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Recommendations to Improve Inbound Logistics Process in a Case Company

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This has been a challenging, intensive, and rewarding year of study which is unbelievably coming to an end. It has been an exceptional year of studying remotely with specific advantages and disadvantages during the global Covid-19 pandemic. Studying in Industrial Management Programme has been an inspiring journey and it will remain remarkable experience for the rest of my life.

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<p>This study was carried out in a medium-sized manufacturing company. Regarding the identified business problem in the case company, it was realized that the inbound logistics process of the company required improvements. The objective of this study was to recommend improvements for the inbound logistics process in the case company.</p> <p>The research approach of this study is applied action research and for data collection, qualitative methods such as semi-structured interviews and workshops were utilized. The study includes four phases. The first phase is a current states analysis to identify the weaknesses and strengths of the inbound logistics process. The second phase includes a literature review based on the selected weaknesses to search for relevant ideas and best practices to counter the weaknesses. The third phase contains co-created initial recommendations for the process improvement based on the outcomes from previous phases. The fourth phase provides final recommendations as the outcome of the study after validation of the initial recommendations by senior management of the company.</p> <p>The identified weaknesses during current state analysis are related to the implementation and execution of the process which are categorized into two distinctive categories, process management and communication. The outcome of the study includes five recommendations to improve the selected weaknesses which provide ideas to enhance the performance of the process.</p> <p>Inbound logistics process is one of the fundamental processes in an organization which has considerable impact on the output of the organization and customer satisfaction. As any other processes in the organization, besides designing the process, the implementation and execution of the process plays a crucial role in the process performance. The outcome of this study assists in enhancing the performance of the inbound logistics process in the case company.</p>	
Keywords	Inbound logistics process, process performance, communication, process management, process maturity

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1 Introduction

The success of a business is highly dependent on its processes. A wonderful organization with the high technology and first-class tools is not able to function right without getting its processes right. Many organizations fail because they do not pay sufficient attention to their processes (Lientz and Rea 2012).

One of the key processes in the manufacturing industry is the inbound logistics process. The inbound logistics process has a tremendous impact on the output of the manufacturing company and its customer satisfaction. A manufacturing company is responsible for delivering the right amount of the products in the right place, right order, right time, and in the most efficient way. To achieve these demands, it is a mandate to establish the inbound logistics process in advance which is flexible to changes such as volume. It is required to assess and investigate the involved elements to select and implement the optimal inbound logistics alternative (Knoll et al. 2016).

The purpose of this study is to review and investigate possible improvements to the current existing inbound logistics process in Sisu Axles Inc. The recent customer survey states that customers are not fully satisfied with the company's delivery accuracy. Moreover, the company's strategy is based on fulfilling the specific requirements of the customer in a short delivery time. The inbound logistics process has direct impact on the delivery accuracy of the company. Thus, the current inbound logistics process requires improvement.

1.1 Business Context

In 1931 Suomen Autoteollisuus (Finnish Automotive Industry) was formed which was the foundation of the Sisu brand. During the past decades, the company has transformed enormously and faced several changes in its organizational structure and products. In 1995 a subsidiary called Sisu Axles was formed and in 2011 Marmon Holdings Inc. acquired all Sisu Axles shares.

Sisu Axles Inc. is a medium-sized manufacturing company located in Hämeenlinna, Finland. It is one of the leading manufacturers in the heavy-duty transportation industry. There are 2 business units in the company, 1) After Market (AFM) which is focused on

selling spare parts, and 2) Original Equipment Manufacturer (OEM) which contains assembling and manufacturing complete axles. Currently at the time of writing this study, it has 35 employees and it operates independently. It manufactures high quality and specific axles for heavy duty trucks, military vehicles, container handling and industrial applications. By tailoring for special purposes and applications, the company has managed to fulfill very specific requirements of the customers with flexibility.

The company is focused on rather niche market suppliers who manufacture products for the high-volume vehicle industry. It has been serving a variety of customers globally for about 30 years. However, the main customers are in the USA and Australia.

Sisu Axles' operations are mainly demand-driven. Therefore, it is critical to plan and implement the operations to fulfill the customer expectation regarding the delivery time. The inbound logistics process which covers suppliers and the company's internal operations such as production line, has a high impact on the lead time. The company's inbound logistics process requires constant assessment, modification, and improvement to sustain a high level of delivery accuracy.

1.2 Business Challenge, Objective and Outcome

Delivery accuracy is one of the key elements to evaluate the company's performance. Manufacturing the right products and delivering to the customer with the right volume, place and time demands commitment and seamless collaboration of different parties inside and outside of the company. The delivery accuracy is highly dependent on the suppliers' commitment and performance. In addition, it requires clear, efficient, and optimized processes and operations inside the company.

According to a recent customer survey in Sisu Axles, it is clear that the company failed to accomplish the promised delivery time fully for the recent orders. It states that the company's on-time delivery performance is poor, and it requires improvement. The findings prove that the current existing inbound logistics process is not functioning optimally. Therefore, it is required to investigate and search for improvements to the process.

The objective of this study is to recommend improvements to the current inbound logistics process in the case company. The outcome of the study is the process improvement recommendations. The recommendations are listed and described in a report which is sent to the stakeholders and involved managers in the process. It is intended to enable the company to plan and implement the improvements to the process.

1.3 Thesis Outline

This study includes 7 sections where the first section is the Introduction. Section 2 focuses on the project plan including research approach, research design and data collection. Section 3 describes the current state analysis of the inbound logistics process in the case company. It provides the reader with an overview of the existing inbound logistics process by presenting its weaknesses and strengths. At the end it reveals the summary of the findings. Section 4 discusses the findings from relevant literature to form the conceptual framework of the study. Section 5 describes the co-creation of the initial recommendations to the existing inbound logistics process. Section 6 focuses on the feedback received and the corrections to the initial recommendations. It presents the final recommendations. Section 7 contains the conclusions and self-evaluation of the study.

This study does not include the implementation of the recommendations regarding to its short time frame. Its purpose is to analyze the current state and recommend the improvements to the process.

2 Method and Material

In the previous section the business challenge, objective and outcome were explained. This section explains the research approach and design, while describing the data collection and analytical methods. It presents the different phases and logic of this study.

2.1 Research Approach

The core of the business and academic activities is research while its definition varies depending on the context, nature, purpose, and people's perception. However, based on the general agreement, research is a systematic process of investigation which increases the knowledge. Regarding the nature and purpose of the research, it is required to select the appropriate approach and method for collecting and analyzing data. It is fundamental to be consistent during conducting the research from beginning to end. (Collis and Hussey 2013)

There is a standard classification of research into applied research and basic research (pure research). When the research is conducted to improve theoretical understanding of general issues with no or little emphasis on its practical applications, it is classified as basic research. Meanwhile applied research is conducted in a short term and based on existing knowledge to find a solution to a specific and existing problem (Collis and Hussey 2013).

Referring to Kananen (2013) applied action research or design research seeks a practical and functional solution to improve operations in the case company by combining development and research. Moreover, applied action research is the suitable approach to deal with organizational issues, implementation of change, and working with directly involved people. (Kananen 2013)

To carry out this study, applied action research was selected since the study is focused on a specific organizational business problem, its objective is to recommend improvements to a specific process, and its outcome is generating new knowledge for the case company. The study was conducted in short term and based on the existing knowledge acquired from directly involved people in the process. Thus, the most suitable approach for this study is applied action research.

In addition, to execute this study a qualitative data collection was chosen since the study does not contain the implementation of the recommendations or evaluation of the recommendations impact on the process. Moreover, the study was carried out based on the evidence existing in the current situation of the case company. Therefore, qualitative methods were used for data collection such as interviews, workshops, and reviewing existing documents.

2.2 Research Design

This study is divided into four phases to address the business challenge introduced in the previous section. Figure 1 illustrates the Research Design of this study including the phases, data collections, and outcomes.

Referring to Figure 1, the first phase includes a current state analysis of the existing inbound logistics process in the company. In order to identify the areas requiring improvements in the process, it was essential to know and understand the existing situation. To analyze the current status all the internal documents regarding the process were studied. The current existing process and the operations were studied from the perspective of different involved departments. The findings were collected mainly through several interviews and one email inquiry with the involved managers, the company's internal reports, and customer surveys. A workshop was held with the expert managers to review the actual operation and performance. The interview with the involved managers included twelve questions and email inquiry with one of the managers contained seven questions. Moreover, the author's observation as an involved person in the process was utilized to analyze the process performance on the daily, weekly, and monthly basis. All findings enabled the author to draw the process map including identifying the strengths and weaknesses to analyze the current situation.

The second phase as shown in Figure 1 covers the literature review and the expert insights to address the weaknesses in the current process. The current state analysis facilitated in achieving a better understanding of the process and identifying the areas requiring improvements.

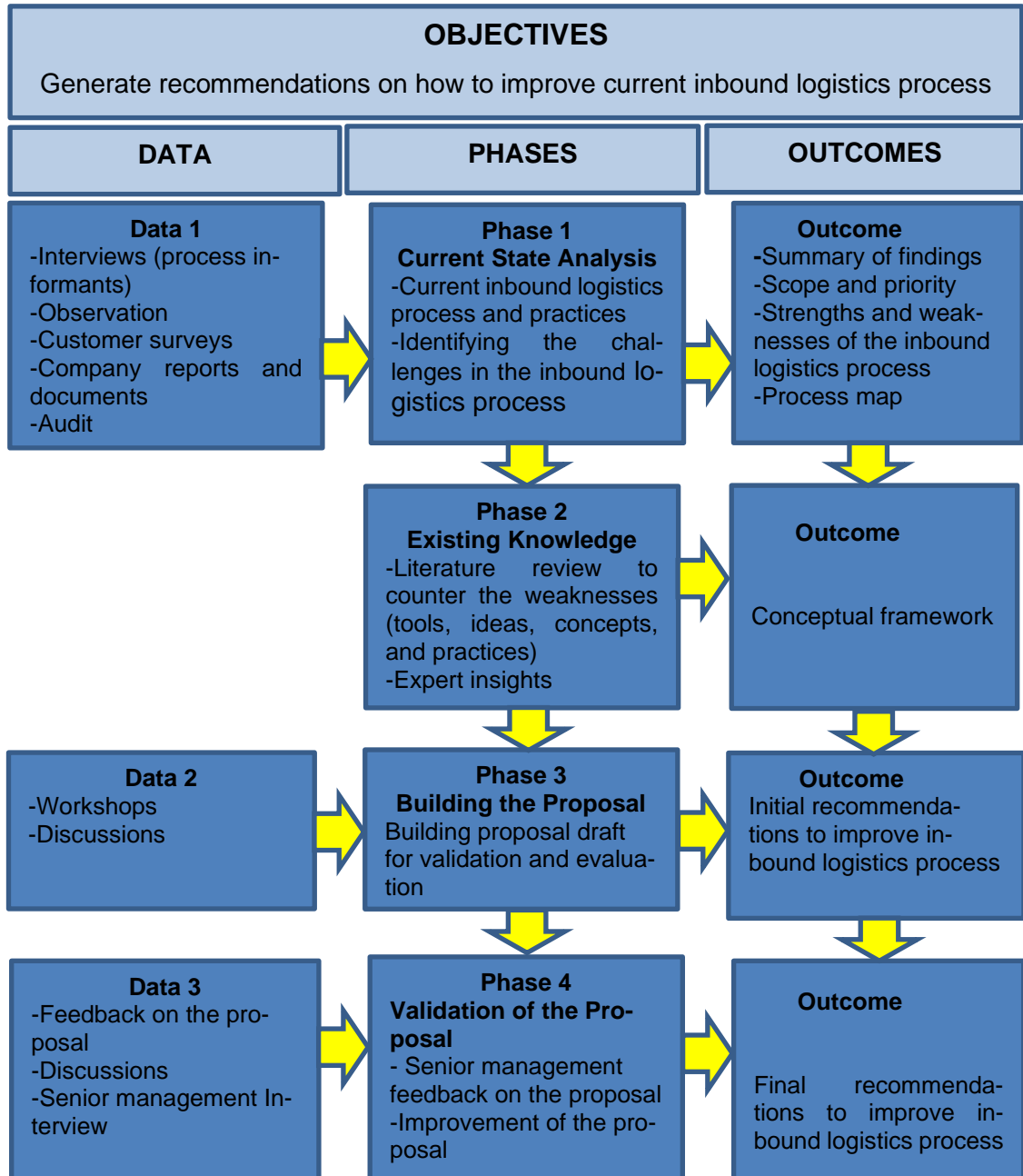


Figure 1. Research Design of the study.

In order to create recommendations for improving the process, relevant literature was reviewed to identify the best practices and feasible solutions. Moreover, the case com-

pany's expert insights and experiences were utilized to drive the study in the right direction. The key findings from the literature review formed the conceptual framework of the study.

As seen in Figure 1, the third phase contains the co-creation of the initial recommendations to the process as outcome. The initial recommendations were formed based on the conceptual framework to counter the recognized weaknesses of the current process. The discussions were arranged with the involved managers to benefit from their feedback, experiences, knowledge, and expertise. In addition, the workshops were held with these managers to increase the level of collaboration and sharing ideas and information.

The fourth phase as illustrated in Figure 1, includes the final recommendations based on the validation and the corrections made to the initial recommendations. The initial recommendations were presented to the senior management for validation. The feedback and comments received from the management were utilized to modify and adjust the initial recommendations accordingly. After adjustment, the final recommendations were created while forming the outcome of the fourth phase.

2.3 Data Collection and Analysis

To conduct this study the data was collected from a variety of data sources such as the involved people in the process, internal documents and reports, observations, and customer survey. Regarding the different phases of the study, three types of data were collected in three rounds by organizing interviews and workshops with involved managers and key stakeholders. Table 1 presents a brief overview of Data 1-3 collections for this study. Due to COVID-19 pandemic and for safety and health issues, face-to-face meetings were impossible in the organization and all interviews and workshops took place through TEAMS online meeting application.

Referring to Table 1, Data 1 was collected for the current state analysis. To obtain the required data, several individual interviews, one email inquiry, and one workshop were conducted. Five interviews and one workshop were organized on TEAMS online meeting application.

Table 1. Data 1-3 Collection.

no	Participants / role	Data type	Topic, description	Date, length	Documented as
Data 1, for the Current state analysis (Section 3)					
1	Respondent 1: Business development manager	Teams meeting/interview	Current state and operations of the process	4 Jan 2021, 2h 45m	Field notes
2	Respondent 2: Operational manager	Teams meeting/interview	Process operation, execution, challenges and work management, KPI's	14 Jan 2021, 1h 25m	Field notes
3	Respondent 3: AFM Sales manager	Teams meeting/interview	Process operation and the experiences related to the process, KPI's	19 Jan 2021, 1h 15m	Field notes
4	Respondent 4: OEM Sales manager	Email inquiry	Process operation and the experiences related to the process	20-22 Jan 2021	Field notes
5	Respondent 5: Purchase manager	Teams meeting/interview	Process operation and the experiences related to the process, KPI's	22 Jan 2021, 1h	Field notes
6	Respondent 6: Production manager	Teams meeting/interview	Process operation and the experiences related to the process, KPI's	26 Jan 2021 1h	Field notes
7	Respondent 7: Sales and logistics coordinator (author of this study)	observations	Process operation and the experiences related to current process	Sep 2019 to Jan 2021	Field notes
8	Respondents 1, 2, 3	Teams meeting/workshop	Current state and operations of the process including weaknesses and strengths	25 Jan 2021 1h 45m	Field notes
9	Key customers	Customer survey	Assessment of the process performance, delivery accuracy	2020	Field notes
Data 2, for Proposal building (Section 5)					
	Participants 1, 2, 3	Workshop/discussions	Proposal building	26 Feb 2021 1h 30m	Field notes
8	Participants 4, 5, 6	Workshop/discussions	Proposal building	2 March 2021 1h 20min	Field notes
Data 3, from Validation (Section 6)					
9	Respondents: key stakeholders	Teams meeting	Validation, evaluation of the Proposal	30 Mar 2021 1h 30m	Field notes

As shown in Table 1, the managers were from different departments such as sales, purchase, and production. For one of the managers, the data was collected through an email inquiry. The questions for Data 1 interviews can be found in Appendix 1 and the questions for email inquiry are listed in Appendix 2. During the interviews and workshop field notes were taken.

Moreover, the author's observations and key customer surveys were utilized to gain a better understanding of the current process status. The interviews were conducted as semi-structured while various questions related to the process were created in advance. Free discussions about the process during the interviews provided extra valuable information.

In addition, as depicted in Table 2, this study analyzed a number of internal documents such as supplier's assessment reports, delivery accuracy reports, and the involved departments' process maps. The documents and reports were studied and analyzed to obtain the current state analysis, Data collection 1, to achieve a better understanding of the execution of the process and its strengths and weaknesses.

Table 2. Internal documents used in the current state analysis, Data 1.

