalized. The final model can be seen in the Figure 17 below.

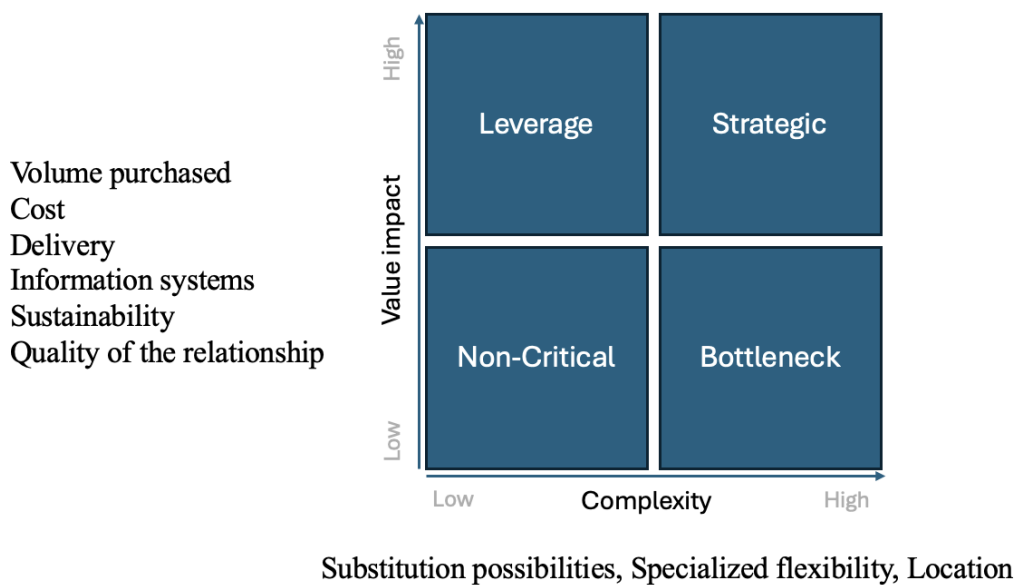


Figure 17 Final model

To further evaluate the model, the distribution of criteria is analyzed according to the framework established by Alkhatib et al. (2015). This ensures a balanced approach that accounts for three critical dimensions of supplier evaluation:

Performance: Volume purchased, Cost, Delivery, Specialized flexibility, Sustainability

Resources: Quality of relationship, Information systems, Location

Logistics Services: Substitution possibilities

This categorization provides decision-makers with a more holistic perspective, ensuring a balanced range of criteria that avoids over-emphasizing any single dimension of supplier performance (Alkhatib et al., 2015). The selected criteria appear to be distributed evenly across these categories, resulting in a consistent and comprehensive evaluation framework. Regarding the relevance of the model to current industry trends, the criteria align well with the literature from Mageto (2022). The inclusion of information systems, sustainability and quality of relationship with risk management demonstrates that the framework effectively addresses contemporary logistics priorities and remains highly relevant in the current business environment.

Finally, this thesis contextualizes the empirical findings by presenting a compiled table. This overview maps each selected criterion to its formal description and the corresponding literature that supports its inclusion in the framework.

Table 7 Finalized criteria

Criteria	Description	Literature
Spend	Amount of spend	Kraljic (1983)
Cost	Price, operation cost	Aguezzoul (2014), Erkayman et al. (2012), Kumar & Vinodh Kumar (2023), Oeser (2020), Selviaridis & Spring (2007)
Delivery	Delivery time, on-time delivery rate/delivery reliability and defective deliveries	Aguezzoul (2014), Alkhatib et al. (2015), Erkayman et al. (2012), Ho et al. (2022), Kumar & Vinodh Kumar (2023), Mageto (2022), Miettunen & Jämsä (2006), Selviaridis & Spring (2007)
Information systems	Data quality	Aguezzoul (2014), Büyüközkan et al. (2008), Erkayman et al. (2012), Lagorio et al. (2022), Nicoletti (2025), Oeser (2020), Premkumar et al. (2021)
Sustainability	CO2 emissions	Brozović et al. (2020), Mageto (2022), Qaiser et al. (2017), Wichaisri & Sopadang (2013)
Quality of the relationship	Quality, dependence, reputation	Aguezzoul (2014), Erkayman et al. (2012), Mageto (2022), Marchet et al. (2018), Miettunen & Jämsä (2006), Oeser (2020), Olsen & Ellram (1997), Rezaei & Ortt (2012)
Substitution possibilities	Possibility of substituting a provider for another one	Kraljic (1983), Caniels & Gelderman (2005), Gelderman & Van Weele (2003), Glöckner et al. (2005), Montgomery et al. (2018)
Specialized flexibility	Capacity to accommodate specific business requirements	Aguezzoul (2014), Büyüközkan et al. (2008), Erkayman et al. (2012), Mageto (2022)
Location	Geographical specialization and market coverage	Aguezzoul (2014), Ho et al. (2022), Oeser (2020)

8 Summary and conclusions

8.1 Summary of theory

The research problem for the study was to develop a more objective model for segmenting logistics service providers. The theoretical part of the study began by examining the evolution of logistics outsourcing, the development of supplier relationship management and contemporary industry trends. Logistics outsourcing is defined as handing logistics-related activities to a professional external party (Alkhatib et al., 2015). This practice gained momentum in the 1980s and it was initially done with a subcontracting mindset. This practice still remains true for traditional services (Erkayman et al., 2012; Andersson & Norrman, 2002) but as global supply chains increased in complexity, companies began to focus on their core competencies, which caused the scope of outsourcing to expand a lot. With more complexity and the increased use of LSPs, the importance of attention towards the relationships emerged (Andersson & Norrman, 2002; Büyüközkan et al., 2008).

