



How to choose the right supplier?

Supplier selection criteria for the electronic industry

Susanna Konttinen

Master's thesis

May 2025

School of Business

Master's Degree Program in International Business Management

Konttinen, Susanna

How to choose the right supplier? Supplier selection criteria for the electronic industry

Jyväskylä: Jamk University of Applied Sciences, May 2025, 68 pages

Master's Degree Program in International Business Management. Master's thesis.

Permission for open access publication: Yes

Language of publication: English

Abstract

In the evolving landscape of global manufacturing and innovation, supplier selection has become a strategic priority, particularly for start-ups in the electronics industry. Turbulence in the global economy, and in geopolitical position, has had a huge impact on companies' capability to manage their suppliers. The aim of this thesis was to explore how decision-makers in Finnish electronics start-ups define and prioritize supplier selection criteria, and how these criteria reflect their operational and strategic realities. The theoretical frame was based on the supplier selection literature.

A qualitative research approach was adopted, with data gathered through semi-structured interviews. Thematic analysis was used to identify recurring criteria and contextual factors influencing supplier decisions.

Findings indicate that while traditional selection criteria, cost, quality, and delivery, remain important, they are often viewed as minimum requirements rather than differentiating factors. Start-ups and growth companies place increasing value on supplier flexibility, proactive communication, mutual transparency, and long-term partnership potential. Relational elements, such as trust, cultural fit, and shared commitment to growth, emerged as decisive influences. Scalability and innovation support were also highlighted as critical for navigating early-stage growth. These insights suggest that supplier selection in start-up contexts is not only transactional but deeply strategic, shaped by both business priorities and human relationships.

The study contributes to the academic understanding of supplier selection in high-growth environments and offers practical insights for both purchasing professionals and suppliers seeking to engage with fast-scaling firms. Recommendations were also provided for tailoring evaluation frameworks to better suit the specific needs of emerging companies in the electronics sector.

Keywords/tags (subjects)

Supplier selection, Supplier selection criteria, Supply Chain Management (SCM), Electronics industry, Purchasing

Miscellaneous (Confidential information)

Konttinen, Susanna

Kuinka valita oikea toimittaja? Toimittajan valintakriteerit elektroniikkateollisuudessa

Jyväskylä: Jyväskylän ammattikorkeakoulu, toukokuu 2025, 68 sivua

Master's Degree Program in International Business Management. Opinnäytetyö, ylempi AMK.

Julkaisun kieli: englanti

Julkaisulupa avoimessa verkossa: Kyllä

Tiivistelmä

Toimittajavalinnasta on tullut strateginen painopistealue globaalissa valmistusympäristössä, erityisesti elektroniikkateollisuuden start-up-yrityksille. Muutoksilla maailmantaloudessa, sekä geopoliittisessa kehityksessä on ollut iso vaikutus yritysten mahdollisuuksiin johtaa heidän toimittajiaan. Tavoite oli tutkia, miten suomalaisissa elektroniikka-alan start-up:ssa päätöksentekijät määrittävät ja priorisoivat toimittajavalintakriteerejä sekä miten nämä kriteerit heijastavat yritysten operatiivisia ja strategisia tarpeita. Teoriapohja rakennettiin toimittajavalintaan liittyvän kirjallisuuden ympärille.

Tutkimus toteutettiin laadullisena tutkimuksena, ja aineisto kerättiin puolistrukturoiduilla haastattelulla. Analyysimenetelmänä käytettiin teemoittelua.

Tulokset osoittavat, että perinteiset kriteerit – hinta, laatu ja toimitusvarmuus – ovat edelleen tärkeitä, mutta niitä pidetään usein vähimmäisvaatimuksina. Start-upit arvostavat yhä enemmän toimittajien joustavuutta, avointa viestintää, läpinäkyvyyttä ja kumppanuushenkisyyttä. Suhdepohjaiset tekijät, kuten luottamus, kulttuurinen yhteensopivuus ja jaettu kasvuhalu, nousivat keskeisiksi. Myös skaalautuvuus ja kyky tukea innovaatiota koettiin ratkaiseviksi kasvuvaiheen hallinnassa. Toimittajavalinta on näin ollen start-up-ympäristössä syvästi strateginen ja ihmissuhteisiin kytkeytyvä prosessi.

Tutkimus tarjoaa lisäarvoa akateemiselle keskustelulle toimittajavalinnasta nopeasti kasvavissa ympäristöissä sekä käytännön suosituksia hankinnan ammattilaisille ja toimittajille, jotka haluavat tehdä yhteistyötä skaalautuvien yritysten kanssa. Lisäksi esitetään ehdotuksia arviointikehikkojen räätälöimiseksi paremmin vastaamaan elektroniikka-alan kasvuyritysten erityistarpeita.

Avainsanat (asiasanat)

Toimittajavalinta, Toimittajavalintakriteerit, Toimitusketjun hallinta, Elektroniikkateollisuus, Osto

Muut tiedot (salassa pidettävät liitteet)

Contents

1	Introduction	3
1.1	Motivation for the research	5
1.2	Research questions	6
1.3	Structure of the Thesis	7
2	Supplier selection	7
2.1	Operations strategy and its Role in Supplier Selection	8
2.2	Supply Chain Management: Overview and Relevance	9
2.3	The power of supplier selection.....	10
2.4	Supplier selection process.....	16
2.5	Supplier Selection Criteria.....	17
2.6	Decision-Making Models in Supplier Selection.....	19
2.7	Sustainability and ESG Criteria in Supplier Evaluation.....	20
2.8	The Role of Digitalization in Supplier Selection	21
3	Methodology.....	22
3.1	Research Approach	22
3.2	Research context.....	23
3.3	Data collection.....	23
3.4	Data Analysis	27
3.5	Verification of findings	29
3.6	Research ethics.....	30
4	Results.....	30
4.1	Supplier Selection Criteria.....	33
5	Discussion.....	48
5.1	Managerial implications.....	50
5.2	Assessment of the results in the light of the earlier literature.....	52
5.3	Limitations.....	53
5.4	Recommendations for Future Research	54
	References	56
	Appendices	65
	Appendix 1. Invitation letter for the interviewees	65
	Appendix 2. The interview questions.....	66

Figures

Figure 1. Supplier evaluation criteria used across the literature (Kumar Kar & K. Pani, 2014).. 18
Figure 2. The balance of supplier selection criteria (AI created) 48

Tables

Table 1. Demographics of the interviewees 25
Table 2. Sample of the coding 28

1 Introduction

In today's globalized, increasingly complex, and mutually dependent economy, supply chain management has become a critical determinant of organizational competitiveness and adaptability. Thus, supplier selection is a critical decision for businesses aiming to maintain competitive advantage and operational efficiency in electronics manufacturing. Within this context, the role of suppliers and the criteria by which they are selected have become increasingly important, especially in high-tech and innovation-centric industries. Supplier selection is no longer viewed solely as a cost-cutting procurement activity. Instead, it is understood as a strategic decision-making process that directly impacts a firm's operational efficiency, customer satisfaction, time-to-market, and overall innovation ability (Ho et al., 2010; Kannan & Tan, 2002).

The importance of this topic becomes even more pronounced when examined through the lens of start-ups and growth companies operating in the electronics industry. Unlike well-established corporations, start-ups face a different set of challenges. For start-ups operating with limited resources and a tighter schedule, the process is even more crucial, and there is no room for mistakes. As manufacturing devices are expensive, the decision has a significant impact on the company's finances, operational efficiency, and continued success (Gunasekaran et al., 2001; Harland et al., 2003). A poorly chosen supplier could threaten not only product quality and deliveries, but also the company's reputation and long-term viability. Conversely, a strategically aligned supplier can act as a catalyst for growth, enabling firms to innovate, scale, and compete effectively in global markets. Wisely made supplier selection is vital to a company's success and thus affects the success and growth of the company in many ways (Iloranta & Pajunen-Muhonen, 2012). Monczka et al. (2005) also highlight the meaning of supplier selection as a key decision point in developing a purchasing strategy. External resources operate a significant part of the electronics industry. With the right decision, the collaboration could positively impact on the success and employment of both companies. If the wrong decision is made, there will be difficulties in delivering the products in the desired way, causing various difficulties for the company. In the worst case, the wrong supplier selection might cause severe problems for the company's finances and thus the existence of the company, especially in the context of start-ups, where funding is crucial. Also, investments in manufacturing equipment play an important role in finance, and therefore, it is important to find the right partner for manufacturing, the right size with the right capabilities.

The electronics sector is particularly relevant to this discussion due to its inherent complexity and dynamic nature. Products are typically composed of numerous complex components, sourced from various vendors across different geographies. Rapid technological obsolescence and constant innovation place enormous pressure on supply chains, requiring suppliers to be highly responsive, reliable, and capable of supporting continuous improvement and development initiatives (Koplin et al., 2007). Moreover, electronic start-ups are often embedded in international value chains and must meet rigorous regulatory standards, including those related to sustainability and ethical sourcing. All these factors contribute to the growing significance of effective supplier selection practices in this sector.

The aim for Finnish start-ups is often global scalability; however, before getting there, the foundation for the manufacturing needs to be laid within the local context, influenced by European Union regulations, evolving sustainability expectations, and quality standards. The Global geopolitical situation, the war in Ukraine, turbulence between countries in the world, and disruptions in international logistics are contributing to the approach for the supplier selection. The uncertainty in the world has underscored the importance of supply chain resilience, local operations, and ethical considerations, making them more crucial elements in strategic decision-making.

Supplier selection is not only about finding the lowest cost provider; it involves a comprehensive evaluation of various criteria to ensure that the chosen suppliers can meet the company's needs consistently and reliably. Supplier selection is rarely a purely analytical exercise in a real-world setting, especially within start-up environments. It involves a complex interplay of formal and informal criteria, contextual judgement, and evolving business needs. Factors, such as relationships, quality, mutual trust, responsiveness, and even geographical closeness, may play roles that are not always fully captured in traditional models. Moreover, founders or small leadership teams often make supplier decisions in start-ups without large procurement teams or dedicated sourcing departments. These decisions are thus shaped by both strategic intent and personal experience, which adds an additional layer of subjectivity and complexity (Eriksson & Kovalainen, 2008).

This thesis is about exploring the importance of supplier selection and finding the proper criteria for the electronics industry selection process from the Nordic or Finnish perspective. The research investigates how decision-makers define, interpret, and apply supplier selection criteria, and

whether their choices align with, deviate from, or expand upon established theoretical models. To achieve this, the study adopts a qualitative research approach, employing semi-structured interviews to collect empirical data from individuals involved in supplier selection and from the founders of the company. This method allows for a deep and distinct understanding of the supplier selection process as it unfolds in practice, rather than as it is ideally theorized. The focus is on understanding the criteria that are regarded as important, the contextual factors that influence prioritization, and the extent to which supplier-related decisions are influenced by strategic, operational, or relational considerations.

Conclusively, the goal of this thesis is to provide a grounded perspective on supplier selection criteria in a high-tech start-up setting. It aspires to bridge the gap between theory and practice by offering empirically informed insights that can inform both academic discourse and managerial decision-making. Through this exploration, the study contributes to a more comprehensive understanding of how supplier selection functions in real-world, resource-constrained, and innovation-driven environments.

1.1 Motivation for the research

The motivation for this study comes from the author's personal and professional experience within sourcing and supply chain management, particularly in the global context of supplier selection and procurement activities in Finland. Finnish start-ups usually operate globally from the beginning, which requires navigating international sourcing while synchronized with European Union regulations, and local expectations.

The topic holds relevance given the author's involvement in the fast-paced and innovation-driven electronic industry, where short product lifecycles, strict quality standards, and supplier reliability are essential. Not to forget the cost. Selecting the right supplier can be the difference between making it to market or missing it entirely. This underscores the weight of supply chain decisions with constrained resources in start-ups and growing companies. Such choices can ultimately shape the company's ability to survive and grow.

Current geopolitical tensions, such as the war in Ukraine, possible barriers to global trade, export barriers, and customs duties, have brought new challenges and risks to be considered when selecting a supplier. This underscores the urgency of having a clear, strategic approach to supplier selection, keeping cost, quality, risks, and flexibility in balance.

The author's motivation comes from combining the theoretical models and practical factors in the context of Nordic / Finnish start-ups. By combining academic research and practical industry insights, this Thesis aims to provide valuable guidance on navigating the complex decision-making process of supplier selection, not just selecting the supplier based on cost.

1.2 Research questions

This study aims to investigate the factors that guide supplier selection decisions in the electronics industry, with a particular attention to how these criteria are applied within start-up environments and companies during growth. The focus is on understanding the specific priorities and considerations that influence sourcing strategies in these fast-evolving and resource-sensitive business contexts.

Considering the theoretical framework and empirical analysis, the study seeks to answer the following research questions:

What are the key criteria that startups and growth companies in the electronics industry consider when selecting suppliers?

- a. How do these supplier selection criteria reflect both strategic and operational priorities in the context of fast-paced, technology-driven industries?
- b. To what extent do ideal perceptions of a “good supplier” align with the criteria used in actual supplier selection decisions?

This study employed a qualitative research strategy, which was considered appropriate given the exploratory nature of the research aim. Notably, the interviewees represented a range of organizational functions, including business development, operations, and technical leadership. This diversity of roles allowed the study to capture multiple perspectives on supplier evaluation, ranging from cost and delivery performance to collaboration, scalability, and innovation capability. Includ-

ing informants from different functional backgrounds enhanced the validity and comprehensiveness of the findings by revealing not only converging themes but also role-specific priorities and trade-offs. This study aims to explore and explain the supplier selection criteria used by startups and growth companies in the electronics industry. By focusing on the lived experiences and decision-making practices of firm owners and managers, this research seeks to generate context-sensitive insights into how supplier decisions are made and what underlying priorities they reflect. As a result of the study, a set of criteria is proposed to be used in successful supplier selection for the assigning company.

1.3 Structure of the Thesis

There are five main chapters in this Thesis. The first chapter introduces the topic, justifying the need for the study. The second chapter gives a broad understanding of the theoretical frame of supplier selection and supplier selection criteria. Methodology, the data collection process, and data analysis are explained in Chapter Three. Chapter four presents the results. The research questions are answered in Chapter Five. Also, this thesis recognizes its own limitations and discusses the validity of the findings, while offering suggestions for future research in chapter six.

