

Bachelor's thesis

Bachelor of Business Administration

International Business – Online Degree

2024 | 35 pages

Chi Nguyen

Optimizing Supply Chain Efficiency

- A Case Study of Operative Purchasing at Company X



Bachelor's thesis | Abstract

Turku University of Applied Sciences

Bachelor of Business Administration
International Business – Online Degree

2024 | 35 pages

Chi Nguyen

Optimizing Supply Chain Efficiency

- A Case Study of Operative Purchasing at Company X

This thesis examines Supply Chain Management (SCM) with a focus on operative purchasing within company X. The study aims to evaluate and improve the efficiency of operative purchasing, review it within the context of SCM, and provide some recommendations. The research has gathered insights by conducting individual interviews, reviewing literature, and analyzing data to propose improvements. Findings reveal operational inefficiencies and the significant impact of operative purchasing on profitability. Recommendations offer ideas to integrate operative purchasing into its SCM for efficiency. This study highlights the importance of efficient operative purchasing tasks in achieving operational excellence amid dynamic competition.

Insert Keywords: supply chain management, operative purchasing, LEAN, subcontractor, supplier.

Content

1. Introduction	5
1.1 Objectives and the scope of the thesis	5
1.2 Research Methodology	6
1.3 Limitations of the Research	6
2 Background of the Case Company X	8
3 Supply chain management (SCM) efficiency	11
3.1 Definition of SCM	11
3.2 Functions of the SCM	12
3.3 LEAN	14
3.4 The role of procurement as part of the supply chain	14
4 Key challenges in operative purchasing activities at company X	16
4.1 Supplier relationship management	16
4.2 Demand forecasting	17
4.3 Inventory management	19
4.4 Supplier quality and reliability	20
4.5 Cost reduction pressure	22
4.6 Production undercapacity	23
5 Enhancing efficiency in Company X's SCM: Recommendations and Their Limitations	25
5.1 Tailor communication with suppliers	25
5.2 Maintaining a close relationship with the sales department for demand forecasting	26
5.3 Implement more frequent inventory checks.	27
5.4 Enhancing Communication Channels for Supplier Reliability and Quality	28
5.5 Increasing our production capacity to meet customer demand.	29
6 Conclusion	30
6.1 Effective communication is essential for maintaining efficiency in SCM.	30

6.2 Supply chain is a “chain” work. Teamwork is important.	31
References	32
Appendix	35

Figures

Figure 1 Organizational structure of Company X (Company X, 2024)	8
Figure 2 Examples of purchasing product/services group (Arjan, 2018)	9
Figure 3 Purchasing process approach (Arjan, 2018)	10
Figure 4 Functions of the supply chain according to Edward Sweeney (Edward, 2002)	12
Figure 5 Flows in the supply chain (Edward, 2002)	13
Figure 6. Demand forecast for company Y items (July – November 2023) vs. Company X sales. (Company X, 2024)	18
Figure 7. Company X's supplier quality and reliability in Q1-Q3/2023 (Company X, 2024)	21
Figure 8. Company X's Approved Suppliers Evaluation Table (Company X, 2024)	22

1. Introduction

1.1 Objectives and the scope of the thesis

The motivation for this thesis arises from my firsthand experience as an operative purchaser at company X, a prominent leader in the metal manufacturing industry. During my time in this role, I witnessed the pivotal role that operative purchasers play in managing suppliers and subcontractors and ensuring the timely availability of critical materials and services. These responsibilities have a direct and significant impact on the overall efficiency of the supply chain, which in turn influences the productivity and profitability of the entire organization.

To guide the investigation, the following research questions have been thoughtfully formulated:

- What are the challenges faced by operative purchaser at company X concerning supply chain efficiency enhancement and cost reduction?
- What strategies can be identified and subsequently implemented to optimize operative purchasing processes, thereby elevating the overall performance of company X's supply chain?
- What are the advantages and limitations associated with the implementation of these strategies within the specific context of company X?

This research will primarily focus on operative purchasing activities within company X, encompassing various aspects such as supplier relationship management, demand forecasting, inventory management, and order fulfillment. It will thoroughly analyze current practices and meticulously explore opportunities for improvement. It's important to note that broader aspects of supply chain management, including logistics and distribution, will fall outside the scope of this research.

1.2 Research Methodology

In this thesis, the primary data originates from interview-based sources, while the secondary data is gathered from theory-based data.

The theory part will cover a broader field of supply chain management, with a specific emphasis on operative purchasing. By synthesizing existing knowledge, the aim is to develop a comprehensive understanding of the subject and identify areas requiring further exploration. Furthermore, this literature review will serve as the foundation for constructing a conceptual framework to guide the research process, which will be introduced in Section 3.

Regarding the interview-based sources, I conducted oral interviews with four different internal stakeholders: the customer account manager, production line manager, material planner, and sourcing/maintenance manager. Additionally, an informal interview was conducted with one of our suppliers to gather relevant insights for the thesis. The interview questions are provided in the Appendix for reference, while the results of these interviews will be discussed in Sections 4 and 5 of this thesis.

1.3 Limitations of the Research

Every journey is bound by its own unique set of constraints, and this research endeavor is certainly no exception. Specifically, my role revolves around procuring services from subcontractors and acquiring assembly components, thus defining the scope of my work within the larger supply chain. As I reflect on this journey, it becomes evident that certain limitations have played a defining role in shaping the depth and breadth of my analysis.

One big challenge I face is time. Since I have only been in this role for a bit more than a year, my ability to give detailed recommendations for process improvement is limited because of the short time I've been here.

Another constraint lies in data availability. While I have strived to work with the data at my disposal, it's worth noting that access to certain critical data, particularly financial records, and proprietary information, has been restricted. Nevertheless, I have endeavored to extract meaningful insights from the data that is accessible.

It is important to recognize that the findings and recommendations I present in this thesis are not universally applicable. They are intricately tailored to the unique context of company X. However, I firmly believe that these insights can serve as a wellspring of inspiration and learning for similar organizations operating within the manufacturing sector.

2 Background of the Case Company X

Established in 2002 in Finland, Company X is a leading player in the metal industry, with a strong history behind it. As a medium-sized enterprise, Currently, it has around 120 permanent employees and the company serves important clients both locally and internationally. Refer to Figure 1 below for a visualization of the company's organizational hierarchy.

