Jorma Lehtinen

How to create Lean a mindset

Capabilities towards Lean mindset

University of Vaasa
Strategic Business Development
Master`s Degree

Vaasa 2024

UNIVERSITY OF VAASA
University of Vaasa
Author: Jorma Lehtinen
Title of the Thesis: How to create Lean a mindset : Capabilities towards Lean mindset
Degree: Master`s degree
Discipline: Strategic Business Development
Supervisor: Tuomas Huikkola
Year: 2024 **Pages:** 60

ABSTRACT :

Lean Management has been studied in logistics numerous times using active research. With the help of various Lean tools, entire supply chains have been divided into parts and agile sub-assemblies have been developed from the parts. In this Thesis, it is not about changing the operating model of the entire supply chain, but the focus is on last-mile transportation. In this Thesis, the focus is on making truck-operated transports more efficient and improving business profitability using active research. As a means of improving profitability, the way of thinking at different levels of the organization is aimed at moving towards Lean thinking and mindset. At the same time, it is mapped out which abilities are important when guiding different parts of the organization towards the Lean mindset.

The studied company has been operating in the transport industry for a long time. As the business grew, attention was paid to the weak profitability of the business. The problem has become the inefficiency of the trucks operating in contract traffic and the weak ability to adapt to changes in the amount of goods. The daily variation in the amount of goods has led to over-resourcing. Over-resourcing and the inability to adapt have led to low profitability of business operations.

Based on this research, there are certain ways of working and capabilities, which by developing the different levels of the organization will progress towards the Lean mindset. By developing operational methods and capabilities following the study, the company under study achieved financial benefits. The results obtained from the research also create a foundation for the company, allowing the future to develop business operations in the company's other cost centres as well.

KEYWORDS: Lean, Capabilities, Kata Coaching, Kaizen, Last Mile, Gemba.

Contents

Figures

Tables

Abbreviations

PLL	Palletmeter

1 Introduction

Lean Management has emerged over the last four decades as a business phenomenon that continues to evolve in practice. (Naranjo et al., 2023) The purpose of the Thesis is to create operating models for people working at different levels of the company and how their thinking can be guided to the Lean type. The thesis title says a lot: "How to create a lean mindset?" Lean theory contains many different tools. Every action research differs from others because each business case contains its details. Action research is a research strategy that aims to change or improve the subject or object under investigation. Numerous studies have been done regarding the supply chain and its parts. This Thesis differs from other studies because it does not intend to bring the Lean model directly to use as part of the supply chain. The Thesis aims to change the thinking model of people working in different parts of the supply chain to match Lean thinking and create a Lean mindset.

In Lean thinking, Learning can be considered "detecting and correcting mistakes." Changing the mindset and bringing Lean thinking into the organisation's daily process requires effective problem-solving and active Learning. A practical perspective on organisational Learning focuses on daily activities and the refinement of solution models. The perspective of HRD is about helping learners put it into practice. The content of the learning process is developing experience, thinking and reflection, which can lead to relevant organisational knowledge where both the individual and the organisation are products and producers of people and information (Haukåsen & Hermanrud, 2023).

Action research allows one to get deep into the heart of the case company's operations. The case company subcontracts to a larger operator on their premises. The difference from most previous studies is that it has been done in the past, and it has been possible to modify the case company ERP (Enterprise Resource Planning) system directly. When creating the Lean thinking model, the case company's and host company's ERP must be

considered. There is a clear interface between these, and the case company must create its ERP to implement a host company's ERP, which is partly disadvantageous to itself.

In the process implemented by the case company, every day has the same target: shipments are delivered to customers. The process is simple from the outside, but internally, it varies greatly between different days, weeks, and months. According to Rechavi & Toch (Rechavi & Toch, 2022, p. 134), "the price of the courier service paid by the customer depends on the delivery time." This means that deliveries at different times of the day have different prices. The case company receives the same price based on the dimensions of all shipments. Since the price received by the case company is not flexible according to demand, a way must be found to refine the process to operate at the same unit price as low as possible, regardless of the volume. This idea is the basis of the research question.

As a business strategy, Lean is used to improve quality and service, eliminate waste, reduce time, and lower overall costs. One of the final goals is a smooth and high-quality process. According to Krafcik (Krafcik, 1988), The history of the Lean model comes from the operational model of the Japanese Toyota car factory. This model was first introduced in the 1960s. Toyota's chief engineer Taiichi Ohno, is the inventor and implementer of the model. At that time, the model was called TPS (Toyota Production System). Initially, Lean was a manufacturing concept at the Toyota car factory. With TPS, everything is used less, even though the exact value is created.

Due to Lean's history, the term Lean is easily misunderstood. It is not only about the method developed by Toyota and its applications. Lean includes several tools, concepts, and theories. One might think that different tools, for example, solve problems. However, this is not the case. It is about using the tools to search for and uncover process problems. People's purpose is to solve perceived problems with the help of different techniques and tools—problem-solving skills and understanding the process help reach the desired outcome. If the interrelationships between concepts and tools are not understood, it becomes difficult to achieve the desired result (Stone, 2012).

The basic idea of Lean is to use several different tools to assemble everything into one entity. This entity is called a management system or way of thinking. The focus of Lean is to help the organisation focus on its core activities, i.e., producing added value for the customer. The aim is to create added value for the customer by cutting down the waste appearing in the different stages of the process. Everything that does not add value to the customer is a waste. According to Vuorinen(Vuorinen, 2014), The main principles of Lean can be divided into five different phases:" Thinking about customer value, Identifying the value chain, Production flow, implementing suction control and Striving for perfection".

According to Solaimani et al. (Solaimani et al., 2019)There are five dimensions of Lean innovation: lean leadership, learning culture, Collaborative internal structure, Collaborative external networks, and Learning routines. In lean leadership, managers are often seen actively participating in daily activities with employees, for example, through Gemba walks. A Gemba walk is a situation where the company management goes to observe the process directly at the event location. In this way, the company management can see how things happen. Learning culture emphasises two perspectives: continuous improvement and collectivistic behaviour. In Lean terminology, continuous improvement is called Kaizen. According to Suárez-Barraza et al. (Suárez-Barraza et al. 2011)Masaaki Imai coined and introduced the term Kaizen in the 1980s in his book "Kaizen—The Key to Japan's Competitive Success." The Kaizen thinking model is considered the most significant factor in Japanese companies' operational success.

The two central themes of Collaborative internal Structure are process orientation and self-regulative governance. External cooperation networks consist of customer-centricity and supplier development. Value creation is developed in the long term with the help of long-term partnerships. Likewise, information sharing and joint innovation are at the centre. Learning routines are efficient learning processes. These require a systematic approach. The process can be managed with tools like the Plan Do Study Act (PDSA)

method. According to Connelly (Connelly, 2021), it Is a model developed by Edward Deming based on the previous work of Andrew Shewhart. The model offers a structured approach to experimental Learning and evaluation of change.

Different types of waste are classified and divided into groups, and with the help of other tools, we start working on ways to eliminate them. According to Kadarova and Demecko (Kadarova & Demecko, 2016), types of waste are Transport, Inventory, Motion, Waiting, Over-processing, Overproduction, Defects, and Talent. According to Emiliani et al. (Emiliani & Stec, 2004), these waste-producing factors mean things that do not add value to the customer. There are differences in different waste categories in the manufacturing and service businesses. However, both can be divided into eight different forms of waste. According to Zhou (Zhou, 2016), it is specifically about the waste management produced for the end customer of the project. The goal of a lean organisation is to create a smooth and high-quality process that can produce finished products and provide service to satisfy customers' demands with no waste.

When striving for a result that focuses on waste elimination, it is also appropriate to be able to distribute cost information to the supervisor level. Activity-based costing offers a perspective on this. According to Hadid (Hadid, 2019), lean practices focus on improving the work environment by grouping activities and people needed for delivering similar services in the same area. This can help reduce unnecessary employee movements, contributing to higher productivity and efficiency. The Thesis shows a clear possibility of challenging Supervisors through Activity-based costing. At the start of the study, the number of trucks is reduced, and the remaining trucks are similar. With this, it is possible to eliminate the limitations brought about by the differences in the trucks.

As a result, the process of creating a lean mindset is clear. The challenge is sticking to it so that the supervisor actively implements the same predicted pattern with his activities. In the Discussion paragraph, the pursuit of the Lean mindset is divided into three different time controls: weekly, monthly, and three months ahead. According to Zarbo

et al. (Zarbo et al., 2015), Daily Management's manifested management discipline has a visual workflow management dimension that promotes the efficiency of our business, which promotes local responsibility and daily problem-solving in work units. The result should be simple, which, if followed with discipline, makes it possible to achieve the desired goals.

The thesis goal is to guide the operation of the case company towards Lean-type thinking. The case company is a family-operated business, according to Zulfiqarar et al. (Zulfiqar et al., 2020) Family businesses are more likely to follow a lean innovation strategy. This justifies the study's purpose and creates an opportunity for a sustainable Lean culture in the organisation. The CEO's role as the director of the Lean strategy has a significant impact. According to Moyano-Fuentes et al. (Moyano-Fuentes et al., 2012), When starting a Lean study, the CEO and other decision-making bodies (owners) must be involved in the process from the beginning. This is because their reliability as an information source for business operations is greater than that of lower-level colleagues. The case company is Uudenmaan Kuljetuspalvelut Oy, founded in 1995. The company's owners and ownership structure have remained unchanged since then. There are two owners, one of whom has served as the chairman of the Board since the beginning. The research material is the trucks and drivers at the company's cost centre, Posti Vantaa.

1.1 Thesis goal and research question

The direct goal of the research is to increase the number of pallet meters transported by trucks daily. Similarly, also try to avoid over-resourcing when the amount of goods varies in different months. In addition, the aim is to determine a financial goal regarding the amount of goods transported per truck daily. The more pallet meters one truck can transport daily when the total amount of goods varies within the predicted range, the smaller the number of trucks it is possible to do. Conversely, this leads to the next challenge and creates a challenge for the company's supervisor: "Is it sometimes wiser to see wasted time rather than ineffective capacity?"

While the research aims to create a Lean mindset, it is also essential to challenge supervisors to consider the appropriate measures and tools in daily Management. Implementing a route with a low occupancy rate if significant time savings are achieved is not automatically a bad solution. This described situation is seen as the efficiency paradox of this Thesis. According to Aronson (Aronson, 2021), "In some cases, the more efficiently the resources are used, the shorter the output time. In other types of processes, more efficient use of resources prolongs the output time".