2 Supplier selection

The literature review provides a broad examination of current literature and theoretical frameworks related to supplier selection criteria, focusing on the electronics industry. The supplier selection process is examined as a critical strategic function within supply chain and operations management literature. Emphasis is placed on identifying, categorizing, and analyzing the key criteria that guide supplier selection decisions in technologically dynamic and competitive markets. Particular attention is paid in this study to how supplier selection criteria may differ in early-stage or growth-oriented electronics companies. These firms often operate under resource constraints and seek suppliers who can contribute not only to operational performance but also to flexibility, speed-to-market, and co-innovation. Thus, besides traditional metrics, this framework also considers relational and dynamic factors such as supplier responsiveness, collaboration potential, and capacity for scaling (Choi & Hartley, 1996; Krause et al., 1998).

This chapter provides the conceptual basis for empirical investigation by reviewing and synthesizing the main theoretical models and empirical findings in supplier evaluation. The goal is to develop a structured understanding of which supplier selection criteria are most relevant in the electronics industry and how they may vary according to firm size, maturity, and strategic priorities.

2.1 Operations strategy and its Role in Supplier Selection

Everything starts with the operations strategy within the company. The company's strategy should have determined the company's desire, what to do, and how to do it. Operations strategy draws the guidelines for the long-term objectives and guidelines, as well as resources for achieving the company's goals. It determines the high-level production decisions and other processes to ensure competitive advantage. By adopting a systematic approach and leveraging appropriate frameworks and models, companies can ensure they select suppliers who align with their strategic goals and contribute to their competitive advantage (MasterClass, 2021). Operations strategy refers to aligning a company's operational capabilities with its competitive priorities, such as cost, quality, flexibility, and delivery (Slack & Lewis, 2017). It serves as a bridge between high-level business goals and daily operational decisions.

The operations strategy acts as a guide for identifying the most relevant criteria for supplier selection. For example, a start-up pursuing a differentiation strategy probably emphasizes suppliers who are flexible, offering customization, and R&D support. Whilst companies with cost-efficient strategies prefer low-cost suppliers with reliable production capability (Krajewski et al., 2019). Strategic alignment between a company and its suppliers has been shown to improve performance outcomes, especially in dynamic environments, such as electronics. According to Vickery et al. (2003), firms that align their supply base with their operations strategy are better able to achieve customer satisfaction, market responsiveness, and long-term growth.

For start-ups, the strategic alignment is crucial as they might shift rapidly from a prototyping phase to scale production. Supplier flexibility, responsiveness, and capability to evolve with the company become priority criteria (Handfield et al., 2002). As Finnish start-ups increasingly embed sustainability and innovation into their operations strategy, they also demand suppliers that comply with environmental standards, ethical sourcing practices, and European regulations (Koplin et al., 2007)

Supplier selection is not an isolated decision, it is embedded within the broader operational and strategic framework of the organization. Understanding supply chain dynamics and aligning supplier capabilities with operational priorities is essential for building robust, adaptive, and high-performing supplier networks.

2.2 Supply Chain Management: Overview and Relevance

Supply Chain can be expressed as a link between needed materials, their production into products, and getting them to customers. Supply chain management (SCM) is fundamental to competitive strategy and organizational manufacturing and strength development. SCM intends to reduce the ambiguity in the managerial processes of supply chain organizations. The basis is accurate, and correct decisions on the manufacture of the product, subsequently securing the material flow. Aiming at converting the stock to the right products, and transporting it to end customers by employing agreed-upon processes (Garg et al., 2021).

Supply Chain Management and purchasing are the most money-spending organizations; thus, their impact on the organization's bottom line is significant. The implication of the supply chain can be explained by the numbers: purchases typically represent 55% of an organization's revenue. It has a massive impact on an organization's cash flow, as well as on profitability, quality, customer satisfaction, and market share. Making errors in selecting suppliers is a direct link to the organization's finances (Cheragh et al., 2011). Dominic and Lunney (2022) also highlight the essential element to success, which is the proper and careful supplier selection. In the electronics industry, quality and component reliability are paramount factors for success. To achieve this, the role of supply chain management is essential, where the precision and intricacy of components are dominant factors in designing the products.

Although purchasing is the initial phase in the value chain and appears remote from the eventual delivery of the product or service to the customer, its issues, strategies, and tactics are as critical as those in finance, marketing, and operations. Purchasing can significantly impact quality, customer satisfaction, profitability, and market share (Cheragh et al., 2011). For start-ups, the impact can be even higher than for the established companies as they operate with constrained resources, limited bargaining power, and a strong dependency on external partners (Harland et al.,

2003). This indicates that supplier selection influences not only cost efficiency but also product development, delivery accuracy, and scalability. Thus, supplier selection becomes a critical decision.

Enhancing the supply chain performance on both sides, the supplier and buyer, is the ultimate objective of supply chain management. It is the path to gain the company's financial outlook by better customer service and reducing operating costs through improved and longer partnerships between suppliers and buyers. Agility and pace set by today's economy in the industry require connections and networking in a global context. SCM is responsible for a possibly very complex divergent group of allies of several multi-layered supplier or partner networks (Taherdoost & Brard, 2019). Mentzer et al. (2001) highlight the supplier relationship and its importance in meeting customer demands, i.e., faster deliveries. We should not forget the geopolitical situation in the world, which brings its spices to networking and SCM. The increasing complexity of global supply chains, combined with uncertainty in economics and turbulence in geopolitics, underlines the resilience of supply networks. Ivanov (2020) argues that disruptions like pandemics or conflicts force companies to rethink their sourcing strategy and to refine their visibility and responsiveness in the supply chain.

2.3 The power of supplier selection

"Supplier selection is the process of evaluating and choosing the most suitable suppliers to fulfill the procurement needs of an organization." (Procurement Tactics, 2023). It is mainly recognized as a procurement action, but its power goes beyond that. It is a deeply strategic decision influencing the company's performance, long-term sustainability, and innovation capacity. For start-ups and growing businesses, the meaning is even greater. In the early stages of business, making decisions can either enhance or hold down operational efficiency, scalability, and customer satisfaction. The right supplier is a key partner for growth and resilience. (Ho et al., 2010). Supplier selection is a foundational activity within supply chain management, influencing cost structures, product quality, lead times, competencies, and long-term competitiveness. For start-ups in the electronics industry, choosing the right suppliers can directly impact the Company's survival and scalable growth. Alikhani et al., (2019) emphasizes Narasimhan and Talluri's (2009) views on a company's ambition being highly dependent on its suppliers developing their strategic role in the supply chain. Hence, selecting and evaluating suppliers is critical to the success and development of a competent and appropriate supply chain (Wu & Blackhurst, 2009).

Strategic Impact of Supplier Selection

Suppliers play a critical role in delivering not only raw materials or components but also in shaping the value proposition of a company's products and services. In a globally competitive and time-sensitive market, especially in electronics manufacturing, the right supplier can contribute to improved product design, faster time-to-market, and reduced total cost of ownership (Kannan & Tan, 2002). Thus, supplier selection is not merely an operational decision but a strategic one that can significantly influence a company's long-term competitiveness, especially in industries characterized by rapid innovation cycles such as electronics. For startups and growth companies in this sector, the choice of suppliers can shape not only the cost structure and quality of products but also innovation capacity, time-to-market, and scalability (Chen et al., 2004; Wagner & Hoegl, 2006). A well-aligned supplier base supports strategic objectives such as differentiation, responsiveness, and resilience—critical attributes for firms operating in volatile and technology-driven environments.

From a strategic perspective, suppliers are increasingly viewed as extensions of the firm rather than external entities. Start-ups gain from suppliers' technical expertise, responsiveness, and flexibility. Such suppliers go beyond transactional relationships and serve as strategic partners capable of co-developing solutions that support the start-up's business model (Talluri & Narasimhan, 2004). Strategic suppliers can contribute directly to product development, process innovation, and capability building (Schiele, 2010). In the electronics industry, where modularity and rapid product cycles are common, early supplier involvement can accelerate innovation and reduce development risks (Petersen et al., 2005). This is especially important for startups, which often rely on supplier expertise due to limited internal R&D resources. Therefore, selecting suppliers that offer not only cost competitiveness but also technical collaboration and flexibility becomes a strategic priority.

Furthermore, supplier selection decisions influence supply chain risk exposure and agility. Strategic sourcing decisions determine the geographical spread, dependency structure, and operational continuity of the supply chain (Christopher & Peck, 2004). For growing electronics firms, the ability to adapt quickly to supply disruptions, regulatory shifts, or customer demand changes can be a key differentiator. Supplier selection thus needs to consider criteria such as reliability, responsiveness, and shared risk management practices alongside traditional price and quality metrics. Additionally,

supplier selection affects a firm's ability to scale operations. Start-ups seeking rapid growth must ensure that their suppliers can match increasing demand without compromising quality or delivery performance. Strategic alignment regarding growth ambitions and capacity planning can significantly impact a firm's scalability and market responsiveness (Krause et al., 2007).

In conclusion, supplier selection is a strategically consequential decision that extends beyond immediate cost considerations. For start-ups and growth companies in the electronics industry, suppliers are not just vendors but strategic partners whose capabilities and alignment with the firm's goals can influence innovation, growth, and long-term competitiveness. A structured and strategically informed supplier selection process is therefore essential for building a sustainable competitive advantage.

Supplier Selection as a Driver of Innovation and Growth

In high-tech industries, such as the electronics industry, innovation is a key differentiator. Suppliers' competence in certain key manufacturing areas is crucial, and it can be fully used when suppliers are engaged early in the product development phase. Input for materials, processes, and design optimization can be seen as supplier-driven innovation, which is an important capability in start-ups lacking internal R&D resources (Choy et al., 2003). As start-ups develop and grow to scale-ups, their operational needs also evolve. Suppliers that are capable of scaling production volumes, meeting changing specifications, and maintaining consistent quality become essential for maintaining momentum and avoiding bottlenecks (Gunasekaran et al., 2001).

Beyond fulfilling operational needs, supplier selection plays a crucial strategic role in shaping a company's capacity for innovation and long-term growth. In competitive and rapidly evolving markets, firms increasingly look to their suppliers not merely as vendors, but as collaborators in value creation. The ability to identify and engage suppliers who bring innovative capabilities, technological expertise, or unique knowledge can significantly enhance a firm's innovation processes and competitive positioning (Schiele, 2010). Consequently, supplier selection decisions can influence not only efficiency but also the direction and speed of innovation.

Strategically chosen suppliers may offer early access to cutting-edge technologies, contribute to joint product development, and help reduce time-to-market for new solutions. Especially in industries with fast product cycles, such as electronics, automotive, and healthcare, suppliers are often at the forefront of R&D, making their involvement in innovation critical (Wagner & Hoegl, 2006). By involving innovative suppliers early in the product development process, companies can benefit from improved product functionality, cost optimization, and reduced design errors (Johnsen, 2009). Thus, supplier selection becomes a key enabler for creating differentiated offerings and responding rapidly to market changes.

Moreover, innovations on the supplier side are not limited to product-related advances; they also encompass process improvements, sustainable solutions, and digital integration. Suppliers who adopt advanced manufacturing methods or offer data-driven services can become catalysts for organizational transformation. The alignment of strategic goals between buyer and supplier is vital in this context, as it ensures mutual commitment to innovation and growth objectives (Prajogo & Olhager, 2012). Long-term partnerships based on trust, openness, and shared learning further enhance the potential for co-innovation.

In evaluating suppliers through the lens of innovation, companies may consider criteria such as R&D intensity, patent activity, prior collaborative experience, and willingness to invest in joint development initiatives. While such factors may be more qualitative and more complex to measure than traditional metrics, they offer significant strategic value. Companies prioritizing these dimensions in their supplier selection processes often position themselves more effectively for sustained growth and adaptation in volatile environments (Luzzini et al., 2015).

In sum, supplier selection is not a purely transactional activity but a strategic function that can unlock pathways to innovation and business development. Recognizing the role of suppliers as innovation partners shifts the focus from cost-driven procurement toward long-term value creation. By selecting suppliers who are innovation-oriented and growth-aligned, firms can build more dynamic, responsive, and future-ready supply chains.

Risk Management and Resilience

The purpose of the supplier selection process is to control and mitigate purchasing risks, maximize the value of the products, and establish a good and honest relationship with the suppliers in order to fulfil and execute the company's strategy (Taherdoost & Brard, 2019). Risk management in the supplier context involves the identification, assessment, and mitigation of potential threats that could hinder the supplier's ability to deliver goods or services as agreed. This includes factors such as dependency on single sourcing, the geographical location of production facilities, cybersecurity practices, financial health, and compliance with international regulations (Tukamuhabwa et al., 2015). A supplier with robust risk management protocols demonstrates foresight and preparedness, reducing the likelihood of unexpected disruptions that could affect the buyer's operations.

The modern global supply chain is subject to increasing levels of risk due to geopolitical instability, pandemics, climate change, and supply shortages. Events like the COVID-19 pandemic and the war in Ukraine have underscored the need for resilient supplier networks that can withstand shocks (Ivanov, 2020). Organizations are increasingly aware that supply chain disruptions, therefore, beyond traditional criteria such as cost, quality, and delivery performance, companies now actively evaluate a supplier's ability to manage risks and maintain operational continuity under adverse conditions (Chopra & Sodhi, 2014).

Closely related to risk management is the concept of resilience, which refers to a supplier's capacity to adapt, recover, and continue delivering in the face of disruptions. Resilience is not solely reactive; it also encompasses proactive strategies such as investing in digital technologies, maintaining safety stock, diversifying the supply base, and fostering transparent communication with stakeholders (Pettit et al., 2013). Suppliers who display a high degree of resilience offer greater assurance to buyers, particularly in sectors where continuity is critical.

When integrated into supplier evaluation frameworks, risk and resilience considerations often require both quantitative and qualitative assessments. Some organizations employ structured tools such as supplier risk scores, while others rely on in-depth audits and scenario-based evaluations (Ho et al., 2015). As supply chains become more dynamic and global, the importance of these cri-

teria is expected to grow. Forward-thinking companies prioritize suppliers who not only meet performance expectations in stable conditions but also have the capacity to withstand and adapt to unexpected challenges.

Ultimately, incorporating risk management and resilience into supplier selection reflects a strategic shift. It recognizes that a supplier's value is not limited to transactional efficiency but also lies in its ability to support long-term business continuity. This perspective enables organizations to build more agile and sustainable supply chains, which are better equipped to navigate uncertainty and seize opportunities in an ever-changing marketplace.

Start-ups often lack the buffer capacity and diversified sourcing that larger firms enjoy, making supplier selection a frontline defense against disruption. Choosing suppliers based on criteria such as geographic location, financial stability, and ability to respond to crises can enhance resilience (Tummala & Schoenherr, 2011).