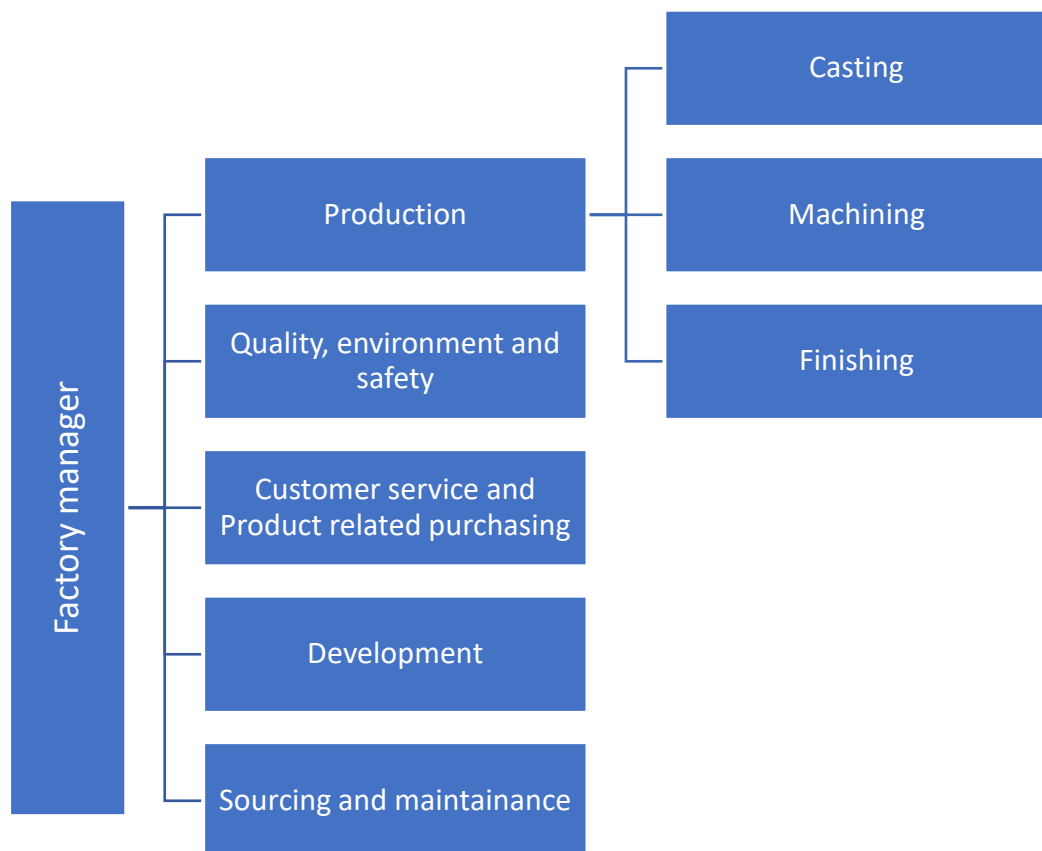


Figure 1 Organizational structure of Company X (Company X, 2024)

Company X operates under what's known as a matrix organizational structure. To understand simply, matrix organizational structure means that employees don't just report to one boss; they often have multiple supervisors, or one employee may undertake different roles within the organization (Daniel, 2023). One example is that at the moment our factory manager is taking on multiple hats and he is currently serves as both the production and sales manager.

Another example is related to my role as an operative purchaser; I have two supervisors. My direct manager is the Customer Account Manager who oversees my performance related to product purchasing, while my second supervisor is the Sourcing/Maintenance Manager who provides me specialized guidance on certain purchasing activities.

While the company structure has clear benefits, like bringing together the necessary skills for a task and promoting flexibility, it also presents challenges. For instance, having multiple managers or one individual with multiple responsibilities can lead to role confusion and conflicting priorities, which may disrupt team harmony and productivity (Daniel, 2023).

In terms of my duties at Company X, as showed Figure 1, my role focus around customer service and product-related procurement. Specifically, I serve as an operative purchaser, concentrating mainly on the subcontract services and assembly components sector. Figure 2 below illustrates an example of a product/service group purchase scenario. It's important to note that the subcontractor services I manage do not fall under the "services" purchasing group as depicted in this figure. Rather, procuring subcontractor services means that we are buying the semi-manufactured and finished products from our subcontractors.

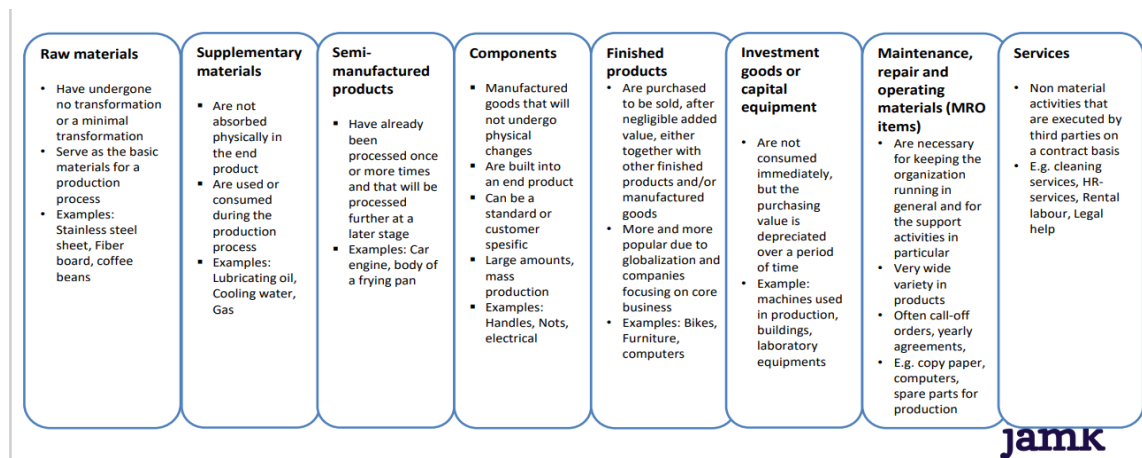


Figure 2 Examples of purchasing product/services group (Arjan, 2018)

My multifaceted tasks involve various integral aspects of the intricate process mentioned below in figure 3 (from step 4 to step 6).