The efficiency paradox plays a key role in creating the foundation of the Lean mindset. The challenge is to find a more essential measurable quantity in daily optimisation and a basis for it. An additional challenge comes from the schedule restrictions brought by the host company's service concept. For example, if the end customer has ordered the delivery after 2:00 p.m., we must fulfil the end customer's wish as a direct service provider to the host company. This, even though it is disadvantageous compared to our optimum

1.2 Delamination and Key Concepts

In the Thesis, the pallet meter is the central measure of operational efficiency. Essential to the use and functionality of this scale is its general use in domestic and international freight traffic. A pallet meter refers to the floor area of a truck or other transport unit. The pallet meter describes the area required from the floor of the cargo space of the transported package from floor to ceiling.

The most common in European freight traffic is EUR pallet, with dimensions of 0.8m*1.2m. The interior dimension of EU-usable cargo spaces is adjusted to 2.47 wide. EU law allows certain exceptions to this, but they do not have a material impact on the outcome of this study. Three EUR pallets make up 1.2 pallet meters, i.e., one EUR pallet is 0.4 pallet meters.

1.3 Thesis structure

When setting out to implement action research, certain principles are essential when aiming for objective research findings. Action research combines systematic, sometimes experimental, social research to the problem, and the problem's solution is guided. Operational research includes a spiral data collection to determine the goals and activities to implement the plans and evaluate the measured results. Action research requires feedback from everyone who participated in the study. Action research requires continuous cooperation between all participants. In action research, it is essential to follow the principles of group dynamics. Decision-making must be mutual, and their implementation must be public. Consideration of value issues and goals is a necessary part of action research. Action research creates knowledge and shapes selection, intervention, and training principles. Much emphasis is placed on recruitment, training, and support of change agents within the action research framework. (Bargal, 2006)

Action research is a strategy that aims to study reality to change reality. In action research, the researcher participates in the activities of the research object. So, there is no single method. Social psychologist Kurt Lewin is considered the developer of the action research method (Burnes, 2004). Lewin defines the operational action research model as progressing in a cycle of stages. Each step consists of the cycle of information search regarding planning, operation, and operation results. Although the history of Action Research was not as straightforward as (Burnes, 2004) claims. According to (Bargal, 2006), Lewin's writings dealt with 'action research,' 'research in action,' and 'cooperative
research'. He mentioned these terms in several of his writings. His sudden death halted his development. Lewin is generally considered the creator of Action Research because he introduced the basic idea in the article "Action Research and minority problems."

Levin's model can be simplified into a form where a plan is initially created. Next, the operation is started, and the plan's implementation is observed as the third step. The last step is to reflect on the process. The information obtained through reflection is

applied, creating an improved plan. The improved plan will be put into practice through the operation, and its success will be observed. Finally, the process of producing the enhanced plan is reflected. This forms the basic model of action research, with the help of which the activities in this Thesis are developed. The implementation of Action Research can be seen as two-sided. On the other hand, it is about continuous long-term change activities and their performance. On the other hand, taking a distance from the research object, performing a rigorous analysis, and reflecting on the analysis are essential. (Levin, 2012)

According to Huang (Huang, 2010), action research can be divided into five orientations: action orientation, practice orientation, change orientation, process orientation and participation orientation. These different types of orientations form the theoretical-methodological approach of action research. Lewin defined action research as a comparative study of the conditions and effects of various forms of social action. The result of the research leads to social action.

2 Theoretical Backround

The basis of the research problem is the low profitability of the business. The basis of the research is to measure and increase the amount of goods transported by the driver every day. Case Company's turnover is formed directly based on the amount of goods transported. Adding driver-specific goods directly correlates to turnover. As the amount of goods increases and the working time remains the same, the turnover increases, but the salary costs remain the same. This leads directly to improved profitability. The challenge is to solve how, when the amount of goods varies between different days, the amount of goods transported per driver would remain sufficient, enabling a profitable business. The variation between different months is also significant.

Figure 1. Phases of research.

The Thesis is intended to specify the use of Lean theory in service business regarding the more efficient production of transport services alongside the host company's ERP (Enterprise Resource Planning). According to Beheshti (Beheshti, 2006), An ERP system can connect different business applications or modules. These link different types of the organisation's business units, such as finance, accounting, manufacturing, and Human

Resources. On the other hand, an even more significant use of an ERP program is the forecast created with it and the examination of the forecast to reality. According to Barancik (Barancik, 1997), ERP creates an opportunity for the company to dynamically examine the change in business profitability while offering a forecast to which the realisation can be mirrored. Host Company's ERP provides the company under investigation with the necessary basic information based on the forecast and realization of the quantity of goods.

The transportation business is a service business within which the Lean philosophy has been extensively researched. Whether the transport business is directly a part of public service production or whether it is private service production does not significantly affect the result. When looking at Lean from the service business perspective, it is essential to understand what Lean is and is not. According to Radnor et al. (Radnor et al., 2012), in-service business Lean principles are described through five key areas:

- Customer perspective regarding value and waste
- Value creation waste elimination leads to cost savings or is the aim to create added value without increasing costs.
- Understand that there is a defined and measurable benefit for the organisation. Reducing non-value-producing activities
- Frees up resources through said processes to help the company.
- Understanding that the concept of customer value is at the centre of Lean

In the literature, value creation in service production is described in many ways through the production of added value. Namely, so that extra time or costs are removed from the process with the help of waste elimination. One of the cornerstones of this Thesis is to increase the internal efficiency of the process, not so much waste elimination. With the help of various Lean tools, the aim is to improve the predictability of the process and possible variability within the process. For example, Six Sigma thinking, and its application improve the predictability of the internal efficiency of the process. According

to Näslund (Näslund, 2008), The Six Sigma methodology is based on the DMAIC cycle (define, measure, analyse, improve, and control). Motorola was one of the first users and developers of the cycle in the 1980s. One purpose of Six Sigma was to reduce process variability. Reduced variability leads to process efficiency, as internal process defects and problems are reduced. One intuitive way to detect problems is to go inside the process to look for them.

When thinking about the theoretical framework of the Thesis, it is more about what one wants to achieve. The thesis aims to develop the organization into a flexible and agile profit unit that reacts to changes in workload. At the same time, foundations are created for what learning organization means in this context. According to (Santa, 2015) Organizational learning takes place at three different levels: individual, group, and organization. At different levels, the organization is developed with different means and measures of success while giving goals to aim for. According to (Tortorella et al., 2015) On an individual level, coaching is important, on a group level, planning and training create the basis for success. At the organizational level, performance measurement makes it possible to create even more visible and concrete goals. The coaching mentioned here creates a need for the Kata coaching operating model used in the thesis, applying the theoretical model to practice. These levels correspond to the division at different levels of the organization in the Discussion section of the thesis.

According to (Senge, 1992) learning organization can be used to strengthen the visible position of managers. Managers can be at different organizational levels and can create and develop organizational capabilities to meet the necessary situations. According to (Bessant et al., 2003) Learning to learn is a key enabler and primary condition of lean capabilities and enables sustainable improvements. Similarly, the basis of development is the recognition of the ability to learn and continuously develop in the entire organization. The identification and development of abilities create the need for the use of Kaizen in this thesis. According to (Saabye et al., 2021) By developing the abilities of managers with the help of organizational learning, they can become promoters of

learning. This also contributes to their development as systematic problem solvers. In terms of management, the core is to develop learning to learn to solve problems through Lean thinking, where waste elimination is one of the areas.

The purpose is not to create a new theory but to apply the researched information to match the thought model needed in service production. This also forms the research question of the Thesis: “How to develop the organization's capabilities towards a Lean mindset?" The essential difference to the researched information is how and in what way the Mindset should be developed when moving within the host company ERP, not when operating completely within the scope of one's own operations management. The logic of the Thesis is inductive. According to Thomas (Thomas, 2006), The inductive approach offers an easy-to-use and systematic method for reviewing qualitative data that produces reliable and valid findings. The basis is a research problem, i.e., increasing operational activities' internal efficiency by reducing waste. Based on the collected statistical data, questions are created according to the needs of the research problem. Likewise, it is important to observe whether some observations can be generalised and whether general lines and generalisation possibilities can be created based on them.

Several studies have been conducted to improve performance in the field of logistics. According to Irfani (Irfani et al., 2019) The study presents different parts of the supply chain and the critical success factors in each part in the pursuit of waste elimination. The most critical step in measuring supply chain efficiency is load optimization (Mccormick C., 2003). According to Garza-Reyes et.al (Garza-Reyes et al., 2016) By optimizing the size of vehicles, driving part of the routes at night and moving part of the route planning to be done by software, internal efficiency can be best developed. The focus of these efficiency improvements is reducing the carbon footprint in the logistics process. According to Zhang et al. (Zhang et al., 2016) The opportunities created by Six Sigma to improve predictability play a central role in large logistics processes. The biggest waste is the sum of disruptions. These previous studies are about the entire supply chain process and their optimization towards waste elimination using lean tools. The thesis

research process focuses on a small part of the large logistics process but is directly visible to the customer, the last mile. Last-mile logistics refers to the transport from the last terminal of the transport company to the customer. According to Bosona (Bosona, 2020), last mile logistics is growing steadily. The biggest reasons for the growth are urbanization and the growth of online shopping. The growth of online shopping can be seen directly in the variation of the research company's product volume, strengthening it even more.

3 Methodology

One of this study's starting points was the operation's low profitability. Improving profitability through the organisation's operations and developing procedures was felt to be essential. Improving operational efficiency and presenting it numerically to customers enhances the company's pricing power. According to Francis & Holloway (Francis & Holloway, 2007) Benchmarking means learning from good practices used elsewhere. Benchmarking can be used internally to compare operations with other business areas. Alternatively, you can analyse the practices of other similar organisations and combine them with your own organisation's operating model. The company that is the subject of the study also carries out its production, so the good operating models observed in contract traffic can also be implemented in the organisation's operating model.

There are a total of 8 cost centres. There are three fully operationally equivalent cost centres, with the one under investigation. All three cost centres operate in contract traffic as part of the ERP system of the same host company. Therefore, these are entirely comparable, and there is also the possibility to access scale advantages. By initially using only one cost centre, it is possible to reduce the risk level of the experiment for the entire company. The successful outcome in this cost centre enables us to scale our operating model to other transport provider locations. Likewise, our company's internal benchmark makes the operation more efficient at almost no cost. The cost centre is the contract transport cost centre, where 19 trucks were operated. The number of people varies based on the timing of the holiday season.