The Hidden Costs of Poor Supplier Selection

Supplier selection is a key process in SCM that requires accurate planning, comprehensive evaluation, and continuous strong management. Choosing the right supplier is crucial for several reasons. Firstly, as already mentioned, it has a direct impact on cost and quality. The wrong choice of supplier can lead to higher costs, delays, and lower customer satisfaction due to lower quality. Secondly, reliable suppliers commit to the cohesion and capability of the supply chain, enabling companies to reconcile consistently with customer demands. Thirdly, with the proper strategic supplier selection, continuous improvement and innovation can be promoted from the supplier's side, as they suggest new ideas and technologies.

Cheragh et al., (2011) emphasize that, especially in today's highly competitive and unforgiving environment, each aberration in supplier selection may effortlessly undermine the approach's effectiveness and potentially destabilize the whole organization.

2.4 Supplier selection process

Aiming at the right quality products at the right time, at the correct quantity, and the right price are the results of a successful supplier selection. Following the same strategy is difficult for all possible vendors due to their dissimilar financial position and standing among their customers, even when producing equivalent quality and condition. This motivates several companies to invest more money, time, and power to strengthen the buying process, classify possible suppliers prior to potential risks. Furthermore, there is no equally right solution for the actual supplier selection process; it can be formed differently in different companies. Whilst there are products that require an exceptionally complicated, highly regulated framework, for other products, the supplier selection may be a straightforward process, where every step may not even be required. (Taherdoost & Brard, 2019)

There is no certain way or criteria to use to succeed consistently in the supplier selection process. However, there are some questions to be asked before selecting the suppliers for evaluation:

1. Does this supplier meet our needs? What is their core competency?
2. Does the supplier's experience match our needs?
3. How do we fit into the supplier's capacity?

The supplier may have specialized in some areas or categories. Is that the one in question? They may also potentially have other areas or categories they operate in, but are they really good at them? Dominic and Lunney, (2022) emphasize the fact that even if a supplier succeeds in one area or category, it is not necessary to do the same thing in the other areas or categories.

Another important thing is experience. Has a potential supplier experience with similar specifications, industries, and customers with similar lead time requirements? (Dominic & Lunney, 2022)

The electronics industry is highly specialized, and a potential supplier with knowledge of manufacturing similar-sized and specified products is a must. Also, the capability of giving feedback on the manufacturability of the products is an advantage and supports cooperation or partnership.

The third important thing when selecting a potential supplier is the size of the supplier. The target is order fulfillment in time and the correct quantity, with the right price. Does the potential sup-

plier have all the necessary capacity, such as workforce, production equipment, and space to manufacture the products? Suppose the potential supplier is too small, possible spending is over 15% of the supplier's annual sales. In that case, there is a risk that the capacity is insufficient, and changes in the volume may significantly impact the supplier. On the other hand, if the possible supplier is too big, the possible spending is less than 1% of the supplier's annual sales, there is the possibility of not getting the needed priority from the supplier. The right size of the supplier is the key here (Dominic & Lunney, 2022).

As there is no standard way of conducting supplier selection, it must be done based on the situation every time. When supplier selection succeeds, it enhances competitiveness, develops profits, decreases lead time, raises customer satisfaction, and last but not least, reduces the cost. (Taherdoost & Brard, 2019)

2.5 Supplier Selection Criteria

Traditionally, price, quality, and delivery speed have been the major factors in supplier selection; the main focus has been price. However, in today's world, it is not enough to focus just on these criteria, and companies' approach has turned into multi-criteria instead of price as the single priority. Tangible factors, such as environmental and sustainability issues, as well as supplier commitment and relationships, rise densely from the literature. Aligning the supplier selection process and sustainability goals in the supplier selection with the company's values can strengthen the company's position in the competitive field. Embracing a responsible supply chain is a powerful advantage in the market, where environmental and sustainability concerns arise among stakeholders and customers. This has brought complexity into the supplier selection. (Taherdoost & Brard, 2019)

There are over 60 generic criteria that are used across different industries, which have been pointed out by different reviews in the supplier selection literature (Ho et al., 2010; Weber et al., 1991; as cited in Kumar Kar & K. Pani, 2014). Criteria such as "quality", "price", "delivery schedule", "warranty", "product capability", "technical capability", "management capability", "supplier reputation", and "financial position" are considered as critical elements in the supplier selection process. The criteria have been mostly quantitative, more straightforward to measure, until the

1990s when qualitative criteria, such as “culture”, “supplier relationship”, and “geographical location” began gaining prominence in the literature. The following figure presents various criteria commonly presented in the literature.

Product quality	Delivery reliability	Warranties
Product pricing	Production capability	Technical capability
Management capability	Supplier's reputation	Financial position
Labor relations	Service quality experience	Past business records
Reciprocal arrangements	Cultural fitment	Communication barriers
Geographical distance	Foreign exchange rates	Trade tariffs
Trade restrictions	Buyer's commitment	e-transaction capabilities
Quality management	IT standards	Cost reduction capability
Documentation	Design capability	Supply variety
Lead time/response time	Indirect costs	Response flexibility
Innovation	Facility planning	Safety adherence
Domain experience	Exporting status	Conflict resolution systems
Customs duties	Product line diversity	Intimacy of relationships
Inventory position	Electronic data interchange	Value-added productivity
Total cost of acquisition	Risk perception	Certification and standards
Research and development	Organizational culture	Availability of parts
Sub-component pricing	Regulatory compliance	Self-audits
Billing accuracy	Cost reduction performance	Indirect costs
Service quality credence	Supplier's commitment	Skill level of staff
Exporting status	Packaging capability	Intellectual property rights
Data administration	Improvement commitment	Procedural compliance

Figure 1. Supplier evaluation criteria used across the literature (Kumar Kar & K. Pani, 2014)

Recognizing the proper criteria together with the correct selection method for supplier selection are the key aspects of determining a company's growth and competitiveness; therefore, the influence of the proper criteria selection cannot be emphasized enough (Taherdoost & Brard, 2019). Although supplier evaluation will include each case-specific criterion, the frequent use of generic supplier selection criteria in diverse studies underscores the importance of establishing the most crucial evaluation criteria that are comprehensively important across industries and procurement contexts, and to assess their relative significance (Kumar Kar & K. Pani, 2014).

In contemporary research, criteria are often grouped into categories such as:

Operational: cost, quality, lead time, reliability

Strategic: innovation capacity, scalability, alignment with business goals

Sustainability-related: environmental compliance, ethical labor practices

Risk-related: geopolitical risk, financial stability, location

As global supply chains face increasing pressure from volatility and regulation, the weight of non-cost criteria has continued to rise, particularly in the European context, where Environmental, Social, and Governance (ESG) considerations play a central role (Tachizawa & Wong, 2014).

2.6 Decision-Making Models in Supplier Selection

Selecting the right supplier is a complex decision-making process that often involves balancing multiple, and sometimes conflicting, criteria. Organizations increasingly rely on structured decision-making models that enable more objective and transparent evaluation to support this process. Among the most widely used approaches are the Analytical Hierarchy Process (AHP), Multi-Criteria Decision Making (MCDM) methods, and the Weighted Scoring Model.

The AHP, developed by Saaty (1980), is particularly popular in supplier selection due to its ability to break down complex decisions into a hierarchy of more manageable sub-problems. It allows decision-makers to compare suppliers based on pairwise judgments and assign relative weights to each criterion. This method has been successfully applied in both manufacturing and service industries (Ho et al., 2010).

Another commonly used approach is the MCDM framework, which includes methods such as Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS). These models help organizations rank suppliers based on how closely they match an “ideal” supplier profile, considering criteria such as cost, quality, delivery time, and flexibility (Shih et al., 2007).

For less complex situations, the Weighted Scoring Model remains a practical choice. In this method, decision-makers assign numerical weights to selection criteria and score each supplier accordingly. While simpler than AHP or TOPSIS, this model still offers a transparent and systematic approach that supports rational decision-making (Monczka et al., 2016).

Ultimately, the choice of model depends on the procurement context's complexity, data availability, and decision-maker expertise. However, adopting a structured decision-making model helps reduce subjectivity and improve the consistency and justifiability of supplier selection outcomes.

2.7 Sustainability and ESG Criteria in Supplier Evaluation

Sustainability and ESG considerations have become increasingly important in supplier evaluation processes, reflecting broader shifts in corporate responsibility and stakeholder expectations. As firms face mounting pressure from regulators, investors, and consumers to operate sustainably, evaluating suppliers has expanded beyond cost-efficiency and quality to include environmental impact, labor practices, and ethical governance (Kumar & Rahman, 2016). These ESG criteria are no longer peripheral; they are becoming central to how organizations define reliable and strategic supply partners. ESG criteria are increasingly embedded in procurement strategies to ensure responsible sourcing. Green supplier selection integrates environmental management practices into the evaluation process (Govindan et al., 2015). Companies now assess suppliers on their cost and performance and their compliance with environmental standards, labor practices, and ethical governance.

For electronics start-ups operating within the European Union, adherence to directives like the RoHS and REACH, and more recently, the Corporate Sustainability Reporting Directive (CSRD), has elevated the importance of selecting ESG-compliant suppliers (Sarkis et al., 2011). Suppliers with robust sustainability practices can reduce reputational risk, increase resilience, and contribute to long-term value creation. Integrating ESG metrics into supplier evaluation frameworks often relies on third-party certifications, self-assessment questionnaires, audits, and sustainability performance indices. Standards such as ISO 14001, SA8000, and EcoVadis ratings are commonly used to benchmark suppliers against industry best practices (Villena & Gioia, 2020). Some leading firms adopt supplier scorecards incorporating ESG performance as a weighted component, signaling suppliers that sustainability is a strategic priority rather than a compliance checkbox.

Embedding ESG into supplier selection is ethically motivated and aligned with risk management and long-term value creation. Suppliers performing well on ESG metrics tend to be more resilient, innovative, and better prepared for regulatory changes and shifting market demands (Foerstl et al., 2015). In this context, sustainability becomes both a risk mitigator and a growth enabler. Furthermore, ESG-aligned supplier relationships support companies in achieving their own sustainability targets and in meeting the expectations of increasingly conscious consumers and investors.

In conclusion, integrating sustainability and ESG criteria into supplier evaluation reflects a strategic and values-driven approach to procurement. It enables organizations to foster ethical, resilient, and future-ready supply chains while contributing positively to environmental and social outcomes. As global supply chains become more transparent and scrutinized, ESG-oriented supplier selection is likely to become a standard, rather than an exception, in responsible business practices

2.8 The Role of Digitalization in Supplier Selection

Digitalization has significantly reshaped supplier selection processes across industries, particularly within the fast-paced and innovation-driven electronics sector. For start-ups and growth companies operating in this field, where agility, scalability, and speed-to-market are essential, digital tools offer a critical advantage in managing supplier relationships and decision-making. Adopting digital technologies such as e-procurement platforms, data analytics, cloud-based systems, and supplier relationship management (SRM) software has enhanced the ability to evaluate suppliers systematically and efficiently (Ivanov et al., 2019; Handfield et al., 2020).

In the context of supplier selection, digitalization supports more data-driven and transparent decision-making. Startups, which often lack the resources of larger firms, can particularly benefit from automation and integrated platforms that streamline tasks such as supplier qualification, risk analysis, and performance monitoring (Turi et al., 2014). For example, advanced analytics tools can process supplier data in real time, allowing companies to identify trends, forecast risks, and compare suppliers across multiple criteria, such as cost, quality, delivery performance, and sustainability metrics (Kamble et al., 2020). These capabilities enable more informed and objective decision-making, reducing dependency on personal networks or subjective assessments, which may otherwise dominate in early-stage firms.

Moreover, digital platforms improve communication and collaboration across the supply chain. Cloud-based solutions and collaborative portals allow for real-time updates, shared documentation, and transparent performance tracking, which are essential in maintaining agile supply networks (Srai & Lorentz, 2019). This is particularly beneficial in the electronics industry, where rapid changes in technology and customer demand require close coordination with suppliers.

However, integrating digital tools in supplier selection is not without challenges. Startups may face barriers such as limited financial resources, lack of digital maturity, and insufficient technical expertise to implement and maintain advanced procurement systems (Rejeb et al., 2021). Additionally, while digital tools can provide structured data, they may overlook qualitative aspects such as trust, cultural fit, or supplier innovativeness—factors that are often crucial in dynamic and collaborative environments (Blome et al., 2014).

In conclusion, digitalization is becoming an increasingly vital element in how start-ups and growth-oriented firms approach supplier selection in the electronics industry. While it enhances efficiency, transparency, and responsiveness, it also requires careful consideration of implementation capabilities and the potential trade-offs between quantitative and qualitative evaluation criteria. As digital procurement technologies continue to evolve, their role in shaping supplier relationships will likely become even more prominent. In electronics manufacturing, digital platforms support early supplier involvement, prototype collaboration, and traceability of critical components. These capabilities are essential for start-ups that require speed, precision, and scalability in their supplier network. By leveraging digital technologies, companies can reduce selection errors, monitor performance, and respond faster to market changes.

3 Methodology

This chapter presents and justifies the methodology used in this thesis. Describing the data collection and analysis processes. This thesis aims to understand and find the proper supplier selection criteria for companies in the electronics industry. The empirical data is collected by interviewing owners on assigning company and other stakeholders with substantial experience in different product programs and supplier selection in the electronics industry in various positions. This ensures the data set's reliability in the study.

3.1 Research Approach

A qualitative research approach was identified as the most appropriate method for addressing the research question posed in this thesis. Hyvärinen et al. (n.d.) note that when the objective is to understand human experiences, opinions, and behaviors, there is often no better way than to ask directly. Qualitative research is particularly well suited to answering questions that begin with

“what”, “why”, or “how”, and focuses on analyzing interpretations and their relationships in written, spoken, or even visual formatting (Ronkainen et al., 2020).

3.2 Research context

This research is situated within the intersection of SCM, supply strategies, and the operational realities of early-stage companies in the electronics industry. Start-ups typically operate under resource constraints, shorter planning boundaries, and a higher dependence on external suppliers, which considerably impacts the company's economy, thus making supplier selection a strategic priority (Harland et al., 2003; Ho et al., 2010). In the electronics sector, complexity is compounded by the pace of innovation, product requirements, and component reliability. These aspects raise the supplier's role from a manufacturer or distributor to a strategic partner, having a direct influence on cost efficiency, lead times, and time-to-market (Gunasekaran et al., 2001; Kannan & Tan, 2002).