Purchasing process (orig.ref. van Weele 2010)

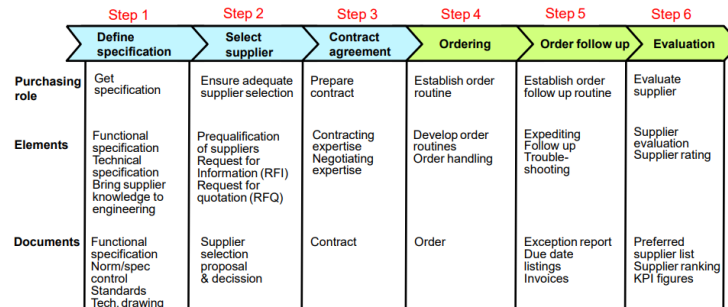


Figure 3 Purchasing process approach (Arjan, 2018)

First and foremost, I am responsible for generating purchase orders that precisely align with the requisitions and demands put forth. My duties extend to diligently monitoring and tracking orders, ensuring that they adhere to schedules and expectations. A significant facet of my role lies in cultivating and nurturing relationships with our vendors and subcontractors, as these connections are vital to the seamless flow of materials and components. Additionally, I am charged with the crucial task of managing inventory, a task that involves determining optimal stock levels and locations and striking a delicate balance between supply and demand. Moreover, I handle the meticulous process of verifying invoices and executing payment procedures, ensuring a timely and fair compensation system for our suppliers. In line with fostering efficient partnerships, I also engage in vendor performance evaluation, continually assessing their reliabilities to enhance our overall supply chain operations. In general, my role in the subcontract and assembly component sector of the purchasing domain is integral to the company's success, facilitating the harmonious flow of materials, fostering supplier relationships, and ensuring the efficiency of our supply chain.

3 Supply chain management (SCM) efficiency

Before we dive deeper into the optimization of the Supply Chain with a focus on Operative Purchasing at Company X, it's crucial to establish a strong theoretical foundation. As mentioned earlier, this theory section will serve as the cornerstone of the thesis. To lay this foundation effectively, I have chosen to review few key aspects:

Firstly, I will seek for the definition of what supply chain management (SCM) is all about. This will help us understand the big picture of how things work in a supply chain. Secondly, I will explore the different functions of the supply chain management. This will give us a clear picture of all the tasks and processes involved in managing a supply chain. By understanding how these functions work, we can spot areas where operative purchasing at Company X can be improved. Thirdly, I will look at LEAN principle. This is a method for making processes more efficient by cutting out waste. By studying LEAN principles, we might find practical ways to make operative purchasing practices at Company X work better. And finally, I will review the role of procurement in the supply chain. This will help us understand how purchasing fits into the bigger picture of managing a supply chain.

3.1 Definition of SCM

At its most fundamental level, Supply Chain management (SCM) referred to as the process through which an organization ensures the delivery of the correct product to the right place, at the appropriate time, and an optimal cost. In line with Christopher Martin's perspective on Supply Chain Management (Christipher, 2005):

"SCM entails the management of both upstream and downstream relationships with suppliers and customers to provide exceptional customer value while minimizing costs for the entire supply chain."

Furthermore, SCM encompasses the coordination and exchange of information, as well as the movement of goods, from the primary supplier to the end consumer (Handfield & Nichols, 2002). This encompasses the entire journey from raw materials to finished products. The efficiency of this coordination plays a pivotal role in determining operational speed, time-to-market for products, and the quantity of inventory an organization needs to maintain at any given moment.

3.2 Functions of the SCM

So, what functions are encompassed within a supply chain? Figure 4 below describes clearly what are the function of the supply chain according to Edward Sweeney. He has provided a concise breakdown into five primary areas (Edward, 2002):



Figure 4 Functions of the supply chain according to Edward Sweeney (Edward, 2002)

Buy - This pertains to how you engage with your suppliers.

Make- This involves instructing the manufacturing facility on what to produce and ensuring they adhere to the plan.

Store - This relates to inventory management, determining how much to hold, where, and for how long.

Move - Often recognized as Logistics, this is the visible aspect of Supply Chain Management, with trucks on the road and ships at sea. However, it requires meticulous coordination and organization.

Sell - This concerns your interactions with customers. Various companies adopt different customer engagement strategies, but effective supply chains establish

rapid and comprehensive channels of communication between customers and planning.

These functions can also be recognized by using common business terms: Supplier Relationships (or procurement), Operations, Warehousing, Logistics, and Customer Service. The core of effective planning and supply chain management lies in managing the flows within and between these functions, which can be classified into three main categories, which can be seen in figure 5 below: flow of products/service, flow of money/funds and flow of information.

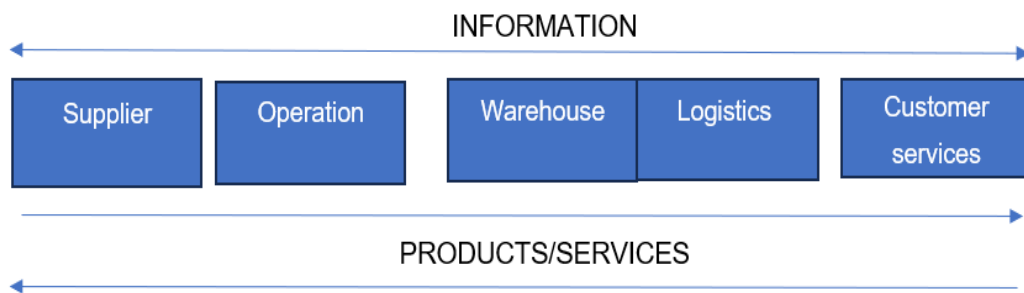


Figure 5 Flows in the supply chain (Edward, 2002)

The most noticeable flow is the movement of products, wherein goods progress from their raw material origins to the final product purchased by the customer.

Next, there is the flow of money, ensuring that every stage of the process receives fair and equal compensation for their contributions. Profitability for all parties is crucial, as any weak link in the chain can disrupt the entire process. Money flows back from the customer through the supply chain.

The third vital flow is the exchange of information. This two-way flow of data is arguably the most critical of all, as an efficient supply chain operation heavily relies on accurate and timely information. Without it, the supply chain cannot function effectively.

3.3 LEAN

LEAN, derived from the Toyota Production System (TPS), focuses on eliminating waste and maximizing value for customers, aiming to create more value with fewer resources. Its core principles involve identifying value, mapping the value stream, creating flow, establishing pull, and seeking perfection. Implementing LEAN in the supply chain can notably enhance efficiency by reducing waste, improving lead time, enhancing flexibility and responsiveness, encouraging collaboration and communication, and optimizing inventory management (Lean6sigma, 2024).