The numerical data used in the thesis is obtained every night from the host company's information system. Numerical data is directly in excel format, which facilitates the further processing of the data. This information is referred to as the pre-loading list in the thesis. The received material contains different approach sizes, address information and the shipping basis. The shipping basis and being aware of it is important for the company because the money billed by the host company is generated directly according

to the shipping bases of the different approaches. The pre-loading list also contains information on where the goods are placed in the host company's terminal. This information is of prime importance in the small number of shipments that contain special goods. These are placed in a separate space in the host company's terminal. The pre-loading list was used as research data because the host company's information system creates these automatically in each case. In this case, the creation of numerical research data did not cause additional costs for either organization.

Action research started in October 2022. In the discussions with the Host Company, it was ensured that we receive a pre-loading list every night. This serves as action Research's numerical research data throughout the research. The first step in the company under investigation was placing an experienced project manager/supervisor as part of our production at the customer's premises. The instructions given to the supervisor focused solely on getting to know the existing operational model. He assessed the employees' ability to adapt to the new operational model. Likewise, the supervisor would be the new immediate supervisor of the drivers at the cost centre, so it was possible to strengthen his knowledge of his new managers in connection with the operational study. The supervisor is my choice, and I know from similar but smaller projects in the past that he is suitable for executing the process. I have worked as a supervisor's manager for more than 10 years. And I worked as his supervisor in this project, as well as in terms of business operations. My role is above all to provide support to the supervisor in the form of coaching. Similarly, searching for possible synergies with the cash register of nearby cost centres and creating a benchmarking basis is my responsibility. I represent the Chief Operating Officer in the project, where I also worked for Kuljetuspalvelut Ltd. Later in the Thesis, my role is compared to the Business Management level.

The first observation that was made before the Gemba Walkthrough was that there were too many trucks. We also received the same message from the host company's traffic planners. Mirroring Lewi's model, the first plan was to improve profitability, and the first

action was to reduce one truck while the potential amount of goods remained the same. The first coaching thing was to introduce the idea that the shipments closest to the terminal, which do not include a mandatory delivery schedule, are left unplanned for the trucks' first loads. These consignments are transported by trucks in other loads, and they are loaded onto trucks driving near the address, where there is room for the consignment. After an observation period of about a week, it was found that this can be done even more easily if the time resource used for planning is sufficient. The traffic supervisor must have enough time for planning. Later in the thesis, the traffic supervisor is called the supervisor and the supervisor assigned to the project is called the Operative Manager. From the beginning, this was one of the desired outcomes of the development spiral according to Lewin's model. This was also successful. As a reflection of the first phase, it was noted that the reduction of one truck was even a factor that clarified operational activities. The reason for this was that the pre-planning of certain zip code areas had to be clarified as the number of trucks decreased. Thinking through waste elimination, drivers' waiting times in the morning decreased as loading speeded up.

The Gemba Walkthrough brought out the drivers' strong orientation to shipments only in their zip code area. In this matter, I underlined the operative manager to put a strong message into practice: All goods in our zip code area are all of our goods. We take these to the customer, not just the standard driver in the area. We think about this actively in our joint weekly meetings with the operative manager. As an improved plan for this, we changed trucks going to busy areas out of the zip code orientation. The truck's new orientation was a utility vehicle for a busy area. In this case, the driver knows in which macro-level area his work tasks are located. The micro-level determination takes place daily from the supervisor's actions. As an addition to the macro level, based on the supervisor's discretion, there may also be the previously mentioned shipments delivered to the vicinity of the terminal. At this point, I took responsibility for the supervisor's coaching towards the desired outcome. This change in the operating model was clear compared to the operating model previously adopted by the supervisor. The drivers accepted the change in the operating model easily, but the growth of the supervisor's

role into a more significant director of daily activities required numerous meetings, but this was also successful. The most significant coaching topic was increasing the supervisor's self-confidence. Likewise, I pressured the supervisor into a daily five-minute self-reflection. I reviewed the results of self-reflection with him weekly, confirming successful solutions.

In removing the two zip-code-oriented trucks, I also had a clear plan regarding the operative manager. When the number of goods is low, these utility vehicles can be left unmanned. This required the operational manager to reorganize the daily pickups together with the host company's traffic planners between the remaining zip-code-oriented trucks. The host company was satisfied with the change in our operating model and the re-organization of the pickups was easy. The host company felt that they had taken the first concrete step in reducing their carbon footprint, which is important to them.

I underlined the importance of removing the two zip-code-oriented trucks to the operative manager because this operating model provides one solution model for all exceptional situations. Exceptions are equally foreseeable situations when goods are estimated to be few or situations when a large part of the drivers are sick. Even though Covid-19 is over, new ones can come. Operative Managers must create a comprehensive toolkit for solving problem situations for themselves and be brave enough to use the solution models they have compiled. I often summed it up in discussions myself: the final result is played; the tactics are free. In the weekly discussions, I encouraged the operative manager to try it.

The following reflection phase according to Lewin's model brought one of the biggest successes, which we didn't even directly aim for in the project. The host company was satisfied with the perspective our project brought in increasing the trucks' efficiency. The satisfaction manifested itself in the fact that we were offered more zip code areas to which we would deliver goods. This happened in June 2023. This suited us well because

the new areas had a direct interface with our previous areas. The growth of the area brought us more turnover. I had a strict discussion with the host company about the operational implementation model in the additional area. I stipulated in the discussion that we take all the goods in the area, as it is most advantageous for us based on our operating model, of course considering the delivery time windows. We don't want to negotiate quality but only offer the host company to determine the quality level themselves, which they measure with their meters. This suited the host company well and the integration was started.

The general decrease in transport volumes had cost us its challenge during the project, and for this reason, the additional postcode areas were the solution to our needs in general. We needed more volume to make the operation more efficient. Previously, more trucks operated in the new area for us. We allocated only one postcode-oriented truck to the area. We chose a reliable utility vehicle driver as the driver. When the amount of goods decreased during the project, one of the aid trucks was underutilized. At this point, I had an active discussion with the supervisor and again emphasized the importance of daily resource planning in advance. At this point in the project, I encountered real resistance to change for the first time. After lengthy discussions through a coaching perspective, he made the supervisor believe in his chances of success. In addition, I brought the supervisor's arrival time to work 30 minutes earlier and agreed to a small salary increase. At this point in the project, for the first time, we had real financial resources for a salary increase.

At this point, the operational manager of the project had had time to properly get to know all his subordinates. Earlier during the project, I had also appointed him as the operational director of another publishing house operating nearby. The increase in postal code areas led to the reduction of one permanent emergency vehicle. Replacing this utility vehicle with a new one became the operative manager's next task. I required the Manager to create a model, which allows the partial capacity underutilization of another cost center to be combined with the need for a utility vehicle under investigation.

The trucks of another publishing site are mostly booked during the morning, but there is little work in the afternoons. I would underline this point in all discussions that the most important thing in the implementation of this plan is the constant dialogue between the supervisor and the operative manager. There will be challenges because not all drivers know everything. In the discussions, I made the goal concrete for both by constantly saying that it's not about that, everything should be combined and create synergies. In both cost centres, things are 90 per cent good, and our success rate is 97.5 per cent. Therefore, it is about a 7 per cent merger synergy, not more. This making the good things visible together with concretizing the number of challenges was the most important thing in the coaching aspect of the whole project. After this concretization, most of the resistance to change in practice was eliminated by itself. The project's review period ended in September 2023. The business continues and the business is constantly being developed. As the next business development target, I have taken into consideration the third publishing house operating nearby and their utility vehicles. The next main goal is to create a common utility vehicle pool between these three cost centres.

3.1 Original capacity

In the initial situation, 19 trucks were allocated to the cost location. Some of the trucks differed in their characteristics, and one truck was removed from the fleet first. After this, the sample group could be considered homogeneous. After this, the difference is only in the size of the cargo space; this difference does not play a significant role in the study. Truck potential in daily transportation was calculated as 18*7.5*2=270 pallet meters. One truck has a capacity of 7.5 pallet meters; when the trucks drive two loads of goods, customers can reach the calculated total potential. Transports are temperature-controlled in that the goods transport temperature must always be above +4 degrees Celsius. There are no other special technical conditions for trucks.

3.2 Gemba walkthrough

The Gemba walkthrough was performed in October 2022. the task was to evaluate the professional competence of the employees. According to Reynders et al. (Reynders et al., 2022), The Lean Manager visits the site to see the process, and the Gemba walkthrough is the LEAN manager's first tool. Gemba walkthrough is performed from the customer's point of view and their realised value stream. The Gemba walk aims to see one's activities as honestly as possible while also training the personnel in problem-solving skills in different situations.

Gemba comes from a Japanese word that means “the real place”. Since management sets the standards for Gemba, whatever happens, shows the quality of management. Leaders must stay in close touch with the reality of Gemba. Five Gemba principles are the first step in solving Gemba-related problems: When an abnormality occurs, go to Gemba immediately. For standardisation, check with Gembutsu. Gembutsu in Japanese means something you can touch, such as a machine, material, defects, rejections, dangerous conditions, etc. Take temporary countermeasures on site. Talk to the data, find and eliminate the root cause. Standardise to prevent repetition. (Imai, 1992)

The Gemba walk went well, and the information obtained partly exceeded expectations. According to Gesinger (Gesinger S., 2016), Creating new practices that affect work without learning how and why people work a certain way shows a lack of respect. Different safety solutions and potential hazards also become more apparent when you see how the work is done. The supervisor was with all the company's trucks and postal codes on the primary routes. The supervisor asked questions, made observations and, at the same time, trained drivers in more difficult customer situations. The focus of the training was to utilise better the aids needed at work. This was aimed at reducing the time spent in one stop. According to Torkkola (Torkkola, 2015, p. 125), the Gemba walk is precisely to be a learning situation, not an audit. For this study, an audit was conducted regarding the truck's required safety equipment. From the beginning, this was intended to emphasize the importance of a safe visit to work. The instructions for this came from

the CEO of Kuljetuspalvelut Oy. The essential difference in the walkthrough was that the end host company was not seen as the customer but as our organisation. Walkthrough's customer was the COO of Kuljetuspalvelut Oy, not Posti Oy's.