This study focuses on Finnish electronics start-ups and growth companies that face dual pressure, time, and the obligation to meet global standards of cost and quality. These firms often collaborate with a small number of contract manufacturers and are highly sensitive to supplier performance due to a lack of options. Supplier selection in this context is inherently strategic and often involves balancing multiple competing priorities under uncertainty (Talluri & Narasimhan, 2004). By exploring how supplier selection criteria are understood and applied in this particular setting, this study contributes to both academic discourse and the practical understanding of sourcing decisions in high-tech, resource-constrained environments.

3.3 Data collection

The research employed semi-structured interviews as the primary method for collecting empirical data. This method was chosen due to its balance between structure and flexibility, making it suitable for cross-company data collection on a focused topic. Even though this study was conducted with a fairly small number of participants, in-depth interviews were regarded as less suitable, as they are typically used for highly sensitive topics with few participants (Milena et al., 2008). Semi-structured interviews incorporate pre-formulated questions, which can be adjusted flexibly if

needed, as the interview proceeds. Even extra questions may arise as the interview evolves (Mayers, 2013). The questions can be asked in a different order, or some questions may even be left out in the interview, and the tone of the interview can be taken into consideration as well, not only the content of the interview (Tuomi & Sarajärvi, 2018). As Mason (2002) suggests, the interviewer must be able to “think on their feet”, reacting flexibly and thoughtfully while keeping the attention in the research objectives.

Personal interviews offer additional advantages over surveys. Cozby (2009) emphasizes the social nature of interviews, noting that once participants agree to be interviewed, they are more likely to respond to all the questions. Misunderstandings can be clarified in real time, clarifying questions can be asked, and participants may be encouraged to elaborate further on relevant topics (Tuomi & Sarajärvi, 2018). This dynamic interaction often leads to deeper and more distinct data.

However, interviews are not without limitations. One of the main judgements is the risk of interview bias, which can arise from slight verbal or non-verbal clues that influence participants' responses (Cotzby, 2009). Inexperienced interviewers may also ask inefficient or overly simplistic questions, potentially limiting the quality of responses (Bryman & Bell, 2015). To mitigate these risks, careful preparation and attention to neutrality are essential. Questions leading to “yes” or “no” answers are to be avoided.

Interviewee selection and interview process

As Tuomi and Sarajärvi suggest (2018), the interviewees were selected using purposive sampling from the professionals within the assigning company. Purposive sampling, such as selecting interviewees, is used to ensure the interviewees' knowledge of the topic.

The author decided to interview the founders of the assigning company to get the company's perspective on the topic and their experience working in the electronics industry in various fields. Other interviewees were selected from the same company, which the author knows to have substantial experience in the electronics industry, working with suppliers in different positions.

Before the interview, the author contacted all interviewees personally to ask for their willingness to participate and to explain the purpose of the interview. After that, all interviewees received a

Microsoft Teams invitation providing the reason for the interview and a concise summary of the topic. The briefing also mentioned that the interviews are recorded. Permission to record the interview was asked at the beginning of every interview. This procedure ensured that each participant received the necessary information related to the purpose of the study, confidentiality, as well as the possibility to decline to participate, as Wiles recommends (2013).

Altogether, 12 interviews were conducted for this study. Eight out of them are the founders of the assigning company. None of the people selected for the interview rejected participation. Knowing all the participants and the background of working with them for a long time might have influenced the resulting excellent participation. This also ensured a comfortable atmosphere during the interviews. The interviewees were able to speak freely about the topic. All functions within the company are represented in the interviews. Details can be found in the demographics presented below.

Table 1. Demographics of the interviewees

	Interview length (min)	Function	Founder of the company
Interviewee 1	32	Sourcing management	No
Interviewee 2	45	Operations management	No
Interviewee 3	60	Software management	Yes
Interviewee 4	25	Electronics management	Yes
Interviewee 5	65	Business Management	Yes
Interviewee 6	32	Program management	Yes
Interviewee 7	42	Business Management	No
Interviewee 8	30	Program management	No
Interviewee 9	31	Software management	Yes
Interviewee 10	42	Business Management	No
Interviewee 11	26	Mechanics management	Yes
Interviewee 12	34	Business Management	Yes

The data collection for this study was conducted through semi-structured interviews. Although the interview questions were prepared in English to align with the academic context of the thesis, all interviews were conducted in Finnish, as both the interviewer and all interviewees were native

Finnish speakers. This approach was chosen to ensure communication clarity and create a comfortable environment for participants to express their views in their native language. The data analysis was also conducted in Finnish to minimize the risk of losing the nuances of the interview answers. The author has translated the direct quotes in the Result chapter, preserving the response messages apparent.

Before the primary interviews, a pilot interview was conducted to assess the questions' clarity, relevance, and comprehensiveness. The pilot also estimated the appropriate number of questions concerning the time available for each interview session. As the pilot interview was successful and provided relevant insights, its results were included in the overall data set.

All participants received an invitation letter outlining the purpose and scope of the study, including the specific reasons for their participation. The letter also emphasized that participation was voluntary and that the interview would be audio recorded with the interviewee's consent. This information was reiterated at the beginning of each interview to ensure transparency and ethical compliance. The invitation letter can be found in Appendix 1.

The interview consisted of open-ended questions, designed to elicit detailed responses related to supplier selection criteria within the electronics industry (Appendix 2). This method allowed for the collection of rich qualitative data and enabled the interviewer to probe deeper into emerging themes, when necessary, while maintaining a consistent structure across interviews. Some of the questions were left unanswered in the interviews. This was due to the lack of close co-operation with the suppliers from the interviewee's side. Some of the interviewees do not work closely with the suppliers daily.

During the interview, the author focused on listening to the interviewee and conducting a discussion. No notes were made during the interview, as Microsoft Teams recorded the interviews. After the interviews, all of them were transcribed into Microsoft Word by pausing and playing. The transcribed files and the recordings are stored in Microsoft OneDrive. At the end, there were 155 pages of transcribed text using font size 11, and 464 minutes of recorded data.

3.4 Data Analysis

The interviews conducted for this study were analyzed using a qualitative content analysis approach, which is particularly suited for exploring patterns, meanings, and categories emerging from textual data (Elo & Kyngäs, 2008). As the aim of the study was to identify and understand the key criteria used in supplier selection, especially within the context of startups and growth companies in the electronics industry, an inductive content analysis strategy was applied. This approach allowed themes to emerge from the data rather than being imposed in advance, providing flexibility for capturing industry-specific and context-dependent insights.

The transcribed interview data was first read in full to gain an overall understanding of the content. Following this, a systematic coding process was created. Each interview transcript was broken down into question levels, and descriptive codes were then assigned. These codes were based on both the interviewees' recurring terminologies and the researcher's conceptual interpretations. Given the semi-structured nature of the interviews and the open-ended nature of the core questions, such as "What are the three most important factors that define a good supplier?" and "What are the three most important factors when choosing a supplier?", the answers varied in phrasing but often pointed to similar underlying criteria.

The initial codes were then grouped into higher-order categories, reflecting recurring themes across interviews. These included categories such as cost efficiency, delivery reliability, quality, communication and responsiveness, technical competence, and flexibility. Additionally, several interviews revealed more strategic or relational factors such as trust, cultural fit, and supplier innovation capability. The frequency of mention and depth of discussion around these topics were also considered when assessing their relative importance. An example of the coding is presented on the table below:

Table 2. Sample of the coding

Interviewee	Translation of the original phrase	Subclass	Main class	Main theme
8	They play a very significant role, because the suppliers make our products, and a large part of the quality essentially comes from them. Of course, a big part of the quality comes from the product design itself, but a major part of the quality in practice also comes from the supplier.	Significant role, they make our products, and a large part of the quality comes from there	Manufacturing	Quality
4	Reliability is one. I don't know if honesty is reliability. If they have a problem, they tell it right, and not making stories. It is close to reliability. Also flexibility is important			Reliability Flexibility

A separate thematic grouping was made between answers relating to the characteristics of a good supplier and those referring to actual supplier selection decision-making. While there was significant overlap between these two dimensions, some differences were observed. For instance, attributes like trust and long-term orientation were often mentioned when discussing the definition of a good supplier, while price and lead time featured more prominently in actual selection decisions. This distinction reflects the tension between ideal and practical criteria, which is well documented in supplier selection literature (Ho et al., 2010).

The coding framework was developed iteratively to ensure reliability and transparency in the analysis process, with continuous comparison between interviews. Emerging codes and categories were regularly cross-checked against the data to ensure consistency. The pilot interview also served as a preliminary test for the coding structure, and no substantial modifications were required after incorporating the pilot data.

Additionally, minor quantification was used to support qualitative findings. For instance, the number of times each criterion was mentioned across interviews was tracked to identify the most frequently cited themes. However, the analysis remained interpretative in nature, with emphasis placed on the contextual richness and nuance in participants' explanations. This approach ensured that not only the "what" but also the "why" behind each selection criterion were captured.

The data analysis revealed a multifaceted view of supplier selection in the electronics industry. While traditional criteria such as cost, quality, and delivery remain central, startups and growth

companies also emphasize agility, trust, and collaboration as critical enablers of successful supplier relationships. These findings support the need for a context-sensitive and dynamic supplier evaluation model, particularly in fast-evolving industries where strategic alignment and adaptability can be as important as operational performance.

3.5 Verification of findings

This study was conducted with the aim of generating reliable, context-specific insights into supplier selection criteria in the electronics industry, focusing particularly on the experiences of a growth-oriented company. The author's strength lies more on the practical side of the topic, rather than the academic. This had an impact on the implementation of the study; it was conducted in a more practical way. The author's experience in the purchasing and electronics industry led to a genuine interest in the topic. On the other hand, experience can be a burden as expectations of the results rely heavily on one's own experience. In this case, the author succeeded in the interviews by letting the interviewees give their views, thus obtaining reliable data in this setting.

The consistency of the responses was examined through thematic analysis. Recurring themes across different interviews were identified, categorized, and cross-checked to ensure coherence and internal validity. This process increased the dependability of the interpretations and reduced the likelihood of misrepresenting participant viewpoints.

All participants were from the same company and had long experience in the electronics industry, ensuring that the data was relevant and grounded in real-world decision-making. Their feedback confirmed the accuracy of the representations and highlighted minor nuances that were incorporated into the final analyses. The data gathered during the process is stored in the company cloud, which mainly includes the company's company-related information. IT will be destroyed after a particular time, and there is no access to the data outside of the company.

In conclusion, the research was conducted with careful attention to methodological rigor and ethical standards. While limitations typical of qualitative case studies are present, the findings offer valuable, reliable insights into the supplier selection logic of a growth-phase electronics company.

3.6 Research ethics

This study was conducted according to established ethical principles for qualitative research. Particular attention was paid to informed consent, confidentiality, and the responsible handling of data. Bryman & Bell (2015) point out that the way we treat people on whom we conduct research is the key to ethical values. Ethical considerations were integrated throughout the research process, from planning to data analysis and reporting.

Participation in the study was voluntary, the purpose of the study was explained to all participants, and the results were utilized. All interviews were recorded with the permission of each participant. The recordings, as well as other data, are stored securely and are accessible only by the researcher.

Anonymity and confidentiality were preserved by removing all personally identifiable information from transcripts and reporting findings in a generalized form. Participants were assigned codes, and company names or other identifiers were omitted or altered to protect organizational privacy. When the data was analysed, only the participants' coding was visible. This method allows for data security and anonymity for the participants. As all the interviewees were from the assigning company, it was in the hands of the researcher to maintain the confidential data respectfully and report it so that it remained unidentified.

4 Results

This chapter presents empirical findings of the study, based on the thematic content analysis of the interviews in light of the research questions:

What are the key criteria that startups and growth companies in the electronics industry consider when selecting suppliers?

- a. How do these supplier selection criteria reflect both strategic and operational priorities in the context of fast-paced, technology-driven industries?
- b. To what extent do ideal perceptions of a “good supplier” align with the criteria used in actual supplier selection decisions?

The results are organized according to the key themes that emerged from the data, each reflecting one or more supplier selection criteria emphasized by the participants. These findings directly address the research questions and are based solely on the evidence collected from the interviews.

The Role of Suppliers in the Company's Success and Competitiveness

Based on the interview data, suppliers play a central and all-around role in determining a company's overall success and competitiveness. Rather than being regarded solely as external service providers or cost centers, suppliers are considered strategic partners whose performance, flexibility, and reliability directly affect their ability to deliver high-quality products, maintain development speed, and respond to customer demands.

A recurring theme throughout the interviews was that a growth-oriented technology company relies heavily on a network of specialized suppliers to support its core operations, especially in electronics manufacturing. Since the assigning company's business model emphasizes high-quality, technically advanced sensor solutions, the capabilities and responsiveness of its suppliers are deeply integrated into the company's value proposition.

They play a very significant role, because the suppliers make our products, and a large part of the quality essentially comes from them. Of course, a big part of the quality comes from the product design itself, but a significant part of the quality in practice also comes from the supplier.

This quote illustrates how suppliers are not secondary to the assigning company's operations but significantly impact quality. While product design is acknowledged as an important factor, the interviewee emphasizes that a substantial portion of product quality is ultimately dependent on the supplier's performance. This underscores the importance of supplier selection as a strategic decision directly linked to product outcomes.

Several interviewees also emphasized the role of suppliers in supporting agility and speed, which are critical for startups and growth companies. The assigning company operates in a competitive environment where new customer requirements or product changes can arise suddenly. In these situations, the ability of suppliers to keep promised schedules or adjust production becomes a source of competitive advantage.

What the supplier promises, we promise to the customer. In the product development phase, it is important to know when to get the mechanics from the supplier, for example, when to get the first parts of the tool. Because it determines when those builds can be done, and it determines when certifications can be started, and it determines when we can be in the mass and sell some stuff, and so on.

Supplier responsiveness and flexibility were closely tied to the assigned company's overall operational agility. Interviewees described how working with suppliers who could respond to dynamic needs without compromising on quality allowed them to move faster than competitors, particularly in customer-specific development cases.

In addition to operational performance, several interviewees noted that the company seeks suppliers who bring technical competence and added value to the collaboration. For example, some suppliers contribute proactively to product development by suggesting improvements or offering insights into manufacturability, which helps them to optimize their designs and reduce risk before scaling production.