To illustrate its application, in procurement, the emphasis lies in cultivating strong relationships with reliable suppliers, swiftly resolving issues, and promoting collaborative improvement initiatives. In production, a pull-based system aligns production with customer demand, streamlining processes and fostering a culture of continuous improvement. Within storage, just-in-time inventory management, analysis of demand patterns, and visual management techniques aid in minimizing excess inventory and addressing related issues effectively. For transportation, optimizing routes and modes, implementing tracking systems, and collaborating with logistics partners help streamline processes and enhance responsiveness. In sales, developing effective communication channels, integrating customer feedback, and adopting flexible strategies ensure swift adaptation to changing demands and market trends. Integrating LEAN principles across these functions enables organizations to bolster efficiency, reduce waste, elevate customer satisfaction, and ultimately enhance their competitive edge (Lean6sigma, 2024).

3.4 The role of procurement as part of the supply chain

According to Arjan Van Weele (Arjan, 2018), procurement plays a critical role within organizations, aiming to strategically select competitive suppliers, minimize costs without compromising quality, and outsource non-core functions to enhance focus on core competencies. Through rigorous cost-benefit

analyses, procurement professionals determine whether to internally produce goods or services or to procure them externally. Additionally, effective procurement strategies involve robust risk management to mitigate potential supply chain disruptions, ensuring smooth operations and the sustained optimization of the value chain for increased profitability and operational efficiency.

4 Key challenges in operative purchasing activities at company X

The selection of topics for the challenges outlined below was carefully curated within the scope of my responsibilities at Company X, primarily focusing on the purchasing domain with a significant emphasis on subcontract services and assembly components. The challenges were identified based on practical experiences and observations within the intricate processes involved with other functions in the SCM as mentioned in part 3 of the thesis. Each challenge was chosen to shed light on critical aspects that impact the efficiency and effectiveness of our procurement operations.

4.1 Supplier relationship management

As already been mentioning in part 3 of this thesis, supplier relationship is one of the most important functions in SCM. Therefore, maintaining effective supplier relationship is pivotal in ensuring the smooth flow of materials and services into the organization (Leon, 2024). Building and maintaining open, productive communication with suppliers is challenging yet crucial. It involves not only negotiating favorable terms and prices but also establishing a collaborative environment where both parties can align their goals and strategies. A lack of transparent communication can lead to misunderstandings, delays, and strained relationships, which may ultimately impact the procurement process and the company's competitiveness (Ali, 2021).

When I commenced my position as a purchaser at Company X, my insistence on receiving order confirmations from all managed subcontractors encountered resistance. Some subcontractors, overwhelmed by their demanding schedules, struggled to promptly furnish confirmations. During my informal interview with one of the subcontractors, they mentioned that insufficient time is the primary reason for their inability to confirm orders. Moreover, they expressed unease when I proactively sought updates on our orders in the absence of confirmation.

At the milestone of about two months, realizing the importance of cultivating strong bonds, our sourcing manager took proactive steps, arranging visits and including me in the interactions with these critical subcontractors. During our open discussions, I emphasized the benefits of streamlining processes by allocating a small window for confirmations, thereby reducing the need for intrusive follow-ups. Following this visit, I did manage to secure order confirmations from a few subcontractors. However, a small number persisted in their reluctance to provide order confirmations. It became evident that some subcontractors favored an autonomous approach, opting not to adhere to LEAN principles due to the size of their operations. Consequently, this experience underscored the critical need to establish a common understanding and develop pragmatic strategies to ensure productive collaboration despite the divergent operational approaches.

4.2 Demand forecasting

As discussed earlier in the previous part, one of the most important tasks of the buyer is to minimize costs by purchasing items on time and maintaining the warehouse inventory at the LEANest stage possible. Therefore, having accurate demand forecasting is critical for the buyer to anticipate future needs, plan purchases effectively, and avoid overstocking or understocking situations. However, predicting demand fluctuations and trends can be challenging, especially in dynamic markets. Failure to do so effectively can result in overstocking, tying up capital and warehouse space, or understocking, leading to missed sales opportunities and dissatisfied customers (Dorota, 2023).

Consider the case of automotive giant Company A, a key cornerstone of our client portfolio. The dynamic nature of demand forecasts for the casting part has made it a focal point of our strategic planning. Comparing the initial demand forecast at the start of the year, the mid-year projections, and the figures in the third quarter of 2023, it becomes evident that the data holds the key to understanding the fluctuations in consumer needs.

Within the production cycle, securing the necessary components for this specific casting part is imperative. One critical component, characterized by an extensive lead time of approximately 18 weeks, plays a pivotal role in our procurement strategy. Because we buy a large amount of this component all at once, we have to be really careful about how we manage the inventory with this component. For instance, during our analysis of the January forecast, the urgency of the situation prompted us to proactively initiate procurement to stock up our inventory, ensuring uninterrupted production. However, the scenario quickly shifted as the demand forecast underwent abrupt changes, leading to a substantial decline in requirements. This unexpected decrease left us with too much extra stuff, making it harder to handle the costs as the year ended. This not only hurts our finances but also goes against our goal of keeping our inventory LEAN.

Another example is the changing forecast in demand of company Y.

Figure 6 compares the demand forecast of company Y's specific items from July to November 2023 with the actual sales of company X for those items. The illustration highlights a significant disparity between the forecasted demand and the actual sales. Notably, the actual sales consistently fall below the forecasted demand throughout the period. As can be seen, this has led to overbuying, resulting in overstock in the storage at the end of November 2023.

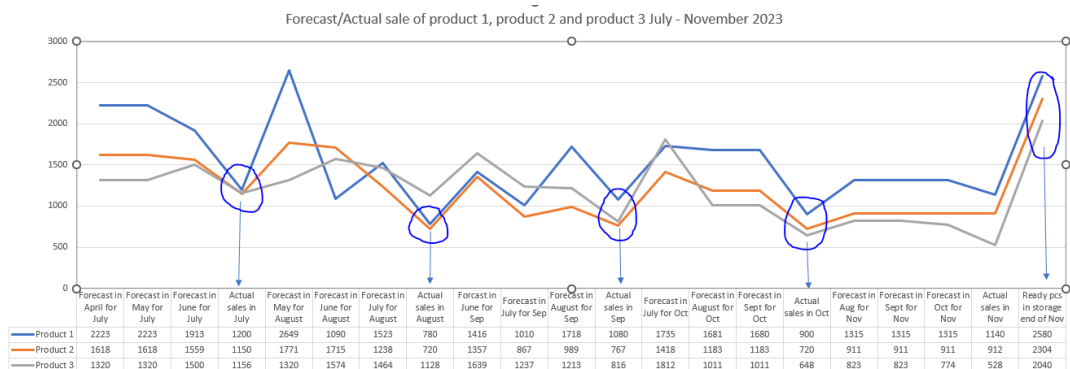


Figure 6. Demand forecast for company Y items (July – November 2023) vs. Company X sales. (Company X, 2024)