3.3 Daily Management System

The daily management system enables continuous improvement of the company culture to operate more efficiently at the supervisor level. DMS is a visible way of assessing and acting based on data and root cause analysis. To support our continuous Lean culture improvement, it is necessary to strengthen the daily management system planning so that the critical measures of success relevant to the operation are observed. (Zarbo et al., 2015)

The daily management system is appropriate in this study because the supervisor is actively present in the daily work. Similarly, he is responsible for the work done in advance regarding the review of the preloading lists. As mentioned earlier, profitability is weak in this cost centre. For this reason, in the early stages of the study, hiring additional staff was not financially possible. Likewise, from the beginning, it was specifically focused on having an effective dialogue with the supervisor directly without meetings or negotiations. Effective dialogue enables daily guidance to be brought closer to the learning-to-learn aspect of the organizational learning theory. The purpose is to guide both daily and monthly thinking towards Lean principles. According to (Gemmel et al., 2019) Research clearly shows that a widely implemented lean approach improves problem-solving behaviour. As one essential thing, the study also found that comprehensive basic information about previously realized problems plays an important role in solving future problems.

Another basis for resource allocation can be considered the annual clock of the cost centre when the quantity of goods varies. According to Torkkola (Torkkola, 2015), "Tactical options for improving performance include reducing time use, increasing resources, making the process smoother and limiting the amount of work in progress".

"Reducing variation can be achieved by reducing errors, simplifying the system, using the LEAN Six Sigma method and stabilising. Stabilisation, in this case, is seen to improve prediction. In the study, the preloading list received from the host company is the single most significant factor or tool that the organisation under study can use to improve the accuracy of the forecast. According to (Mcadam & Leonard, 1999) when moving the learning organization forward in the company, it is essential to determine the root cause of success and what success requires. The information brought by the pre-loading list refined to the company's needs is a critical success factor. Calculated, the amount of goods transported by one truck and its increase is the most important development target in the pursuit of a better financial result.

3.4 Tools

Three different tools were chosen, which were seen to be able to support each other. These three tools also have standard interfaces, and PDSA and Kaizen are continuous improvement tools. Kata as a tool offers the most in this thesis the coaching aspect. When striving for a more efficient organization that learns from its mistakes, coaching towards a better result is essential. The previously mentioned benchmarking will not be used in this Thesis. However, the benchmarking tool has not been forgotten. From the beginning, these three tools will be used to create a model that can be duplicated in other cost centres with the help of internal benchmarking in the organisation.

3.4.1 PDSA-cycle

According to (Taque, 2014), the PDSA (Plan Do Study Act) model is a four-step model to clarify the implementation of change. This model does not have an exact end point; it is endless. The PDSA model should also be repeated and again. With this cycle, continuous improvement within the process is possible. The four-phase model was felt to meet the study's needs better. For this reason, the previously mentioned five-step DMAIC model replaced the PDSA model.

According to Christoff (Christoff, 2018), PDSA helps organisations focus on creating fact-based information. During the development phase of the PDSA, it is helpful to ask three questions:

1. What are we trying to accomplish?
2. How will we know that change is an improvement?
3. What change can we make that will result in improvement?

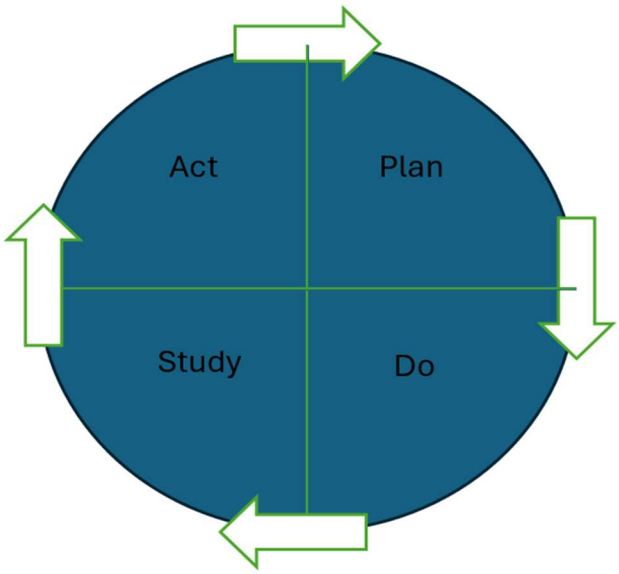

Figure 2. PDSA-cycle (Christoff, 2018)

3.4.2 Kata

Kata's history is based on Toyota's TPS model. Mike Rother's "Toyota Kata" book defines it as a unique improvement and leadership routine. Toyota Kata aims to create a continuous change process. The Japanese word directly translates to patterns of motion. Rother refers to unique improvement and leadership routine as improvement Kata and Coaching Kata. Improvement Kata is divided into four steps: Understand the direction, Grasp the current condition, Establish the next target condition, and Iterate toward the target condition. (Vincent C, 2014)

Combining Toyota Kata and TRIZ (Theory of inventive problem solving) can improve innovation in the process. The main potential benefits of adding TRIZ techniques to Toyota Kata are generating better and more innovative solutions and guiding the search for solutions. Likewise, it offers a systematic approach to dealing with the current situation, forming the vision, and identifying organisational challenges that must be solved before moving forward. (Toivonen, 2015)

By combining coaching kata and the PDSA model, daily activities may force the person to learn, contributing to achieving the goal. This is not solution-based thinking but knowing what works and eventually learning a combination of natural solutions that lead to overall improvement. Coaching kata can be presented in the form of questions, challenging the respondent to answer questions. With the help of questions, we map the present, the future and the path to reach the goal. The Coaching Kata supports the whole method by reinforcing the Improvement Kata steps using five repeatable core questions:

1. What is your target condition?
2. What is your actual condition now?
3. What obstacles are preventing you from achieving your target condition?
4. What is your next step?
5. When can we go see what you have learned?

(Fleming R. & Kapanovski G., 2018)

3.4.3 Kaizen

Kaizen is a TQM concept that focuses on low-cost organisational change methods and often saves significant resources (time, capital, etc.). Using Kaizen in internal organisational changes enables the preparation of practical guidelines to improve process agility and lightness. It also makes it possible to increase production productivity. With the help of Kaizen, it is possible to create small and continuous changes over time, which leads to process improvement. Reduction of waste over time increases

sustainability in processes and companies. With the help of Kaizen, the participation of employees in the company's development projects can be facilitated. Kaizen develops employees' waste elimination and helps identify new opportunities. (Amoozad Mahdiraji et al., 2024)

According to Reynders et al. (Reynders et al., 2022), Kaizen means continuous improvement. One of the goals of this Thesis is that action research and Kaizen combine to create a foundation for constant improvement that revolves around the set goals. One goal is to make the basis for a long-lasting, possibly even unbroken, Kaizen spiral. It is not about involving everyone in continuous action research. When facing new problems, you should identify situations requiring action research. After finding the basis for a solution, we proceed in the spiral of development through the Kaizen thought model.

According to Besta P & Lenornt (Besta & Lenort, 2009), When implementing the Kaizen model in an organisation, the first step is implementing the five stages of good Management - the "5S" model. This principle developed based on many experiences of people working in production departments. The name of the 5S model comes from five different Japanese words that describe various parts of the model at the title level. The terms are: Seiri, Seiton, Seiso, Seiketsu and Shitsuke. The basis for using Kaizen within the organisation is understanding these five concepts and implementing the standardisation of things.

1. Seiri: Separate essential and non-essential things at your workstation. Eliminate the irrelevant
2. Seito: Arrange the essential things left at your workplace in order according to Seiri
3. Seiso: Keep the devices and your workstation organised and clean.
4. Seiketsu: Expand your understanding of order and cleanliness and continuously perform the previous three steps.
5. Shitsuke: Build and improve your self-discipline. At the same time, practice all five steps by creating your standards for order and cleanliness.

The term Kaizen can be approached in three different ways. The first perspective defines it as a general concept under which principles, values and tools are gathered. This entity forms the company's management model. Another perspective identifies Kaizen as one part of the TQM model, which serves as part of the whole. The third perspective is the waste elimination perspective, where Kaizen creates a theoretical perspective as the basis for applying techniques. Kaizen's continuous learning process has three different roots: The operational area, the behavioural area, and the emotional area. Through routine repetition of these three roots, three different outputs are obtained by feeding constant input into the learning process: Habits, Beliefs and Feelings. By breaking down the continuous learning process into parts, achieving a sustainable result in the Kaizen process is possible. (Mendez & Vila-Alonso, 2018)

4 Results

The results were described simply so that they also effectively describe the variability of the process. This means that by placing the number of pallets for several months in one table, separated by day, Supervisors will also have a better overall picture of the results.

4.1 Gemba consequences

Initially, we asked the customer for daily preloading lists so that we have up-to-date information about the transport capacity needed the next day. According to Torkkola (Torkkola, 2015, p. 127), unnecessary costs can be easily reduced by improving communication between two organisations. A daily preloading list is a practical example of this. Compiling the lists by the host company only takes a few minutes a day. The host company already has all the necessary information in a table. It is only about merging tables. With this, our company has already gotten basic information regarding the daily resource needs the night before.

A preloading list was immediately found to offer what the case company needs as a basis for development work. According to Villareal et al. (Villarreal et al., 2017)Waste due to excess equipment, poor resource planning, and unprofitable transport jobs due to ignorance or lack of planning are typical forms of waste when studying the transport sector. Although the preloading list we received was not error-free every week, it gave us the necessary basis to create our own ERP. The advantage is that we aim to connect with the host company's data flow using our ERP program.

At the interfaces of different modes of operation, one entity was observed in connection with the Gemba walk. This challenge was successfully eliminated quickly. One of the most significant Gemba walk observations was the supervisors' lack of time at critical moments. According to Lödding & Piontek (Lödding & Piontek, 2018), Little's law describes the queuing process in a steady workload.

Little's law: $L_m = \lambda_m \cdot w_m$

Where $L_m =$ expected number of units in the system; λ_m expected arrival rate, w_m The expected time they are spent by unit.