Suppliers often provide specialized expertise that the company itself may lack, particularly in areas such as potting, robotics development, and production processes. Developing these capabilities in-house would require significant investment and additional personnel, making it less feasible for the company. By leveraging the supplier's existing investments and know-how, the company gains faster access to scalable production without bearing the upfront costs, paying instead per unit produced.

This kind of technical support was seen as a differentiating factor between the suppliers and a key enabler of high-quality end products. In that sense, suppliers contribute not only to the execution of the company's product strategy but also to its innovation capability and long-term technical competitiveness.

Another important dimension that emerged was the trust-based relationship between the company and its key suppliers. While trust is challenging to quantify, it was repeatedly mentioned as a prerequisite for smooth cooperation and long-term success. A certified quality management system of the suppliers was considered an important factor in building and maintaining trust. This ensures that processes have been inspected by a third party, they work, and those can be trusted.

Standardization of the Quality Management system is absolutely an essential factor. It demonstrates that processes are reviewed not only internally by the company itself but also externally, bringing a certain level of discipline and structure.

This insight highlights how intangible relational factors, such as transparency, reliability, and shared working culture, contribute to the overall efficiency and competitiveness of the company's operations. Trust also plays a role in risk mitigation, as dependable suppliers are more likely to communicate problems early and take the initiative in solving them.

4.1 Supplier Selection Criteria

All the interview criteria were analyzed, and a complete list was created. All answers did not need analysis based on the subclass or the primary class; the central theme was found directly from the phrase. Nine main classes were identified in the interviews. The results of these criteria are presented below according to the interview findings.

Quality

The interviews clearly reveal that quality is a primary criterion in the supplier selection and ongoing supplier relationships. Across all discussions, quality was consistently described as the most fundamental requirement, a baseline condition that must be fulfilled before other factors, such as price or delivery time, are even considered. This was true regardless of the respondent's specific role in the company, indicating that the emphasis on quality is deeply embedded across organizational functions.

A direct quote, *"Quality is much more important than price"*, echoed in similar terms by multiple interviewees, captures the non-negotiable nature of quality in supplier evaluation. It reflects the company's commitment to delivering technically advanced products that meet strict performance requirements. As a technology company producing wireless sensor solutions, the assigning company relies on suppliers to provide components and ensure that these components meet precise specifications and integrate seamlessly into final products.

Several interviewees emphasized that quality is not limited to the end product alone. It includes know-how, process quality, documentation accuracy, compliance with regulatory standards, and

consistency across batches. One participant described the importance of suppliers being able to maintain consistency, especially in high-volume or long-term deliveries:

They genuinely have the expertise for the type of product we want to manufacture, along with the processes that ensure they can produce it repeatedly with consistent quality.

This expectation underscores the importance of repeatability and reliability in supplier performance, particularly as the company scales its operations and delivers products internationally. Quality issues are not seen merely as technical errors but as risks that can affect customer satisfaction, brand reputation, and project timelines.

Additionally, quality was linked to problem-solving ability. Interviewees highlighted that high-quality suppliers are not only those who deliver flawless products, but also those who identify and correct issues proactively. This form of quality mindset, being solution-oriented and attentive, was considered valuable, especially in development projects or new product introductions.

It is better if the contacts are as direct and fast as possible to the factory floor and the operational level. The more direct the connection, the better, because if something does not work, problem-solving can begin more quickly.

This proactive viewpoint determines high-performing suppliers and emphasizes the idea that quality includes behavior as well as product output. It is a must that the customer has good cooperation and contact with the supplier, all the way to the factory floor, and issues are brought up if something happens. It reflects an expectation that suppliers operate with the same high standards that the company applies internally.

Importantly, the role of quality is not only technical but also strategic. Several participants noted that without consistently high-quality inputs, the assigning company would be unable to maintain its competitive position or deliver on its brand promise. Quality is a foundational element of the company's business model: *"The quality of the product is reflected in, and also impacts, the company's brand"*.

In summary, quality is treated as a threshold criterion in the assigning company's supplier relationships. It encompasses more than defect-free products; it includes consistency, process control, documentation, responsiveness, and proactive collaboration. Suppliers who fail to meet these expectations are quickly disqualified, regardless of price or other attributes. Those who consistently meet or exceed them become strategic partners, supporting the company's ability to scale, innovate, and maintain its competitive edge in the global electronics market.

Delivery Reliability

Delivery reliability emerged as a consistently emphasized selection criterion in the interviews conducted with representatives of the assigning company. It was described as a critical operational factor that directly impacts the company's ability to fulfill customer commitments, manage production timelines, and maintain internal efficiency. The importance of reliable delivery was highlighted in connection with the nature of the company's operations as a growth-oriented electronics firm, where minimal inventory levels and tight project schedules are common.

"If a client is buying, and we cannot deliver. It is fatal to us" exemplifies the significant consequences that delivery delays can have within the company's workflow. Participants explained that in a lean manufacturing environment, unexpected delivery issues or a lack of supplier communication can lead to cascading effects, including production stoppages, delayed customer shipments, and increased internal coordination efforts to mitigate the impact.

Several interviewees noted that delivery reliability is not simply about timelines but also consistency and predictability. Suppliers who can deliver on schedule repeatedly are preferred over those who are occasionally fast but inconsistent. Predictable performance in delivery enables the company to plan confidently and allocate resources more effectively.

It is important that they can meet the delivery time they promise. It is better to promise a longer delivery time if necessary to ensure they can keep it.

This kind of reliability allows the company to manage its own customer expectations and maintain a professional standard in all external communications. Interviewees described how supplier delays often become visible to the company's end customers, especially when products are made to order or integrated into larger project deliveries.

In addition, communication and transparency were discussed as essential elements of reliable delivery. In several cases, participants expressed that the problem is not always the delay itself, but rather the lack of information or insufficient communication about the delay.

What they promise, they can keep. And when they cannot keep it, we get the information early enough and get the correct information about it.

Some interviewees also mentioned that delivery reliability becomes increasingly important as the company scales. As order volumes grow and more customers are served in parallel, the consequences of even minor delays can be magnified. Reliable suppliers are therefore seen as enablers of growth, not only because they fulfill orders, but because they do so in a manner that supports structured and scalable operations.

Cost Efficiency

Cost efficiency was consistently discussed across interviews as an important but context-dependent criterion in the supplier selection process at the assigning company. While cost considerations are relevant in all business operations, the interviewees made it clear that low cost alone is never sufficient justification for selecting a supplier. Instead, cost is evaluated in balance with other factors, particularly quality, delivery reliability, and flexibility.

The right kind of expertise, so that they can produce our products of good quality, at a good price, and on time. Additionally, being price competitive is crucial because otherwise, we will not get the business if we are not price competitive.

This statement was representative of several similar comments, reflecting a pragmatic approach to cost evaluation. Participants emphasized that selecting the lowest-cost option may result in hidden costs elsewhere in the process, such as increased quality control, delays, or corrective work, which can ultimately outweigh any initial savings. As such, cost efficiency is understood holistically,

not just as the lowest price, but as the overall economic value the supplier provides. Price is a very tangible and measurable factor in supplier selection. Other factors, such as quality, delivery reliability, and flexibility, were considered hard to measure when selecting a new supplier.

So that is the challenge when choosing a supplier, especially if it is new. Price is a very concrete thing that you can offer, but no one offers poor quality. At the bidding stage, you can mainly evaluate whether they have experience with the processes needed to make the product and whether they do it in mass production. How they generally handle their processes, such as control plans and similar aspects. What are their standard processes that ensure good quality? It is not easy to know in advance what their quality production capability is 100%. However, you never choose a poor-quality supplier in advance. Sometimes they happen.

The assigning company operates in a competitive, quality-sensitive industry where product reliability and timely delivery are non-negotiable. In this context, many interview respondents implicitly referenced the total cost of ownership, describing how suppliers who consistently meet expectations without complications are ultimately more cost-effective in the long run, even if their unit prices are higher.

Our partner needs to take care of their own competitiveness. It is not our job; they must manage it within the conditions we consider important and try to develop their production accordingly.

This perspective highlights the company's capability to enhance its operations and minimize indirect costs, such as administrative time, production delays, or customer dissatisfaction. Suppliers needing frequent follow-up, revision, or supervision are considered a burden, regardless of their pricing.

While cost efficiency is not treated as a primary selection criterion, it becomes more important once other key requirements, such as quality, delivery, and reliability, are satisfied. Several interviewees described how cost differences could become a deciding factor after narrowing down a shortlist of technically capable and reliable suppliers.

Two things need to be achieved simultaneously. I see it like this: quality must be ensured before it is even worth negotiating the price. Only then do we negotiate the price.

In some cases, cost efficiency also played a role in determining scalability. As the assigning company grows, the ability of a supplier to offer competitive pricing without sacrificing performance becomes increasingly relevant, especially when moving from prototype-level production to full-scale manufacturing. Interviewees noted that price flexibility and volume-based discounts were attractive, but only when they came from suppliers who had already proven themselves in other dimensions.

Despite this, cost was rarely described as a factor that alone could override concerns in other areas. Interviewees were clear in expressing that short-term cost savings could jeopardize long-term relationships or operational stability if the supplier failed to meet performance expectations.

Cost efficiency is seen as part of a broader value equation, where price must be matched with consistent quality, reliable delivery, and effective collaboration. Cost becomes a differentiator only when other fundamental criteria are met. Suppliers who offer competitive pricing without compromising on these areas are considered valuable partners; those who prioritize low prices at the expense of reliability or quality are typically excluded from consideration.

Communication and Responsiveness

Communication and responsiveness were frequently mentioned in the interviews as essential qualities in supplier relationships. While these factors are not always formally included in supplier evaluation matrices, they were described as having a significant impact on daily operations, collaboration efficiency, and long-term trust. The assigning company operates in a fast-paced environment with tight timelines, and problems may evolve rapidly. In such a context, communication is not seen as a supportive function but as a core operational enabler.

Close contacts are there to ensure that if any problems arise, we at least get what we need. When everything goes well, there is no need even to talk. However, when problems arise, you need to be quick, and if you do not have interfaces, it does not work.

This statement captures a standard expectation across respondents: suppliers must respond quickly and initiate communication when issues or changes arise. Delayed or unclear communication from a supplier can result in missed deadlines, internal confusion, and unnecessary resource

allocation within the company. Participants emphasized that early notifications, even when the message is negative, are preferable to silence.

Responsiveness was frequently linked to a supplier's overall reliability and professionalism. Interviewees expressed that the speed and clarity of a supplier's responses often indicated their level of commitment and understanding of the company's needs. In several cases, communication style and responsiveness were used as early indicators of whether a supplier would be able to manage more complex or long-term cooperation.

Furthermore, effective communication was not limited to crisis management or exceptions. Respondents described how suppliers who provided regular status updates, asked clarifying questions, and followed up on actions contributed to a smoother and more predictable workflow. These behaviors reduced the need for repeated check-ins and allowed the company to focus on its core operations rather than managing its suppliers.

Weekly meetings are essential. However, I think that, at least initially, it is the supplier's responsibility to maintain a good supplier-customer relationship. They should proactively inform us.

Several interviewees noted that suppliers who were challenging to reach failed to reply promptly, or misunderstood instructions were considered risky, regardless of their technical capability or price. Such communication issues were seen as warning signs for larger problems, particularly in high-stakes projects or development partnerships. In the context of the assigning company, where project timelines are often tight and resource planning depends on reliable coordination, responsiveness plays a direct role in operational efficiency. It also affects customer satisfaction indirectly, as communication delays at the supplier level can cascade through production and delivery schedules, ultimately impacting the company's reputation.

In brief, communication and responsiveness are considered critical soft factors in supplier relationships at the assigning company. These elements support transparency, reduce uncertainty, and enable effective problem-solving. While they may not be formally quantified during the initial supplier evaluation, they strongly influence supplier selection decisions over time, especially as the

company develops deeper, more integrated partnerships. Suppliers who communicate clearly, respond quickly, and proactively engage are seen as valuable collaborators; those who fail to do so are often excluded from further cooperation, even if their technical offering is otherwise sufficient.

Flexibility

Several interviewees identified flexibility as a key supplier attribute, particularly concerning the assigning company's fast-paced and project-driven environment. As a growing company in the electronics industry, frequent changes to customer needs, urgent deadlines, and product development iterations are encountered. In such a setting, supplier flexibility is not considered a valuable aspect; it is a practical requirement that directly influences the company's ability to meet its own obligations.

Flexibility is important because we are in a business where requirements change and everything changes. So, the ability to organize things accordingly.

This quote captures the urgency and importance that flexibility holds in day-to-day operations. Interviewees described how rigid supplier processes, limited ability to adjust timelines or quantities, or unwillingness to accommodate design modifications can become significant obstacles. Conversely, suppliers who are willing and able to adapt to evolving needs are viewed as valuable partners.

Flexibility was often discussed in three main areas: delivery timelines, technical adjustments, and administrative processes. Regarding delivery, the company occasionally requires shorter-than-standard lead times, split deliveries, or changes in shipping schedules. Suppliers responding to such requests without compromising quality are preferred, even if their pricing is less competitive.

As a basic requirement to compete, the next important factor is flexibility. The EMS should be able to operate according to our business processes, they should optimally function within our scheduling cycle, and serve us with the visibility we have.

Technical flexibility was mentioned particularly in the context of product development. Interviewees explained that specifications may change during new product introduction phases as testing

evolves or customer requirements become clearer. Suppliers who respond constructively to these changes, by adapting their processes or suggesting feasible alternatives, enable smoother development cycles.

Administrative flexibility also emerged in the interviews. This includes the willingness to adjust order minimums, accept partial shipments, or accommodate exceptions in billing and documentation. These small but impactful gestures contributed to operational flow and reduced internal workload, especially in time-sensitive or resource-constrained situations. Flexibility in payment terms was seen to have a significant impact on the supplier selection. Especially, the company management highlighted the value of payment terms in keeping the money rolling.

The assigning company does not expect unlimited flexibility from its suppliers. Several interviewees acknowledged that suppliers have their own constraints and cost structures. What distinguishes preferred partners is not unlimited accommodation, but a collaborative attitude and a demonstrated effort to help find solutions rather than focusing on limitations.

This willingness to collaborate and adapt was especially appreciated during unexpected situations, such as component shortages or project delays. Suppliers who responded constructively under pressure were seen as more trustworthy and were more likely to be considered for future projects or long-term agreements.