	Name of the document	Number of pages/other content	Description
A	Suppliers Assessment Reports	10 pages	Amount of purchase, suppliers' delivery accuracy
B	ERP Reports	5 pages	Delivery accuracy to the customers
C	Sales order process	1 diagram	Process map of confirming sales order
D	Purchase order process	1 diagram	Process map of purchase order
E	Production process	1 diagram	Process map of production/assembly

In addition, as depicted in Table 2, this study analyzed a number of internal documents such as supplier's assessment reports, delivery accuracy reports, and the involved departments' process maps. The documents and reports were studied and analyzed to obtain the current state analysis, Data collection 1, to achieve a better understanding of the execution of the process and its strengths and weaknesses. Moreover, for Data 1 regarding the current state analysis, the author utilized Hammer's Process and Enterprise Maturity Model (PEMM) to audit the process. The model is described in sub-Section 3.3.3.

As seen in Table 1, the second data collection round, Data 2, was conducted for co-creating initial recommendations and proposal building. Two online workshops were held by using TEAMS online meeting application where the managers mentioned above participated. The structure of the workshops was the same and in each workshop three managers participated. Due to the tight schedule of the managers, it was impossible to organize one workshop participating six managers at the same time. The participants' ideas and comments were utilized to co-create the initial recommendations to the process.

As shown in Table 1, Data 3 was conducted to validate the initial recommendations. An online meeting was arranged with the key stakeholders to receive their feedback and evaluation regarding the initial recommendations. The field notes were taken during the interview.

The next section of this study describes the results of Data1 collection regarding the Current State Analysis and presents an analysis of the case company's inbound logistics process.

3 Current State Analysis

This section describes the current state of the inbound logistics process in the case company. The general findings about the process are described which are followed by detailed explanation regarding specific features of the process. Finally, this section discusses strengths and weaknesses of the process.

3.1 Overview of the Current State Analysis Stage

To study and analyze the current inbound logistics process in the company, first the author conducted semi-structured interviews separately with the operational manager, sales managers (AFM and OEM), purchase manager, business development manager, and production manager. OEM sales manager preferred to provide the required information regarding the process through an email inquiry.

After collecting the primary information, the author organized a workshop with operational manager, business development manager, and AFM sales manager. The primary findings were presented during the workshop while participant feedback and comments were collected and used to achieve better understanding of the current state.

Moreover, after the interviews and the workshop, the author started auditing the process to achieve an evaluation of the process. Since the author is employed in the company as logistics and sales coordinator, a considerable amount of own observations and understandings of the process were used to audit the process. The author used Hammer's Process and Enterprise Maturity Model (PEMM) as a tool for auditing. It is believed that PEMM assists in obtaining comprehensive recognition of the process enablers and enterprise capabilities while both are essential for high performance of a process. The PEMM tool is shown in Appendix 3 To evaluate and audit the process, the feedback of interviewees and the author's observations were utilized to form a comprehensive and reliable analysis. The results of the audit are summarized in Table 3.

3.2 Inbound Logistics Process in the Company

The operations in the case company are demand driven. The start point of the inbound logistics process is the customer order. Figure 2 illustrates the existing inbound logistics process in the company.

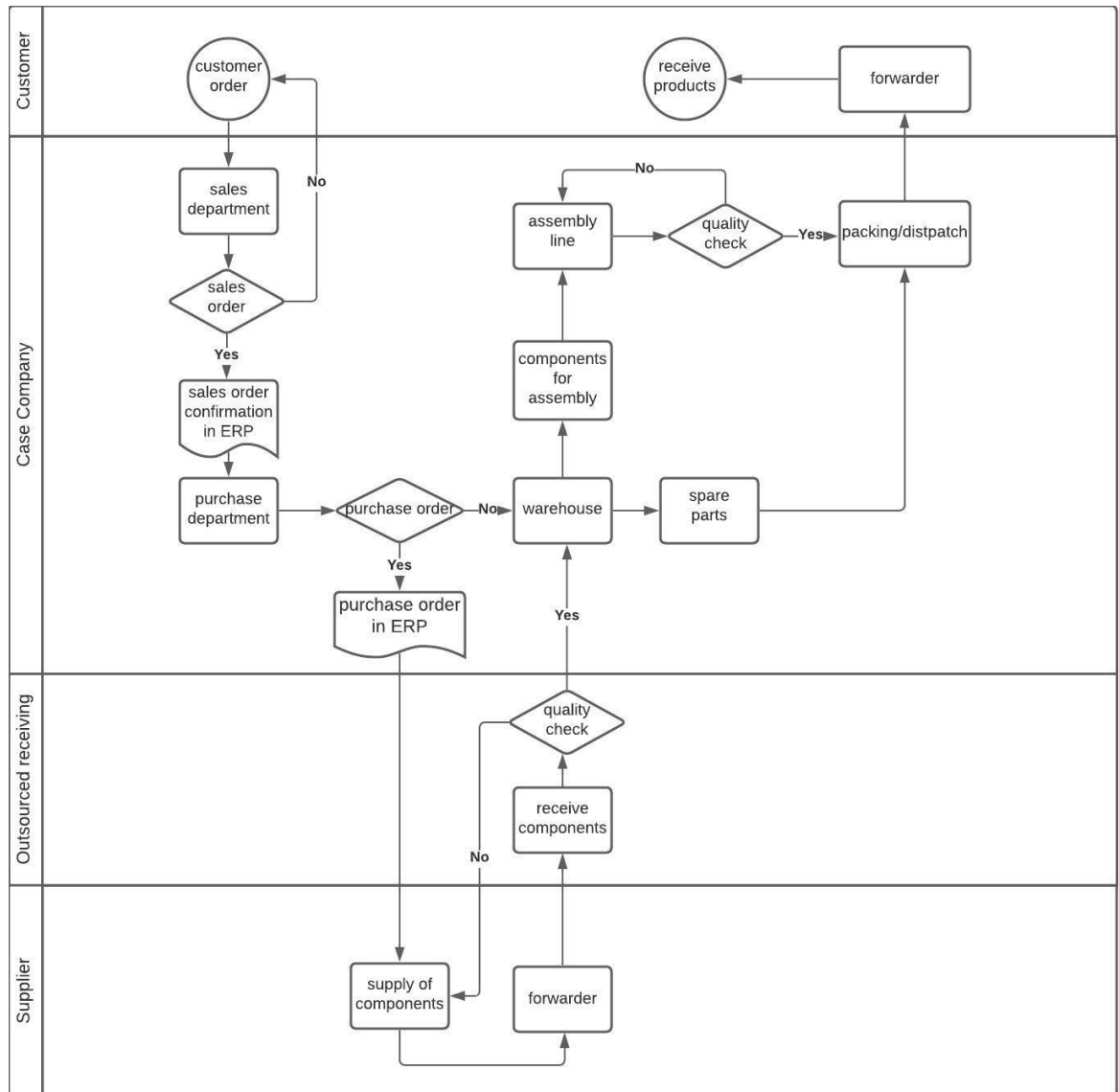


Figure 2. Inbound Logistics Process Map.

As shown in Figure 2, the sales department analyzes the customer order and depending on the customer requirements the order can be confirmed in ERP or rejected back to the customer. Order confirmation is visible through ERP to all involved departments such as the purchase and production. Regarding availability of the components, the purchase

department decides whether purchasing new components is required or not. For complete axle orders, there are two options to provide assembly line with the required components as the components will be:

- 1) purchased from suppliers or,
- 2) picked directly from the warehouse (available inventory)

In addition, the above-mentioned options apply to the sales orders including spare parts. It means, depending on the availability of the spare parts, they are supplied by the suppliers or collected directly from the warehouse. Based on the customer order, the spare parts are packed and the package stays at dispatch for collection.

However, for orders including complete axles, after the assembly the quality of final products is controlled and assessed. As seen in Figure 2, if the quality is approved, the product is packed and sent to dispatch for collection. If it is faulty, it is sent back to assembly line for correction.

In general, shipment of the components from suppliers to the company is booked by the suppliers. Meanwhile, the majority of the customers organize shipment of the products themselves. The case company only books the shipments through shipping services provided by the customer and according to the customer requirements.

3.2.1 Outsourced Receiving Operations

Few years ago, the case company did not need its whole factory area and therefore, part of the area is rented to the neighboring company. At the time of writing this report, the factory area is shared between the case company and the neighboring company.

The receiving point of the factory has been physically located in the rental area. As seen in Figure 2, for receiving the incoming components, the case company utilizes outsourced services provided by the neighboring company. It has been beneficial for the case company to outsource receiving operations as it decreases assigning the resources and dealing with relevant challenges.

When asked about the reason for outsourcing receiving operations, Respondent 2 stated that:

We did not need to change the location of receiving goods area. It was easy to continue the same physical flow. By outsourcing, we decreased the related challenges such as assigning resources and facing sick leaves and so forth. (Respondent 2)

It seems to be logical and convenient to continue almost the same procedure and process for receiving the components. The findings state that receiving the incoming components is conducted smoothly and without bottlenecks. When asked about the time spent on potential bottleneck in receiving stage, Respondent 1 replied as follows:

After receiving goods in the incoming area located at neighboring company, most of them are directly moved to Sisu Axles warehouse and located on the right shelves. For supplier with frequent deliveries, the quality check is not required. For those first-time delivery items or new suppliers, neighboring company conducts the quality check and charges Sisu Axles for the service. Most of the received goods do not need to pass the quality check. Therefore, the components are moved on the same day of arrival or latest by the next day to their right place in Sisu Axles warehouse. (Respondent 1)

However, as seen in Figure 2, the neighboring company receives the components or spare parts and conducts the quality check. Depending on the result of the quality check, components and spare parts are moved to the warehouse or sent back to the supplier for correction. It is understood that receiving the goods and shelving them are performed successfully without wasting time.

3.3 General Findings

Based on the interviews conducted with the involved managers in the process, it is understood that for each involved department the relevant and limited process map is designed where the steps and operations are illustrated and explained to the departmental level. Moreover, the key performance indicators (KPIs) are defined and regularly the performance is measured and recorded. For instance, in purchase department the KPI is delivery accuracy of the suppliers and it is measured regularly (weekly, monthly, and yearly). In sales department, the performance measurement is based on the delivery accuracy to the customers while it is reported in some cases by the customers through customer survey. In the production department, accomplishing the determined workload

or work-in-progress is measured and reported regularly and it is announced internally by publishing it on the board in the factory.

However, the process map and KPIs are determined specifically for the single departments and there is less emphasis on end-to-end process execution. It appears that there is less focus on measuring and controlling the performance of whole inbound logistics process.

When the question regarding control and measurement of the process was asked, Respondent 2 answered as follows:

Based on the records received from production and purchase, the operational manager controls and measures the performance of the process. The head managers of the purchase department and production department, and business development manager measure and control the performance. I am not sure about sales department if they measure the performance and record the results. (Respondent 2)

In general, the findings prove that the operational manager measures the performance of inbound logistics process based on the delivery accuracy to the customers. It is understood that in the past, the performance was measured based on customer satisfaction and delivery accuracy. As customer satisfaction is highly subjective and it varies according to type of customer requirements, it has been decided to measure the performance solely based on the accuracy of the delivery to the customers.

In addition, it is critical to rely only on the customer survey. The perception regarding delivery accuracy is variable i.e., production manager and logistics manager do not measure it in the same way. Therefore, delivery accuracy as the only KPI for the inbound logistics process of the case company is measured both internally and based on customer survey. Enterprise Resource Planning (ERP) system of the company enables to measure the delivery accuracy for specific time frame such as weekly, monthly, and yearly. The internal measurement is accessible for analysis through ERP.

Moreover, there is a weekly meeting where involved managers participate to share the information regarding incoming components, sales orders, the situation of the work-in-progress in production line, delivery time, and so forth. The purpose of the meeting is to

update the information related to the inbound logistics process among the involved departments and discussing about changes and modifications required during execution. However, based on the observations, it is understood that during the meeting many irrelevant issues are discussed and some of the participants are not involved in the process directly. It means that the meeting is not effective due to partially irrelevant participants and wasting meeting time by discussing about irrelevant issues.

3.3.1 Forecast

In general, forecast is considered as a tool which assists the case company in providing assembly line with required components in time. Moreover, the purchase department utilizes calculated minimum stock level and 80/20 analysis to purchase the components. Regarding the procedures for initiating purchase order, Respondent 1 indicated that:

The company uses 80/20 policy to determine the minimum stock level. Minimum stock level calculation assists in purchasing the parts in time. Moreover, we utilize ABC analysis to determine the best minimum level in the ERP system to alert purchasers about stock availability. For some items we have weekly or monthly supply that the supplier delivers the components regularly. (Respondent 1)

According to the findings, in the past there were frequent demands for the fixed products and the company was required to obtain fixed components frequently. Therefore, it was possible to operate successfully based on the forecast. Regarding calculated forecast of sales amount, it was practical to purchase the required components in time.

Recently, the volume of fixed orders has decreased dramatically, and the company accepts new orders with a considerable amount of tailoring and modifications. The company purchases the components based on the orders received and, in some cases, it is mandatory to search for new supplier who is able to provide new components but with long lead time. This leads to challenges in obtaining the components and delivering the final product to the customer in time. Thus, the bottleneck in the process is long lead time for obtaining the required components.

When the question about bottleneck in the process was asked, Respondent 1 answered as follows:

If all components are available, there will not be bottleneck in the process. (Respondent 1)

In addition, Respondent 3 answered the same question regarding bottleneck as it comes:

If everything goes right as it is defined and planned in the process, there would not be any bottleneck in the process. (Respondent 3)

Regarding obtaining the required components in time, the company faces challenges related to batch size because some suppliers determine minimum batch size for the purchase order which results in the increase at stock level. Respondent 2 answered the question about bottleneck in the process as follows:

The most time-consuming part in the process is receiving goods from suppliers. Some of the suppliers have defined minimum batch order which is more than what we need therefore, some parts are not used, and they stay in the warehouse quite long time. (Respondent 2)

Moreover, since the company accepts tailoring and fulfilling specific requirements of the customer, there are variations in the orders and as a result, forecast is not completely reliable. However, it is mandated to estimate forecast even though it is not reliable in many cases and it is impossible to purchase solely based on it. Respondent 5 stated that:

Forecast is just forecast meaning it reveals the possibility and estimate of the need in the future which is not fixed. However, we need to have the forecast in our system but in purchase department we decide by considering other factors such as value, volume, the orders in the past and future (history). (Respondent 5)

However, the sales department is responsible for estimating the forecast for the components and spare parts. The purchase department reviews and analyzes the forecast to determine the date and amount of purchase order. The findings prove that the purchase department analyzes the forecast based on the demand in past, the value, the volume,

and the backlog order. Thus, the forecast is not followed exactly by the purchase department.

3.3.2 Tailoring

Even though tailoring the products is one of the competitive factors of the company, it results in challenges for the business. One of the challenges is that accepting excessive tailoring prevents automating the process and it increases the occurrence of the mistakes during performance. Respondent 2 indicated that:

The flexibility is positive point of our company but the same time it is one of the negative points. If we try always to be flexible towards customer wishes, it will be very challenging, time consuming, and costly. It prevents automating the process, and it needs more resources from purchase, R&D, production, and from everywhere in the organization. (Respondent 2)

It means that excessive tailoring causes considerable changes to the process, operations, and costs. The findings prove that excessive tailoring increases the risk of manufacturing faulty products. Moreover, as Respondent 2 stated, it is critical to assure that pricing policy compensates all the efforts and time spent on tailoring and modification. Based on the recorded data and information, customers often do not pay for all the efforts.

3.3.3 Results of the Process Audit

As mentioned above, the author evaluated the maturity of the process by using Hammer's PEMM tool. According to Hammer (2007), the process enablers include design, performance, owner, infrastructure, and metrics as shown in Table 3. The strengths of the enablers are graded from P1 to P4 where P1 is the lowest level and P4 is the highest level. The level of the enablers indicates the level of maturity of the process. The maturity of the process reveals the capability of the process to deliver stronger performance over time. Hammer believes that for a process to be at certain level of maturity, all enablers are required to be at that certain level. It means if one enabler falls one level below, the maturity of the process is evaluated one level below accordingly. (Hammer, 2007)

Regarding the audit conducted by the author for the process in the case company, the results about the level of the enablers are presented in Table 3 in green-colored columns.

Table 3. Audit of the inbound logistics process based on Hammer's (2007) PEMM model

The Process and Enterprise Maturity Model (Hammer, 2007)			
Process Enablers (P1-P4)		Enterprise Capabilities (E1-E4)	
Design	P3	Leadership	E2
Performers	P3	Culture	E2
Owner	P2	Expertise	E3
Infrastructure	P3	Governanace	E2
Metrics	P3		

Referring to Table 3, the findings state that four enablers including design, performers, infrastructure, and metrics are at level P3 but as owner is at level 2, the process achieves P2 level. It means that employees are able to describe how the process is designed and what steps are required to follow. In addition, employees are able to describe where they fit into the process.