As a company's supplier base expands, structured approaches are required to manage these entities effectively. Supplier relationship management is the process of defining and governing how an organization collaborates with its suppliers (Croxtton et al., 2001). The concept of SRM emerged in 1983 when Peter Kraljic advised for a proactive approach where buyers analyze risk and profitability in sourcing to develop tailored management strategies (Forbes, 2017, Montgomery et al., 2018). Consequently, Kraljic is widely regarded as the founding father of supplier relationship management (Gelderman & Van Weele, 2003; Montgomery et al., 2018).

Over time, SRM has evolved from a functional procurement task into an essential strategic business pillar for maintaining a competitive advantage (Zhao, 2025). As early as 1998, Dyer et al. argued that supply chain management was moving beyond Kraljic's original focus on minimizing dependency and maximizing bargaining power. Today, SRM emphasizes collaboration, shared value creation and long-term partnerships (Zhao, 2025). The core purpose is to cultivate mutually beneficial relationships that lead to win-win improvements (Christopher, 2022). However, as literature notes, it is almost impossible to maintain a strategic partnership with every provider (O'Brien, 2018).

Segmentation is a critical activity within SRM that allows companies with large supplier bases to categorize providers into manageable segments. This enables the implementation of tailored strategies, avoiding the inefficiency of treating every supplier on an individual basis (Fallah Lajimi

& Majidi, 2021). Ultimately SRM aims to unlock value from the supply base by identifying who their important suppliers are (O'Brien, 2018). Focusing more on the logistics context, LSPs are fundamentally similar to other suppliers in the supply chain. Therefore, established SRM principles are applicable to them as well (Selviaridis & Spring, 2007). In the past logistics outsourcing was managed in a highly transactional fashion (Andersson & Norrman, 2002). However, maintaining an "arm's length" relationship significantly increases business risk (Premkumar et al., 2021). To mitigate these risks, current industry trends favour more strategic and collaborative models working towards common goals (Mageto, 2022; Premkumar et al., 2021).

Differentiating between LSPs requires performance evaluation, which is key in assessing the success of outsourcing and identifying necessary measures (Selviaridis & Spring, 2007). Selecting LSPs that fit with organizational requirements is not an easy task and it's associated with complexity and uncertainty (Alkhatib et al., 2015). As O'Brien (2018) notes, this identification phase often is the most demanding aspect of SRM, where the complex processes can overwhelm decision-makers. For the decision making, this study utilized a comprehensive set of evaluation criteria derived from examined literature. The work of Aguezzoul (2014) was most notable, but other literature from for example Alkhatib et al. (2015), Erkayman et al. (2012) and Selviaridis & Spring (2007) were also taken into consideration. The criteria identified from these studies formed the basis of the model and were compared against empirical findings.

Tools to help with segmenting were central to the research problem. It was found that models are essential for improving accuracy and minimizing subjectivity in complex decision-making (Pidd, 2010). Fallah Lajimi and Majidi (2021) further noted that models are the most common tool used to facilitate supplier segmentation. In the context of supplier segmentation, the Kraljic Matrix remains the most widely utilized and academically established framework (Gelderman & Van Weele, 2003; Montgomery et al., 2018). Its simplicity is a key driver of its widespread adoption and its generic nature allows for the meaningful customization required for specific industries (Gelderman & Van Weele, 2003). While the Kraljic Matrix was originally designed for industrial manufacturing (Kraljic, 1983), its versatility has been proven across diverse sectors (Montgomery et al., 2018). To address common criticisms of the original matrix and the evolvement of SRM since Kraljic, this study also considered newer approaches. These were the portfolio approach to supplier relationships by Olsen & Ellram (1997) and the supplier potential matrix by Rezaei & Ortt (2012). The findings cited above provided a theoretical framework for the study, which was then applied to Case Company's needs based on the empirical section.

8.2 Conclusions of the study

Two research questions were presented in order to address the research problem of this study.

1. What criteria are essential for the Case Company in evaluating logistics service providers?
2. How can these criteria be used to build a segmentation model that supports the management of logistics service providers in the Case Company?

To address the research questions, eight interviews for the logistics experts from Case Company were conducted. The research data collected from the interviews and the findings derived from them helped to develop the framework established in the literature review.

Research question 1 was addressed through a two-stage process. First, a broad set of evaluation criteria was identified from existing literature. Aguezzoul (2014) provided the foundational benchmark, offering an analysis of 67 articles to identify the most common LSP selection factors. These findings were backed up by the work of Alkhatib et al. (2015), Erkeyman et al. (2012) and Selviaridis & Spring (2007). All of these showed a high degree of alignment with Aguezzoul's list. To differentiate between relationships, strategic partner selection literature was included from Oeser (2020), Büyüközkan et al. (2008), Miettunen & Jämsä (2006) and Ho et al. (2022). Furthermore, to ensure the model remained true also in the near future, contemporary industry trends were taken into account using research from Mageto (2022) and Kumar & Vinodh Kumar (2023). These criteria found in addition with the original Kraljic matrix factors are showcased in Table 5. These were all the criteria presented to the interviewees.