Technical Competence

Several interviews highlighted technical competence as an essential criterion in selecting and retaining suppliers. Given the nature of the company's operations, developing and delivering advanced sensor solutions, suppliers are expected not only to manufacture according to specification, but also to understand and engage in the technical context in which their work takes place. Their capabilities and knowledge in special manufacturing processes are seen as essential.

The suppliers have certain technologies that are critical for us. It is about products where these technologies are critical, and another aspect is that they should be involved early enough in the process.

This quote exemplifies the type of supplier competence valued by the company. Interviewees described how technically competent suppliers contribute to smoother collaboration, faster development cycles, and fewer misunderstandings. Such suppliers often identify potential issues early, offer feasible alternatives, or improve design details through feedback, thus reducing delays and improving product outcomes.

Technical competence was discussed in terms of three main aspects: understanding requirements, proactive problem-solving, and the ability to communicate technical matters clearly.

First, the ability to understand requirements, including tolerance, materials, assembly constraints, and functional performance, was considered essential. Suppliers lacking this competence often require excessive clarification or fail to meet critical specifications, which introduces risk and consumes internal resources.

Second, proactive problem-solving was cited as a hallmark of highly competent suppliers. Instead of simply executing provided instructions, the most valued suppliers were those who could recognize risks or propose improvements even before formal requests were made. This ability is particularly important during development phases, where technical uncertainties are more common and flexibility in approach is necessary.

Third, technical competence was seen as tied to effective communication. Suppliers who can articulate technical constraints, propose solutions in a structured way, and engage in technical discussions were preferred over those who either avoided detail or required repeated back-and-forth to clarify fundamental issues. This kind of competence supports efficiency and confidence in decision-making throughout the project lifecycle.

In addition, several interviewees noted that technical credibility contributes to trust. When a supplier demonstrates mastery of their processes, tools, and quality control systems, it becomes easier for the company to delegate tasks and reduce oversight. This, in turn, enables better resource allocation and strengthens the overall collaboration.

Technical competence was especially emphasized in situations where tight tolerances or specialized processes were involved. For example, suppliers involved in the production of custom components, special processes, such as gluing or potting, were expected to possess deep knowledge of manufacturing methods and be capable of adapting them to changing requirements.

Technical competence is a core selection and evaluation criterion at the assigning company. It supports accuracy, efficiency, and risk reduction across projects. Suppliers who bring not only capability but also knowledge, insight, and initiative are seen as integral to product development and delivery. Those who lack the necessary understanding or do not engage at a technical level are unlikely to be retained, regardless of pricing or lead times.

Trust

Trust was consistently identified in the interviews as a critical factor in supplier relationships at the assigning company. Although trust is often viewed as a subjective or intangible attribute, participants described it as having real and practical consequences for how collaboration is initiated, maintained, and developed over time. It reflects the fundamental role that trust plays in both the selection and holding of suppliers. Trust is built not only on past performance but also on the supplier's perceived reliability, honesty, and responsibility. It is seen as a precondition for deeper cooperation, especially when projects involve complex timelines, custom requirements, or long-term commitments.

Trust was often developed gradually, based on consistent delivery, technical performance, and open communication. However, first impressions also played a role. Some interviewees noted that a supplier's responsiveness, honesty about limitations, and willingness to share relevant information during the early stages of contact influenced whether the company would consider building a long-term relationship.

A lack of trust, by contrast, was described as a risk factor, even if other aspects of the supplier's offering were strong. Several participants explained that concerns about transparency, over-promising, or evasive communication were sufficient grounds to avoid or end a supplier relationship, regardless of cost or capability. Trust is also intersected with other criteria such as delivery reliabil-

ity, communication, and technical competence. Suppliers who consistently met deadlines, communicated openly about risks, and demonstrated a solid grasp of technical requirements were more likely to be trusted. In contrast, those who failed to inform the company about changes, avoided responsibility, or demonstrated inconsistent performance were seen as unreliable, even if they delivered acceptable results in the short term.

Environmental sustainability, as well as Environmental, Social and Governance (ESG) issues, were seen as part of trust towards the supplier. As the company mainly operates in the EU, the legislation sets the framework to operate, and according to that, this was seen as a minor issue. Many interviewees expected this to be business as usual and trusted the supplier to regulate these issues. The current political situation raised some discussion, as well as the possibility of reducing the regulation in the area.

In addition, trust was connected to shared values and collaboration style. Interviewees described how suppliers who showed a willingness to solve problems together, rather than assigning blame or hiding behind rigid processes, earned trust through their actions.

Cultural Fit

Several interviewees mentioned cultural fit as a supportive but meaningful factor in supplier relationships at the assigning company. While it was not typically a formal selection criterion, respondents described how alignment in communication style, values, and working methods often contributed to smoother cooperation, particularly in long-term or development-intensive projects. Cultural alignment can facilitate day-to-day collaboration. Interviewees noted that when a supplier shares similar attitudes toward quality, flexibility, and problem-solving, the working relationship tends to be more efficient and less friction-prone. This is especially relevant in the assigning company's context, where responsiveness and adaptability are essential due to the dynamic nature of customer requirements and internal timelines.

Cultural fit was often observed indirectly during early interactions. For example, the tone and clarity of email communication, willingness to ask clarifying questions, or openness in discussing risks were seen as indicators of whether the supplier's working culture would mesh well with the companies.

When selecting partners, if it seems complicated to get along with them or do business with them from the start, no matter how good they are otherwise, it is worth considering whether you want to work with them for the coming years. Are there conditions for success?

Several interviewees also associate cultural fit with shared expectations around accountability. Suppliers who took initiative, followed up without prompting, and demonstrated ownership over their tasks were described as more compatible with the assigning company's culture, emphasizing speed, transparency, and high standards. In contrast, suppliers who were overly rigid, avoided responsibility, or relied heavily on formalities were sometimes seen as difficult to work with, regardless of their technical capabilities.

While cultural fit was not cited as a reason to select a supplier alone, it did play a role when choosing between otherwise comparable alternatives. When two suppliers offered similar levels of quality, pricing, and delivery performance, the one whose team communicated more naturally or demonstrated stronger interpersonal compatibility was often preferred.

If the supplier is good, high-quality, reliable in deliveries, and reasonably priced, and if the cooperation goes well, then it is worth continuing with them.

Cultural fit also had an impact on conflict resolution. Interviewees described how suppliers who shared the company's mindset of solving problems collaboratively, rather than assigning blame or hiding behind procedures, could better navigate challenges and maintain trust. These suppliers were more likely to be retained for future projects and considered for deeper partnerships.

In summary, cultural fit is regarded by the assigning company as a soft but influential factor in supplier selection and relationship development. It supports mutual understanding, reduces friction, and enhances the overall efficiency of cooperation. While not typically evaluated formally, cultural compatibility often becomes a decisive element in longer-term supplier engagement, especially when combined with strong performance in other areas such as quality, delivery, and communication.

Innovation Capability

Innovation capability was mentioned in a smaller number of interviews, but was identified as a strategically valuable attribute in certain supplier relationships at the assigning company. While not considered a baseline criterion like quality or delivery reliability, the ability of a supplier to contribute to innovation, particularly during product development phases, was regarded as a significant added value in specific contexts. Interviewees described how some suppliers went beyond delivering according to specifications by offering insights, identifying risks, or proposing improvements based on their own technical expertise. This type of collaboration was especially valued in early-stage development projects, where the final design was still evolving and there was room for technical refinement. In these cases, innovation capability was closely tied to technical competence, but extended further to include proactivity, creativity, and problem-solving initiative. The value is seen in production, possibly in lower production cost, when the supplier can produce more efficiently: *“Those who are the most effective will always win”*.

Suppliers who demonstrated innovation capability were often seen as partners rather than vendors, contributing materials, services, and knowledge that shaped the end products. Examples included suggestions for alternative components, design adjustments to improve manufacturability, or technical feedback that enhanced performance or reliability. This kind of input was seen as a mark of engagement and understanding, especially when offered constructively and in the context of the company's goals. Interviewees explained that such contributions often saved time, improved product outcomes, or reduced downstream risks, benefits that extended well beyond the scope of basic delivery performance.

Innovation capability was also linked to the supplier's internal development practices. Respondents described how suppliers with their own R&D, in-house engineering, or experience with advanced manufacturing methods were better positioned to offer innovative suggestions. These suppliers were typically more open to experimentation, quicker to understand complex requirements, and better at translating vague needs into actionable solutions.

Some suppliers can handle difficult tasks, and then there is another supplier who can only do exactly what they are told.

While innovation capability was not commonly used as a formal selection criterion, it often became a differentiator once basic expectations were met. In situations where two or more suppliers were equally strong in terms of price, quality, and reliability, the one with a track record of supporting innovation or contributing to development was more likely to be selected for strategic projects.

It is worth noting that innovation capability was not expected or required from all suppliers. The assigning company recognized that innovation was not necessary for standard components or routine manufacturing. However, in critical development areas, the ability to contribute ideas, share expertise, and solve problems creatively was a defining characteristic of high-value suppliers.

Summary of results

Selecting the right partner is seen as a critical function of success in the electronics industry. However, the selection is not straightforward, as not all criteria are tangible, thus measurable. Finding the right set of criteria is crucial, and the emphasis of the criteria needs to be done wisely and correctly according to the company's needs. This study highlights that even if the cost is a significant factor, it is not everything. The quality was seen as a higher priority, even though it is harder to measure when selecting a new supplier. Also, the supplier's knowledge in terms of technical competence and innovation capability was highlighted. Softer factors like reliability, trust, and flexibility should not be forgotten either. The right supplier is to be found within the combination of all these. Furthermore, the criteria must be balanced. The AI-created figure illustrates the balance between the criteria and how it affects the company's balance.



Figure 2. The balance of supplier selection criteria (AI created)

5 Discussion

The results of this study provide a comprehensive overview of the criteria that startups and growth companies in the electronics industry apply in supplier selection. The findings confirm that a combination of operational performance metrics, relational dynamics, and contextual adaptability influences supplier evaluation in such contexts. This section discusses the implications of the key findings in relation to the research questions.

Key Criteria in Supplier Selection

The first research question addressed which criteria startups and growth firms prioritize when selecting suppliers. The findings indicate that quality, delivery reliability, and cost efficiency are consistently central to the selection process. These criteria form the foundation of supplier evaluation, serving as basic requirements that must be met before any partnership is considered viable. Quality was identified as the most critical criterion, often described as non-negotiable. Delivery reliability was especially emphasized in relation to the limited production buffers typical of early-stage companies, where delays can directly threaten project timelines.

While cost efficiency was discussed in nearly all interviews, it was rarely considered in isolation. Interviewees described cost as an important consideration, but not one that could override issues with quality or reliability. This suggests that while cost-awareness is present, it is subordinated to more fundamental operational needs. From a real-life perspective, this brings an interesting aspect to the actual supplier selection. As mentioned earlier, the cost is tangible and easier to measure. Quality, especially in the case of a new supplier, is much harder to measure. Even though the interviewees highlighted quality over cost, the future will show how it goes in reality. One aspect of that is the time used for the supplier selection. The time taken for the supplier selection should be enough to cover all the aspects. Only one interviewee mentioned this; his advice for the supplier selection was to take as much time as it takes. Currently, the project timeline quantifies the time available for the supplier selection.

Reflection of Strategic and Operational Priorities

The second research question focused on how supplier selection criteria reflect strategic and operational priorities. The findings show that in addition to foundational criteria, several other factors influence supplier selection, factors that are more reflective of long-term strategic alignment and dynamic operating environments. These include communication and responsiveness, flexibility, technical competence, and trust.

Communication and responsiveness were consistently described as essential for effective collaboration. These criteria enable fast decision-making and help resolve unforeseen issues during projects. In reality, as the project timeline is tight, there is no time to wait for answers. Constant communication with the suppliers, especially EMSs, is a must. Flexibility, in turn, was valued as a supplier's ability to accommodate last-minute changes or evolving requirements, capabilities often required in development-heavy or time-sensitive work.

Technical competence and trust were also identified as criteria that affect both project execution and the long-term development of the business. Technical capability was appreciated, especially in situations when suppliers were expected to engage with product design or engineering details. This was highlighted in terms of special manufacturing processes, where the supplier is the expert, the designing party. The benefit from enhancing the manufacturing processes was seen as beneficial for both parties, the supplier and the customer. The results are seen in both delivery reliability

and cost efficiency. Trust was described not only as an interpersonal factor but as a practical measure of a supplier's dependability and willingness to take responsibility. Trust is a result of all the work done previously. When you have quality in place, the cost is affordable, the supplier delivers when promised, tells you if there are problems, and helps with problems. All these issues create trust. If there is a lack of one or more of these parameters, it affects trust. Furthermore, creates more work for both parties and results in additional costs.

Together, these criteria demonstrate that a combination of immediate executional needs and forward-looking considerations influences supplier selection in startup environments. Even as the relationship is still forming, factors such as communication quality and perceived trustworthiness already affect selection decisions.

5.1 Managerial implications

The findings of this study offer several practical insights for managers working in startups and growth companies within the electronics industry, particularly those involved in supplier selection, procurement, and supplier relationship management. The results highlight that supplier decisions are not only operational but also deeply connected to strategic goals, organizational culture, and innovation capacity.

1. Build structured yet flexible supplier evaluation frameworks.

The study shows that while criteria such as quality, delivery reliability, and cost remain essential, firms increasingly rely on suppliers that can also provide flexibility, communication, and collaborative engagement. Managers should ensure that supplier evaluation frameworks are not limited to hard metrics alone, but also include soft factors such as responsiveness, trust, and cultural fit. These elements are often decisive in real-world decision-making, especially in high-velocity environments.

2. Prioritize long-term value over short-term cost.

Interviewees described cost efficiency as important, but performance, reliability, and communication were proven only once. This suggests that managers should avoid prioritizing low cost at the expense of operational risk. Instead, total value, including time saved, reduced supervision, and lower failure rates, should guide procurement decisions. This approach supports sustainable supplier relationships and helps avoid hidden costs.

3. Foster trust and proactive communication with suppliers.

Trust was frequently cited as a prerequisite for effective collaboration. Managers should invest in developing open, transparent relationships with key suppliers, where problems can be raised early and jointly solved. Trust reduces the need for monitoring and enables more agile and autonomous workflows. Supplier onboarding and communication processes should be designed to encourage transparency from the outset.

4. Engage technically competent suppliers early in development.

Suppliers with strong technical capabilities were shown to add value not only in production but also during the design and development stages. Managers should identify suppliers who can contribute proactively to product improvement and invite them into the process early. This can improve product outcomes and reduce development costs. Technical competence should be assessed not only through specifications but also through dialogue and testing during early collaboration.