According to Hammer (2007), to achieve high performance of a process, it is required to prepare supportive environments in the company. Hammer states that supportive environments contain enterprise capabilities including leadership, culture, expertise, and governance. The enterprise capabilities influence the process enablers directly. It means by providing stronger capabilities, the company obtains stronger process enablers which in return enables to achieve better process performance. The enterprise capabilities are evaluated based on four levels, E1 to E4 which E1 indicates the lowest level and E4 represents the highest level. (Hammer, 2007)

The results of the audit regarding assessing the enterprise capability in the case company are presented in blue-colored columns in Table 3. As seen in Table 3, the findings state that leadership, culture, and governance are at E2 level and expertise is at E3 level. Therefore, the enterprise capabilities are at level E2. It means that employees participate in cross-functional projects and teamwork is a common practice in the company.

3.4 Key Findings from the Current State Analysis

The findings and information collected during the interviews, the workshop and the process audit which formed Data 1 collection of this work, assisted the author in gaining a comprehensive view of the current state of the inbound logistics process. As a summary, the findings are categorized into strengths and weaknesses which are presented in Table 4 and Table 5, respectively.

3.4.1 Strengths of the Process

As shown in Table 4, the process possesses remarkable positive points which form its strengths. When question about the strengths of the process was asked, Respondent 1 replied as follows:

The process is quite simple and easy to follow. For example, if you put accurate information behind the sales orders, then we have no problems. Our ERP system is very good and fulfills our requirement. It is required to know the parameters and use them in right way. Moreover, the information is easily accessible from ERP, but it needs people who know how to use it. (Respondent 1)

In addition, there are sufficient instructions for training new employees that how the process functions. The instructions are prepared and accessible in the company's data base. It enables the new employee to study the instructions and learn about the process independently. Respondent 3 indicated that there are sufficient and clear instructions for training employees and Respondent 1 added that it is essential whether the employee desires to learn because it is impossible to force someone to learn. However, the sufficient support and guidance from the supervisors are needed to train new employees.

As it was mentioned earlier in this report, there is a weekly meeting where the heads of the involved departments participate. In the meeting the issues regarding supply of required components, current and future sales orders, and situation in the assembly (production) line are discussed.

As seen in Table 4, the findings prove that expert employees have designed the process very well and all the aspects and relevant steps are identified in the process. The process contains simple and clear steps which prevents confusion during execution. Since the process is simple, for new projects which include tailoring and modification, it is possible to adjust it accordingly. It means that the process is flexible towards the changes during execution.

Table 4. Strengths of the process

Strengths of the Inbound Logistics Process
well designed
simple and clear
flexible (for new project/product)
clear instructions for training
weekly meeting regarding supply-sales-production
identified KPIs
visualized process map (for each involved department)

As shown in Table 4, KPIs are identified and announced to the employees for personal performance measurement. For each involved department, a process map is designed which enables the employees to identify and follow the required steps and actions. The process map assists the employees in planning for the implementation.

3.4.2 Weaknesses of the Process

As seen in Table 5, the negative points in the process which form its weaknesses are classified into two groups, Group A as listed in grey-colored rows and Group B which are presented in blue-colored rows. Group A includes weaknesses regarding operations, executions, and performance while Group B contains weaknesses related to personal or organizational culture.

When the question about weaknesses of the process was asked, Respondent 5 replied as follows:

The process itself is well designed and easy to follow. The problem appears when people do not use it well or do not follow the defined parameters. Even though we have the right tools and clearly planned process, the performance is poor. One of the reasons is lack of awareness of the employees that how their actions influence the end results. The other reason is lack of commitment of some of the employees involved in the process. (Respondent 5)

Referring to Table 5 and Group B weaknesses, the findings state that although the process is simple and clear, the steps and actions are not completely followed and practiced. It means that not all executive managers perform according to the designed process. When question about weaknesses of the process was asked, Respondent 3 answered as follows:

I see no weaknesses in the process itself. Its potential weaknesses are related to the implementation. The potential weaknesses are related to people and the quality of the people we employ including how we educate people and invest in people. Some colleagues do not care about the steps in the process. They are not working based on right rules. Sometimes, they perform based on their own way of doing things which causes problems. There should be continuous evaluation of the employee's performance. However, the participation of the employee in evaluation is required. It is impossible to evaluate an employee's performance without his own willingness and cooperation. The manager is required to be proactive, to discuss with the employee to know how he performs and how the performance is on daily basis. If the mistakes are repeated, the manager is required to discuss the issues with the employee to know the reasons and remove the obstacles during performance. (Respondent 3)

Moreover, the performance of the employees is not fully controlled and measured as some of the managers do not pay attention to the performance sufficiently.

It is understood that there is not fully clear policy regarding poor performance and practicing the same mistakes. It appears the majority of the mistakes and poor performance are tolerated and compromised as there are not sufficient warning and preventive actions regarding poor performance. Regarding the weaknesses of the process, Respondent 5 added as follows:

One of the challenges is poor cooperation among the involved departments. All departments are required to get involved in sales operations and support the sales activities because fulfilling the customer order requires to consider all issues in the process such as capacity issues in production and availability of components in stock. We do not “plan in advance” before promising to the customer. (Respondent 5)

In addition, findings state that the involved departments are not completely aligned towards the goal of the process. It is understood that not all executive managers realize the importance of following the process and executing based on the defined steps. For instance, in ERP there are well-defined parameters regarding inventory and availability of components. It is essential to follow the parameters in order to manage the availability of components for various orders but in practice some of the employees do not follow the parameters. Regarding the question about the weaknesses of the process, Respondent 1 answered as follows:

The operations are suffering from lack of common agreement among the departments to do the work better. It seems the departments are not towards the same direction. It is easy to just go with the flow and do ordinary tasks at work, but it is a must to study and learn to perform better. (Respondent 1)

Moreover, the communication among the involved departments is not effective and especially for new projects there is not fluent information flow among the departments. For the new projects, the required information is not efficiently shared in time and with the right employees. Regarding the question about the weaknesses of the process, Respondent 6 indicated that:

Huge amount of change is agreed with the customer before discussing the issues with production. The information about capacity in production and availability of components are accessible in ERP but sales department does not check it beforehand. Before accepting and promising the modifications to the customer, the issues are required to be

discussed with production to assure the practicality. There should be sufficient discussions about who does what, how, and when. (Respondent 6)

As it is mentioned earlier in this report, it is realized that the weekly meeting is not as efficient as it was planned for. The majority of the Respondents expressed that the number of the current participants is unnecessarily high, and part of the meeting time is spent on discussing about irrelevant issues.

As seen in table 5, Group B weaknesses are related to subjective issues such as personal culture and company culture which affect the performance negatively. Group B weaknesses include mainly the issues related to the unwillingness of the people to follow the process and being reluctant to controlling and measuring the performance.

Table 5. Weaknesses of the process

Weaknesses of Inbound Logistics Process
Group A: operation, execution, and performance
End-to-end process is not fully applied.
Involved departments are not completely aligned towards the same target.
Communication among the involved departments is poor.
There is not sufficient collaboration for planning and during implementation.
Irrelevant issues are discussed in the weekly meeting and irrelevant attendees are included.
Group B: personal or company culture
Not all executive managers perform according to the designed process.
Not all managers control and measure the performance of the employees based on the process.
There is not sufficient preventive and corrective policy regarding poor performance.

As shown in Table 5, the process suffers from Group A weaknesses which are related to operation, execution, and performance aspects. Even though the process is designed well and for each departmental level there is a process map with detailed steps and actions, in general end-to-end process is not fully applied. It means that the process lacks required controls and management from customer order towards customer requirements fulfilment.

As seen in Figure 3, Group A weaknesses are marked in the process map in red font. These weaknesses include mainly the operations related to confirming the sales orders, implementation, and communication among the involved departments.

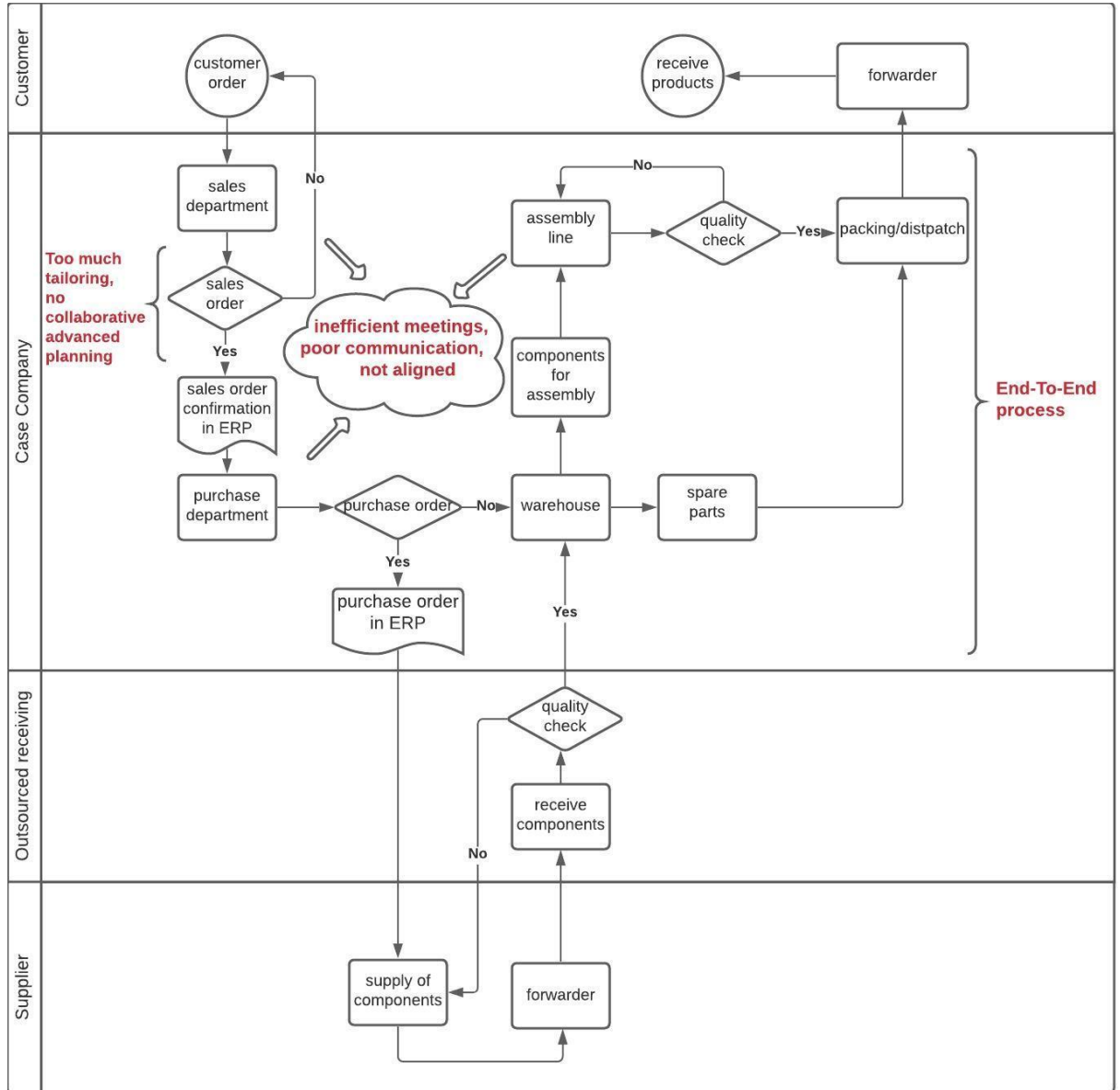


Figure 3. The weaknesses of Inbound Logistics Process

As shown in Figure 2, one of the weaknesses of the process is lack of collaborative advanced planning before confirming the sales order. It is crucial to check and assure about the resources in the company such as availability of components and production capacity before confirming the sales orders and promising to the customer. ERP provides the salespeople with the information regarding components availability and production capacity but in fact some of the salespeople do not use the information seriously. Moreover, part of the information is accessible through discussions with the purchase and

production departments such as possibilities for receiving components earlier or chances of increasing production capacity. In addition, for the orders with extra tailoring and modification, participation and collaboration of the finance and R&D departments seem mandatory.

3.5 Key Findings to Elaborate

As discussed in previous section, Group B weaknesses are mainly related to cultural issues. This study is focused on the operations, execution, and performance of the process based on the available resources and existing context and culture in the company. This study does not aim to change the culture. Therefore, the focus of this study is on Group A weaknesses. As shown in Table 6, Group A weaknesses are placed into two distinctive categories.

Table 6. Weaknesses divided into categories for literature review.

Category	Selected weaknesses
Process Management	1) End-to-end process is not fully applied.
	2) Involved departments are not completely aligned towards the same target.
	3) There is not sufficient collaboration for planning and during implementation.
Communication	4) Communication among the involved departments is poor.
	5) Irrelevant issues are discussed in the weekly meeting and irrelevant attendees are included.

As depicted in Table 6, the first category is related to process management and the second category is focused on communication. Based on the identified categories, the improvement ideas and the best practices are drawn from the relevant literature.

In the next section, improvement ideas are searched among relevant literature. With the focus on selected weaknesses in Table 6, literature review is performed to seek applicable improvement ideas.

4 Improvement Ideas from Relevant Literature

This section discusses relevant existing knowledge found from reviewed literature and utilizes it to form the conceptual framework for the study. Based on the outcome of the current state analysis, which is described in Section 3, relevant and reliable literature was searched. The outcome of the current state analysis was categorized into two distinctive categories to enable an effective literature review for seeking ideas to counter the identified weaknesses. This section is structured according to the selected identified weaknesses in the current state analysis for clarity.

Moreover, this section explains key findings from the literature review in three main sub-sections. The sub-sections include two main parts, 1) a description of the relevant idea, concept, tool or method found in the literature, 2) discussion and reasoning for its relevance to this study. The outcome of section 4 formulates the conceptual framework of this study which is presented in visual format at the end of this section.

4.1 Business Process Description and Necessity of Improvement

According to Martinsuo and Blomqvist (2010) a business process is defined as a series of developed routine activities which require resource investment to create value to the customer. It is considered as an effective tool to control and manage the operations of the company towards fulfilling its identified objectives. It means that a business process includes all actions and steps required to accomplish an operation based on the company's goals and objectives while it enables controlling and measuring the performance. (Martinsuo and Blomqvist, 2010)

According to Maddern et al. (2014), the business process is identified as an essential unit for analysis in operations management. During its evolution - since the recognition of its impact on productivity towards its role in efficiency and effectiveness - its importance as an organizing factor has always been emphasized. It is obvious that by providing transparency and clarity during execution, the business process facilitates tracking and analyzing the achievements while emphasizing on the sequences required to be followed during execution. (Maddern et al. 2014)

Grover and Malhotra (1997) argue that business process improvement includes several perspectives such as quality, information technology, organizational change, innovation, and redesigning work. The focus of the business process improvement is the functions of the organization and not solely the organization. Its results are obvious in decision making activities and analyzing the functionality of the organization. (Grover and Malhotra, 1997)

4.1.1 Business Process Improvement regarding Hammer's PEMM Framework

According to Hammer (2007), process improvement and redesigning internal and external business processes lead to tremendous enhancements in performance including cost, quality, speed, profitability, and delivery of value to the customer. Process improvement is beyond redefining actions and it requires comprehensive training in order to support all the actions and assist front line personnel in making decisions. (Hammer 2007)

According to Hammer (2007) companies are required to develop their business processes to become more mature meaning to enable the business process to deliver higher performance over time. To achieve a functional and mature process, it is required to consider five essential characteristics called process enablers which include design, performers, owner, infrastructure, and metrics. Design refers to description of jobs in the process specifying who performs what tasks, when, where, and in which sequence. Performers are defined as people who possess appropriate skills and knowledge to execute the process. Owner is defined as a senior executive manager who is responsible for ensuring the intended results of a process are achieved. Infrastructure contains information technology and HR systems which support the process. Metrics are specified to assess the performance of the process over time to ensure that the right results are achieved at the right time. (Hammer 2007)

In addition, Hammer (2007) claims that to achieve a mature business process with high performance, four enterprise capabilities assist the process in remaining confirmed and sustained in the company. Enterprise capabilities include leadership, culture, expertise, and governance. Hammer (2007) discusses that committed leadership that supports the creation and execution of the process has a high impact on the process performance. Moreover, a mature process is highly dependent on the enterprise culture which is required to value the customer, teamwork, personal accountability, and willingness to

change. The existence of expertise in the enterprise containing required skills and methodology for process improvement is fundamental. Meanwhile, the enterprise is required to possess governance which involves techniques for managing complex projects and change initiatives to prevent conflicts during execution. (Hammer 2007)

Hammer (2007) argues that process enablers and enterprise capabilities facilitate designing a comprehensive framework called Process and Enterprise Maturity Model (PEMM) which assists companies to assess the maturity of their business processes and identify the areas requiring process-based changes and improvements. (Hammer 2007)

In fact, the business process has a crucial role in the success of the organizational operations. Therefore, it is beneficial to improve and reengineer the customer-facing and internal processes based on the conditions and requirements.