The empirical data then refined this set by identifying which criteria are relevant in the specific operational context of the Case Company. In the interviews cost, quality, delivery, information systems, sustainability, relationship, reputation, organizational fit, substitution possibilities, flexibility, location got the most attention. The central importance of cost, delivery reliability and sustainability was mentioned often. Simultaneously the critical role of qualitative criteria in complex logistics categories such as project logistics was highlighted. Quantitative criteria were found to be more universally applicable, while qualitative criteria showed more variation across logistics categories, reflecting the diverse nature of the Case Company's operations.

From the list, quality, reputation, relationship and organizational fit were bundled into one single criterion named quality of the relationship. This was done to address their conceptual overlap and the fact that interviewees consistently treated these factors as an interconnected whole. The decision

is also supported by the other segmentation models from Olsen & Ellram (1997) and Rezaei & Ortt (2012) compiling similar aspects in a relationship under one umbrella term. Another modification was done to the criterion flexibility, which was renamed specialized flexibility to distinguish the provider-specific and expertise-driven capability (Aguzzoul, 2014) from the general operational agility (Marchet et al., 2018). To maintain the core logic of the matrix, specifically the “value impact” dimension, volume purchased was added to the set (Kraljic, 1983). This ensures the model remains grounded in procurement reality while allowing for the more nuanced, qualitative assessments required for strategic logistics. The final set of criteria, answering research question 1 of which criteria are essential for the Case Company, is as follows: volume purchased, cost, delivery, information systems, sustainability, quality of relationship, substitution possibilities, specialized flexibility and location.

Using the now finalized list criteria, the thesis can construct a customized segmentation matrix for logistics service provider management. This part will answer the second research question on how these criteria can be used to build a segmentation model. Based on the theoretical review, the Kraljic matrix was selected as the most appropriate framework for this purpose (Gelderman & Van Weele, 2003; Montgomery et al., 2018). The thesis broadens the traditional Kraljic framework by adding the relationship-oriented dimensions as in Olsen & Ellram’s (1997) portfolio approach and Rezaei & Ortt’s (2012) supplier potential matrix. This integration allows the model to more effectively account for the relational side of the business, ensuring that qualitative partnership dynamics are prioritized alongside conventional procurement metrics.

The model sorts LSPs into four quadrants which are non-critical, leverage, bottleneck and strategic. They each result in different management practices. Non-critical providers are characterized by low value impact and low complexity. These are still suited to the arm’s length transactional management (Andersson & Norrman, 2002) with a focus on cost efficiency and process standardization. Leverage providers offer a higher value impact but low complexity, enabling the Case Company to leverage purchasing power through competitive tendering and consolidated contracts. Bottleneck providers have high complexity despite moderate value impact, which requires risk mitigation strategies and close monitoring of market alternatives. Strategic providers score high on both dimensions and warrant investment in deep, collaborative partnerships with shared development goals, regular performance reviews and transparent information exchange (Gelderman & Van Weele, 2003; Glöckner et al., 2005; Kraljic, 1983). This differentiation directly supports the Case Company’s objective of reducing its base to fewer strategic partners, while maintaining appropriate arm’s length arrangements with routine service providers.

Regarding the actual use of the model, quantitative criteria lend themselves to relatively straightforward scoring. The more volume purchased, the bigger value impact and hence a higher position in the matrix. Cost can be benchmarked against contract values and market rates obtained through tendering, a better deal meaning a higher impact in value. Delivery performance can be assessed using on-time delivery rates, complaint frequency and other metrics already used in the operations of the Case Company. The better the score, the higher the rank in value impact. Substitution possibilities can be operationalized by counting the number of credible alternative providers identified during a procurement process. A small number of substitution possibilities leads to a higher score on complexity. Location is assessed through geographic coverage mapping, a vast coverage or coverage in niche areas being harder to substitute. Sustainability can be measured through emission reporting (Kaiser et al., 2017; Wichaisri & Sopadang, 2013) and the greener the partner, the bigger the impact in value.

Qualitative criteria, most notably specialized flexibility and quality of relationship, ask for structured professional judgment. This means subjective positioning, which is what Case Company wanted to reduce, but according to Montgomery et al. (2018) will always be present when positioning things in the Kraljic matrix. Having the subjective criteria is not all negative, it allows for the expertise and critical thinking of the logistics professionals from the Case Company. To keep the subjectivity minimal, O'Brien (2018) suggests to assess concrete indicators to base the conceptual work on. Quality of relationship can be assessed through the consistency of communication, the volume and quality of new ideas and innovations offered by the provider and the reliability of follow-through on commitments (O'Brien, 2018). Specialized flexibility on the other hand could be assessed by evaluating for example the depth of LSP specific knowledge, the degree of personnel familiarity with the Case Company's product handling requirements and the provider's track record in non-standard or high-complexity situations. The criterion of information systems was defined to have some qualitative aspects too. Data reporting was key for the Case Company, so when evaluating information systems, the decision makers can base their conclusion on how well the LSP reports their transportation data. Scoring these in just high-medium-low rankings provides more transparency and a base for the decision. The rankings can bridge the gap between subjective and objective reasonings and support the decision maker in understanding their preferences (Buchanan et al., 1998).