5. Consider cultural alignment when forming long-term supplier partnerships.

Cultural fit, while not always measurable, was shown to enhance collaboration by reducing friction and improving mutual understanding. Managers should take time to assess whether suppliers' values, communication style, and working methods align with the company's. This is especially important in long-term or development-heavy partnerships with frequent close interaction.

6. Match supplier roles to strategic needs.

Not all suppliers need to come through in all areas. The assigning company's practices suggest that different levels of expectations can be applied depending on the supplier's function. For standard components, performance criteria may be sufficient. However, for strategic suppliers involved in innovation, product development, or complex integration, managers should look beyond technical and commercial factors to include trust, flexibility, and co-creation potential.

Supplier selection in growth-oriented electronics companies requires a multi-dimensional, context-sensitive approach. Managers must balance short-term executional needs with long-term strategic alignment, ensuring that suppliers contribute to operational goals and the company's capacity to scale, innovate, and adapt. These findings support the development of more holistic and dynamic supplier management practices.

5.2 Assessment of the results in the light of the earlier literature

The findings of this study align well with and extend literature on supplier selection, particularly within the context of small and growth-oriented companies in the electronics industry. Previous studies have highlighted supplier selection criteria as the most frequently used across the industry: quality, cost, and delivery reliability (Ho et al., 2010). These same factors were also confirmed in this study. Also, flexibility, communication, and responsiveness were emphasized as critical factors in the dynamic environment of start-up operations.

This research supports the growing body of literature suggesting that relational and strategic factors, such as trust and long-term collaboration potential, are gaining importance over purely transactional criteria (Choi & Hartley, 1996). Several participants underscored the need for suppliers who understand start-up-specific constraints, such as limited forecasting accuracy and rapid iteration cycles. This aligns with the arguments by Kim and Ellegaard (2011), who propose that supplier adaptability and joint problem-solving capacity are key enablers of success in uncertain environments.

While cost competitiveness is also assessed as a relevant factor, it was often discussed as a secondary consideration when compared to supplier reliability and proactive support. This is also in line with recent literature suggesting that start-ups may be willing to accept slightly higher prices in exchange for strategic alignment and risk reduction (Ghadge et al., 2012).

Overall, the results reinforce and contextualize existing supplier selection models while shedding light on early-stage electronics companies' unique priorities and constraints. This suggests a need for more tailored supplier evaluation frameworks that reflect the agility and uncertainty inherent in the start-up ecosystem.

5.3 Limitations

As with any qualitative research, this study is subject to certain limitations that should be acknowledged when interpreting its findings. First, the research is based on a single-case study design, focusing on one growth-oriented company in the electronics industry. While this approach allows for in-depth exploration and contextual understanding, it also limits the generalizability of the results. The identified supplier selection practices may not fully represent the diversity of approaches used across other companies, industries, or geographical contexts.

Second, although the interviewees represented a range of functional perspectives within the organization, including founders, operations leaders, and technical experts, the sample size remained relatively small. This reflects the qualitative nature of the study, which prioritizes depth over breadth, but it also means that the findings should be interpreted as exploratory and indicative, rather than conclusive.

Third, the researcher's interpretation plays a central role in qualitative data analysis. While efforts were made to ensure transparency and rigor through systematic coding, iterative review, and thematic saturation, the possibility of subjective bias cannot be entirely eliminated. The use of native language (Finnish) in the interviews, while beneficial for open expression, also introduced a layer of complexity in translating and interpreting nuanced meanings in English for the purpose of analysis and reporting.

Furthermore, the context-specific nature of the case, namely, a startup in a high-technology sector, means that some findings may be unique to firms operating under similar conditions. Factors such as rapid growth, limited resources, and evolving processes likely influenced both the supplier criteria mentioned and the rationale behind them. More mature firms or those in different industries might prioritize different aspects or use more formalized evaluation frameworks.

Finally, due to the semi-structured format of the interviews, some degree of variation in question emphasis and depth of responses occurred between participants. While this allowed flexibility and organic discussion, it may also have affected data consistency across interviews.

There were some limitations in accessing the data. JAMK access rights for the previous research were the best way to get trusted data. Google Scholar gave good hits, but with no access rights. This had no limitations on receiving the data. The topic is well researched, so alternative articles were available. Some articles were also received from other universities with the help of authors' connections. At the end of the study, the author asked AI to create a figure based on specific parameters. That figure was used in this thesis.

Despite these limitations, the study offers valuable insights into the supplier selection logic of emerging firms in the electronics industry. It also provides a foundation for future research that could expand the scope to include multiple companies, apply mixed methods approaches, or examine longitudinal developments in supplier relationships over time.

5.4 Recommendations for Future Research

The findings of this study open up several avenues for future research into supplier selection in the electronics industry and beyond. First, given the current research's single-case study design, future studies could benefit from a comparative multi-case approach involving several startups or growth companies across different sectors of the electronics industry or in other high-tech fields. This would allow for identifying common patterns, sector-specific practices, and contextual differences in supplier selection behavior.

Second, while this study applied a qualitative approach to explore the meanings and motivations behind supplier selection criteria, future research could complement these findings with quantitative methods. For instance, survey-based studies involving more firms could validate the relative importance of different criteria and examine how these priorities shift depending on company size, growth phase, or market orientation.

Third, longitudinal studies could provide insights into how supplier selection criteria evolve over time as companies mature. It would be valuable to understand whether startups initially prioritize

flexibility and responsiveness, and later shift toward stability, standardization, or sustainability as their operations scale. Such studies could track decision-making patterns over product life cycles or organizational growth stages.

Fourth, future research could explore the impact of supplier selection decisions on firm performance, innovation outcomes, or supply chain resilience in startup environments. Empirical studies linking selection criteria to measurable business results could help establish more robust frameworks for strategic supplier evaluation in early-stage firms.

Fifth, considering the increasing role of technology and automation in procurement processes, further research could examine how digital tools and data-driven decision-making affect supplier selection logic. Comparative studies between firms with varying levels of digital maturity could shed light on the benefits and limitations of digital procurement in fast-evolving industries.

Finally, future studies could also take a cross-cultural or international perspective, especially given the globalized nature of the electronics supply chain. Investigating how cultural, regulatory, or logistical differences influence supplier selection across regions would add depth to the existing literature and offer guidance for firms operating in international markets.

By addressing these directions, future research can help build a more comprehensive and context-sensitive understanding of supplier selection and support startups and growth companies in developing effective, adaptive, and strategically aligned supplier networks.

References

Alikhani, R., Torabi, A. S., & Altay, N. (2019). Strategic supplier selection under sustainability and risk criteria. *International Journal of Production Economics*, 208, 69–82.

Blome, C., Schoenherr, T., & Eckstein, D. (2014). The impact of knowledge transfer and complexity on supply chain flexibility: A knowledge-based view. *International Journal of Production Economics*, 147, 307–316. <https://doi.org/10.1016/j.ijpe.2013.02.028>

Bryman, A., & Bell, E. (2015). *Business research methods*. (4th ed.). Oxford University Press.

Ghadge, A., Dani, S., & Kalawsky, R. (2012). Supply chain risk management: present and future scope. *International Journal of Logistics Management*, 23(3), 313-339.

<https://doi.org/10.1108/09574091211289200>

Chen, I. J., Paulraj, A., & Lado, A. A. (2004). Strategic purchasing, supply management, and firm performance. *Journal of Operations Management*, 22(5), 505–523.

<https://doi.org/10.1016/j.jom.2004.06.002>

Cheragh, S. H., Dadashzadeh, M., & Subramanian, M. (2011). Critical Success Factors for Supplier Selection: An Update. *Journal of Applied Business Research*, 20(2).

<https://doi.org/10.19030/jabr.v20i2.2209>

Choi, T. Y., & Hartley, J. L. (1996). An exploration of supplier selection practices across the supply chain. *Journal of Operations Management*, 14(4), 333–343. [https://doi.org/10.1016/S0272-6963\(96\)00091-5](https://doi.org/10.1016/S0272-6963(96)00091-5)

Christopher, M., & Peck, H. (2004). Building the resilient supply chain. *The International Journal of Logistics Management*, 15(2), 1–14. <https://doi.org/10.1108/09574090410700275>

Choy, K. L., Lee, W. B., & Lo, V. (2003). Design of a case-based intelligent supplier relationship management system. *Expert Systems with Applications*, 24(3), 225–237.

[https://doi.org/10.1016/S0957-4174\(03\)00009-5](https://doi.org/10.1016/S0957-4174(03)00009-5)

Cozby, P. C. (2009). *Methods in behavioral research*. (10th ed.). McGraw-Hill International Edition.

Dominic, C., & Lunney, S. R. (2022). *The Procurement Game Plan—Winning Strategies and Techniques for Supply Management Professionals* (2nd edition). J. Ross Publishing, Inc.

Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, 62(1), 107–115. <https://doi.org/10.1111/j.1365-2648.2007.04569>.

Eriksson, P., & Kovalainen, P. (2008). *Qualitative methods in business research*. Sage

Foerstl, K., Azadegan, A., Leppelt, T., & Hartmann, E. (2015). Drivers of supplier sustainability: Moving beyond compliance to commitment. *Journal of Supply Chain Management*, 51(1), 67–92. <https://doi.org/10.1111/jscm.12067>

Garg, D., Luthra, S., & Mangla, S. K. (2021). *Supply Chain and Logistics Management*. New Academic Science. <https://app-knovel-com.ezproxy.jamk.fi:2443/kn/resources/kpSCLM0001/toc?cid=kpSCLM0001>

Govindan, K., Rajendran, S., Sarkis, J., & Murugesan, P. (2015). Multi-criteria decision making approaches for green supplier evaluation and selection: a literature review. *Journal of Cleaner Production*, 98, 66–83. <https://doi.org/10.1016/j.jclepro.2013.06.046>

Gunasekaran, A., Patel, C., & McGaughey, R. E. (2004). A framework for supply chain performance measurement. *International Journal of Production Economics*, 87(3), 333–347. <https://doi.org/10.1016/j.ijpe.2003.08.003>

Handfield, R., Jeong, S., & Choi, T. (2020). Emerging procurement technology: data analytics and cognitive analytics. *Journal of Purchasing and Supply Management*, 26(4), 100651.

DOI:10.1108/IJPDLM-11-2017-0348

Handfield, R. B., Walton, S. V., Sroufe, R., & Melnyk, S. A. (2002). Applying environmental criteria to supplier assessment: A study in the application of the analytical hierarchy process. *European Journal of Operational Research*, 141(1), 70–87. [https://doi.org/10.1016/S0377-2217\(01\)00261-2](https://doi.org/10.1016/S0377-2217(01)00261-2)

Harland, C. M., Brenchley, R., & Walker, H. (2003). Risk in supply networks. *Journal of Purchasing and Supply Management*, 9(2), 51–62. [https://doi.org/10.1016/S1478-4092\(03\)00004-9](https://doi.org/10.1016/S1478-4092(03)00004-9)

Ho, W., Zheng, T., Yildiz, H., & Talluri, S. (2015). Supply chain risk management: A literature review. *International Journal of Production Research*, 53(16), 5031–5069.

<https://doi.org/10.1080/00207543.2015.1030467>

Ho, W., Xu, X., & Dey, P. K. (2010). Multi-criteria decision making approaches for supplier evaluation and selection: A literature review. *European Journal of Operational Research*, 202(1), 16–24. <https://doi.org/10.1016/j.ejor.2009.05.009>

Hyvärinen, M., Suoninen, E., & Vuori, J. (n.d.) Haastattelut [Interviews]. Laadullisen tutkimuksen verkkokäsikirja. Tampere. [https://www.fsd.tuni.fi/fi/palvelut/menetelmaopetus/kvali/laadullisen tutkimuksen-aineistot/haastattelut/](https://www.fsd.tuni.fi/fi/palvelut/menetelmaopetus/kvali/laadullisen_tutkimuksen-aineistot/haastattelut/)

Iloranta, K., & Pajunen-Muhonen, H. (2012). Hankintojen johtaminen (Kolmas, uudistettu laitos). Tietosanoma Oy.

Ivanov, D., Tsipoulanidis, A., & Schönberger, J. (2019). *Global Supply Chain and Operations Management* (2nd ed.). Springer.

Ivanov, D. (2020). Predicting the impacts of epidemic outbreaks on global supply chains: A simulation-based analysis on the coronavirus outbreak (COVID-19/SARS-CoV-2) case. *Transportation Research Part E: Logistics and Transportation Review*, 136, 101922.

<https://doi.org/10.1016/j.tre.2020.101922>

Johnsen, T. E. (2009). Supplier involvement in new product development and innovation: Taking stock and looking to the future. *Journal of Purchasing and Supply Management*, 15(3), 187–197.

<https://doi.org/10.1016/j.pursup.2009.03.008>

Kamble, S. S., Gunasekaran, A., & Dhone, N. C. (2020). Industry 4.0 and lean manufacturing practices for sustainable organizational performance in Indian manufacturing companies. *International Journal of Production Research*, 58(5), 1319–1337.

<https://doi.org/10.1080/00207543.2019.1630772>

Kamble, S. S., Gunasekaran, A., & Gawankar, S. A. (2020). Achieving sustainable performance in a data-driven agriculture supply chain: A review for research and applications. *Technological Forecasting and Social Change*, 151, 119705. <https://doi.org/10.1016/j.ijpe.2019.05.022>

Kannan, V. R., & Tan, K. C. (2002). Supplier selection and assessment: Their impact on business performance. *Journal of Supply Chain Management*, 38(4), 11–21. <https://doi.org/10.1111/j.1745-493X.2002.tb00139.x>

Kim, S. H., & Ellegaard, C. (2011). Supplier evaluation processes: the shaping and reshaping of supplier performance. *International Journal of Operations & Production Management*, 31(8), 888–910.

<https://doi.org/10.1108/01443571111153085>

Koplin, J., Seuring, S., & Mesterharm, M. (2007). Incorporating sustainability into supply management – the case of the Volkswagen AG. *Journal of Cleaner Production*, 15(11–12), 1053–1062.

<https://doi.org/10.1016/j.jclepro.2006.05.024>

Krajewski, L. J., Malhotra, M. K., & Ritzman, L. P. (2019). *Operations management: Processes and supply chains* (12th ed.). Pearson.

Krause, D. R., Handfield, R. B., & Scannell, T. V. (1998). An empirical investigation of supplier development: Reactive and strategic processes. *Journal of Operations Management*, 17, 39–58.