4.2 Ideas to Counter Weaknesses related to Process Management

According to Hammer and Stanton (1999) to obtain higher results from a business process it is a mandate to focus on process management and process performance. It is fundamental to consider the whole process and identifying measurement systems based on process goals. It is required to emphasize process management rather than process redesigning. (Hammer and Stanton, 1999)

Hammer and Stanton (1999) argue that the process owner has a strong impact on process management and process performance. It is necessary to assign the best managers as process owners who have the right authority and control on the budget. It is beneficial to reconsider assigning and training employees to facilitate teamwork and performing according to core processes. (Hammer and Stanton, 1999)

Bititci et al. (2011) underlines those operational processes deliver performance while managerial processes enable the organization to maintain sustainable performance over time. Sustainability is defined as the ability of the organization to continue and improve its performance over time. Managerial processes are considered as part of the managerial system which are interconnected with other processes and activities. It is fundamental for organizations to balance between short-term performance management activities

and long-term activities to maintain sustainable organizational performance. Figure 4 illustrates the link between managerial processes, operational processes, and support processes which form the business process architecture. (Bititci et al. 2011)

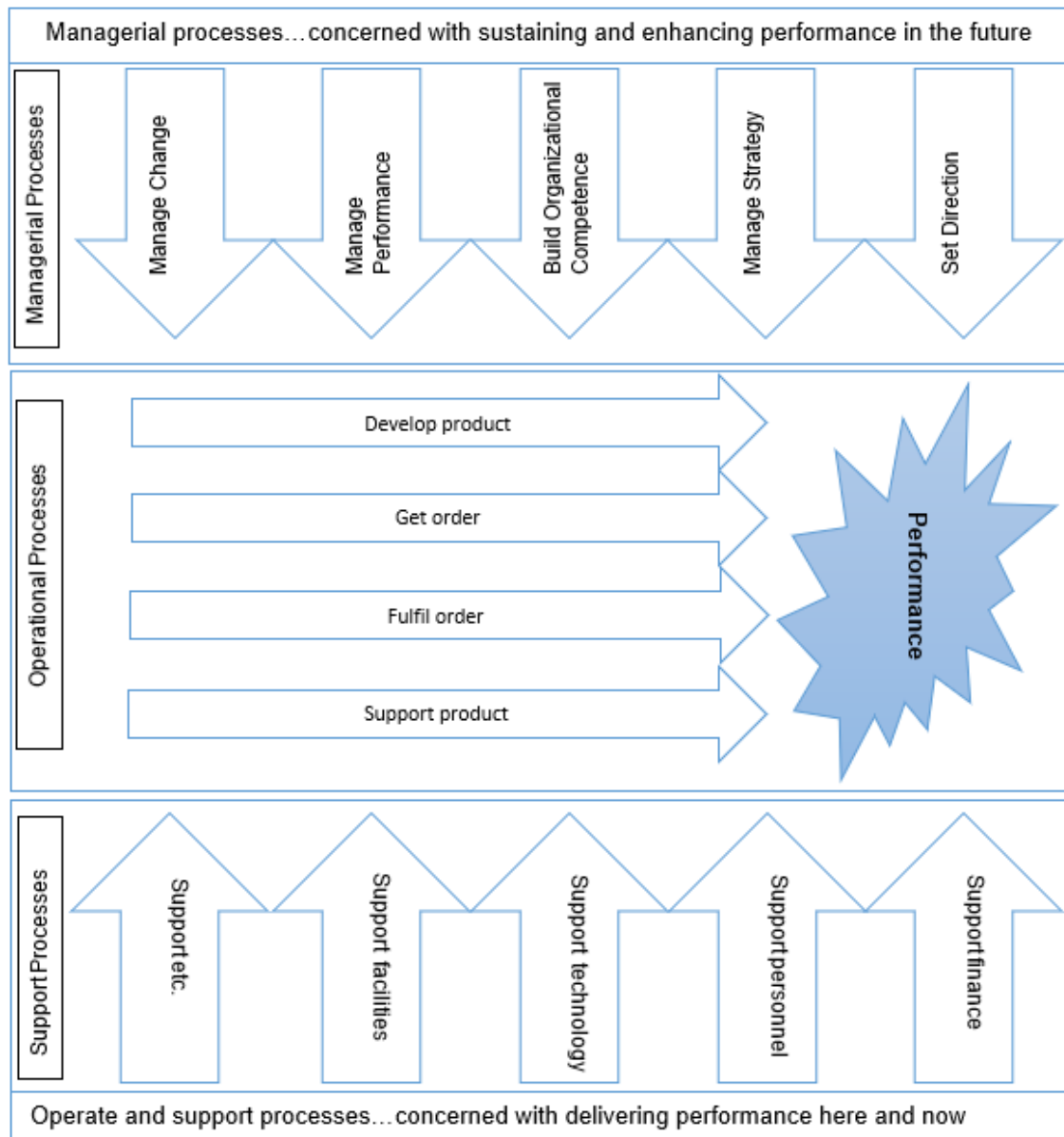


Figure 4. Business process architecture and performance (Bititci et al. 2011)

As seen in Figure 4, managerial processes, operational processes, and support processes are interconnected and lead to performance. Operational processes and support processes enable to deliver the performance for present and short-term while managerial processes provide sustainable performance in long-term by leading, modifying, and managing the operational and support processes. The business processes with a high

level of process maturity possess a high level of interconnectedness among all its processes and activities which results in higher levels of sustainable performance. (Bititci et al. 2011)

According to Bititci et al. (2011) the managerial process in practice is defined as a strategic business process which includes managing five main interconnected processes: 1) performance containing finance, operations, staff, suppliers, customers, market, product, and brand, 2) decision making within the organization, 3) communications within and outside of the organization, 4) culture inside the organization, and 5) change within the organization. The outcome of the managerial process influences the direction and control of the organizational performance in the future. (Bititci et al. 2011)

Interestingly, Bititci et al. (2011) states that the perception level of the managers who organize the managerial system has a crucial impact on the execution and maturity of the managerial system. It means that the managers' perceptions and cognitions influence the execution of managerial processes. Managerial processes are homogenous in structure while they are heterogenous during execution. Understanding and interpreting the information that flows in managerial processes are mainly subjective and uncertain which is highly dependent on the managers' perceptions, cognitions, and rationales. This affects the interconnectedness and organizing of the managerial systems which eventually influences the sustainability of the performance (Bititci et al. 2011). Similar to Hammer and Stanton (1999), this emphasizes the critical role of the managers as process owners which determines the success in achieving high and sustainable performance over time.

4.2.1 Ideas to Counter Weakness 1: End-to-End Process Management

Maddern et al. (2014) states end-to-end process concept which begins from customer order to fulfilling customer requirements is complex requiring transferring beyond process mapping and extended boundaries. It means process management according to customer requirements and not process management within departments. It contains three core fundamental features: scope, scale and complexity. The scope is defined as boundaries and controls while the scale refers to resources and transferring input to output. The complexity involves interrelationships and orientation in the process. (Maddern et al. 2014)

Maddern et al. (2014) discusses that how end-to-end process management assists in reducing the transaction time and cost while improving the value to the customer and enhancing competitiveness. Moreover, applying cross-functional process management is emphasized rather than process reengineering. It is crucial to consider that implementing any change in the company is dependent on top management support, efficient communication, project management, and training. (Maddern et al. 2014)

Referring to Maddern et al. (2014), for a process to achieve its objectives, the ability of the process to interact and communicate with other processes and entities across boundaries play a crucial role. It means that the process can be understood and managed at the systems level if efficient and effective interaction and communication at cross-functional level exists. (Maddern et al. 2014)

According to Hammer and Stanton (1999) for enhancing the process performance it is required to consider the whole processes rather than single units with narrow tasks. It is beneficial to maintain the focus of measurement system based on process goals instead of unit goals. In addition, organizations are required to emphasize teamwork and customers over hierarchy. (Hammer and Stanton 1999)

4.2.2 Ideas to Counter Weakness 2: Alignment During Performance

It is vital to keep alignment among all sectors in the organization during all operations and activities towards the identified goals. The following sub-sections are related to maintaining alignment through whole processes.

4.2.2.1 Closed-Loop Management System

Kaplan and Norton (2008) believe that the reason for poor performance of a company is the existence of breakdowns in its management system. They define management system as an integrated set of processes and tools used to develop the strategy, making it understandable and followed during operational actions, while constantly controlling and improving the effectiveness. Moreover, they discuss how a closed-loop management system prevents shortfalls in the management system of the company. In a closed-loop

management system, the focus is on maintaining the link between strategy and operations. A Closed-loop Management system including five main stages is visualized in Figure 5. (Kaplan and Norton 2008)

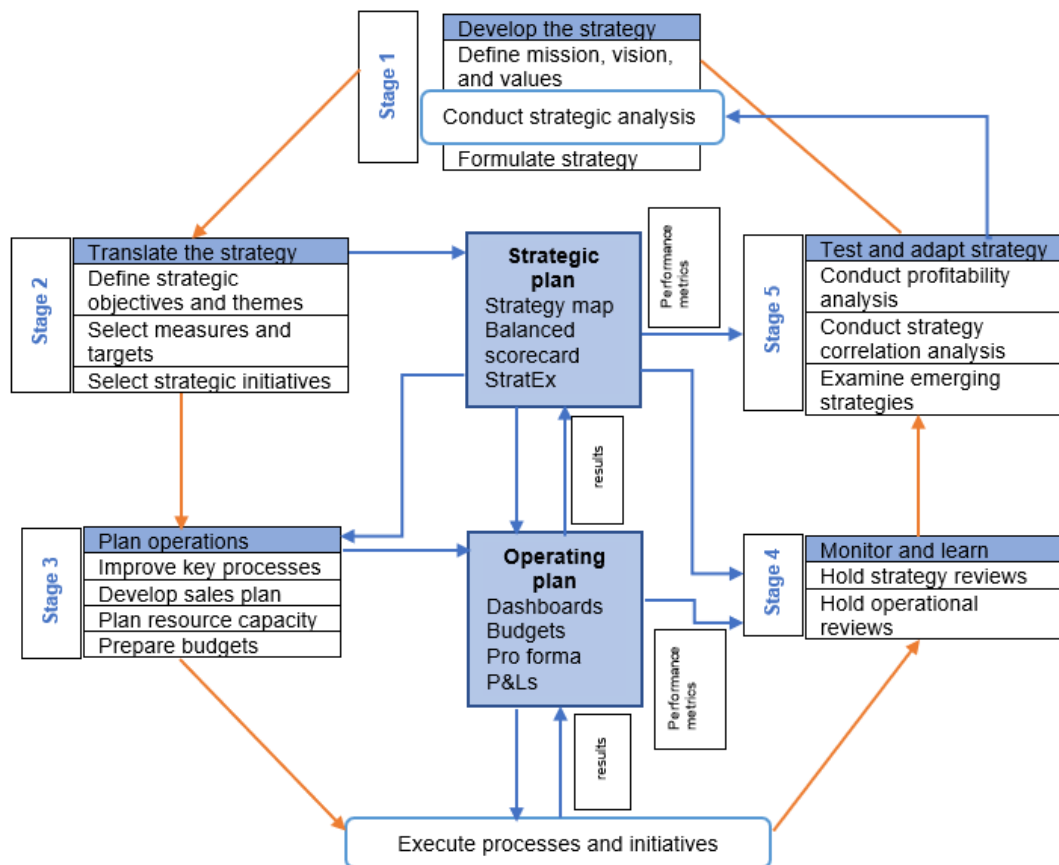


Figure 5. Closed-Loop Management System (Kaplan and Norton 2008)

As seen in Figure 5, the loop starts by strategy development based on vision, mission, values, using other tools, concepts and analysis, and formulating the strategy statement. The second stage requires translation of the strategy statement into specific objectives and initiatives while selecting measures and targets. The third stage contains strategy implementation where the strategy is linked to operations through quality and process management, key process improvement, resource capacity planning, and budgeting. The fourth stage covers constant monitoring the implementation progresses based on internal operational data and external data obtained from competitors and the business environment. Finally, the fifth stage includes testing and adapting the strategy by conducting periodic assessment to analyze profitability, correlation, and examining emerging

strategies. The result of the assessment can be the beginning of another loop around the system. (Kaplan and Norton 2008)

According to Kaplan and Norton (2008), it is vital to build and maintain the link between the strategic objectives and operational improvement processes since all the operations must deliver the strategic objectives. It is essential to seek for appropriate tools to support the operational improvement processes based on the identified objectives. (Kaplan and Norton 2008)

Kaplan and Norton (2008) focus on a Management System Tool Kit which includes developing the strategy, translating the strategy, planning operations, and testing and adapting the strategy with the emphasis on utilizing specific and right tools at each stage such as purposeful and goal-oriented meetings and analysis. Lack of the right tools such as mixing strategical and operational meetings, causes a breakdown in the strategic learning feedback loop. (Kaplan and Norton 2008)

4.2.2.2 FAIR Model of Hoshin Kanri

Tennant and Roberts (2001) argue that applying Hoshin Kanri methodology assists in obtaining consensus for effective strategy deployment in a team environment. Hoshin Kanri methodology is based on a process called catchball. The purpose of catchball process is to gain integration of top management goals into daily operations in an environment of cross-functional management. In catchball process an idea is expressed from person to person until ensuring continuous communication and receiving feedback from multi directional horizons. Such Comprehensive feedback is utilized for developing appropriate targets and means and determining their deployment. (Tennant and Roberts, 2001)

Figure 6 presents the FAIR model where “F” stands for Focus, “A” for Alignment, “I” for Integration, and “R” for Responsiveness. The FAIR model was developed by Witcher and Butterworth (1999) which relates to Plan-Do-Check-Act cycle (PDCA cycle). (Tennant and Roberts, 2001)

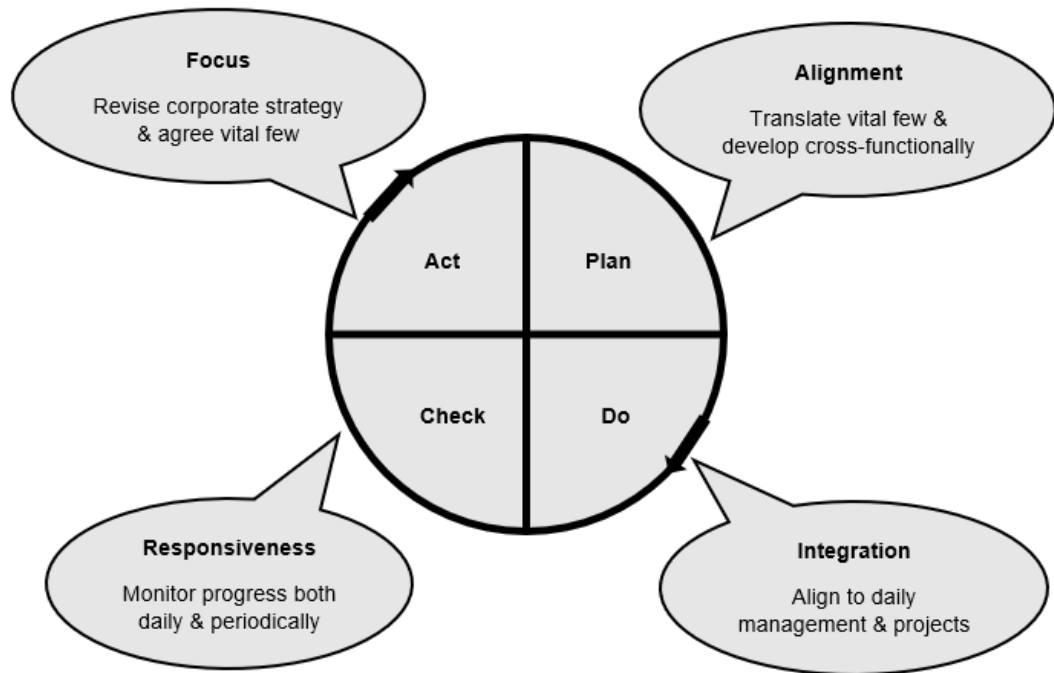


Figure 6. The FAIR model of Hoshin Kanri (Tennant and Roberts 2001)

As seen in Figure 6, the FAIR model provides a basis for employee involvement and continuous improvement in cross-functional management by constant checking of target and means and ensuring that whole organization is committed and performs according to the same goals. (Tennant and Roberts, 2001)

Interestingly both the Closed-Loop Management System and FAIR Model emphasize that operations and activities are required to be based on the strategy while maintaining constant monitoring and measuring for continuous improvement. Meanwhile, the FAIR model stresses the importance of top management involvement in daily operations and sustaining all employees' consensus and alignment regarding determined goals.