On the question of criterion weighting, the empirical part did not put together a single set of weights, reflecting differences in priorities across logistics categories. Instead of having a standard weighting for all, the model recommends a balanced starting baseline, with category-specific refinement applied by experienced category managers. For instance, in project logistics specialized flexibility and substitution possibilities carry greater practical significance compared to standard road transport where cost and delivery are the primary differentiators. These findings of differences were clearly displayed in the interviews. This approach is in line with the observation by Gelderman and Van Weele (2003) that weighting remains the Achilles heel of the Kraljic matrix, while still providing a workable and transparent starting point. These provide the answer for research question 2, which was how can the previously identified criteria be used to build a segmentation model that supports the management of logistics service providers in the Case Company.

8.3 Contributions of the study

8.3.1 Theoretical contributions

This study contributes to the existing literature in two main areas: the adaptation of the Kraljic matrix for logistics service provider segmentation and the broader area of supplier relationship management in the logistics context. The objective of the study was to develop a segmentation model that offers a new construction, which aims to solve practical problems while advancing scientific discourse. By applying the constructive research approach (Lukka, 2014) to a real organizational challenge, the study demonstrates how academic frameworks can be meaningfully adapted through empirical engagement. The resulting model is not only a theoretical construct but a contextualized tool.

A key theoretical contribution of this study lies in the purposeful refinement of the Kraljic matrix. By replacing the original terms profit impact and supply risk with value impact and complexity, the model aligns with contemporary perspectives that logistics creates value far beyond simple cost reduction (Christopher, 2022). The thesis also includes common LSP evaluation criteria identified from literature to the matrix, making its use more suitable in the framework of logistics. On top of that it integrates relational dimensions into the Kraljic framework, addressing criticism of the original model. Gelderman and Van Weele (2003) note that professionals often supplement the Kraljic matrix with factors of supplier capability and willingness, the areas developed by Olsen and Ellram (1997) and Rezaei and Ortt (2012). By incorporating the bundled criterion of quality of relationship, this study bridges the gap between the procurement-focused original model and the relational emphasis of modern supplier relationship management. This refining supports the

academic discussion on how established frameworks can be updated without sacrificing their core simplicity and usability, supported by Murphy and Daley (1994) who noted that logistics segmentation can be supported by adapting techniques from industrial marketing and procurement.

This study also complements the existing literature on logistics service provider segmentation, which has received comparatively little attention to date. While supplier segmentation in general manufacturing and procurement contexts has been studied extensively (Caniëls & Gelderman, 2005; Fallah Lajimi & Majidi, 2021; Gelderman & Van Weele, 2003; Kraljic, 1983; Olsen & Ellram, 1997; Rezaei & Fallah Lajimi, 2019; Rezaei & Ortt, 2012), the application of these frameworks specifically to the logistics sector remains underexplored.

Through research conducted at the Case Company, this study provides insights into why LSP segmentation is necessary for organizations working with a large provider base. It deepens the theoretical discussion in how segmentation is done and emphasizes its inherent context-dependence. This need for context and understanding of operations support the qualitative approach. By combining elements of LSP evaluation (Aguazzoul, 2014; Alkhatib et al., 2015; Selviaridis & Spring, 2007) and strategic LSP selection (Büyüközkan et al., 2008; Miettunen & Jämsä, 2006) within a segmentation framework, this study addresses a notable gap in previous research of LSP segmentation. This has previously been talked by Andersson & Norrman (2002), Murphy & Daley (1994) and Oeser (2020). The study combines all of these entities together, providing a comprehensive approach to managing logistics partnerships in a practical operating environment.

8.3.2 Practical recommendations

For professionals, this study offers several concrete recommendations for organizations seeking to improve the structure and objectivity of their logistics service provider management. Although the study was conducted as a case study, the emerging solutions and themes are likely to be recognizable in other organizations in the context of sourcing and supplier segmentation, as noted earlier. The results are presented in a transferable manner to help with that. Given the operational diversity identified across the Case Company's logistics categories, a one-size-fits-all approach to weighting the criteria is not recommended. Different types of logistics have different needs, so further customizing by professionals to reflect the specific priorities of their framework is necessary.

The main practical result of this study is the finalized segmentation model. While the four quadrants and their basic application were explained earlier, the specific behavior of the logistics sector needs

a closer look to ensure the model works correctly in practice. It is important to note that the starting point for most traditional logistics services, such as standard road transport, tends to cluster around the border between the non-critical and leverage quadrants (Andersson & Norrman, 2002). This is because logistics, while a significant cost factor, is rarely the primary source of competitive advantage for most companies and the supply market typically offers numerous alternatives. This baseline of positioning should be kept in mind when interpreting results, as an LSP being classified as strategic is the exception rather than the norm. However, the increasing consolidation of the market through mergers such as DSV acquiring Schenker (Jacobsen et al., 2024) is shifting some providers toward greater complexity and dependency, requiring careful classification over time. Complex and highly specialized transportations in challenging conditions or territories have always been high in supply risk, but nowadays there is even more distribution across all services over Kraljic's portfolio matrix.

While maintaining strategic relationships with every provider might seem desirable, it is practically impossible (Christopher, 2022; O'Brien, 2018). Also, not all logistics outsourcing is complex. Routine tasks are better categorized as subcontracting, which is best managed through arm's length relationships. According to Rezaei and Ortt (2012), durable arm's length relationships are suitable for necessary but non-strategic resources. In contrast, strategic partnerships should be reserved for truly critical outputs.