As an application of Little's law, it can be observed that if the supervisor does not have enough time in the morning to spend on truckload planning, the waiting time for trucks and the loading time will increase. Increased time consumption here is a waste, as no added value is achieved for the customer. As a solution, we advanced the start of the supervisor's shift by 30 minutes. Also, the fact that in the mornings, before the trucks arrive, the supervisor has better peace of mind for planning was felt to improve the chances of success at work. According to Tay et al. (Tay et al., 2017)Projects whose focus is on improving resource efficiency can drift into a deterioration of resource efficiency, creating an efficiency paradox. The observation that, in terms of the result, the supervisor should come to work earlier is comparable to the efficiency paradox. Increased use of time increases waste, but the waste is even greater if time is not used. The point where waste- time occurs is different and more expensive. According to Cohen et al. (Cohen & Shoval, 2020), small and insignificant bottleneck findings and their quick elimination can bring significant savings on an annual basis.

Week	**Mond.**	**Tuesd.**	**Wednesd.**	**Thursd.**	**Fri.**	**Total Pll Mtr/ Week**
12	**111,08**	**107,1**	**107,63**	**79,31**	**108,59**	**513,71**
13	**109,37**	**125,81**	**120,55**	**106,05**	**110,93**	**572,71**
14	**116,86**	**133**	**112,55**	**99**	**0**	**461,41**
15	**0**	**101,29**	**155,29**	**143,01**	**146,18**	**545,77**
16	**145,46**	**145,46**	**131,61**	**128,74**	**114,23**	**665,5**
17	**129,07**	**139,95**	**145,25**	**151,73**	**137,49**	**703,49**

18	**0**	**136,99**	**131,55**	**125**	**97,09**	**490,63**
19	**122,22**	**97,83**	**135,32**	**125,87**	**118,68**	**599,92**
20	**115,47**	**104,9**	**120,96**	**0**	**116,41**	**457,74**
21	**117,58**	**99,02**	**94,51**	**105,58**	**111,64**	**528,33**
22	**93,58**	**120,93**	**130,99**	**133,13**	**117,51**	**596,14**
23	**123,64**	**123,94**	**117,63**	**113,34**	**111,56**	**590,11**
24	**105,93**	**110,51**	**121,45**	**127,92**	**133,18**	**598,99**
25	**98,63**	**106,8**	**119,51**	**115,97**	**0**	**440,91**
26	**122,24**	**121,71**	**111,47**	**97,16**	**92,81**	**545,39**
27	**88,03**	**104,55**	**83**	**103,69**	**75,86**	**455,13**
28	**106,82**	**110,38**	**108,77**	**85,58**	**97,25**	**508,8**
29	**83,69**	**77,5**	**82,97**	**79,09**	**68,75**	**392**
30	**82,54**	**85,56**	**77,04**	**90,8**	**63,14**	**399,08**
31	**65,06**	**79,79**	**93,8**	**114,2**	**96,36**	**449,21**
32	**97,04**	**97,43**	**105,71**	**102,1**	**98,19**	**500,47**
33	**88,35**	**96,69**	**113,19**	**110,4**	**85,1**	**493,73**
34	**98,31**	**103,2**	**113,84**	**95,54**	**101,6**	**512,49**
35	**108,42**	**101,93**	**127,58**	**110,17**	**100,84**	**548,94**

Table 1. Preloading-list

In Chart 1, the week numbers are on the left column, and after this is the day-specific advance information received from the transporter about the amount of goods to be transported. Information about the next day comes to us the night before. The work management resource allocated to the cost centre goes through the received data in the morning before the drivers arrive. Chart 1 shows the total pallet meter volume of all

shipments to our region. The goods arrive at the loading area on a variable schedule. Supervisors can use the preloading list to see if all the goods going to one customer are already in the area or if something is still missing. The original list sent to the supervisors also contains the addresses of the goods and the quantity of goods to the address.

During the Gemba walk, it was also noticed that when the number of goods increases, increasing the number of trucks in the morning does not achieve an advantage. The truth was partly even the opposite. In rush-hour mornings, work was more efficient and loading times were shorter when the number of trucks was smaller. According to Prajapati et al. (Prajapati & Suman, 2020), Factors that cannot be measured are estimated through GEMBA observations. The time taken to load was measured by the supervisor after the Gemba walk on the following five peak days. This also confirmed our findings as a statistical truth. According to Bullington et al. (Bullington K. & Welborn C., 2023), when Management visits the workplace or a part of the supply chain, a strong message is conveyed: the supply chain and its small things matter. This is linked to our research because the supervisor had already noticed the problems before. It had been considered a matter of no effect. Research showed otherwise.

4.1.1 Refinement of Gemba

The data obtained with the preloading list is further processed. This is used to create a forecast of future capacity needs. According to Torkkola (Torkkola, 2015), When investigating whether the process is stable and can be used to predict the future, an SPC (Statistical Process Control) curve is drawn up.

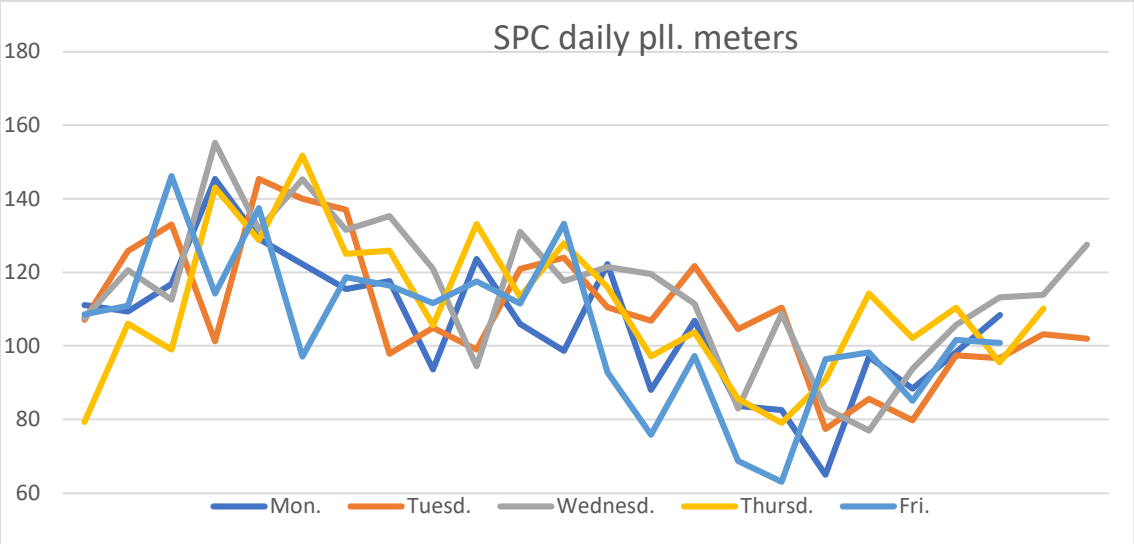

Figure 3. Daily pallet meters

The average of the sample group is 109.18 pallet meters. On the other hand, the average of the daily standard deviations is 18.84. According to Torkkola(Torkkola, 2015)
The control limits UCL (Upper Control Limit) and LCL (Lower Control Limit) of the SPC curve are three standard deviations (Sigma) away from the mean. Average 109.18 combined 3*sigma follows:

LCL = 52,66

UCL = 165,7

The measured daily transportation need, and its range fit into the six-sigma range. The process can be described as stable, so it is predictable and can be used to create a reliable forecast of the future. This observation is important because it also allows resource planning during exceptional times in the future. This observation confirms the assumption that the following year's July (weeks 27-31) shift plan can be implemented with reduced resources.

Our organisation's most critical Gemba observation was that our drivers were zip code-oriented. It was acceptable to leave with a half-empty truck if no more pallets were in your zip code area. According to Torkkola (Torkkola, 2015), Humans naturally deduce the causes of problems too quickly. A quick conclusion from the driver's point of view is that

since there are no more pallets, you can leave. This section presents the benefits of the preloading list for the first time. The load is already planned so that the driver knows what goods from other zip code areas he is loading in addition to his zip code area.

As the amount of goods increased, the previous supervisor had always tried to increase the number of trucks, although this only led to a further deterioration of the filling rate. The essential message of the Gemba walk for our organisation was implementing RCA (Root Cause Analysis). Why have we drifted into high capacity and low degree of filling? According to Sarkar et al. (Sarkar et al., 2013), RCA is a method for identifying the cause of the problem, solving it, and preventing it from happening again. It reveals the true and exact reason(s) why something is happening or has already happened. The conversation with the previous supervisor clarified the RC. His lack of information about the financial effects of adding more trucks made him make the wrong financial choices.

Based on the preloading list, the capacity is computationally sufficient. There are enough resources, but the ability to transform and transport the goods in the loading area is insufficient. In this case, resources refer to trucks. On the other hand, capabilities refer to what trucks can transport and where. There are exceptional cases according to the rule, but they are also eliminated with the help of the preloading list. According to Kelleher (Paul Kelleher, 2015), It is essential to recognise limited capabilities and eliminate possible internal process interfaces when defining resourcing.

The internal process interface, the counterpart, is the root cause. This leads to a bottleneck where the time used and the resource underutilised collide. According to Ajai S. & Gaur H. (Ajai S. Gaur, 2019), organisational-level boundaries between teams or individuals and Management can cause problems. A preloading list applied generically, considering the reality in the host company's premises, creates an opportunity for a faster distribution start. This observation of the slowness of distribution output was one significant concrete observation in Gemba walking.

At the beginning of May, we reduced the fleet by two trucks and changed the job description to 2 trucks. The host company has initially defined the truck's distribution areas by zip code. As a division, this is clear but ties up resources unnecessarily. Similarly, the operative operation is not agile because the drivers are generally used to driving only goods in their area. The essence of our new operating model is that all pallets are efficiently transported to customers regardless of zip code areas.

In Figure 4, the trucks' efficiency was calculated over four months, based on the amount of goods transported. The calculation is done hourly and daily, as well as how many pallets. Meters trucks have delivered per hour. In the enhanced operating model of 17 trucks, the daily potential is (16*2*7.5) +7.5= 247,5 pll. Meters. In this case, the column for Figure 4 per day would be 14.5.