4.3 Inventory management

Inventory management is recognised as a critical function of supply chain management according to Chopra and Meindl (Chopra & Meindl, 2007); and this has been mentioned earlier in part 3 of this thesis. In the sphere of operational purchasing, maintaining an optimal inventory balance remains an enduring challenge. The delicate task of striking the right equilibrium between meeting customer demands and minimizing carrying costs necessitates a nuanced approach. The implications of an excessive stockpile include tying up valuable capital in unused assets, while insufficient inventory can disrupt production schedules and jeopardize customer commitments (inFlow Inventory, 2023). To navigate this intricate terrain effectively, Company X is relying on efficient inventory management systems, adhering to lean principles, and embracing just-in-time practices as indispensable cornerstones.

Managing an ideal inventory level is a complex undertaking that demands a careful juggling act between fulfilling customer needs and mitigating carrying expenses. The consequences of stockpiling excessively involve tying up capital in idle goods, while insufficient stock can result in missed opportunities for sales (OmneelabWMS, 2023). From my perspective, this presents one of the most formidable challenges within our operational framework. Recurrent instances of inaccurate stock levels have established an unsettling pattern, occurring at an alarming frequency. I have noted that inventory audits are typically conducted once annually, primarily at the year's end, with a primary focus on cost management and oversight.

Furthermore, a recent incident underscored a substantial disparity in our inventory management, particularly concerning a vital component integral to a key product. The issue's root cause lay in the discovery during the quality inspection that the entire batch of this component was defective and unsuitable for use. Consequently, the anticipated stock that was initially projected to suffice for the entire week suddenly depleted to zero, leaving us grappling with an unforeseen shortage. Considering the constant fluctuations in various items

throughout the year, it is imperative not to overlook the possibility of daily discrepancies seeping into the stock data. Left unattended, these errors can snowball into significant inconsistencies within the inventory system, presenting a significant hurdle to the seamless operation of our processes. Thus, the implementation of a more frequent and rigorous monitoring mechanism emerges as a critical step in addressing this persistent issue and ensuring the accuracy and reliability of our inventory management.

4.4 Supplier quality and reliability

Ensuring a steady flow of top-notch products and services from suppliers and subcontractors is crucial for Company X. Both the purchasing and quality teams work together continuously to ensure suppliers meet strict reliability standards and maintain high quality. Supplier reliability mainly depends on On-Time Delivery (OTD), which checks how often supplier deliver items or services exactly when they say they will (PLS logistics services, 2024). My operative purchaser's role involves closely monitoring suppliers' OTD performance to ensure they consistently meet agreed-upon delivery schedules. For company X, any lapses in supplier performance can result in production delays, increased rework costs, and, most critically, customer dissatisfaction.

Figure 7 below displays the reliability of three subcontractors, A, B, and C, across three different quarter periods in 2023. Meanwhile, figure 8 displays the company X's Approved Suppliers Evaluation Table, explaining how the evaluation score is calculated.

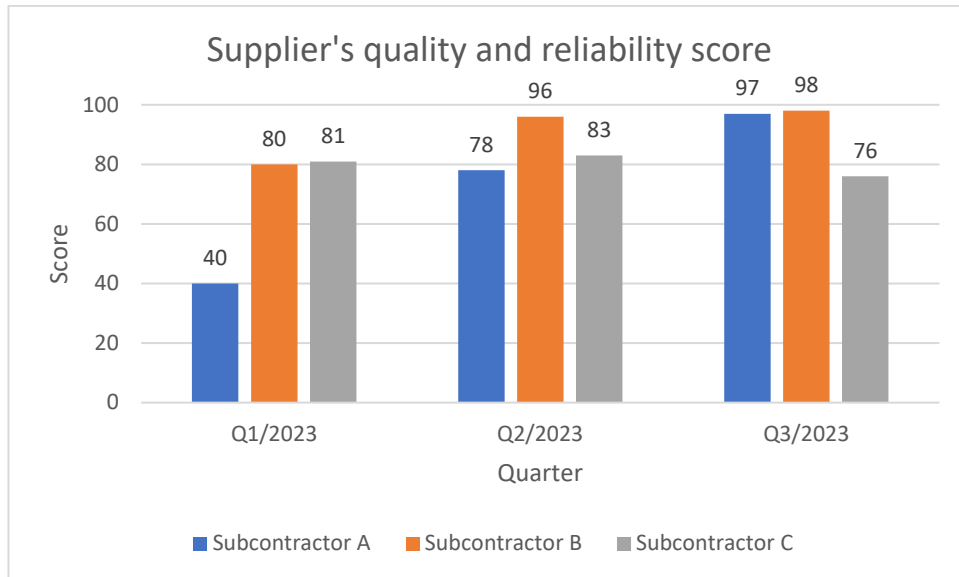


Figure 7. Company X's supplier quality and reliability in Q1-Q3/2023 (Company X, 2024)

In Figure 7, we notice that Subcontractor A's reliability stays quite steady from Q1 to Q2 but drops noticeably in Q3. Unfortunately, this decline caused delays in our production process, especially with certain parts supplied by Supplier A. Their reliability score fell below 80 points in Q3, so according to company X's supplier evaluation in figure 8, the purchasing team needs to ask for an explanation and request improvements from Supplier A. On the other side, Subcontractors B and C have been consistently improving their reliability over time. Subcontractor C has shown an impressive positive trend. Supplier C initially struggled with a low reliability score of 40 points in Q1, leading to significant delays in meeting customer demands due to longer lead times than agreed upon.

Supplier performance is evaluated in three areas. The maximum score for the evaluation is 100 points and it is divided into the evaluation components as follows:

Quality: Max 50 points

The evaluation is based on the following elements:

1. Incoming inspections (accepted deliveries / all deliveries / 100 x 15p.)
2. Claims made to the supplier (No claims = 15p., One claim = 7.5p., More than one claim = 0p.)
3. Customer claims due to the supplier's activities (No claims = 20p., One claim = 10p., More than one complaint = 0p.)