Finally, it is strongly recommended that the model is treated as a continuous practice rather than a one time activity. As Glöckner et al. (2005) emphasize, the Kraljic matrix requires continuous adjustment and periodic review to remain strategically effective. LSP markets evolve and individual relationships with LSPs develop over time. A structured review process where service providers are reassessed against the criteria and repositioned where necessary would ensure that the model continues to deliver value.

8.4 Limitations of the study and suggestions for further research

The first limitation of the study concerns the subjectivity in the positioning of suppliers within a portfolio matrix. Montgomery et al. (2018) argue that the placement of commodities in the Kraljic matrix is based on the subjective judgment of decision makers, which can lead to inconsistent or faulty results. This limitation is not unique to this study but applies broadly to all Kraljic based frameworks. The thesis has taken steps to mitigate subjectivity through the use of objective criteria and the recommendation to anchor qualitative assessments in observable indicators but still a degree of subjectivity remains in it. The nature of portfolio models means that some level of judgment will

always be required from the decision maker (Montgomery et al., 2018). Future studies could explore how to develop more established scoring methods.

The second limitation relates to the scope of the empirical study. The research was conducted as a single case study within one organization. Even though different categories in logistics were interviewed, they were still all under the same company. Therefore, the findings of this study cannot be perfectly generalized to other organizations or industries. Future research could address this limitation by replicating the study across multiple organizations in different industries or geographies. Interviewing logistics professionals from a diverse range of companies would enable the development of an even more universally applicable version of the model and allow for comparison between companies.

A third limitation comes from the diversity of logistics categories within the Case Company itself. As the empirical data revealed, the operational realities of categories such as project logistics, customs brokerage and standard inbound transportation differ significantly. The current model presents a standardized framework as a starting point. The standardized framework is in line with the argument from Selviaridis and Spring (2007) that common criteria largely apply across logistics outsourcing contexts. However, the practical application of this standardizing has not yet been tested in operational use. Future research could dive deeper into how the model can be refined at the category level, developing tailored models with category-specific criteria sets and weighting which would potentially increase the model's accuracy.

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Appendices

Appendix 1 Interview structure



Haastattelurunko

Taustaa:

Tutkimuksen tavoitteena on luoda työkalu logistiikkapartnereiden segmentointiin. Malli pohjautuu Kraljicin matriisiin. Haastattelut tullaan nauhoittamaan litterointia varten. Saatuja tietoja ei tulla käyttämään tai julkaisemaan siten, että yrityksen tai haastateltavan identiteetti voidaan yhdistää haastattelussa käsiteltyihin tietoihin tai tapahtumiin.

Teema 1. Nykytila

1. Mikä on vastuualueesi?
2. Miten kuvailisit nykyistä prosessia, jolla logistiikkapartnereita valitaan ja hallitaan?
3. Mitä kriteereitä käytätte nykyisessä prosessissa?
4. Koetteko, että näitä pitäisi muuttaa?

Teema 2. Arviointikriteerit

5. Alla on kirjallisuudessa mainittuja yleisimpiä kriteereitä, miten ne sopii teidän logistiikkakategoriaan?
6. Onko kategorialle pakollisia kriteereitä, joita teidän tulee käyttää?
7. Onko olemassa joitakin keskeisiä kriteereitä, jotka puuttuvat teidän kategorianne osalta?
8. Mikä olisi kriteerien optimaalinen määrä, jotta malli pysyy mahdollisimman tehokkaana mutta kattavana?

Teema 3. Yhteenveto ja lopetus:

9. Miten asettaisit haastattelussa mainitut kriteerit tärkeysjärjestykseen omissa mallissasi ja millä perusteilla painottaisit juuri näitä tekijöitä?
10. Tuleeko mieleen vielä jotain muuta aiheen tiimoilta, jota en tajunnut kysyä

Lista yleisimmistä kriteereistä:

<i>Value impact</i>	<i>Complexity</i>
Volume purchased	Supplier availability
Percentage of total costs	Competitive demand
Business growth	Substitution possibilities
Cost	Flexibility
Quality	Financial position
Delivery	Location
Information systems	
Professionalism	
Services	
Sustainability	
Relationship	
Reputation	
Organizational fit	

Interview structure

Background:

The objective of the thesis is to create a tool for segmenting logistics partners. The model will be based on the Kraljic Matrix. These interviews will be recorded for transcription purposes. The information gathered will not be used or published in a manner that allows the identity of the company or the interviewee to be connected to the data or events discussed in the interview.

Theme 1. Current State

1. What is your area of responsibility?
2. How would you describe the current process for selecting and managing logistics service providers?
3. What criteria do you use in the current process
4. Do you feel that these criteria should be changed?

Theme 2. Evaluation Criteria

5. Below is a list of the most common criteria mentioned in literature. How do they apply to your logistics category?
6. Are there any mandatory criteria in your category that you should use?
7. Are there any essential criteria missing that you would need within your category?
8. What would be the optimal number of criteria to ensure the model remains both efficient and comprehensive?