4.2.3 Ideas to Counter Weakness 3: Collaboration During Performance

According to Grover and Malhotra (1997), process-based operations require considering the organization horizontally while the process starts and ends to the customer. Process improvement requires retaining customer focus, empowerment, and interaction. Each task conducted in a business process demands typical input-output relationship with other participating functions. As a result, in an organization there is a serial pattern including a large number of sequential steps executed by different functions. (Grover and Malhotra 1997)

Grover and Malhotra (1997) argue that by providing direct access to a shared database, the participation of several functions in a parallel fashion is achievable. It leads to enhancement in communication and collaboration among different functions participating in a business process. Moreover, it improves collaboration among the involved parties in a workflow. (Grover and Malhotra 1997)

Hammer and Stanton (1999) claim that the mission of functional departments is required to emphasize training employees with the required skills for teamwork and collaboration. It is crucial to realize that process owners are required to collaborate closely with one another and interact with frontline workers. The process owners are required to keep a direct interaction at all levels during execution to be able to influence the performance. Different processes are not isolated and they often overlap since the same employees are involved in several processes simultaneously. (Hammer and Stanton 1999)

Hammer and Stanton (1999) discuss that a “decision rights matrix” enables managers to collaborate efficiently and productively since it clarifies the roles of different managers to make major decisions such as designing a process. In addition, it enables to clarify all detailed responsibilities during execution including the person to be consulted in advance and the employees to be informed afterward. (Hammer and Stanton 1999)

In fact, regarding the process in the case company, establishing close collaboration among the heads of the involved departments provides a clearer understanding of roles and responsibilities of each manager. Interestingly, the use of the “decision rights matrix” can assist the managers in distinguishing their positions in the process. In addition, it provides the company with a road map for managerial teamwork.

4.3 Ideas to Counter Weaknesses related to Communication

Effective internal communication is essential for any organization. It enables a smooth and clear flow of information among different parts of the organization. The following subsections address how to maintain effective and efficient communication in the organization.

4.3.1 Ideas to Counter Weakness 4: Communication among Involved Departments

According to Fletcher and Taplin (1997) operating review meetings provide cross-functional teams with a basis for communication regarding planning, performance review and continuous improvement. The emphasis is on the future with the focus on interdepartmental key performance indicators and organizing regular meetings to review previous goals and action plans and setting new goals. (Fletcher and Taplin 1997)

Fletcher and Taplin (1997) argue that operating review meetings enable discussion related to policy decisions and communication of general information. It assists in keeping subordinates involved in making policy decisions which creates emotional ownership. It leads to commitment to the policies with lower level of management. As a result, it eases the penetration of information to all sectors of the organization. (Fletcher and Taplin 1997)

In addition, Fletcher and Taplin (1997) point out the linking-ring concept. It refers to the fact that each level in the organization is connected directly to other below and above levels. Each team at each level possesses particular commitment which is linked to the next higher level. The interconnection among different levels in the organization is the core of the "linking-ring" concept which results in setting goals and action plans for the whole organization while maintaining individual commitment to the organization. (Fletcher and Taplin 1997)

Referring to Malik and Kabiraj (2010) communication assists in reducing uncertainty and provides clarity during exchanging information. Interpersonal communication facilitates purpose-specific organizational communication by reducing purpose-specific uncertainty. It benefits the organization at all levels, for instance interpersonal communication

among employees and senior management assists in clarifying the mission of the organization. The correlation between uncertainty and communication is visualized in Figure 7. (Malik and Kabiraj 2010)

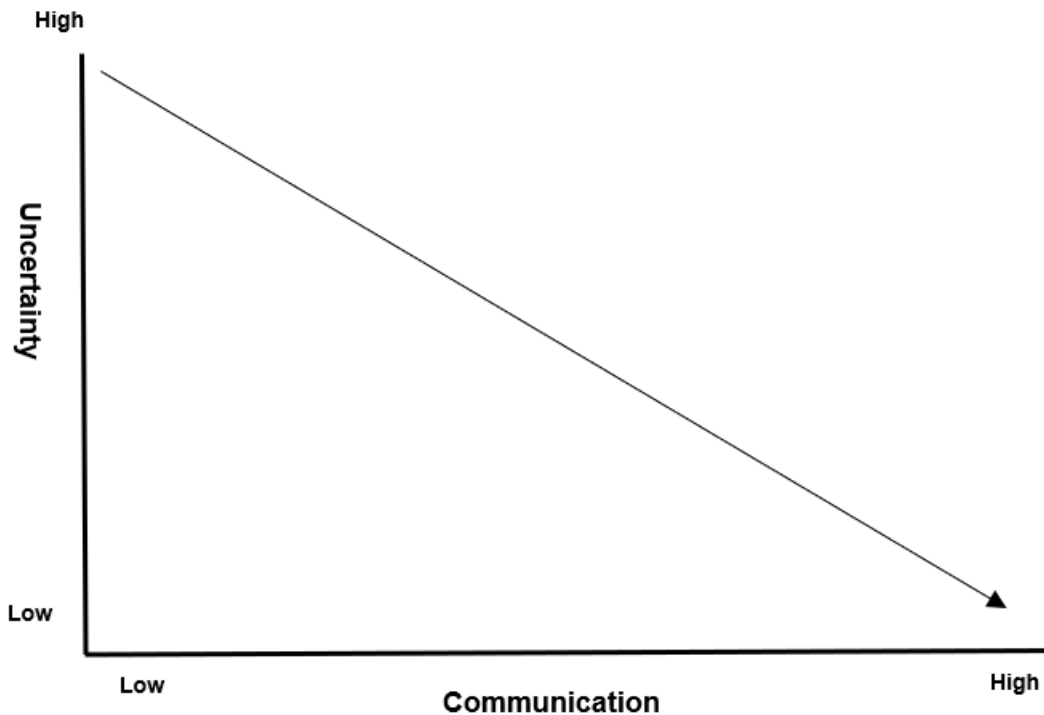


Figure 7. Intended communication and intended uncertainty reduction (Malik and Kabiraj 2010)

As seen in Figure 7, it is obvious that an increase in the amount of the communication results in a reduction in the uncertainty. Malik and Kabiraj (2010) argue that intended communication decreases intended uncertainty. The communication among different departments in an organization occurs at various levels and based on variable requirements and purposes. The initiative of starting the communication is to understand unknown issues and eliminating the uncertainty. (Malik and Kabiraj 2010)

4.3.2 Ideas to Counter Weakness 5: Meetings

According to Romney et al. (2019), meetings have become an organizational phenomenon while the amount of time spent in work meetings has increased over the past 50 years and keeps increasing. On average, managers spend around 23 hours per week participating in the work meetings. Thus, it is important to manage work meetings effectively to enable to conduct successful and efficient meetings. (Romney et al. 2019)

Referring to Romney et al. (2019) research, the success of the work meetings is analyzed based on the perspective of the participants. The results indicate that for an organization to hold successful meetings it is required to fulfill three themes including learning and development, coordination performance, and developing alignment among participants. (Romney et al. 2019)

Concerning the Management System Tool Kit explained by Kaplan and Norton (2008), it is crucial to distinguish among different kinds of meetings organized to form the feedback and learnings in the management system. Figure 8 illustrates different kinds of meetings in the organization. (Kaplan and Norton 2008)

	Meeting type		
	Operational review	Strategy review	Strategy testing and adapting
Information requirements	Dashboards for key performance indicators; weekly and monthly financial summaries	Strategy map and balanced scorecard reports	Strategy map, balanced scorecard, ABC profitability reports, analytic studies of strategy, external and competitive analysis
Frequency	Daily, twice weekly, weekly, or monthly, depending on business cycle	Monthly	Annually (perhaps quarterly for fast-moving industries)
Attendees	Departmental and functional personnel; senior management for financial reviews	Senior management team, strategic theme owners, strategy management officer	Senior management team, strategic theme owners, functional and planning specialists, business unit heads
Focus	Identify and solve operational problems (sales declines, late deliveries, equipment downtime, supplier problems)	Implement strategy	Test and adapt strategy based on causal analytics, product-line and channel profitability, changing external environment, emergent strategies, and new technology development
Goal	Respond to short-term problems and promote continuous improvements	Fine-tune strategy; make midcourse adaptations	Incrementally improve or transform strategy; establish strategic and operational plans; set strategic targets; authorize spending for strategic initiatives and other major discretionary expenditures

Figure 8. Management Meetings (Kaplan and Norton 2008)

As depicted in Figure 8, it is required to determine specifications for each meeting such as frequency, attendees, focus, and goal based on the type of the meeting. For instance, for strategy review, monthly meeting is sufficient while attendees include senior management team, strategic theme owners, and strategy management officer and the goal contains fine-tune strategy and making midcourse adaptations. (Kaplan and Norton 2008)

Regarding Haynes (1996) the components of a meeting include content, interaction, and structure. In the meeting, a leader is required to monitor the progress of all activities in

each key component area and providing missing elements required to achieve the objective of the meeting. A meeting is effective when the objective of the meeting is achieved in a minimum amount of time while satisfying the participants. (Haynes 1996)

Haynes (1996) states that to improve the effectiveness of the meetings the first fundamental element is the motivation to change. Figure 9 summarizes the key elements required to conduct more effective meetings. Meanwhile, it is required to keep evaluation as a normal part of the process which can occur during the meeting, at the end of the meeting, and after the meeting. The sources of the evaluation include self-evaluation by the leader, evaluation by a trained observer, and evaluation by the participants. (Haynes 1996: 71-74)

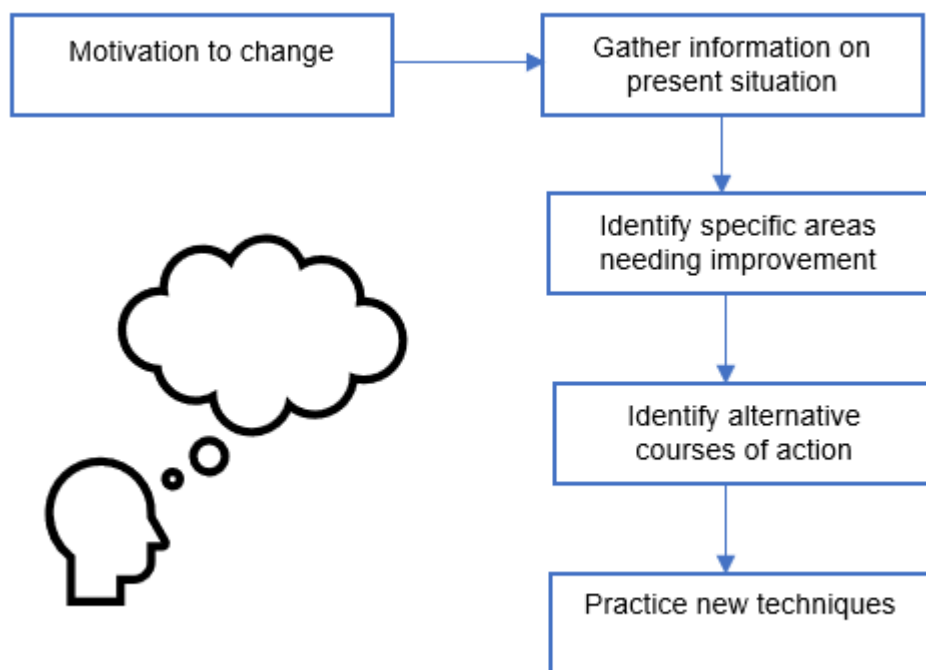


Figure 9. Improvement Model (Haynes 1996)

As seen in Figure 9, to improve the effectiveness of the meeting, it is required to collect information on the present situation and to identify specific areas requiring improvement. Afterwards, it is required to identify appropriate alternative procedures and to practice new techniques. (Haynes 1996)

4.4 Conceptual Framework of the Study

The improvement ideas found from the relevant literature are described in the previous sections to tackle the weaknesses revealed in section 3, Current State Analysis. The conceptual framework for this study contains two key themes as shown in Figure 10.

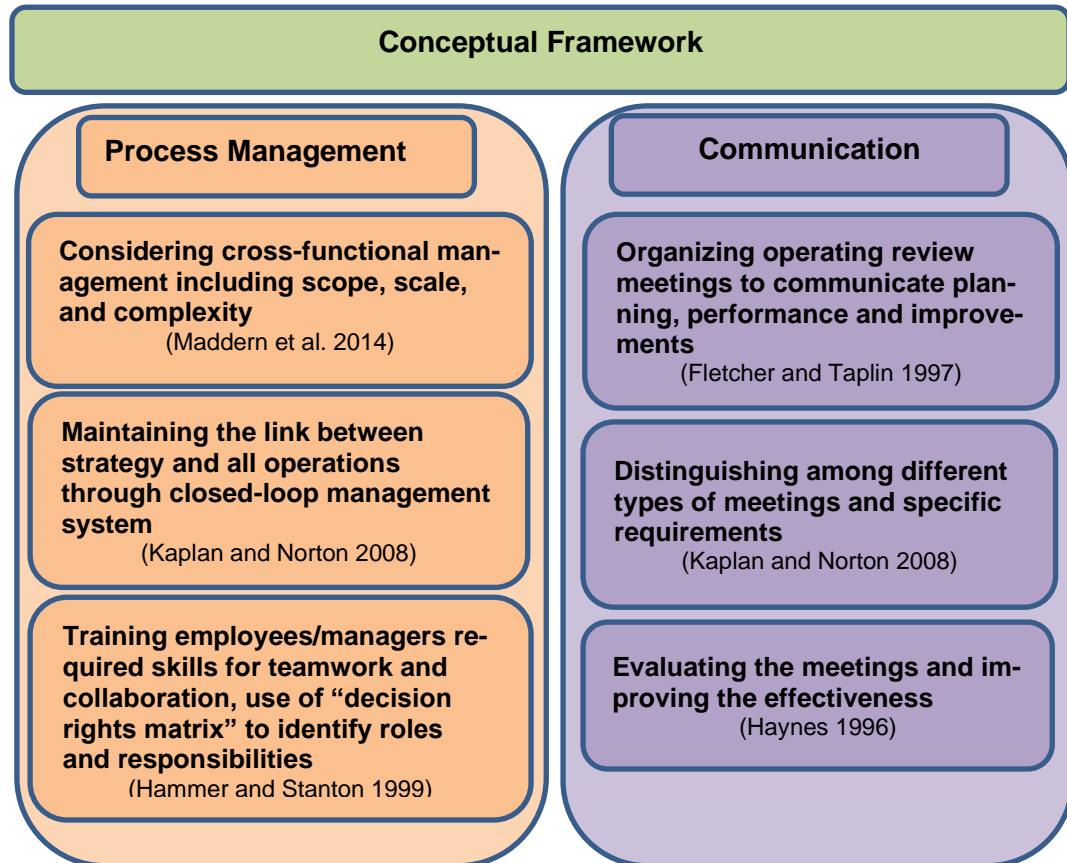


Figure 10. The Conceptual Framework of this study.

As shown in Figure 10, the conceptual framework is divided into two distinctive categories according to the logic of the current state analysis findings. First, the process management category includes the ideas and concepts regarding the link between strategy and all operations in the company while it reveals the ideas to increase alignment and collaboration during process performance. Second, the communication category combines ideas and techniques to improve effectiveness of the meetings while revealing the importance of specific meetings in the organization.

In section 5, the conceptual framework facilitates the creation of the initial recommendations for process improvement based on the weaknesses identified during the current state analysis.

5 Building Proposal to Improve the Inbound Logistics Process

This section combines the findings of the current state analysis and the conceptual framework towards the building of the initial recommendations while it uses Data 2 collection. It explains an overview of the creation of the initial recommendation stage, summaries of the recommendations, and a detailed description of the creation of the recommendation process.

5.1 Overview of the Proposal Building Stage

According to the findings in the current state analysis, the main weaknesses included process management and communication, thus relevant literature were reviewed accordingly to form the conceptual framework. The relevant best ideas and practices found from the literature facilitated the process of co-creation of the initial recommendations to improve the inbound logistics process in the case company.

In order to co-create the initial recommendations to improve the process, one workshop was organized and the attendees were the head of the involved departments, business development manager, and operational manager. These managers were selected since some of them (head of the involved departments) were executing the process as their daily work and some of them (business development manager and operational manager) were the process designer and the process controller. All these managers, as seen in Table 1 in Section 2 of this thesis named as Respondent 1 to Respondent 6, formed the informants of Data 2 for this work. The workshop was split into two sessions while in each session three managers participated. The reason for splitting the workshop event was the tight schedule of the managers and challenges of agreeing on a time which would suit all the attendees. However, the steps and the content of the presentation were the same in both workshop sessions while attendees' comments and feedback were collected and recorded as field notes. In addition, several follow-up discussions occurred between the author and the managers mentioned above. The themes of the workshop sessions and the follow-up discussions were based on the categories concluded from the current state analysis.

At each workshop session, first the author presented the summary of the findings and the outcome of the current state analysis in the form of main strengths and weaknesses. During presenting the summary of the weaknesses and strengths, the attendees were asked to comment and provide feedback in order to keep them aligned towards co-creation of the initial recommendations. Second, the author expressed the selected weaknesses to focus on including classifying them into two main categories. Third, the author guided and lead the attendees towards co-creating the initial recommendations to improve the process.

Regarding each category, the attendees discussed different aspects and challenges that they were facing in their work. The co-creation of the recommendations included brain storming, discussions, argumentation and evaluation of the ideas for recommendations. Since attendees were facing the challenges in their daily work, they were active to comment and advise for co-creation of the recommendations. All the workshops and discussions were organized on TEAMS online meeting application due to Covid-19 pandemic. At the end of each workshop session, the attendees were asked to comment on the ideas for the recommendations to ensure their optimal collaboration. All ideas, comments, and suggestions were collected and attached to the field notes.

5.2 Findings of Data Collection 2

In general, all stakeholders admitted that the process was designed very well and requiring improvement areas were related to the execution and the process management. During workshops and discussions, the stakeholders suggested more controlling, monitoring the performance, and applying corrections and improvements wherever poor performance occurs.