On time delivery: Max 40 points

1. OTD in given time period (deliveries on time / all deliveries / 100 x 40p.)

Premium freights: Max 10 points

1. Premium freights due the supplier's activities (no premium freights = 10p., One premium freight = 5p., More than one premium freight = 0p.)

The final evaluation of the supplier's performance will be carried out according to the classification below:

Scores	Grade	Remark
90-100	A	The Supplier meets the requirements
80-89	B	Reasons for the reduced score to be reviewed. Further actions if needed.
60-79	C	Contact with the Supplier. An explanation is requested and corrective actions required.
<60	D	The progress of corrective actions is monitored. Based on this the Supplier's ability to continue deliveries is assessed.

Figure 8. Company X's Approved Suppliers Evaluation Table (Company X, 2024)

In Figure 8, Company X's supplier evaluation, we see that when a supplier's reliability drops below 60 points, they are not meeting company X's requirement. The purchasing team, along with the quality team, had to closely monitor Subcontractor C's progress during Q1. This has led to a remarkable turnaround in Q3, with Subcontractor C achieving an impressive reliability rate of 97 points, indicating commendable improvement in their performance and timely deliveries.

4.5 Cost reduction pressure

Effectively controlling costs while minimizing inventory levels remains a complex and persistent challenge in the sphere of operational purchasing (Damini, 2024). Achieving the delicate equilibrium between preventing overstocking and averting understocking necessitates a proactive engagement with various key

stakeholders. For an operational purchaser to navigate this complex task, establishing a collaborative partnership with the sales department, the logistic department and the purchasing manager is crucial. Additionally, maintaining constant oversight of the inventory status is vital (inFlow Inventory, 2023). By fostering a close working relationship with these essential players and regularly monitoring inventory levels, the operational purchaser can make informed decisions, ensuring that procurement aligns with demand and that inventory always remains optimized. This concerted effort not only streamlines operational efficiency but also enhances cost-effectiveness in the realm of operational purchasing.

4.6 Production undercapacity

During my recent interview with the production site's line manager, we delved into the primary obstacle of ensuring seamless customer production. Our team is currently grappling with a surge in customer demand, which is putting immense pressure on our operations. However, we've encountered significant hurdles during the production process, mainly attributed to certain issues related to the quality of the cast parts. This factor, among others, has been identified as a key contributor to our ongoing challenges.

When production operates below capacity and fails to meet customer demand, it significantly impacts the operative purchasing task and the overall efficiency of the supply chain (Damini, 2024). The inability to fulfill customer orders gives rise to various challenges in the purchasing process. Based on my experience, three key implications have been observed at company X.

Initially, undercapacity production can result in imbalances in inventory, leading to either an excess of certain materials or a shortage of others. To ensure the prevention of critical component stockouts and unnecessary material accumulation, the purchasing team must meticulously manage inventory levels. Effective inventory management is pivotal for maintaining a balance between supply and demand (Heather, 2023).

Secondly, when production faces undercapacity, the strain on the supply chain tends to affect relationships with subcontractors. Pressured to increase output or prioritize deliveries, subcontractors may engage in conflicts over pricing, quality, and lead times. Navigating necessitating's and ensuring a continuous flow of materials necessitates maintaining transparent communication and strong relationships with subcontractors.

Thirdly, production constraints often result in escalated production costs, attributable to the need for expedited shipping, premium pricing for materials, and additional expenses linked to alternative sourcing strategies. For instance, the procurement manager disclosed that last year, due to our inadequate production capacity, we frequently faced delays in delivering parts to subcontractors, incurring an extra cost of over 40 000 EUR to involve a subcontractor in completing the work and ensuring timely product delivery. Importantly, we couldn't transfer the additional cost to the customer, as our failure to meet customer demand is regarded as an internal issue.

Consequently, this situation exerts pressure on the purchasing budget and overall expenses in the supply chain. The procurement department must diligently oversee costs while exploring cost-effective measures that maintain the quality and timely delivery of materials. The fluctuating production capacity further complicates operational planning for the procurement team, making it a challenging endeavour to establish sustainable long-term procurement strategies.

5 Enhancing efficiency in Company X's SCM: Recommendations and Their Limitations

To make it easy to follow, the table below presented the recommendations to enhance efficiency in company X's SCM addressing each challenge found in Section 4.

4.1 Supplier relationship management	5.1 Tailor communication with suppliers
4.2 Demand forecasting	5.2 Maintaining a close relationship with the sales department for demand forecasting
4.3 Inventory management	5.3 Implement more frequent inventory checks.
4.4 Supplier quality and reliability	5.4 Enhancing Communication Channels for Supplier Reliability and Quality
4.5 Cost reduction pressure	5.5 Increasing our production capacity to meet customer demand.
4.6 Production undercapacity	

Table 1 Recommendations to enhance efficiency in company X's SCM addressing each challenge found in Section 4.

5.1 Tailor communication with suppliers

After a year in my operational purchasing role, to solve the challenge regarding supplier relationship management, I've realized that managing supplier relationships requires recognizing the uniqueness of each supplier and subcontractor. This diversity calls for a customized approach in my position.

While some favor direct phone calls for order updates, others find emails to be a more efficient means of correspondence.

Furthermore, my experience has underscored the significance of documenting crucial discussions, especially concerning sensitive matters like pricing discussions and favorable terms. In such instances, it is imperative to ensure that every aspect is clearly articulated and recorded in written form. Therefore, relying on email communication over oral exchanges has proven to be a more prudent approach, allowing for a comprehensive and transparent record of the dialogue. This not only fosters clarity and accountability but also serves as a reliable point of reference for future engagements with suppliers.

However, adjusting to the diverse communication preferences of our different suppliers might require a degree of flexibility within our operational framework. This adaptability could potentially pose challenges in maintaining a standardized and seamless communication process throughout the entirety of our supply chain. This remains an aspect I continually strive to refine in practice.

5.2 Maintaining a close relationship with the sales department for demand forecasting

To solve the challenge with the customer demand forecast mentioned in part 4.2, maintaining a strong communication channel with the sales department proves crucial for accurate analysis. Recognizing the significance of a collaborative approach, it becomes imperative to remain closely engaged with the sales team to comprehend the dynamics of customer requirements.

For example, in reference to Figure 6, it's crucial for the purchasing team and the sales teams to work closely together in analysing customer demand forecast. It's important to consider whether the sales team should communicate with customers about their demand forecasts to avoid buying too much and ending up with excess inventory. If the sales team has already done this but sales are still below forecast, the sales manager and purchasing manager should work together to find a solution to prevent over-purchasing.