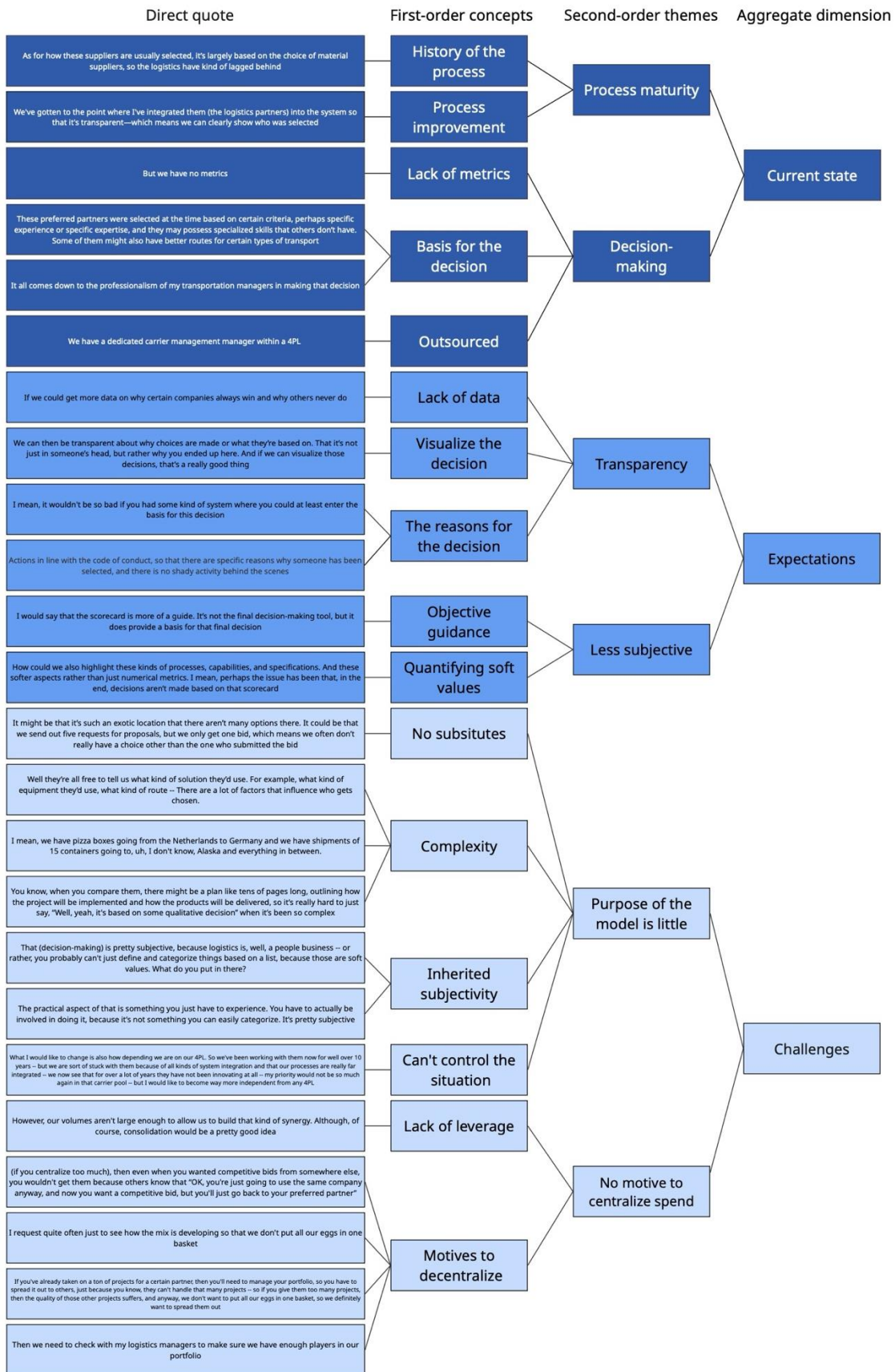
Theme 3. Summary and Conclusion

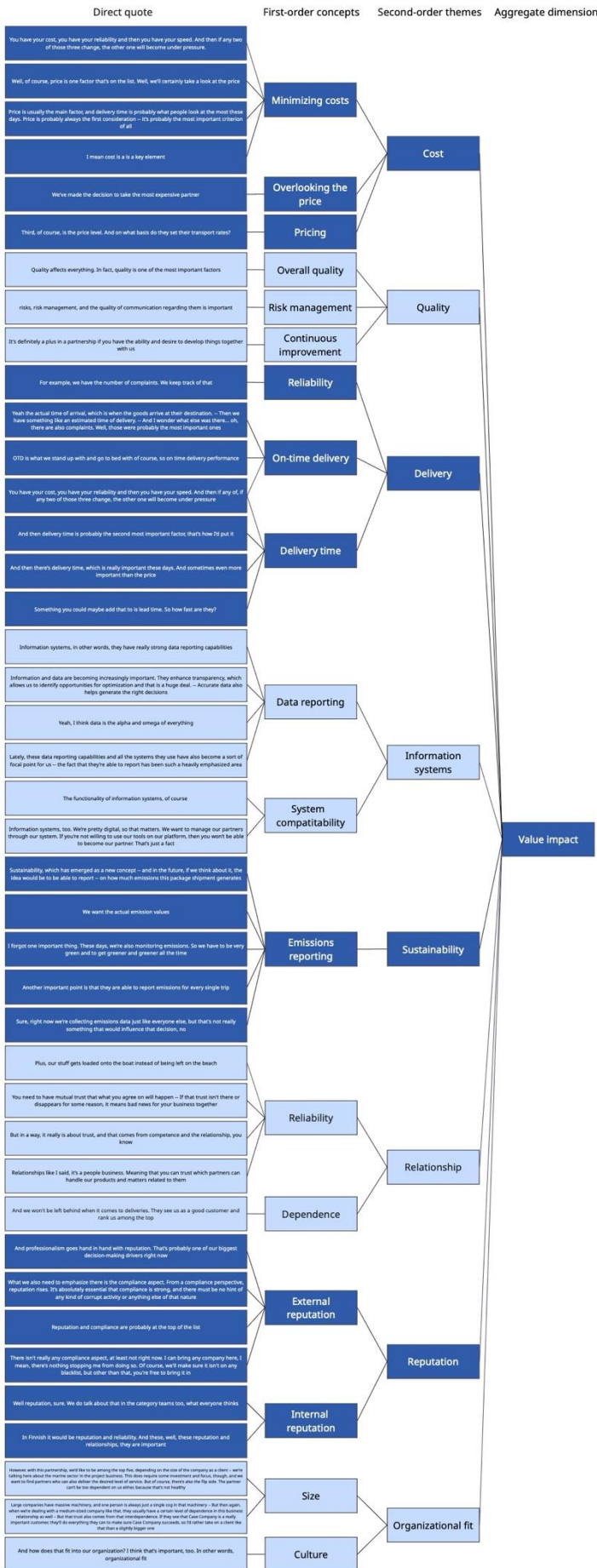
9. How would you rank the criteria mentioned in the interview in your own model, and on what basis would you weight these elements?
10. Is there anything else related to this topic that comes to mind which I haven't asked?