In addition, the stakeholders stated that the communication and meetings among executive managers, employees, and process performers were not effective. They suggested to reconsider the objectives of the meetings and the required attendees in each meeting. Moreover, it was emphasized to enhance the interactions and information flow among executive managers, employees, and process performers.

As seen in Table 7, the suggestions of the stakeholders are listed according to the key categories which were summarized during the current state analysis and forming the conceptual framework for this study.

Table 7. Key Stakeholder suggestions for proposal building

Category from CSA	Key focus area (DATA 1)	Suggestions from stakeholders (DATA 2)	Description of the suggestion
Process Management	1) Not fully end-to-end process implementation 2) lack of alignments among involved departments 3) lack of sufficient collaboration among involved departments	a) training and controlling the implementation b) assigning a project manager c) assigning committed people to appropriate positions	a) Respondent 1 emphasized training executive managers regarding the required actions in the process. b) Respondents 1 and 5 suggested to assign a project manager to control the work progress and to enhance information flow regarding changes and improvements. c) Respondent 3 suggested that if an employee does not perform according to the process, it is required to change and adjust the responsibilities and position of that person.
Communication	4) poor communication among involved departments 5) ineffective weekly meeting	a) assigning a project manager b) Reconsidering the attendees and the objectives of the meeting	a) Respondents 1 and 5 suggested that a project manager can facilitate the communication among different involved departments b) Respondents 1, 3, 5 suggested that the most relevant people should participate in the meeting and the topic of the meeting should be focused on the objectives and main issues regarding the process

As shown in Table 7, the stakeholders stated three suggestions for improving process management and two suggestions for improving the communication in the case company. In the following sub-sections, the suggestions for each category are described.

5.2.1 Suggestions of the Stakeholders to Improve Process Management

During co-creation of the recommendations, it was realized that executive managers were required to monitor and control the implementation of end-to-end process to assure that it was according to the identified targets and customer requirements. It was emphasized that new employees require more clarification and training regarding the importance of the execution based on the designed process. Respondent 1 believed that the current training and available instructions were not sufficient to prepare the process performers to execute optimally. Respondent 1 suggested as follows:

Recently, we have hired new people while we do not have enough training and clarification regarding the processes such as required steps and actions, and responsibilities. We need to train and prepare the employees more effectively. (Respondent 1)

Respondent 1 recommended establishing a structured training for new managers and employees. He believed that it is crucial to activate a comprehensive training for executive managers to ensure the high performance of the process.

During the workshops and discussions, it was recognized that the alignment and collaboration among the departments in question require to improve. Respondent 6 emphasized the necessity of collaboration to enable the case company to fulfill the various customer requirements. Respondent 1 and Respondent 5 believed that assigning a project manager assists in retaining alignment, collaboration, and effective flow of information among different involved departments. Respondent 5 suggested as follows:

We need a project manager who can be preferably one of the salespeople who tracks and controls the work progress and assists in improving information flow, applying required updates and improvements. (Respondent 5)

Respondent 5 believed that for each new project, the project manager should be responsible for reacting towards changes and challenges. Moreover, the project manager is required to prepare a to-do-list to track the accomplishment of the steps and tasks and to manage the required improvements which occur during implementation.

Regarding the alignment and collaboration among the involved departments, Respondent 3 believed that the weaknesses of the process were related to the implementation of the process which refer to the people as process performers. Respondent 3 suggested as follows:

When a person does not care and does not want to perform according to the rules and instructions indicated in the process, there should not be any positions in the company for such person. (Respondent 3)

Respondent 3 indicated that the right person with the right skills should be assigned to the right position in the company.

5.2.2 Suggestions of the Stakeholders to Improve Communication

All stakeholders indicated that current communication along the process was not effective and it required improvements. During the workshops and discussions, it was understood that the current communication among the involved departments failed to provide the right information in the right time in some cases, therefore it was suggested to enhance the frequency and quality of the communication.

As seen in Table 7, Respondent 1 and Respondent 5 suggested that by assigning a project manager for each project, it is expected that the communication among different involved departments and executive managers will improve. Respondent 1 suggested as follows:

In the past, a product planner was in direct contact with all departments who facilitated the communication among executive managers, employees and departments in the company. Nowadays, we do not have such role in the company anymore, but it feels we need to assign someone as product planner or project manager. (Respondent 1)

Respondent 1 believed that the project manager assists in maintaining effective interactions and communications during execution which prevents missing the important information.

Moreover, most of the stakeholders agreed that current weekly meetings were not effective and the improvement was required. During the co-creation of the recommendations, Respondents 1, 3, and 5 commented that the number of the attendees in the meetings was unnecessarily high since some of them were not directly involved in the process execution. They stated that there should be more focus on the objective of the meeting and irrelevant topics during the meeting are required to be eliminated. Respondent 3 suggested as follows:

The meeting itself is good but I do not see the necessity to participate in the meeting as long as I receive the information that I need from the colleague in purchase department. (Respondent 3)

Respondent 3 commented that during the weekly meeting, the issues related to supply and production are required to be discussed only among the purchase department and production department and it is not beneficial to include a large number of irrelevant attendees.

5.3 Proposal Draft

Based on the process current state analysis and the conceptual framework, the initial recommendations were co-created by using the ideas and suggestions of the stakeholders. The summary of the initial recommendations is listed in Figure 11.

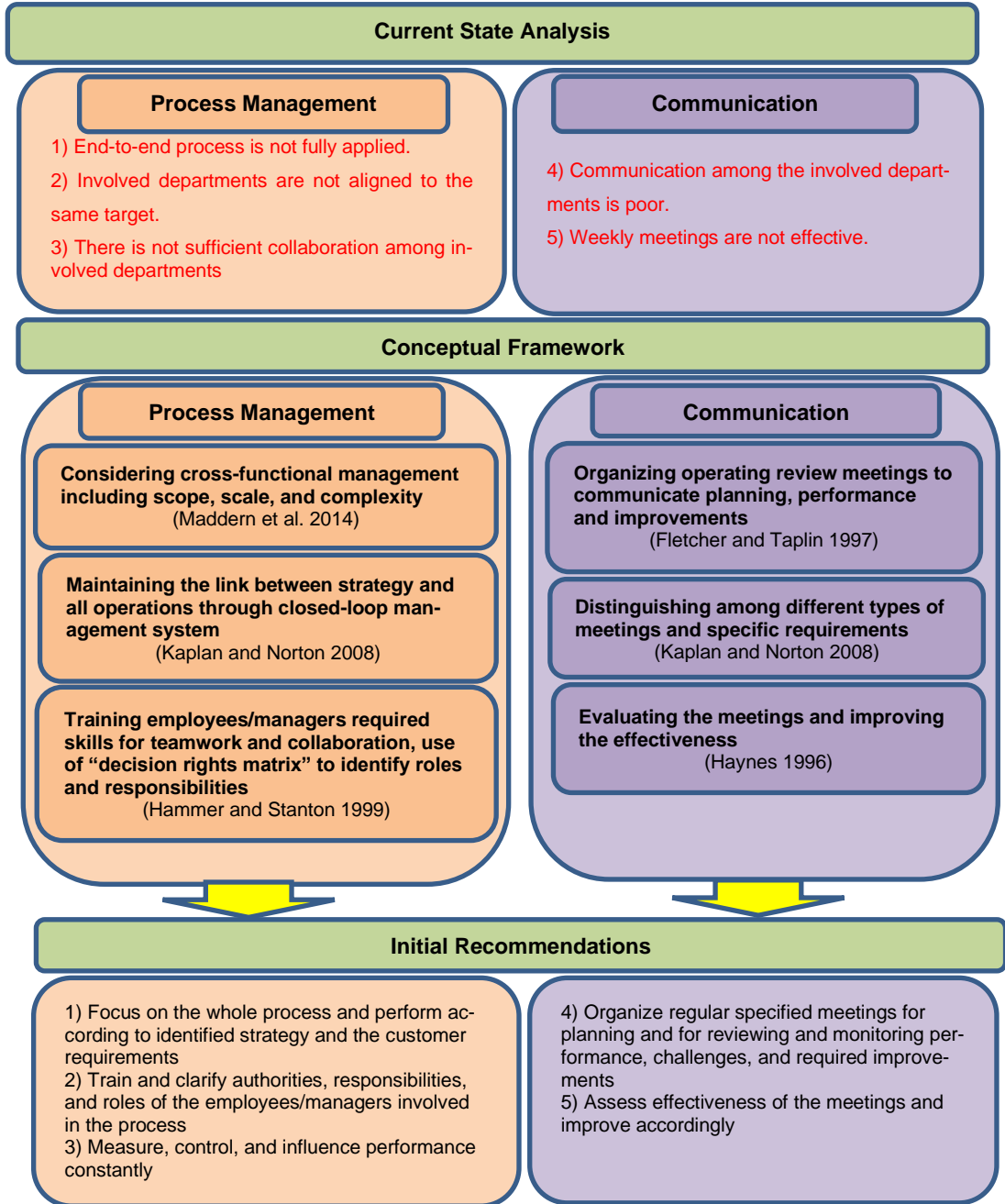


Figure 11. Summary of initial recommendations to improve inbound logistics process.

As seen in Figure 11, the first proposal element for process management contains the focus on the whole process goal rather than each single departmental goal and per-

forming based on the identified strategy at each level. All actions and steps during implementations are required to be towards fulfilling the customer requirement. The second proposal element refers to training the employees and executive managers to ensure the complete understanding of the authorities, responsibilities, and roles during process performance. The third proposal element includes the emphasis on measuring, controlling, and influencing the process performance constantly. It indicates the fundamental role of process owner who is required to sustain direct contact with process performers to lead the execution towards the right direction.

As shown in Figure 11, regarding the communication, two initial recommendations are summarized which form the fourth and the fifth elements of the proposal. The fourth element of the proposal indicates the importance of organizing specific meetings for reviewing and tracking the performance to enable fast reactions towards conflicts and challenges. The fifth element of the proposal refers to the necessity of assessing current meetings and improving the effectiveness of the meetings. The meetings are required to have specified objective according to the type of the meeting. The objective of the meeting is required to be clarified to all participants and the leader of the meeting. It is recommended to evaluate the meetings regarding its achievement of the objectives and try to improve the weak areas. The effectiveness of the meetings is required to be analyzed whether the objective is achieved in a minimum amount of time.

In the following sub-sections, the recommended steps and actions to improve the current process are described in practice. Referring to each category the initial recommendations are presented in more detail.

5.3.1 Proposal to Improve Process Management

As seen in Figure 12, the first step to improve process management includes organizing an advanced planning meeting right after receiving the sales order. The attendees include sales manager as meeting leader, production manager, purchase manager, R&D manager, and financial manager to analyze and decide about confirming the sales order and agreeing on the delivery time. It is a vital stage to consider the feasibility of customer requirements according to available resources and deciding inside the company about the practicality and possibility to fulfill the customer requirements during requested lead

time. It is crucial to set the lead time by keeping the heads of the relevant departments involved during making the decision in order to determine a feasible delivery time by taking into account all types of potential challenges.

In each project, the determined delivery time is considered as key performance indicator (KPI) to measure and control the implementation and performance. Besides the final delivery time, it is recommended to divide the workload into different stages and to identify the deadline for each stage. It enables constant measurement and controlling during implementation in order to make the decisions at the right time and conduct the required adjustments.

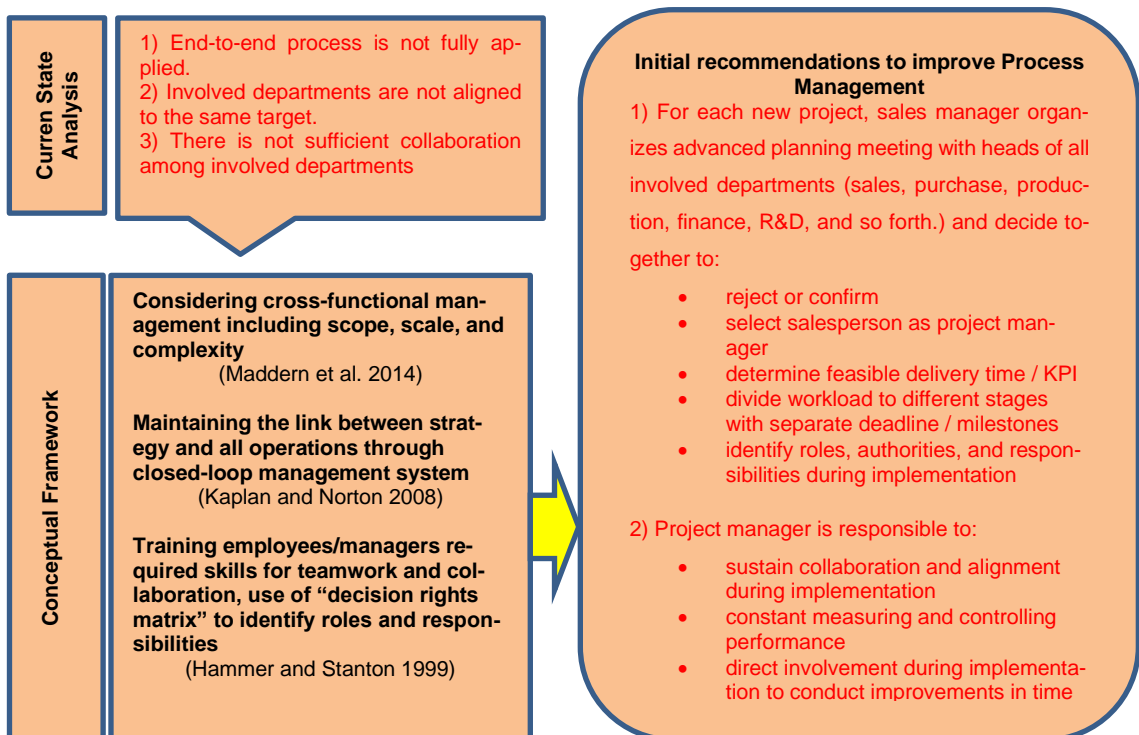


Figure 12. Initial Recommendations to Improve Process Management.

In addition, it is essential to identify the roles, responsibilities, and authorities of each employee and manager involved in the project during the advanced planning meeting. It is recommended to utilize the “decision rights matrix” as a tool to clarify the exact role of each manager involved in the project. It facilitates the coordination and alignment during implementation and enables high performance of the process.

As shown in Figure 12, the second step to improve process management is assigning a project manager for each new project. It is recommended to assign one of the salespeo-

ple as project manager due to the existence of direct connection between sales department and the customer. The project manager is responsible for leading the work and keeping the involved departments aligned towards the identified target. The role of the project manager is process owner who plans and monitors the operations to recognize the required changes and modifications. During the implementation, the project manager is required to assess and measure the work progress based on the identified delivery time and agreed deadline for each stage of the work. It is essential for the project manager to be closely involved during performance in order to obtain clearer understanding of the progress of the work and to identify challenges to be able to react accordingly in time.

5.3.2 Proposal to Improve Communication

In fact, the right tools for communication exist in the case company, therefore no new communication tools are required. The main communication tools in the case company include email, phone, meetings, company intranet, TEAMS online application, enterprise resource planning system (ERP), company data base, and so forth. It is important to utilize the current tools more efficiently and effectively.

Regarding the sales orders received by the case company which are recently project-based orders, it is crucial to use the available tools at the right time to transfer the right information to the right people. As shown in Figure 13, the first recommendation refers to the current weekly meeting to limit the number of the attendees to the heads of the sales, production, and purchase departments. Since the meeting is called delivery meeting, it is recommended to focus the discussions during the meeting only on delivery issues such as production capacity, work-in-progress status, sales orders, and supply of the components.

As seen in Figure 13, the second recommendation focuses on the crucial role of the designated project manager to facilitate the communication and flow of the information among different managers and employees involved in the process. The project manager is required to ensure a sufficient and effective flow of the information among these employees and managers at the beginning of the project and during implementation. Depending on the type of the information and the number of people who need to know the information, the project manager can decide about organizing the required meetings,

sending emails, making phone call and sharing the information through ERP or data-base. Moreover, it is fundamental to organize operational review meetings regularly for each project during implementation in order to keep the people involved in the project informed about the current situation, challenges and required improvements.