Krause, D. R., Handfield, R. B., & Tyler, B. B. (2007). The relationships between supplier development, commitment, social capital accumulation and performance improvement. *Journal of Operations Management*, 25(2), 528–545. <https://doi.org/10.1016/j.jom.2006.05.007>

Kumar Kar, A., & K. Pani, A. (2014). Exploring the importance of different supplier selection criteria. *Management Research News*, 37(1), 89–105. <https://doi.org/10.1108/MRR-10-2012-0230>

Kumar, S., & Rahman, Z. (2016). Buyer supplier relationship and supply chain sustainability: Empirical exploration in Indian automotive industry. *Journal of Cleaner Production*, 131, 836–848. <https://doi.org/10.1016/j.jclepro.2016.04.007>

Luzzini, D., Caniato, F., Ronchi, S., & Spina, G. (2015). A transaction costs approach to purchasing portfolio management. *International Journal of Operations & Production Management*, 35(1), 60–92. <https://doi.org/10.1108/01443571211265684>

Marlin Technologies. (2023, July 13). Key Supplier Characteristics when choosing an Electronics Supplier. Marlin Technologies. <https://www.marlintech.com/2023/07/13/key-supplier-characteristics-when-choosing-an-electronics-supplier/>

Marshall, D., McCarthy, L., McGrath, P., & Claudy, M. (2015). Going above and beyond: How sustainability culture and entrepreneurial orientation drive social sustainability supply chain practices. *Supply Chain Management: An International Journal*, 20(4), 434–454. <https://doi.org/10.1108/SCM-08-2014-0267>

Mason, J. (2002). *Qualitative researching*. (2nd ed.). SAGE Publications Ltd.

Masterclass. (2021, December 17). Operations Strategy: 5 Key Elements of an Operations Strategy. Masterclass: Business. <https://www.masterclass.com/articles/operations-strategy>

Mentzer, J. T., DeWitt, W., Keebler, J. S., Min, S., Nix, N. W., Smith, C. D., & Zacharia, Z. G. (2001). Defining Supply Chain Management. *Journal of Business Logistics*, 22(2), 1–25. <https://doi-org.ezproxy.jamk.fi:2443/10.1002/j.2158-1592.2001.tb00001>

Milena, Z. R., Dainora, G., & Alin, S. (2008). Qualitative research methods: a comparison between focus-group and in-depth interview. *Annals Of the University of Oradea, Economic Science Series*, 17(4), 1279-1283. <http://anale.steconomieuoradea.ro/volume/2008/v4-management marketing/235.pdf>

Monczka, R., Trent, R., & Handfield, R. (2005). *Purchasing and Supply Chain Management (Third Edition)*. Thomson South-Western.

Myers, M. D. (2013). *Qualitative research in business & management*. (2nd ed). SAGE Publications Ltd.

Narasimhan, R., & Talluri, S. (2009). Perspectives on risk management in supply chains. *Journal of Operations Management*, 27(2), 114–118.

Petersen, K. J., Handfield, R. B., & Ragatz, G. L. (2005). Supplier integration into new product development: Coordinating product, process, and supply chain design. *Journal of Operations Management*, 23(3–4), 371–388. <https://doi.org/10.1016/j.jom.2004.07.009>

Pettit, T. J., Fiksel, J., & Croxton, K. L. (2013). Ensuring supply chain resilience: Development of a conceptual framework. *Journal of Business Logistics*, 34(1), 46–76. <https://doi.org/10.1111/jbl.12009>

Prajogo, D., & Olhager, J. (2012). Supply chain integration and performance: The effects of long-term relationships, information technology and sharing, and logistics integration. *International Journal of Production Economics*, 135(1), 514–522. <https://doi.org/10.1016/j.ijpe.2011.09.001>

Procurement Tactics (Director). (2023). *Supplier Selection Criteria—Evaluating Suppliers in Procurement (Vol. 2)* [Video recording]. <https://www.youtube.com/watch?v=0NZL233Qqhk>

Rejeb, A., Keogh, J. G., & Treiblmaier, H. (2021). Leveraging the Internet of Things and block-chain technology in supply chain management. *Future Internet*, 13(4), 94.

<https://doi.org/10.3390/fi11070161>

Ronkainen, S., Pehkonen, L., Lindblom-Ylänne, S., & Paavilainen, E. (2020). Tutkimuksen voimasanat [Power words of research]. Sanoma Pro.

Saaty, T. L. (1990). *The Analytic Hierarchy Process: Planning, Priority Setting, Resource Allocation*. (2. ed.). RWS Publications.

Sarkis, J., Zhu, Q., & Lai, K. H. (2011). An organizational theoretic review of green supply chain management literature. *International Journal of Production Economics*, 130(1), 1–15.

<https://doi.org/10.1016/j.ijpe.2010.11.010>

Schiele, H. (2007). Supply-management maturity, cost savings and purchasing absorptive capacity: Testing the procurement–performance link. *Journal of Purchasing and Supply Management*, 13(4), 274–293. <https://doi.org/10.1016/j.pursup.2007.10.002>

Schiele, H. (2010). Early supplier integration: The dual role of purchasing in new product development. *R&D Management*, 40(2), 138–153. <https://doi.org/10.1111/j.1467-9310.2010.00602.x>

Schiele, H. (2010). Early supplier involvement in product development: A contingency model for supplier integration. *Journal of Purchasing and Supply Management*, 16(1), 49–57.

<https://doi.org/10.1016/j.jengtecman.2021.101628>

Shih, H. S., Shyur, H. J., & Lee, E. S. (2007). An extension of TOPSIS for group decision making. *Mathematical and Computer Modelling*, 45(7–8), 801–813.

<https://doi.org/10.1016/j.mcm.2006.03.023>

Slack, N., & Lewis, M. (2017). *Operations strategy* (5th ed.). Pearson Education.

Srai, J. S., & Lorentz, H. (2019). Developing design principles for the digitalization of purchasing and supply management. *Journal of Purchasing and Supply Management*, 25(1), 78–98.

<https://doi.org/10.1016/j.pursup.2018.07.001>

Taherdoost, H., & Brard, A. (2019). Analyzing the Process of Supplier Selection Criteria and Methods. *Procedia Manufacturing*, 32, 1024–1034.

Tachizawa, E., M., & Yew Wong, C. (2014). Towards a theory of multi-tier sustainable supply chains: a systematic literature review. *Supply Chain Management*, 19(5), 643-663.

<https://doi.org/10.1108/SCM-02-2014-0070>

Talluri, S., & Narasimhan, R. (2004). A methodology for strategic sourcing. *European Journal of Operational Research*, 154(1), 236–250. [https://doi.org/10.1016/S0377-2217\(02\)00649-5](https://doi.org/10.1016/S0377-2217(02)00649-5)

Tukamuhabwa, B. R., Stevenson, M., Busby, J., & Zorzini, M. (2015). Supply chain resilience: Definition, review and theoretical foundations for further study. *International Journal of Production Research*, 53(18), 5592–5623. <https://doi.org/10.1080/00207543.2015.1037934>

Tummala, R., & Schoenherr, T. (2011). Assessing and managing risks using the Supply Chain Risk Management Process (SCRMP). *International Journal of Production Economics*, 16(6), 474–483.

<https://doi.org/10.1108/13598541111171165>

Tuomi, J. & Sarajärvi, A. (2018). *Laadullinen tutkimus ja sisällönanalyysi: uudistettu laitos [Qualitative research and content analysis: renewed edition]*. Tammi

Turi, A. N., Gonçalves, G., & Mocan, M. (2014). Challenges and competitiveness indicators for the sustainable development of the supply chain in the food industry. *Procedia - Social and Behavioral Sciences*, 124, 133–141. <https://doi.org/10.1016/j.sbspro.2014.02.469>

Vickery, S. K., Jayaram, J., Droge, C., & Calantone, R. (2003). The effects of an integrative supply chain strategy on customer service and financial performance: an analysis of direct versus indirect relationships. *Journal of Operations Management*, 21(5), 523-539.

<http://ezproxy.jamk.fi:2048/login?url=https://www.proquest.com/scholarly-journals/effects-integrative-supply-chain-strategy-on/docview/219523852/se-2>

Villena, V. H., & Gioia, D. A. (2020). A more sustainable supply chain. *Harvard Business Review*, 98(2), 84–93. A More Sustainable Supply Chain Retrieved 4.4.2025

Wagner, S. M., & Hoegl, M. (2006). Involving suppliers in product development: Insights from R&D directors and project managers. *Industrial Marketing Management*, 35(8), 936–943.

<https://doi.org/10.1016/j.indmarman.2005.10.009>

Weber, C. A., Current, J. R., & Benton, W. (1991). Vendor selection criteria and methods. *European Journal of Operational Research*, 50(1), 2-18. [https://doi.org/10.1016/0377-2217\(91\)90033-R](https://doi.org/10.1016/0377-2217(91)90033-R)

Wiles, R. (2013). Anonymity and confidentiality. In *What are Qualitative Research Ethics?* (pp. 41–54). London: Bloomsbury Academic. Retrieved March 22, 2025, from <http://dx.doi.org/10.5040/9781849666558.ch-004>

Wu, T., & Blackhurst, J. (2009). Supplier evaluation and selection: An augmented DEA approach. *International Journal of Production Research*, 47(16), 4593–4608.

Appendices

Appendix 1. Invitation letter for the interviewees

As part of my MBA research, I am conducting a study on supplier selection criteria to better understand the key factors that influence decision-making in supplier evaluation and procurement processes.

The purpose of the interview / questionnaire is to gather insights from owners, and other stakeholders to find out the right supplier selection criteria for our company in the context of the electronics industry. The main focus is on the Electronic Manufacturing Service (EMS) for the production of the products, and on suppliers who produce parts designed by our company, such as mechanical parts.

The focus is not on standard components or distributors.

The responses will be crucial in shaping the study's conclusions and recommendations.

All responses will be kept strictly confidential and will only be used for academic research purposes. The interviews are recorded with the consent of the interviewee to ensure reliability.

If you have any questions or concerns regarding this study, please feel free to contact me.

Thank you for your time and valuable input. Your participation is greatly appreciated.

Kind regards

Susanna Konttinen

Appendix 2. The interview questions

Background data

Do you accept that the interview will be recorded to ensure the reliability of this study?

Own area of expertise:

- R&D / Engineering
- Software
- Business Management
- Operations
- Supply Chain
- Finance
- Quality

Can you describe what role suppliers play in the company's success and competitiveness? (Minkäläinen rooli toimittajilla on yrityksen menestyksessä ja kilpailukyvyssä?)

Questions:

1. What are the three most important factors that determine a good supplier?
(Mitkä ovat kolme tärkeintä tekijää, jotka määrittävät hyvän toimittajan?)
2. How should the supplier's technical capability to be evaluated?
(Miten toimittajan teknisiä valmiuksia olisi arvioitava?)
3. What role does supplier compliance with environmental and regulatory standards (e.g. RoHS, REACH/SVHC 233, Prop65, Conflict Minerals) play when evaluating and selecting a supplier?
(Millainen rooli toimittajan ympäristö- ja sääntelystandardien (esim. RoHS, REACH/SVHC 233, Prop65, konfliktimineraalit) noudattamisella on toimittajan arvioinnissa ja valinnassa?)
4. What level of importance do you place on price vs. quality when choosing a supplier?
(Minkälaisen merkityksen annat hinnalle ja laadulle toimittajaa valitessasi?)
5. How important is the supplier openness in pricing? E.g. open-book calculations (Kuinka tärkeää toimittajan avoimuus on hinnoittelussa?).
Vaikuttaako se toimittajan luotettavuuteen?
6. How do you assess the importance of the supplier's Quality Management System?
(Mikä on toimittajan laadunhallintajärjestelmän merkitys toimittajavalinnassa?)
Pitääkö olla standardoitu vai riittääkö, että on vastaava?
7. What role does supply chain reliability and lead time play in selecting a supplier?
(Mikä merkitys toimitusketjun luotettavuudella ja toimitusajalla on toimittajan valinnassa?)
8. How should the supplier's long-term reliability and trustworthiness to be evaluated?
(Miten toimittajan pitkän aikavälin luotettavuutta ja luotettavuutta tulisi arvioida?)
9. Are there specific ESG (Environmental, Social, and Governance) policies that suppliers must follow?
(Onko olemassa erityisiä ESG-periaatteita (ympäristö, yhteiskunta ja hallinto), joita toimittajien on noudatettava?)
10. How important is a supplier's commitment to environmental sustainability (e.g., sustainable sourcing, waste reduction, energy efficiency)?
(Kuinka tärkeää on toimittajan sitoutuminen ympäristön kestävyteen (esim. kestävä hankinta, jätteiden vähentäminen, energiatehokkuus)?
Pitäisikö näistä olla oma kriteeri toimittajavalinnassa? Jos kyllä, millainen tai mikä?
11. What are the biggest challenges with suppliers?
(Mitkä ovat suurimmat haasteet toimittajien kanssa?)
12. What is the preferred way to communicate with suppliers?
(Mikä on suositeltavin tapa kommunikoida toimittajien kanssa?)
13. What kind of support model or collaboration is required from the supplier side?
(Millaista tukimallia tai yhteistyötä tarvitaan toimittajapuolelta?)
14. What are the biggest risks associated with supplier selection?
(Mitkä ovat suurimmat toimittajan valintaan liittyvät riskit?)
15. What is the importance of a supplier's financial stability before partnering with them? How should it be evaluated?
(Mikä merkitys on toimittajan taloudellisella vakaudella ennen yhteistyökumppanuiden solmimista? Miten sitä olisi arvioitava?)
16. How to determine whether a supplier can scale production based on the company's demand?

(Miten määritetään, voiko toimittaja skaalata tuotantoa yrityksen kysynnän perusteella?)

17. What are the main factors influencing the decision to switch suppliers or continue working with an existing one?

(Mitkä ovat tärkeimmät tekijät, jotka vaikuttavat päätökseen vaihtaa toimittajaa tai jatkaa yhteistyötä nykyisen toimittajan kanssa?)

18. What are the top three most important factors when selecting a supplier?

(Mitkä ovat kolme tärkeintä tekijää toimittajaa valittaessa?)

19. What new capabilities will be crucial to suppliers within the next 5 years?

(Mitkä uudet valmiudet ovat ratkaisevan tärkeitä tavarantoimittajille seuraavien viiden vuoden aikana?)

20. What is your advice for supplier selection?

(Mitä neuvoja annat toimittajan valintaa varten?)