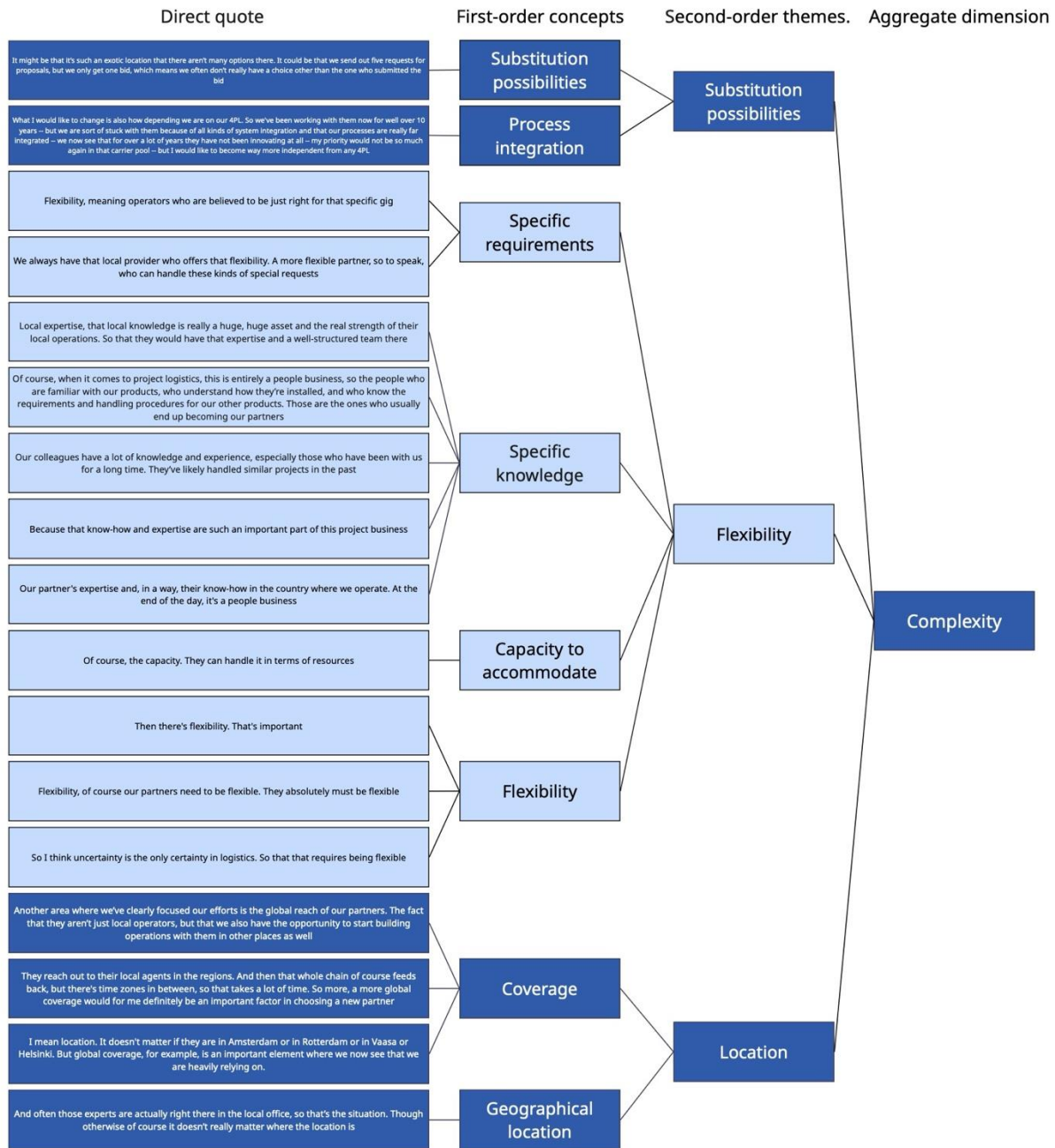
List of the most common criteria:

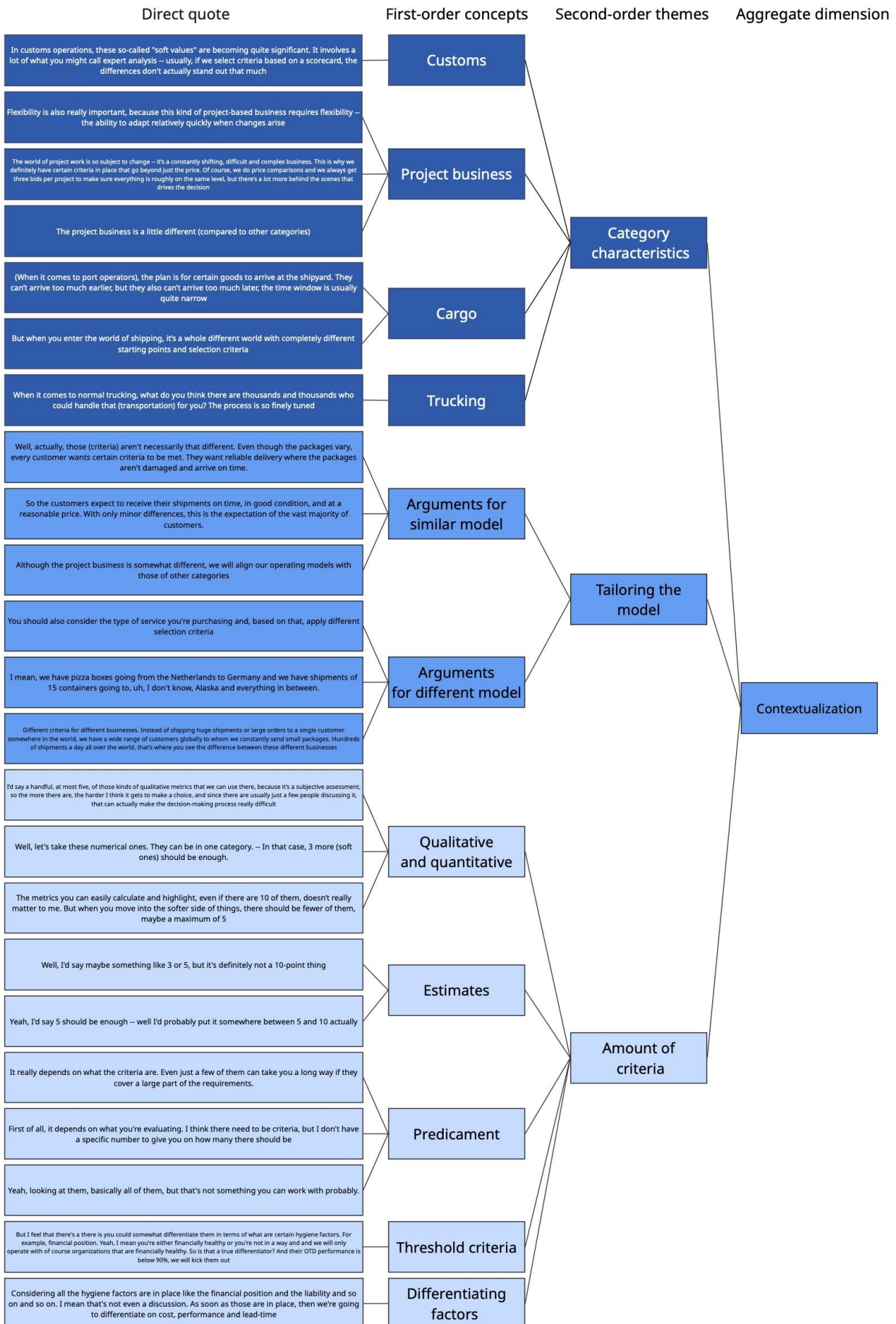
<i>Value impact</i>	<i>Complexity</i>
Volume purchased	Supplier availability
Percentage of total costs	Competitive demand
Business growth	Substitution possibilities
Cost	Flexibility
Quality	Financial position
Delivery	Location
Information systems	
Professionalism	
Services	
Sustainability	
Relationship	
Reputation	
Organizational fit	

Appendix 2 Gioia methodology data structures









Appendix 3 Explanation of the use of AI

Explanation of the use of AI

In the making of this Master's thesis, artificial intelligence (AI) has been utilized responsibly and ethically in accordance with university guidelines. As the author, I have personally produced the content and AI has primarily been used as a supporting tool.

AI has been utilized in the following ways:

- **Ideating the structure of the thesis:** AI was used to reflect on the structure of the work and the order of its sections. Discussions with AI helped conceptualizing the research as a whole and the themes within it. The used AI for this was Gemini Pro.
- **Refining the text and its structure:** AI was used to assist in clarifying and finding the best expressions and evaluating the text. This supports the readability and consistency of the thesis when writing in a foreign language. The used AI for this was Gemini Pro.
- **Proofreading and feedback:** AI was used to proofread and give feedback on the final stages of the study. This offered outside perspective on what has been done. No major changes were done based on this. The used AI for this was Claude Sonnet 4.6.

At all stages of the research, I have been personally responsible for producing the content, using sources and constructing the argumentation. The use of AI has not replaced critical thinking, source criticism or compliance with the principles of research ethics. As the author, I have evaluated and modified all suggestions made by the AI and ensured that the final work has been made through my own thinking and conclusions.