5.3 Implement more frequent inventory checks.

To effectively implement the Just-in-Time purchasing principle, as the operative purchaser, I need to ensure that stock levels are continuously monitored and updated, and that data accuracy is consistently maintained. Undoubtedly, customer demand remains beyond our direct influence, yet the criticality of effective inventory management cannot be overstated. It represents a facet of our operations where our actions can yield a tangible impact. Regular inventory checks can prove instrumental in mitigating the challenges posed by overstocking or understocking, providing valuable insights into our procurement needs (oboloo, 2024). Conducting inventory checks merely once a year proves inadequate, prompting the question of how frequently we should carry out these assessments. Should we opt for quarterly inventories, or would this frequency be excessive? Finding the optimal balance remains a puzzle we are actively seeking to solve. Nevertheless, the current practice of annual inventory checks is insufficient to meet our operational demands.

An interview with the material planner has yielded a valuable insight: Maintaining accurate data within the inventory management system requires everyone to share the responsibility (Relex, 2022). It calls for each individual, from the workers on the production site, recording the number of casting pieces ready for machining, to the logistics personnel overseeing the inflow and outflow of inventory, to diligently input precise data. Any inaccuracies must be corrected immediately to ensure the integrity of the inventory records. This proactive approach not only enhances the reliability of the data but also reinforces our commitment to a streamlined and efficient inventory management system.

Nonetheless, it is crucial to recognize that frequent inventory checks, especially if conducted quarterly or more frequently, can place a substantial demand on both manpower and time. This could make it harder to do other important tasks. So, it is important for management team to carefully plan and improve how we manage the inventory. We want to find a way to do it that is both effective and cost-savings.

5.4 Enhancing Communication Channels for Supplier Reliability and Quality

Establishing and maintaining an open communication channel throughout the supply chain concerning supplier reliability and product quality stands as a vital step in strengthening the efficiency of the entire supply chain (Glede, 2022). By ensuring transparency and accessibility to pertinent information, we can significantly streamline the operational processes within the chain. This approach proves particularly effective when the operational purchaser encounters delay from suppliers or subcontractors.

In such instances, it's important task of the operative purchaser to quickly share this information with all departments. Initially, the production site must be informed to enable the efficient rescheduling of workloads. Subsequently, the sales department should be notified to proactively manage customer expectations by providing timely updates on potential delivery delays. Moreover, the logistics team needs to be informed promptly to facilitate the necessary adjustments to transportation arrangements. Although our ERP system facilitates this process, adapting to the distinct working styles of different individuals remains crucial in our company's context.

To ensure effective communication, it is vital to integrate regular follow-up meetings and utilize various communication methods, including email or oral exchanges supplemented with detailed notes for reference. This comprehensive approach not only fosters collaboration but also reinforces a cohesive and responsive supply chain, aligning all facets of the operation toward the shared goal of maintaining supplier reliability and product quality (Oxford college of procurement and supply, 2024).

5.5 Increasing our production capacity to meet customer demand.

This is my recommendation for both challenge 4.5 and 4.6. After my interview with the purchasing manager on potential cost-saving measures in the procurement process, it became clear that resolving the issue surpassed the bounds of our procurement responsibilities. His emphasis on the pressing need to confront our production capacity's inability to meet customer demands underscored the primary challenge. He underscored the pivotal role of the executive committee in tackling this challenge, urging for the identification of avenues to either expand production capacity or enact viable enhancements.

Notably, the current operational structure – as can be seen in section 2, where one individual handle too many different responsibilities was highlighted as another potential bottleneck in our operations. This multi-tasking role might be impeding our ability to address the challenges effectively. Therefore, the upcoming arrival of the new production manager in the next month could serve as a positive step towards creating more focused management roles within our organization.

6 Conclusion

6.1 Effective communication is essential for maintaining efficiency in SCM.

After conducting my analysis, I have concluded that effective communication between the operative purchaser and both external and internal stakeholders is essential for maintaining efficiency in supply chain management. This conclusion is supported by three out of five recommendations outlined in section 5. Furthermore, the significance of such communication is underscored in the theoretical section of this thesis. As emphasized by Jitt (Jitt, 2017), the two-way flow of data is arguably the most critical aspect, as an efficient supply chain operation heavily relies on accurate and timely information. Without this communication, the supply chain cannot function effectively.

Communication helps the information flow, and effective communication works like a glue that holds together the efforts of different people and departments (Oxford college of procurement and supply, 2024). In the busy world of supply chain activities in Company X, given the dynamic nature of market fluctuations, evolving consumer demands, and the constant drive for cost optimization, maintaining clear communication channels is essential within each department and between different functions of the supply chain management. When everyone involved can share their ideas for improvement based on their own experiences, the supply chain process will run smoother.

Recognizing that my time in this role is relatively short, spanning a bit more than a year now, I understand the crucial necessity of continuously improving and refining my communication skills as the operative purchaser. Understanding that mastery in this aspect is crucial for fully realizing the responsibilities of the operative purchaser at Company X, I am committed to persistent practice and improvement, thus ensuring that my contributions to the company's procurement operations remain consistently impactful and efficient.

6.2 Supply chain is a “chain” work. Teamwork is important.

As emphasized in sections 5.3 and 5.5, maintaining a smooth flow of data in the supply chain is essential for effective just-in-time purchasing and is a collective responsibility. This requires cooperation from all involved: from production workers accurately recording readiness of casting pieces, logistics personnel meticulously managing inventory flows, sales teams analyzing demand forecasts/actual sale to prevent overbuying to production managers monitoring capacity and collaborate with the purchasing department to avoid unnecessary procurement when demand exceeds capacity. When each link in the chain fulfills its role correctly, goods flow seamlessly from suppliers to consumers, ensuring timely deliveries, minimized costs, and optimal resource utilization.

The interconnected nature of the supply chain also means that disruptions at any point can have ripple effects throughout the process. A delay in manufacturing, a logistical hiccup, or sudden spikes in demand can disrupt the entire chain, impacting not only the immediate department but also those upstream and downstream. For example, a production delay may lead to inventory shortages, affecting sales and customer satisfaction. Therefore, effective teamwork is essential to ensure that everyone understands their roles, shares information, and collectively strives to optimize the entire process. It fosters a sense of shared responsibility and commitment to achieving common goals, which is vital for the overall performance and resilience of the supply chain.