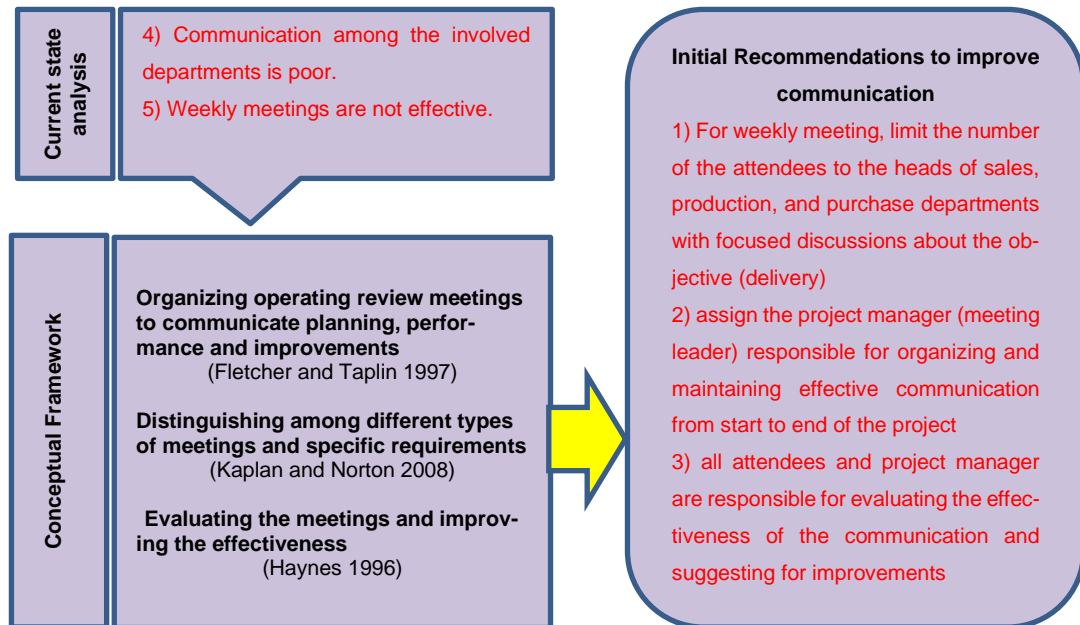


Figure 13. Initial recommendations to improve communication.

Moreover, as seen in Figure 13, the third recommendation emphasizes the effectiveness of any type of communication such as meetings. Effective communication enables to remove uncertainty and to acquire information based on the identified objective in a minimum amount of time. All employees and managers are responsible for the effectiveness of the communication. For instance, the attendees (managers and employees) and the leader of the meeting (project manager) are required to assess and evaluate the effectiveness of the meetings all the time and be ready to develop and improve the meetings constantly. Improving the effectiveness of the meetings includes different aspects such as the quality and speed of the information flow, the knowledge of the attendees and team leader, sharing the knowledge, frequency and duration of the meetings, and so forth.

In general, through active collaboration, the stakeholders participated to co-create five initial recommendations which covered all the selected weaknesses recognized during the current state analysis. In section 6 the validation of the co-created initial recommendations is described.

6 Validation of the Proposal

This section provides the validation of the initial recommendations. It describes the validation stage in general which is followed by the findings of Data collection 3. It includes the changes and the adjustments made to the initial recommendations. At the end, it presents the final recommendations as the outcome of the study.

6.1 Overview of the Validation Stage

For validation, the initial recommendations were presented to the selected senior managers as key stakeholders in the case company and their feedback and comments were collected as field notes. Their feedback and comments assisted in assessing whether the recommendations were feasible and applicable in the case company.

To validate the initial recommendations, an online meeting was organized with the key stakeholders in the case company including the CEO, finance manager, and operational manager. The key stakeholders analyzed the feasibility and applicability of the recommendation. Due to Covid 19, the meeting was organized on TEAMS online meeting application. The meeting started with an introduction of the study including the business challenge, objective, and the expected outcome of the study. It was followed by presenting a summary of the current state analysis and an overview of the conceptual framework which were categorized into two distinctive categories: process management and communication. Afterwards, the initial recommendations were described for each category.

After presenting the initial recommendations, the key stakeholders expressed their comments and critique which formed Data 3 for this study. Data 3 enabled to establish the modifications and adjustments to the initial recommendations which facilitated in formulating the final recommendations as the outcome of this study.

6.2 Findings of Data Collection 3

The initial recommendations which contained five elements, were presented to the key stakeholders and they were asked to comment and express their feedback. In Table 8 the summary of their feedback is listed which forms Data 3 for this study.

Table 8. The stakeholders' feedback to the initial recommendations.

Category	Initial Recommendations	Feedback from stakeholders (DATA 3)	Description of the suggestion
Process Management	1) Organize advanced planning meeting for each new project	a) Not to add too many unnecessary meetings	a) Depending on the project, the CEO emphasized the importance of enough analysis to assure the need for the meeting.
	2) Assign a project manager for each project to enhance collaboration, alignment, and control during implementation	b) The salesperson acts as project manager	b) The stakeholders agreed that the salesperson would perform as project manager.
Communication	3) For weekly meeting, limit number of attendees to the most relevant employees/managers and keep focused on delivery	c) Current weekly meeting is effective enough	c) The CEO mentioned that although the meeting's name is delivery, but the objective of the meeting is distributing the information about current general operations in the organization.
	4) Assign the project manager as meeting leader and responsible for effective communication along the project	d) The project manager performs as process owner	d) The operational manager commented that the project manager is responsible for all aspects during implementation such as communication and its effectiveness.
	5) Assessing the effectiveness of the communication and improving constantly by all involved managers and employees	e) Depending on the case, anyone can ask for extra meeting or request more information through emails, and so forth.	e) The operational manager stated that anyone can decide to participate in the meeting or not. Moreover, anyone can consider required extra communication such as proposing extra internal meeting.

In general, the CEO believed that there were no huge problems in the process itself and the challenges were related to how the employees decided and followed the steps. In addition, the CEO pointed out that some issues might be subjective and which are not true all the time. During the discussion it was realized that recently the key stakeholders recognized the importance of solving the identified challenges in this work. The CEO's feedback were as follows:

There are no huge problems in the process itself and lately we addressed some of the problems. The issue in the process is how to decide and follow the steps. (The CEO)

Based on the feedback received in the meeting it was understood that regarding the challenges identified in this study, the key stakeholders had started to apply Lean Daily

Management principles (LDM) in the production department. The operational manager stated that for challenges relevant to process management category, LDM enabled to enhance the performance in the production department. The operational manager commented as follows:

During March we started practicing Lean Daily Management in production which includes controlling, measuring and improving. It helped to prevent confusion during implementation. It would be good to utilize it for all operations at other departments in the company. (Operational manager)

At the time of the validation phase for this work, it was around one month that LDM had been applied during the operations in the production department. Based on the operational manager's statements, it enabled to measure and track the execution to identify the challenges.

Regarding the recommendation about organizing an advanced planning meeting, the CEO stated that the necessity of arranging new meetings requires sufficient analysis in order to avoid any unnecessary meetings. The CEO's comments were as follows:

We need to be sure if the meeting is necessary and helps to improve something. We do not want to add to the number of the meetings in the company unnecessarily. (The CEO)

During the discussions, it was mentioned that in the case company for organizing any kind of meeting, the focus was on arranging the minimum possible number of meetings due to the tight schedules of the managers.

Referring to the recommendation about assigning a project manager for each new project, the operational manager stated that due to recent low volume of the orders, it was not reasonable to employ new persons as project manager. The operational manager agreed that the feasible alternative was to select the salesperson as the project manager. The operational manager commented as follows:

The workload is not high as before and I do not see the feasibility to hire new employee as project manager. Yes, it is a good idea to select the

salesperson as project manager, the one who is in direct contact with the customer. (Operational manager)

It was discussed that the salesperson as the project manager is responsible for measuring and controlling the performance in the process. Meanwhile, the operational manager suggested LDM as a proper tool to assist the project manager in clarifying the responsibilities and authorities during implementation.

According to the recommendation for improving the weekly meeting, the key stakeholders did not agree to limit the number of the attendees nor to change the focus of the discussions only to the delivery issues. During the discussions it was realized that from the key stakeholders' perspective, the objective of the meeting was not only delivery issues. They admitted that the objective of the meeting was to review the status of the current general operations in the case company weekly. It was clarified that more than ten years ago the objective of the meeting was solely the delivery issues and as time passed by the objective changed but the name of the meeting remained the same. The CEO commented as follows:

The current weekly meeting is good and effective to distribute the information and keep people on the same page. It is true that the discussions during meeting have changed from only delivery issues to all kind of issues in the organization, but we do not need to get confused by the name itself. It is a useful meeting which helps to distribute the information across the company to know where we are, what challenges we have, and so forth. (The CEO)

The key stakeholders believed that since the objective was beyond the delivery issues, the current weekly meeting was effective and sufficient. They mentioned that the point was not to get distracted by the name of the meeting.

Regarding the recommendation about considering the project manager responsible for effective communication, in general the stakeholders agreed. The operational manager summed up that the role of the project manager is the same as process owner who plays a critical role in the project and is responsible for assuring the effective communication during the project.

Moreover, referring to the recommendation about constant assessing the effectiveness of the communication, the stakeholders expressed their agreement and stated that employees and managers are expected to reveal their questions and concerns regarding missing information or improving communication. The operational manager and the finance manager pointed out that the key stakeholders expect all employees and managers to act proactively whenever they realize the need for extra meeting and communication. For instance, in case of missing information and facing uncertainty the employee is required to step forward and ask through emails, phone calls or by proposing a meeting.

However, the atmosphere of the meeting was positive and the key stakeholders were interested in considering and evaluating the initial proposal. During the validation phase, the key stakeholders expressed their comments and analysis constructively and they agreed with most of the initial recommendations. Their comments and ideas regarding adding an extra meeting and improving the current weekly meeting assisted in modifying the recommendations and build the final proposal. In the following sub-section, the adjustments to the initial proposal are described.

6.3 Developments to the Proposal Based on Findings of Data Collection 3

Referring to the findings in Data 3, the initial recommendations remained almost the same. The only recommendation which required modifications was the element related to the weekly meeting. It was understood that despite the name of the weekly meeting as delivery meeting, the objective of the meeting was not only delivery issues, and it was focused on a weekly general operational review in the organization. As the CEO stated in the validation phase, the purpose of the meeting was to keep all the employees aware of the current operations and challenges in the organization. The meeting was organized to distribute information related to sales orders, missing components, deliveries, quality and reclamation cases, the vacations of the employees, current events in the organization, and so forth.

However, the modifications to the initial recommendations resulted in the adjustments to recommendation 3 which was related to the weekly meeting. After the validation it was recognized that besides the current weekly meeting, it is required to organize another meeting with the focus only on the delivery issues. It is recommended to set the objective

of the meeting on the issues related to the delivery for current projects such as the arrival of the components, missing components, production capacity, customer requirements, required changes during implementation phase, and so forth.

Based on the findings in Data 3 which were obtained in validation phase, the final proposal was formulated and summarized in the next sub-section.

6.4 Final Proposal

Based on Data 3 obtained through the validation phase, the final recommendations to improve the process were created. In Table 9 the final recommendations are presented which are sorted to the same categories utilized throughout this study. The changes made to the initial recommendations are shown in red color in Table 9.

Table 9. Final Recommendations

Adjustment Made to the Initial Recommendations		
Category	Initial Recommendations	Final Recommendations
Process Management	1) Organize advanced planning meeting for each new project	1) Organize advanced planning meeting for each new project
	2) Assign a project manager for each project to enhance collaboration, alignment, and control during implementation	2) Assign a project manager for each project to enhance collaboration, alignment, and control during implementation
Communication	3) For weekly meeting, limit number of attendees to the most relevant employees/managers and keep focused on delivery	3) Besides current weekly meeting, (considered as general operational review), a meeting focused on delivery issues for current projects is required
	4) Assign the project manager as meeting leader and responsible for effective communication along the project	4) Assign the project manager as meeting leader and responsible for effective communication along the project
	5) Assessing the effectiveness of the communication and improving constantly by all involved managers and employees	5) Assessing the effectiveness of the communication and improving constantly by all involved managers and employees

As seen in Table 9, the final recommendations include five elements the same as initial recommendations. To formulate the final recommendations, only one of the initial recommendations required adjustment and it is described in section 6.3. The details of the initial recommendations are described in section 5.3.

However, as shown in Table 9, the final recommendations include organizing an additional planning meeting in advance and assigning a project manager to improve the weaknesses related to process management. In addition, to improve the weaknesses related to communication, the final recommendations include adding an extra meeting

focused only on delivery issues, making project manager responsible for effective communication, and assessing and improving the effectiveness of the communication constantly.

In general, the validation of the initial recommendations was conducted according to the planned research design. The next section which is the final section of this study covers the summary of the work, the suggestions to implement the improvements, and a self-evaluation of the study.

7 Conclusions

This section as the final section of the study contains an executive summary, next steps and recommendations towards implementation, a self-evaluation of the study, and the closing words.

7.1 Executive Summary

This study was carried out in a medium-sized manufacturing company. Due to recent cases of poor delivery accuracy, it was realized that the inbound logistics process in the company required improvements. The objective of this study was to recommend improvements for the inbound logistics process in the case company. The outcome of the study is the recommendations to improve the process in the case company.

The research approach of this study was applied action research and for data collection, qualitative methods such as semi-structured interviews and workshops were utilized. Data 1 was conducted to collect data and information regarding current state analysis while Data 2 and Data 3 were carried out for co-creating initial recommendations and proposing the final recommendations, respectively. The study contained four phases. The first phase included a current state analysis providing the strengths and weaknesses of the process. The second phase contained a literature review based on the identified weaknesses during current state analysis and formulating a conceptual framework according to the relevant existing knowledge and best practices. The third phase included keeping the key heads of the departments involved during co-creating the initial recommendations and forming the initial proposal. Finally, the fourth phase was the validation of the initial recommendations where the stakeholders' feedback was used to finalize the final recommendations as the outcome of the study for the process improvement.

Based on the findings obtained during current state analysis, it was recognized that the process was designed very well and it contained simple steps. It was flexible and the key performance indicators were identified in the process. In addition, clear instructions were accessible for training purposes and for each involved department the required steps related to the process were visualized in a process map. A weekly meeting was

held to discuss about the issues occurred during implementation. Moreover, the findings proved the existence of the weaknesses related to the execution and implementation of the process such as lack of alignment and collaboration, ineffective communication and meeting, and poor end-to-end process application. The weaknesses were categorized into process management and communication and the relevant literature was studied to search for the improvement ideas.

Five initial recommendations were co-created during one online workshop which was split into two sessions due to tight schedules of the involved managers who actively collaborated to formulate the initial recommendations. To enhance the weaknesses related to process management, it was recommended organizing an advanced planning meeting and assigning a designated project manager for each new order while considering each order as a project. The advanced planning meeting enables to keep all the involved employees aware of the targets, customer requirements and potential changes and challenges. It assists in distributing the information efficiently and sustaining the implementation towards the targets and customer requirements in addition to making practical and reliable promises to the customer such as delivery time. Moreover, the project manager is expected to perform as a process owner who leads the teamwork and controls and measures the performance constantly to react towards the changes and challenges effectively in time.

In order to improve the weaknesses related to communication, the initial recommendations contained assigning the project manager responsible for assuring the effective communication during the implementation and executions and assessing and improving the effectiveness of the communication including the meetings constantly. To enhance the effectiveness of the weekly meeting, it was recommended focusing on the objective of the meeting which was related to delivery issues by excluding irrelevant attendees and eliminating irrelevant discussions during the meeting.

The final recommendations, as the outcome of the study, included five elements which were formulated after validation of the co-created initial recommendation. The validation was carried out through an online meeting where senior managers as decision makers in the case company evaluated the initial recommendations and expressed their comments and feedback. The main concern of the senior managers was paying

sufficient attention to organize necessary meetings and to avoid adding extra unnecessary meetings. In general, the senior managers found four elements of the initial recommendations applicable. According to the feedback collected during validation, it was recognized that the objective of the current weekly meeting was to review the status of the general operations and general issues in the company. It was understood that the first time that the weekly meeting was organized, the objective was delivery issues and as time passed by the objective changed into reviewing the general operations. During validation, the senior managers stated that the current weekly meeting is effective to review the general operations, thus it does not need improvements. Therefore, the only adjusted element in the final recommendations was related to weekly meeting. To improve the effectiveness of the communication regarding the delivery issues, it is recommended adding an extra meeting focused only on delivery issues where the key relevant people form the attendees including heads of sales, production, purchase, and R&D departments.

The final recommendations provide practical actions towards improving the process management and enhancing the effectiveness of the communication during implementation and execution. As the recommendations encounter the weaknesses related to the execution of the process, by implementing the recommendations it is possible to enhance the performance of the process. Improving the inbound logistics process results in improving the internal operations regarding fulfilling the customer requirements and achieving enhanced output of the organization. This study could be beneficial for the organizations with very well-designed processes and poor process performance. It emphasizes that it is not sufficient to design a process perfectly, thus constant monitoring, measuring, and improving during implementation are mandatory.

7.2 Recommendations toward Implementation

In order to implement the final recommendations in the case company, it is essential to note the project-based nature of the orders meaning the customer requirements are variable and, in some cases, large number of changes and modifications are required to be able to fulfill the customer requirements.

Before confirming any orders, first it is required to analyze all aspects and potential challenges in detail to estimate a practical delivery time. To conduct a reliable analysis,

organizing a meeting among key involved departments such as sales, production, purchase, R&D, and finance facilitates in identifying available resources in the company and planning in advance accordingly. The salesperson who is in direct contact with the customer is required to organize the meeting and provide the involved departments with the project specification. Second, it is essential that the salesperson performs as project manager who leads the teamwork, tracks, measures, and controls the implementation including taking actions towards required development and improvement. In addition, the salesperson as project manager and process owner is required to make sure about the effective communication during implementation. However, the people involved in the project are responsible for evaluating the effectiveness of the communication and proposing the required improvements to sustain an effective communication during implementation. Third, the salesperson is responsible for organizing regular meetings focused on delivery status of the project to ensure delivering according to agreed delivery time. The salesperson leads the meeting and the attendees include heads of involved departments such as sales, production, purchase, and R&D.