April PLL meters	PLL/trucks(17)	per day	Invoicing h	PLM per hour	h/truck/day	Working days/ month
2376,17	139,775	7,765	2284	1,040	7,464	18

May PLL meters	PLL/trucks(17)	per day	Invoicing h	PLM per hour	h/truck/day	Working days/ month
2422,12	142,478	6,785	2642	0,917	7,401	21

June PLL meters	PLL/trucks(17)	per day	Invoicing h	PLM per hour	h/truck/day	Working days/ month
2426,04	142,708	6,796	2398	1,012	6,717	21

July PLL meters	PLL/trucks(13)	per day	Invoicing h	PLM per hour	h/truck/day	Working days/ month
1820,07	140,005	6,667	2060	0,884	7,546	21

Aug PLL meters	PLL/trucks(13)	per day	Invoicing h	PLM per hour	h/truck/day	Working days/ month
2439,78	187,6753846	8,1597993	2477,5	0,984774975	8,285953177	23

Figure 4. Monthly transported pallet meters

The production process at the host company terminal can be considered an application of suction control. Pallets are unloaded from incoming trucks to the terminal and divided into zip code areas. Our organisation cannot influence the actual schedule of this process. According to Green et al. (Green et al., 2014), the link to supply chain management performance is positive and significant. In other words, if the transport provider's suction control does not work, it causes a negative result for us as a service provider. This is one thing that affects daily quality and is not controlled by our supervisors. This challenges the possibility of daily value creation and value addition. Supervisors should be offered a transparent operating model for how quality deviations not caused by us should be reported forward.

4.1.2 Daily PDSA

The PDSA model's infinity and straightforward approach emphasises using Supervisors. Based on the research data, the need for an active Daily PDSA is based on JIT (Just-in-Time) production challenges. According to Inman et al. (Inman et al., 2011) when striving for an agile operating model, the relationship with the JIT operating model is essential. Supervisors, one of the most critical tasks is specifically for the Agile operating model, while maintenance for the JIT model is incomplete.

According to McNicholas et al. (McNicholas et al., 2019), PDSA accuracy can be improved over time. One essential remedy is to influence your employees' desire and motivation using PDSA. The goal is to increase understanding and apply the method in practice. Achieving this is a gradual process that requires sufficient time. In Supervisor In's work, being motivated and interested in the work as a process developer is essential. Likewise, motivating drivers in their daily work is important.

Motivation on a general level is supported by the differences brought by the annual clock thinking based on the preloading list plan. According to Prieto-Sandoval et al. (Prieto-Sandoval et al., 2023), With the help of yearly clock thinking, the calendar year can be divided into smaller parts. This can clarify business fluctuations, for example, when the seasons change. The most significant variation in the supervisor's work is the small workload from Christmas to January compared to the peak period from April to May. These variations also create the need for PDSA design changes.

4.1.3 Daily Kata

The schematic brought by Kata, combined with the problem-solving aspect brought by TRIZ, guides the entire operative Management as the most essential tool. According to Lodgaard et al. (Lodgaard et al., 2023) Studies have found that even if recurring problems are different, they can be solved using the same operating models and patterns. Operative Management is instructed to solve problems using the same operating models and patterns.

The information collected in Chart 1 gives operative Management a basis for future resource planning. The collected data forecasts the future and creates an assumption about next year's reality. Continuously collected data establishes a baseline against which improvement can be compared. A simple design and a repeated, similar way of solving problems enable a positive development spiral.

In more detail, Kata's use is directed to the Coaching Kata model. According to Reverol (Reverol J., 2012), Kata coaching facilitates performance improvement by improving the process in a corporate environment. Likewise, coaching Kata is the model the coach follows when he teaches the learner a specific routine. When following the daily routine while trying to change it in the desired direction, it is necessary to follow the change and its direction. The organisation must develop the competence of the coaches. This can only allow both coach and learner to share time to continue "aspirational" activity daily. Short daily meetings between manager-supervisor-driver are seen as one practice for this.

4.1.4 Daily Kaizen

One of the most crucial factors to follow in Daily Kaizen is that employees try to solve problems at work themselves. Following the 5S principles helps them solve problems. If the supervisor and Manager are not fully committed to promoting this behaviour, the employees hide problems rather than identify them. A misunderstanding can happen when a company kaizens, but they are just trying to meet a standard or stabilize the current system. Based on the 5S principles, a better and clearer operating system should be created and not meet the goals of the previous operating model. Kaizen will only succeed if the employees have the right kind of support and coaching. (Marksberry et al., 2010)

5 Discussion

This Thesis intends to change the thinking model of the supervisors involved in the study to reflect more Lean-type thinking. Supervisors were changing design arguments about how critical features of task systems and associated resources help them manage bottlenecks and opportunities and subsequently improve the company's performance. The results suggest that the organisation under investigation must comprehensively plan its operating model and consider the operating model of the host company. According to Karim S. et al. (Karim et al., 2023), The study's results suggest that managers designing systems for the organisation should avoid increasing the complexity of the task system. This can be compared to Torkkola (Torkkola, 2015, p.) to simplify the system or operation. With this, it is possible to shorten the processing time. The shortened lead time is directly reflected in the acceleration of the output to distribution.

5.1 Weekly Lean, Supervisor

This Thesis's one of the most significant learning curve is increasing the supervisors' understanding and knowledge. According to Ferenhof et al. (Ferenhof et al., 2018), Knowledge management is divided into eight blocks. The most interesting of these are Knowledge Goals and Knowledge Development. The benefit of the Lean awareness brought to the organisation will be lacking if the supervisors' target setting fails. The company's operational Management is responsible for making the goals concrete and understandable. EBITDA and cash flow are indicators from the point of view of operational profitability, but they do not work as supervisors' daily goals. Likewise, dynamic information management is essential when the process is constantly undergoing small changes. This means that variations are also possible even though a certain amount of goods can be assumed based on statistics for specific days. Statistics can be used to predict, but you cannot know based on predictions.

When giving new instructions and operating models to supervisors, according to Seddon & O'Donovan (Seddon & O'Donovan, 2010)When it comes to giving new instructions and

operating models to supervisors, as per Seddon & O'Donovan, the paradox 'When managers manage costs, costs go up; when they learn to manage value, costs fall.' presents a challenge. Lean tools have been instrumental in making the service organisation's processes cost-effective. One of the significant causes of failure demand when creating value for the customer is the failure of the customer's suction control. The wrong organisation will bear the costs of the fault claim. Even if the cost is not high or regularly recurring, supervisors must be directed to act to minimize the costs. Managing costs caused by quality deviations is an essential part of the process, and supervisors play a crucial role in this.

In the same way Lean has developed as a polarisation in the entity's academic literature, the cost centre operating model must also develop in the necessary direction. At the same time, Supervisors continue to adhere to and operate within the "best practices" and develop and maintain functional capacity. The development has created new tools and viewpoints in the Lean philosophy, and supervisors must also modify the tools to meet their own operational needs. (Samuel et al., 2015)

Supervisors are encouraged to use the PDSA model actively in the first step. They must implement the model preloading lists based on daily primary data. Active and continuous use of the PDSA model also enables Supervisors to reflect on themselves. When reflection is required higher up in the organisation, Supervisors must take the operating model down to the level of truck drivers. Supervisors are encouraged to implement the Daily Management System's 5-minute meeting with the driver. When the number of drivers is always more than ten dailies, keeping the meeting short should also be emphasised. A brief, pre-thought-out five-minute meeting is often better than an unnecessarily long 15-minute meeting. The topic of the meeting is only the driving duties of that day; it is possible to return to other matters belonging to the supervisor later in the day when the truck driver comes to pick up the second load of the day.

The supervisors must have a target discussion as part of the first step. This includes the three questions mentioned earlier, which help create a simple understanding of the goals.

1. What are we trying to accomplish?
   Trucks carry more goods every day.
2. How will we know that change is an improvement?
   Follow the preloading list pallet meter quantity and compare it with the used truck capacity.
3. What change can we make that will result in improvement?
   Reflect and think if we cause bottlenecks, how to be Agile daily.

Similarly, Supervisors must highlight the possible process challenges. Challenges can partly be caused by the wrong type of truck fleet or by the host company's process. The starting point here is that the demand from supervisors higher up in the organisation to implement the operating model also brings the opportunity to challenge the operating model. According to (Tortorella et al., 2020) A learning organisation is an organisation where people constantly increase their ability to produce the desired results by developing new ways of thinking. These habits help them learn to learn together. It is not appropriate to create a learning organisation but still encourage supervisors. The same goes for truck drivers to learn to be better at their jobs. Supervisors are encouraged to develop a culture that enables learning in daily activities.

When we combine KATA's continuous improvement with the learning organisation's continuous Learning, we are very close to fulfilling the task given to the organisation's supervisor.

1. Go through the next day's preloading list.
2. Plan the load and consider deviations, such as a different delivery schedule.

3. A meeting with the driver about the day's work tasks highlights the way to eliminate potential deviations detected in advance.
4. Monitor compliance with instructions.
5. Informs Operative Management about the challenges and deviations found
6. Reflect on the course of the day before going home

From the perspective of Kata's coaching, the supervisor's increased understanding also becomes a strength. Kata coaching takes place at the supervisor level in two directions: on the one hand, by coaching and developing drivers' skills, and as sparring from Operative Management and Business Management levels. The purpose of sparring in this context is to create points of convergence in servant leadership. According to van Dierendonck (van Dierendonck, 2011), Servant leadership empowers and develops people. At the same time, it teaches humility, authenticity, interpersonal acceptance, and instructions. By combining coaching kata and servant leadership, the goal is to have a supervisor who constantly develops himself through small, continuous changes while guiding his subordinates to better performance. Success creates the basis for a positive learning curve.

Kaizen's perspective is the most distant and, conversely, the most direct and closest of the supervisor tools. Seiri guides the distinction between essential and non-essential; Shitsuke, on the other hand, guides the creation and promotes supervisor self-discipline, and Seito always does these things in the same order. Kaizen's most significant added value is achieved by focusing on essential things in order. Purely from the point of view of waste elimination, this eliminates useless time, time that does not produce added value. According to Al-Rifai (Al-Rifai, 2024), Even in simple factory work, achieving significant time savings daily is possible. This requires streamlining and simplifying work methods. The daily loading of drivers' trucks is comparable to factory work under normal conditions. The Supervisor's most significant opportunity to influence waste elimination is driver's Habits trucks in connection with loading. On peak days, the most significant

time saving can be achieved by considering the unusual and time-consuming shipments from hindering the first loadings in the morning.

5.1.1 Supervisor room board

- Harmonize your actions, be prepared and react to challenges predictably
- Coach and ask to be coached
- Do things in order and create your own recognisable way of working
- Admit the mistakes to yourself and reflect

Come to work on time. Face challenges immediately and react. A wrong decision is better than no decision at all. Learn to control yourself, and others will learn, too. Multiculturalism is more than different origins. Value everyone, honestly. Actively try to eliminate disruptive situations in advance.