References

- Ali, F. (2021). *How to Build a Transparent Relationship with Your Suppliers*.
Noudettu osoitteesta <https://hbr.org/2021/09/how-to-build-a-transparent-relationship-with-your-suppliers>
- Arjan, V. W. (2018). *Purchasing and Supply Chain management*. Cengage learnings.
- Chopra, S.;& Meindl, P. (2007). *Supply Chain Management: Strategy, Planning, and Operations*. NJ, USA: Prentice Hall Upper Saddle River .
- Christipher, M. (2005). *Logistic and Supply Chain management*. London: Financial time: Pitman Publishing.
- Company X. (2024).
- Damini. (2024). *Balancing Capacity and Demand: Tips for Manufacturing Production Scheduling*. Noudettu osoitteesta <https://www.deskera.com/blog/demand-capacity-balance-production-scheduling/>
- Daniel, L. (2023). *The matrix organizational structure: Pros, cons, and insights*. Noudettu osoitteesta <https://blog.logrocket.com/product-management/matrix-organizational-structure/>
- Dorota, O. (2023). *What Makes Demand Forecasting Difficult? Navigating the Supply Chain Forecasting Challenges*. Noudettu osoitteesta <https://nexocode.com/blog/posts/supply-chain-forecasting-challenges/>
- Edward, S. (2002). The Four Fundamentals of Supply Chain Management. *Technological University Dublin* . Noudettu osoitteesta <https://arrow.tudublin.ie/cgi/viewcontent.cgi?article=1027&context=nitloth>
- Glede, K. (2022). *Supply Chain Communication: 4 Effective Strategies for Better Supplier Communication*. Noudettu osoitteesta <https://www.toolsgroup.com/blog/supply-chain-communication/>

- Handfield, R.;& Nichols, N. (2002). Supply chain redesign. Transforming supply chains into integrated value system. *Financial Times*.
- Heather, R. (2023). *Manufacturing and Production Inventory: The Complete Guide*. Noudettu osoitteesta <https://getcircuit.com/teams/blog/manufacturing-inventory>
- inFlow Inventory. (2023). *Excess Inventory: Pros and Cons of Too Much Inventory*. Noudettu osoitteesta <https://www.inflowinventory.com/blog/pros-and-cons-of-holding-excess-inventory/>
- Jitt, H. (2017). *Why is information so important in Supply Chains?* Noudettu osoitteesta <https://www.linkedin.com/pulse/why-information-so-important-supply-chain-jit-hinchman>
- Lean6sigma. (2024). *14 Principles of the Toyota Production System: A Comprehensive Guide*. Noudettu osoitteesta <https://www.learnleansigma.com/lean-manufacturing/14-principles-of-the-toyota-production-system-a-comprehensive-guide/>
- Leon, A. (2024). *What is Supplier Relationship Management?* Noudettu osoitteesta <https://safetyculture.com/topics/supplier-relationship-management/>
- oboloo. (2024). *The Importance Of Regular Inventory Checks: A Procurement Must-Do*. Noudettu osoitteesta <https://oboloo.com/blog/the-importance-of-regular-inventory-checks-a-procurement-must-do/#:~:text=By%20conducting%20regular%20inventory%20checks%2C%20procurement%20can%20identify,could%20lead%20to%20production%20delays%20or%20increased%20costs.>
- OmneelabWMS. (2023). *What are the consequences of poor inventory management practices?* Noudettu osoitteesta <https://medium.com/@omneelabWMS/what-are-the-consequences-of-poor-inventory-management-practices-88cf025dd65a>

Oxford college of procurement and supply. (2024). *Why Communication Is Key To Supply Chain Success?* Noudettu osoitteesta

<https://www.oxfordcollegeofprocurementandsupply.com/why-communication-is-key-to-supply-chain-success/>

PLS logistics services. (2024). *What is Reliability in Supply Chain Management?* Noudettu osoitteesta

<https://www.plslogistics.com/blog/supply-chain-management-best-practices-reliability/>

Relex. (2022). *How data best practices can improve inventory management and forecast accuracy* . Noudettu osoitteesta

<https://www.relexsolutions.com/resources/data-best-practices-inventory-management/>

Appendix

THESIS QUESTIONNAIRE

Introduction:

Thank you for participating in this interview. Your insights are invaluable for my thesis on supply chain efficiency and cost reduction at Alteams Finland. Let's proceed with the oral interview, and below are the questions I'd like to discuss with you:

A. SUPPLIER

How long have you been a supplier for company X?

What are the key challenges you face in the supplier relationship with company X?

Do you have any specific recommendations or ideas for improving the supplier – buyer relationship with company X?

B. SALE PERSON

How long have you been in this role?

Can you briefly describe the typical sales process at Alteams Finland?

What are the key challenges you face in the sales process related to supply chain efficiency?

Customer Relations:

How do you communicate with customers regarding order status and delivery schedules?

Have you encountered any issues with order fulfilment that affected customer relations?

Have there been any instances where subcontractor/supplier-related issues affected customer relationship?

Forecasting:

How does the Sales Department contribute to demand forecasting?

Are there any methods or tools used for demand forecasting at our company?

Feedback and Improvement:

Are there any specific suggestions or ideas for improving supply chain efficiency and reducing costs from the Sales Department's perspective?

C. MATERIAL PLANNER

How long have you been in this role?

Materials Planning Process:

Can you briefly describe the materials planning process at Alteams Finland?

What are the primary challenges you face in material planning related to supply chain efficiency?

Inventory Management:

How does the company manage its inventory levels?

Are there any strategies or technologies in place to optimize inventory?

Supplier Collaboration:

Have there been any instances where supplier-related issues affected material planning?

Suggestions for Improvement:

Do you have any specific suggestions or recommendations to enhance supply chain efficiency and reduce costs in material planning?

D. PURCHASING MANAGER

How long have you been in this role?

Procurement Process:

Can you briefly outline the procurement process at Alteams Finland?

What are the key challenges you face in procurement related to supply chain efficiency?

Supplier Management:

How do you manage relationships with suppliers?

Have there been instances where supplier relationships impacted procurement efficiency?

Cost Reduction Initiatives:

Are there any ongoing or recent initiatives aimed at cost reduction in the procurement process?

How do you assess the effectiveness of these initiatives?

Recommendations:

Do you have any specific recommendations or ideas for improving supply chain efficiency and reducing costs in procurement?