7.3 Thesis Evaluation

The purpose of conducting the research is to increase or improve the current knowledge. It is vital that the research provides the readers with valid and reliable knowledge. Therefore, it is crucial to utilize diverse and reliable sources of information. The sources of data and information are required to be relevant to the purpose and objective of the research. Following logic and relevance during all phases of the research is essential to accomplish a credible research.

The identified business problem in the case company was related to the inbound logistics process. This study was carried out based on the objective to recommend improvements for the inbound logistics process in the case company. The outcome of this study, which is provided in Section 6, contains the recommendations to improve the process which are validated by the case company senior management. Referring to the outcome and results of this study, the objective of the study is accomplished fully.

In general, for this study, diverse sources of information were utilized, and the relevant and valid data were collected and analyzed. The managers who were directly involved in the process were selected to obtain the most reliable and valid information. Moreover,

the company's reports and internal documents were evaluated to ensure relevance and reliability. The logic and order have been followed during all phases of the study.

However, the main shortcoming of this study is the level of the awareness of the senior management about the details of the study from the beginning. Due to limitations applied during Covid-19 pandemic, it was not easy to keep the senior management informed about the outcome and the details of each phase of the study in time. Therefore, during validation phase it was required to spend more time on explaining about the findings and results of each phase.

7.3.1 Validity

Validity of the research refers to the validity of the conclusions and results presented by the research. The evidence to justify and support the research conclusions, enables to assure the validity of the research (Taylor, 2013: 2). The validity is assessed according to internal and external principals. The internal validity is assessed by considering whether the results are achieved according to the presented research design and beyond the biases. The external validity refers to the level of generalizing the results beyond the context of the research (Taylor 2013: 10-14).

In this study internal validity was ensured by utilizing divers and reliable sources such as internal reports and documents, and the knowledge and experiences of the key people involved in the process. Data 1 and Data 2 were collected through several methods such as interviews, workshops, discussions, observations, and an email inquiry. The direct contact with the key people involved in the process, who provided their real experiences, assisted in collecting credible and reliable information regarding current state of the process which formed Data 1. Meanwhile, Data 2 was collected during co-creation of the initial recommendations where the key people involved in the process collaborated and commented actively during the workshops. Data 3 was collected during validation phase by collecting senior management comments on the initial recommendation.

Regarding the external validity of this study, it is applicable to generalize the results of this study to some extent. Due to diverse business contexts, it is not guaranteed that the

result of this study could suit fully other business contexts. However, part of the recommendations related to project management could be transferable to other organizations with project-based operations.

7.3.2 Reliability

The level of research reliability depends on the level of achieving the same results by repeating the same research while maintaining the same context, methods, and practices. The research is required to provide the reader with the details of the process followed during the research to facilitate in repeating the research in future. Thus, the research is required to describe the research design, methods, practices, data collections, and evaluation of the study (Shenton 2004).

In this study, reliability was ensured by describing the research design and Data collections in Section 2.2 and Section 2.3, respectively. Moreover, four phases of the study including current state analysis, literature review, initial recommendations, and final recommendations are described in detail during Sections 3, 4, 5, and 6, respectively. The research design and its execution are described completely which enable to repeat the research in the future. Section 7 of this study provides the reader with a comprehensive self-evaluation of the study.

7.3.3 Logic

To conduct a research, it is essential to consider logic and order through all phases of the research. Saunders et al. (2009) indicate that logic enables to answer questions related to the relationship among different aspects in the research meaning it explains what, why, how, and reasoning of the existing relationship. (Saunders et al. 2009)

To ensure the logic of this study, applied action research as the most applicable research approach was selected. In addition, the most relevant research design as a project plan and feasible execution of the project plan were chosen to enable to conduct study based on the identified business problem. The research approach and the research design are described in Section 2.

According to the research design, this study included four phases. First, the current states analysis was carried out after identifying the business problem. Second, the literature review was conducted to search for the existing knowledge and best practices to counter the identified weaknesses during current state analysis. Third, the outcome of the first and the second phases were utilized to co-create the initial proposal. Fourth, the senior management of the case company validated the initial proposal to evaluate the feasibility of the proposal and finally forming the final proposal as outcome of the study. Therefore, to carry out this study, the exact logic and order of the research design were followed.

7.3.4 Relevance

According to Mizzaro (1997) the relevance can be defined from several perspectives. For research, relevance can be defined as a relation between the findings obtained from the sources and the problem requiring to be solved (Mizzaro, 1997: 811). Thus, to evaluate the relevance of this study, it is considered to which extent the outcome is relevant to the business problem in the case company.

In this study relevance was ensured by focusing on the objective during all phases of the study. All selections of approaches, methods, sources, and executions were based on the business problem and the objective of the study. The outcome of the study is relevant to the business problem and the objective of the study. Therefore, the relevance is fully followed during this study.

7.4 Closing Words

To reach the productivity, efficiency, and effectiveness of the operations in an organization, it is critical to achieve high performance of the processes. In most of the organizations, the focus is on re-engineering the processes, but the main reason for majority of the challenges is related to the implementation and execution.

The inbound logistics process is one of the crucial operational processes which influences the outcome of the organization strongly. It would be essential for the organizations to design the process precisely and professionally in addition to monitor, measure,

and control the execution and performance on daily basis. During the time, developing and improving the process is inevitable due to constant change in the industries and businesses.

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Interview Questions




- 1) Who controls and measures the performance of the inbound logistics process/operations? How?
- 2) What are the key performance indicators in the inbound logistics process?
- 3) Is ERP the right tool for managing the warehouse and stock level?
- 4) What is the most challenging / time consuming / bottle neck in the inbound logistics process?
- 5) Is there clear instruction for receiving goods?
- 6) What is the benefit to outsource the receiving goods operations?
- 7) How much time is needed since receiving goods and moving them to the warehouse?
- 8) What are the weaknesses of the current inbound logistics process?
- 9) What are the strengths of the current inbound logistics process?
- 10) Are the departments involved in the process aligned?
- 11) Is the communication regarding the process effective?
- 12) Do you see the process functional? Any comments regarding the process?

Email Inquiry Questions



- 1) Who controls and measures the performance of the inbound logistics process/operations? How?
- 2) What are the key performance indicators in the inbound logistics process?
- 3) Is ERP the right tool for managing the warehouse and stock level?
- 4) What is the most challenging / time consuming / bottle neck in the inbound logistics process?
- 5) What are the weaknesses of the current inbound logistics process?
- 6) What are the strengths of the current inbound logistics process?
- 7) Do you see the process functional? Any comments regarding the process?

The Process and Enterprise Maturity Model (Hammer 2007)

To be used in conjunction with "The Process Audit" by Michael Hammer (HBR April 2007, Reprint R0704H).			
How Mature Are Your PROCESSES?		You can evaluate the maturity of a business process and determine how to improve its performance by using this table. Decide how the statements defining the strength levels, from P-1 to P-4, for each enabler apply to the process that you	
		P-1	P-2
Design	Purpose	The process has not been designed on an end-to-end basis. Functional managers use the legacy design primarily as a context for functional performance improvement.	The process has been redesigned from end to end in order to optimize its performance.
	Context	The process's inputs, outputs, suppliers, and customers have been identified.	The needs of the process's customers are known and agreed upon.
	Documentation	The documentation of the process is primarily functional, but it identifies the interconnections among the organizations involved in executing the process.	There is end-to-end documentation of the process design.
Performers	Knowledge	Performers can name the process they execute and identify the key metrics of its performance.	Performers can describe the process's overall flow; how their work affects customers, other employees in the process, and the process's performance; and the required and actual performance levels.
	Skills	Performers are skilled in problem solving and process improvement techniques.	Performers are skilled in teamwork and self-management.
	Behavior	Performers have some allegiance to the process, but owe primary allegiance to their function.	Performers try to follow the process design, perform it correctly, and work in ways that will enable other people who execute the process to do their work effectively.
Owner	Identity	The process owner is an individual or a group informally charged with improving the process's performance.	Enterprise leadership has created an official process owner role and has filled the position with a senior manager who has clout and credibility.
	Activities	The process owner identifies and documents the process, communicates it to all the performers, and sponsors small-scale change projects.	The process owner articulates the process's performance goals and a vision of its future; sponsors redesign and improvement efforts; plans their implementation; and ensures compliance with the process design.
	Authority	The process owner lobbies for the process but can only encourage functional managers to make changes.	The process owner can convene a process redesign team and implement the new design and has some control over the technology budget for the process.
Infrastructure	Information Systems	Fragmented legacy IT systems support the process.	An IT system constructed from functional components supports the process.
	Human Resource Systems	Functional managers reward the attainment of functional excellence and the resolution of functional problems in a process context.	The process's design drives role definitions, job descriptions, and competency profiles. Job training is based on process documentation.
Metrics	Definition	The process has some basic cost and quality metrics.	The process has end-to-end process metrics derived from customer requirements.
	Uses	Managers use the process's metrics to track its performance, identify root causes of faulty performance, and drive functional improvements.	Managers use the process's metrics to compare its performance to benchmarks, best-in-class performance, and customer needs and to set performance targets.

are assessing. If a statement is largely true (at least 80% correct), color the cell green; if it is somewhat true (between 20% and 80% correct), shade the cell yellow; and if it is largely untrue (less than 20% correct), mark the cell red.					
		GREEN: largely true	YELLOW: somewhat true	RED: largely untrue	
P-3	P-4	P-1	P-2	P-3	P-4
The process has been designed to fit with other enterprise processes and with the enterprise's IT systems in order to optimize the enterprise's performance.	The process has been designed to fit with customer and supplier processes in order to optimize interenterprise performance.				
The process owner and the owners of the other processes with which the process interfaces have established mutual performance expectations.	The process owner and the owners of customer and supplier processes with which the process interfaces have established mutual performance expectations.				
The process documentation describes the process's interfaces with, and expectations of, other processes and links the process to the enterprise's system and data architecture.	An electronic representation of the process design supports its performance and management and allows analysis of environmental changes and process reconfigurations.				
Performers are familiar both with fundamental business concepts and with the drivers of enterprise performance and can describe how their work affects other processes and the enterprise's performance.	Performers are familiar with the enterprise's industry and its trends and can describe how their work affects interenterprise performance.				
Performers are skilled at business decision making.	Performers are skilled at change management and change implementation.				
Performers strive to ensure that the process delivers the results needed to achieve the enterprise's goals.	Performers look for signs that the process should change, and they propose improvements to the process.				
The process comes first for the owner in terms of time allocation, mind share, and personal goals.	The process owner is a member of the enterprise's seniormost decision-making body.				
The process owner works with other process owners to integrate processes to achieve the enterprise's goals.	The process owner develops a rolling strategic plan for the process, participates in enterprise-level strategic planning, and collaborates with his or her counterparts working for customers and suppliers to sponsor interenterprise process-redesign initiatives.				
The process owner controls the IT systems that support the process and any projects that change the process and has some influence over personnel assignments and evaluations as well as the process's budget.	The process owner controls the process's budget and exerts strong influence over personnel assignments and evaluations.				
An integrated IT system, designed with the process in mind and adhering to enterprise standards, supports the process.	An IT system with a modular architecture that adheres to industry standards for interenterprise communication supports the process.				
Hiring, development, reward, and recognition systems emphasize the process's needs and results and balance them against the enterprise's needs.	Hiring, development, reward, and recognition systems reinforce the importance of intra- and interenterprise collaboration, personal learning, and organizational change.				
The process's metrics as well as cross-process metrics have been derived from the enterprise's strategic goals.	The process's metrics have been derived from interenterprise goals.				
Managers present the metrics to process performers for awareness and motivation. They use dashboards based on the metrics for day-to-day management of the process.	Managers regularly review and refresh the process's metrics and targets and use them in strategic planning.				

To be used in conjunction with "The Process Audit" by Michael Hammer (HBR April 2007, Reprint R0704H).			
How Mature Is Your ENTERPRISE?		To determine if your organization is ready to support a process-based transformation, evaluate the statements in this table. They show the strength levels, from E-1 to E-4, of the capabilities that enterprises need in order to develop their busi-	
		E-1	E-2
Leadership	Awareness	The enterprise's senior executive team recognizes the need to improve operational performance but has only a limited understanding of the power of business processes.	At least one senior executive deeply understands the business process concept, how the enterprise can use it to improve performance, and what is involved in implementing it.
	Alignment	The leadership of the process program lies in the middle management ranks.	A senior executive has taken leadership of, and responsibility for, the process program.
	Behavior	A senior executive endorses and invests in operational improvement.	A senior executive has publicly set stretch performance goals in customer terms and is prepared to commit resources, make deep changes, and remove roadblocks in order to achieve those goals.
	Style	The senior executive team has started shifting from a top-down, hierarchical style to an open, collaborative style.	The senior executive team leading the process program is passionate about the need to change and about process as the key tool for change.
Culture	Teamwork	Teamwork is project focused, occasional, and atypical.	The enterprise commonly uses cross-functional project teams for improvement efforts.
	Customer Focus	There is a widespread belief that customer focus is important, but there is limited appreciation of what that means. There is also uncertainty and conflict about how to meet customers' needs.	Employees realize that the purpose of their work is to deliver extraordinary customer value.
	Responsibility	Accountability for results rests with managers.	Frontline personnel begin to take ownership of results.
	Attitude Toward Change	There is growing acceptance in the enterprise about the need to make modest change.	Employees are prepared for significant change in how work is performed.
Expertise	People	A small group of people has a deep appreciation for the power of processes.	A cadre of experts has skills in process redesign and implementation, project management, communications, and change management.
	Methodology	The enterprise uses one or more methodologies for solving execution problems and making incremental process improvements.	Process redesign teams have access to a basic methodology for process redesign.
Governance	Process Model	The enterprise has identified some business processes.	The enterprise has developed a complete enterprise process model, and the senior executive team has accepted it.
	Accountability	Functional managers are responsible for performance, project managers for improvement projects.	Process owners have accountability for individual processes, and a steering committee is responsible for the enterprise's overall progress with processes.
	Integration	One or more groups advocate and support possibly distinct operational improvement techniques.	An informal coordinating body provides needed program management while a steering committee allocates resources for process redesign projects.

Business processes. If a statement is at least 80% correct, color the cell green; if it is between 20% and 80% correct, shade it yellow; and if it is less than 20% correct, make it red.											
		 GREEN: largely true	 YELLOW: somewhat true	 RED: largely untrue							
E-3	E-4	E-1	E-2	E-3	E-4						
The senior executive team views the enterprise in process terms and has developed a vision of the enterprise and its processes.	The senior executive team sees its own work in process terms and perceives process management not as a project but as a way of managing the business.										
There is strong alignment in the senior executive team regarding the process program. There is also a network of people throughout the enterprise helping to promote process efforts.	People throughout the enterprise exhibit enthusiasm for process management and play leadership roles in process efforts.										
Senior executives operate as a team, manage the enterprise through its processes, and are actively engaged in the process program.	The members of the senior executive team perform their own work as processes, center strategic planning on processes, and develop new business opportunities based on high-performance processes.										
The senior executive team has delegated control and authority to process owners and process performers.	The senior executive team exercises leadership through vision and influence rather than command and control.										
Teamwork is the norm among process performers and is commonplace among managers.	Teamwork with customers and suppliers is commonplace.										
Employees understand that customers demand uniform excellence and a seamless experience.	Employees focus on collaborating with trading partners to meet the needs of final customers.										
Employees feel accountable for enterprise results.	Employees feel a sense of mission in serving customers and achieving ever-better performance.										
Employees are ready for major multidimensional change.	Employees recognize change as inevitable and embrace it as a regular phenomenon.										
A cadre of experts has skills in large-scale change management and enterprise transformation.	Substantial numbers of people with skills in process redesign and implementation, project management, program management, and change management are present across the enterprise. A formal process for developing and maintaining that skill base is also in place.										
The enterprise has developed and standardized a formal process for process redesign and has integrated it with a standard process for process improvement.	Process management and redesign have become core competencies and are embedded in a formal system that includes environment scanning, change planning, implementation, and process-centered innovation.										
The enterprise process model has been communicated throughout the enterprise, is used to drive project prioritization, and is linked to enterprise-level technologies and data architectures.	The enterprise has extended its process model to connect with those of customers and suppliers. It also uses the model in strategy development.										
Process owners share accountability for the enterprise's performance.	A process council operates as the seniormost management body; performers share accountability for enterprise performance; and the enterprise has established steering committees with customers and suppliers to drive interenterprise process change.										
A formal program management office, headed by a chief process officer, coordinates and integrates all process projects, and a process council manages interprocess integration issues. The enterprise manages and deploys all process improvement techniques and tools in an integrated manner.	Process owners work with their counterparts in customer and supplier enterprises to drive interenterprise process integration.										