5.2 Monthly Lean, Operative Management

Regarding operational management instruction, one of the biggest challenges is identifying the challenges directed at the instructions given by business management. While the plan is essentially a forecast and a state of will about the future, implementing the plan involves a series of constantly moving variables. The Manager predicts how the process should work and the result within the agreed deadline. (A common misconception is that the same processes are repeated daily). When the Manager has decided, the employees naturally want the process to happen according to the plan. However, it is an illusion that one wants to maintain and thus show Managers that they are good employees. We want to believe in the plan because the Manager drew it up. However, we must remember that there is no exact model, only an alternative plan to implement. The plan is often unclear and may contain random, unexpected events. Managers aim to make things look like they are going right and according to plans, yet random events cannot be predicted and can affect the outcome. But because things

interact, we don't know the events. Our plan is a forecast, and despite our best efforts, planning errors will always happen and cannot be avoided.

Operative Management's most significant responsibility is shift planning. Allocating resources to meet the forecasted need is challenging, but comprehensive basic information helps succeed. This is where the advantage brought by the PDSA model is emphasized. Always resource in the same way compared to the previous year. Note that if the total amount of goods has increased by 10% of the prior year, the total resource needed also increases by 10%. Inform Supervisors about increasing the total resource, but do not direct resource usage daily.

Combining the PDSA model with the company's annual clock clarified the shift list's changing stabilisation needs. The yearly clock thinking model divides the calendar year into parts. As a result, the different periods have the same features based on which plans can be made. The year is divided into four distinct parts based on the fluctuation of the company's business and the amount of goods: Midwinter (November-February), Spring (March-May), Summer (June-August) and Autumn (September-October). The periods are not the same size, but the division is based on the information collected from the pre-loading list.

When using the PDSA model for resource planning, the starting point is the preloading list for the corresponding period of the previous year. The total amount of goods is compared to the last month's truck-specific pallet meter. If the supervisor is allowed to increase the daily amount of goods transported per car compared to the previous year, the risk of over-resourcing is obvious. Based on this information, make a shift list using the company's online program. Pay attention to possible future challenges already in the drafting phase; for example, most goods are on Wednesdays. On Mondays, the goods rate is the minimum, but on sick leave days, they are the most common. Look for a balanced resource. After the work shift, investigate how the resourcing was successful. Pay attention to the completed overtime hours. Likewise, study whether everyone had

enough working hours. Did possible disruptions cause daily resourcing to fail? Listen to the supervisor's opinion as to whether the reaction in the event of a disturbance was successful. Refining the work shift list is a continuous process. Try to find four different planning bases in the first step.

P - Find the required resource.

D - do and pay attention in advance.

S - response to disturbances

A - Figure out the four basic variations

According to Brau et al.(Brau et al., 2019), PDSA model A, Act combined with Kata Coaching and the idea of sparring approaches is one of the most essential operational management-level goals. When creating standard processes, if the results of the research phase show clear improvements, new standard methods can be introduced quickly. Correspondingly, if there is no desire to keep the observed processes, they should be cut off immediately. This aims to minimise internal disturbances in the process. Kata's coaching sparring at the supervisor and business management levels is essential here. The message coming from the supervisor level answers the question: does it improve the quality of your organisation's operations? Likewise, does it offer the possibility of waste elimination in the form of a reduction in the time spent? The Business Management level receives an answer about the financial effects of the work shift list based on PDSA. Does the new operating model and standard offer a waste elimination aspect in terms of savings? For example, there are fewer trucks, but the drivers' days are getting too long. By saving on truck costs, we get higher wage costs, eliminating the savings. In this case, the net effect of waste elimination is negative.

According to the KATA model, supervisors should be encouraged to learn from problems. Likewise, they should be solved in unison and according to similar principles. Improvement Kata Improvement Kata's fourth question is, "What is your next step?". According to Soltero (Soltero, 2012)When striving for a comprehensive answer, you

should note the clarifications: take only one step at a time, but do it in rapid cycles; many steps are further analysis, not countermeasure, and if the next step is a countermeasure, what do we expect to happen? The Kata model is partly a self-feeding process that teaches how to manage change in the authors' ways of working and creates pressure for change internally by repeating rapid cycles.

Three parts of the Kaizen 5S model stand out at the operational manager level: Seito, Seiketsu, and Shitsuke. According to Azzam et al. (Azzam et al., 2019) Seiso, Seiketsu, and Shitsuke significantly impact employees' work performance. Job performance can also be affected by work resources and human resources. Work resources can improve work performance, such as the opportunity to influence one's work, feedback received, social support, and employees' optimism and initiative. As a unique feature of this study, it is also necessary to mention the truck the drivers use regularly. An operational manager must be directed outward through the three Ss mentioned. As Seiketsu means, "expand understanding" also makes it possible to expand the understanding beyond one's cost centre. The study organisation has another cost centre nearby, which has problems with the work being adequate. Likewise, they have scheduling challenges with delivery time windows. There is too little capacity in the mornings and too much in the afternoons. As a Seiketsu application, the work shift/resource planning of the operative manager under study and the other cost centre should be viewed. The basic information studied here uses the observation made in connection with Gemba: mornings go faster if fewer trucks exist. The time spent on loading is reduced, and the operation becomes more efficient. According to Gupta et al. (Gupta & Jain, 2013), One step is to find the root cause. When looking for the root cause, you must stick to basic lean concepts and identify the root causes. Examining the causes may not be possible to help correctly, so it is necessary to determine the effects of the solution on the entire system. At the beginning of the study, the starting point is low profitability. One of the root causes of this has been partially misdirected work shift planning. This identified the root cause, and its elimination produced synergistic benefits for the organisation. Combining design resources produces financial benefits in several cost centres.

The operative management is responsible for the cost centre's equipment (trucks and other necessary work equipment) in the study. The condition and maintenance of the fleet are not directly part of the study. On the other hand, they are a necessary support activity and a prerequisite for success when developing a business. As part of Kaizen, it falls under Seito, third S. Truck driver work performance, which does not reach a good level if the truck is not in good condition.

5.2.1 The Operative Management Room Board

- Know the history and eliminate repeated disturbances.
- Recognize constant change and improve what you do by expanding.
- Simplicity under challenging situations
- Coaching the organization based on facts

5.3 Three months ahead Lean, Business Management

One of business management's biggest challenges is that it doesn't have a ready-made forecast or formula to implement. Regular Gemba walks within the operative process are essential to successful business management. With the help of Gemba walks, the Management is encouraged to create predictions about the direction of the operative actions. According to Bortolotti et al. (Bortolotti et al., 2015), For years, researchers have looked for reasons for Lean project failures, insufficient organizational culture and its development, as well as the absence of few uniform practices, which are certainly among the most critical and widely recognised issue. Collecting the daily amount of the pallet meter in the Thesis is one event like the one described, which is used to predict the future. It is also a common practice within the organisation and a common efficiency measure. Operative management can, therefore, be instructed in resource planning based on previous years of implementation, such as how many trucks should be on the move at the end of July and the beginning of January. In this case, the least amount of

goods and trucks are needed. Similarly, based on the weekly letters sent by the host company, information is obtained on the development of the total volume compared to the previous year. With the total volume being 10% behind the last year, it can be assumed that this same decrease will also be reflected in the amount of goods in the organisation.

The role of a Business Manager is comparable to that of a head coach; the work focuses on the drivers and their success. Kata coaching and Kaizen are perhaps the most critical Business Management tools when developing an organisation towards Lean principles. The role of coaching is important, but without successful goal setting, coaching cannot achieve the desired result. You must also be able to make the goal concrete so that the coaches will understand it. EBITDA does not specify anything at the supervisor level. At the supervisor level, a simple operating model that steers towards the goal is important. For this reason, with the help of the PDSA model, it is easy to move people at the supervisor level towards the goal. Their self-reflection is the single biggest deciding factor. With the help of coaching, it is also possible to develop the desire to develop into a better supervisor. The aspect of continuous improvement brought by the Kaizen tool is what we want to create at the supervisor level to increase the desire for continuous development.

At the operative management level, the most important coaching issue is the importance of continuous three-month planning. Operative Manager planning at the Cost centre level can be compared to macro-level planning, while supervisor-level planning takes place at the micro-level. The aspect of Kaizen at the operative management level focuses most on redeeming the realized value for the host company. Quality maintenance and active development with the host company by coaching the operative manager is the task of the business manager. There should be a weekly dialogue with the Operative Manager and, if necessary, reminders of future challenges. The weekly development of the operative manager requires weekly presence from the business manager. With continuous coaching, it is possible to achieve continuous improvement. A bottleneck can

easily arise if the operative manager is left without coaching, especially in challenging resource planning situations. A steady flow in coaching prevents the occurrence of disruptive situations.

When studying the business manager's work, the biggest issues are creating the right overall picture of the nature of the problem being investigated and thinking about what the next likely challenge will be. Gemba walk is a good tool for this. If you only rely on the information provided to create the overall picture, the real root cause or challenge may not be understood. When creating an overall picture of the situation, you also need to spend enough time and, if necessary, do several Gemba walks. When moving the whole forward at the upper level, lower-level issues or possible individual disturbances do not hinder the focus of the upper-level problem. The larger the organization under investigation, the more important it is that the rules are the same for everyone. The challenge here is that even though the rules are the same for everyone, the practices for implementing them can be different. People are different.

5.3.1 Business Management Room Board

- be present and coach
- specify the goal
- immediately think about the next challenge
- measure real synergies

References

Ajai S. Gaur, H. M. and B. G. (2019). Knowledge flow bottlenecks: How multinational corporations deal with information transfer. In *Strategic Direction* (Vol. 35, Issue 8, pp. 27–29). Emerald Group Holdings Ltd. https://doi.org/10.1108/SD-05-2019-0089

Al-Rifai, M. H. (2024). Redesigning and optimizing an electronic device assembly cell through lean manufacturing tools and kaizen philosophy: an application case study. *International Journal of Productivity and Performance Management*, *73*(4), 1273–1301. https://doi.org/10.1108/IJPPM-04-2023-0180

Amoozad Mahdiraji, H., Sharifpour Arabi, H., Garza-Reyes, J. A., & Jabbar, A. (2024). Measuring the readiness level for Kaizen projects: a multi-layer Bayesian decision-making framework. *TQM Journal*, *36*(6), 1420–1441. https://doi.org/10.1108/TQM-06-2023-0166

Aronson, J. K. (2021). When i use a word.... Examining the efficiency paradox. In *The BMJ* (Vol. 375). BMJ Publishing Group. https://doi.org/10.1136/bmj.n2856

Azzam, A., Indrawati, S., Saleh, C., & Murti Kariza, D. B. (2019). Analysis of the influence of 5S work implementation culture on employee performance. *Journal of Physics: Conference Series*, *1367*(1). https://doi.org/10.1088/1742-6596/1367/1/012044

Barancik, M. (1997). ERP forecast. *Furniture Design & Manufacturing*, *5*, 113–120.

Bargal, D. (2006). Personal and intellectual influences leading to Lewin's paradigm of action research: Towards the 60th anniversary of Lewin's 'Action research and minority problems' (1946). *Action Research*, *4*(4), 367–388. https://doi.org/10.1177/1476750306070101

Beheshti, H. M. (2006). What managers should know about ERP/ERP II. *Management Research News*, *29*(4), 184–193. https://doi.org/10.1108/01409170610665040

Bessant, J., Kaplinsky, R., & Lamming, R. (2003). Putting supply chain learning into practice. *International Journal of Operations and Production Management*, *23*(2), 167–184. https://doi.org/10.1108/01443570310458438

Besta, P., & Lenort, R. (2009). Kaizen-Right Management Summary. *Witzja Kvartalnik*, 99–106.

Bortolotti, T., Boscari, S., & Danese, P. (2015). Successful lean implementation: Organizational culture and soft lean practices. *International Journal of Production Economics*, *160*, 182–201. https://doi.org/10.1016/j.ijpe.2014.10.013

Bosona, T. (2020). Urban freight last mile logistics—challenges and opportunities to improve sustainability: A literature review. *Sustainability (Switzerland)*, *12*(21), 1–20. https://doi.org/10.3390/su12218769

Brau, R. I., Gardner, J. W., Webb, G. S., & McDonald, J. K. (2019). Teaching Plan-Do-Study-Act (PDSA) in a Supply Chain Context: A Paper Football In-Class Activity. *Decision Sciences Journal of Innovative Education*, *17*(1), 6–32. https://doi.org/10.1111/dsji.12171

Bullington K., & Welborn C. (2023). BEYOND GEMBA. *Supply Chain Management*.

Burnes, B. (2004). Kurt Lewin and the planned approach to change: A re-appraisal. In *Journal of Management Studies* (Vol. 41, Issue 6, pp. 977–1002). https://doi.org/10.1111/j.1467-6486.2004.00463.x

Christoff, P. (2018). Running PDSA cycles. *Current Problems in Pediatric and Adolescent Health Care*, *48*(8), 198–201. https://doi.org/10.1016/j.cppeds.2018.08.006

Cohen, Y., & Shoval, S. (2020). A new cobot deployment strategy in manual assembly stations: Countering the impact of absenteeism. *IFAC-PapersOnLine*, *53*, 10275–10278. https://doi.org/10.1016/j.ifacol.2020.12.2760

Connelly, L. M. (2021). Using the PDSA Model Correctly. *Medsurg*, *30*(1), 61–64.

Emiliani, M. L., & Stec, D. J. (2004). Using value-stream maps to improve leadership. *Leadership & Organization Development Journal*, *25*(8), 622–645. https://doi.org/10.1108/01437730410564979

Ferenhof, H. A., Da Cunha, A. H., Bonamigo, A., & Forcellini, F. A. (2018). Toyota Kata as a KM solution to the inhibitors of implementing lean service in service companies. *VINE Journal of Information and Knowledge Management Systems*, *48*(3), 404–426. https://doi.org/10.1108/VJIKMS-11-2017-0083

Fleming R., & Kapanovski G. (2018). IMPROVEMENT_KATA_AND_COACHING_. *Cost Management*, *August*, 16–24.

Francis, G., & Holloway, J. (2007). What have we learned? Themes from the literature on best-practice benchmarking. *International Journal of Management Reviews*, *9*(3), 171–189. https://doi.org/10.1111/j.1468-2370.2007.00204.x

Garza-Reyes, J. A., Villarreal, B., Kumar, V., & Molina Ruiz, P. (2016). Lean and green in the transport and logistics sector – a case study of simultaneous deployment. *Production Planning and Control*, *27*(15), 1221–1232. https://doi.org/10.1080/09537287.2016.1197436

Gemmel, P., Van Beveren, S., Landry, S., & Meijboom, B. (2019). Problem-solving behaviour of nurses in a lean environment. *Journal of Nursing Management*, *27*(1), 35–41. https://doi.org/10.1111/jonm.12646

Gesinger S. (2016). Experiential_Learning_Using_G (2). *Safety Management*.

Green, K. W., Inman, R. A., Birou, L. M., & Whitten, D. (2014). Total JIT (T-JIT) and its impact on supply chain competency and organizational performance. *International Journal of Production Economics*, *147*(PART A), 125–135. https://doi.org/10.1016/j.ijpe.2013.08.026

Gupta, S., & Jain, S. K. (2013). A literature review of lean manufacturing. *International Journal of Management Science and Engineering Management*, *8*(4), 241–249. https://doi.org/10.1080/17509653.2013.825074

Hadid, W. (2019). Lean service, business strategy and ABC and their impact on firm performance. *Production Planning and Control*, *30*(14), 1203–1217. https://doi.org/10.1080/09537287.2019.1599146

Haukåsen, O. A., & Hermanrud, I. (2023). Creating a lean mind-set: Change of practice towards early treatment. *Management Learning*, *54*(5), 777–801. https://doi.org/10.1177/13505076221122152

Huang, H. B. (2010). What is good action research?: Why the resurgent interest? *Action Research*, *8*(1), 93–109. https://doi.org/10.1177/1476750310362435

Imai, M. (1992). Comment: Solving Quality Problems Using Common Sense. *The International Journal of Quality*.

Inman, R. A., Sale, R. S., Green, K. W., & Whitten, D. (2011). Agile manufacturing: Relation to JIT, operational performance and firm performance. *Journal of Operations Management*, *29*(4), 343–355. https://doi.org/10.1016/j.jom.2010.06.001

Irfani, D. P., Wibisono, D., & Basri, M. H. (2019). Design of a logistics performance management system based on the system dynamics model. *Measuring Business Excellence*, *23*(3), 269–291. https://doi.org/10.1108/MBE-01-2019-0008

Kadarova, J., & Demecko, M. (2016). New Approaches in Lean Management. *Procedia Economics and Finance*, *39*, 11–16. https://doi.org/10.1016/s2212-5671(16)30234-9

Karim, S., Lee, C. H., & Hoehn-Weiss, M. N. (2023). Task bottlenecks and resource bottlenecks: A holistic examination of task systems through an organization design lens. *Strategic Management Journal*, *44*(8), 1839–1878. https://doi.org/10.1002/smj.3488

Krafcik. (1988). Triumph_Of_The_Lean_Production. *Sloan Management Review*.

Levin, M. (2012). Academic integrity in action research. *Action Research*, *10*(2), 133–149. https://doi.org/10.1177/1476750312445034

Lödding, H., & Piontek, A. (2018). Extending Little's Law to single order throughput times. *Production Planning and Control*, *29*(1), 1–8. https://doi.org/10.1080/09537287.2017.1373873

Lodgaard, E., Iakymenko, N., & Mogos, M. F. (2023). Toyota Kata for continuous improvement; an action research project in the construction industry. *International Journal of Lean Six Sigma*. https://doi.org/10.1108/IJLSS-05-2022-0121

Marksberry, P., Badurdeen, F., Gregory, B., & Kreafle, K. (2010). Management directed kaizen: Toyota's Jishuken process for management development. *Journal of Manufacturing Technology Management*, *21*(6), 670–686. https://doi.org/10.1108/17410381011063987

Mcadam, R., & Leonard, D. (1999). The contribution of learning organization principles to large-scale business process re-engineering. *Knowledge and Process Management*, *6*(3), 176–183. https://doi.org/10.1002/(sici)1099-1441(199909)6:3<176::aid-kpm59>3.0.co;2-e

Mccormick C. (2003). LEAN_LOGISTICS_TECHNOLOGY_ROAD. *Canadian Transportation Logistics*, *3*.

Mcnicholas, C., Lennox, L., Woodcock, T., Bell, D., & Reed, J. E. (2019). Evolving quality improvement support strategies to improve Plan-Do-Study-Act cycle fidelity: A retrospective mixed-methods study. *BMJ Quality and Safety*, *28*(5), 356–365. https://doi.org/10.1136/bmjqs-2017-007605

Mendez, J., & Vila-Alonso, M. (2018). Three-dimensional sustainability of Kaizen. *TQM Journal*, *30*(4), 391–408. https://doi.org/10.1108/TQM-12-2017-0179

Moyano-Fuentes, J., Sacristán-Díaz, M., & Martínez-Jurado, P. J. (2012). Cooperation in the supply chain and lean production adoption: Evidence from the Spanish automotive industry. *International Journal of Operations and Production Management*, *32*(9), 1075–1096. https://doi.org/10.1108/01443571211265701

Naranjo, F., Menor, L. J., & Johnson, P. F. (2023). Lean supply chain management: a contextual contingent reconceptualization and Delphi method study. *International Journal of Operations and Production Management*, *43*(9), 1456–1480. https://doi.org/10.1108/IJOPM-07-2022-0436

Näslund, D. (2008). Lean, six sigma and lean sigma: Fads or real process improvement methods? In *Business Process Management Journal* (Vol. 14, Issue 3, pp. 269–287). https://doi.org/10.1108/14637150810876634

Paul Kelleher, J. (2015). Capabilities versus resources. *Journal of Moral Philosophy*, *12*(2), 151–171. https://doi.org/10.1163/17455243-4681031

Prajapati, D., & Suman, G. (2020). Six sigma approach for neonatal jaundice patients in an Indian rural hospital – a case study. *International Journal of Health Care Quality Assurance*, *33*(1), 36–51. https://doi.org/10.1108/IJHCQA-07-2019-0135

Prieto-Sandoval, V., Mejia-Villa, A., Jaca, C., & Ormazabal, M. (2023). Circular Clock Model for Circular Economy Implementation in Firms: Balance Between Theory and Practice. *Journal of Industrial Engineering and Management*, *16*(2), 186–204. https://doi.org/10.3926/jiem.4009

Radnor, Z. J., Holweg, M., & Waring, J. (2012). Lean in healthcare: The unfilled promise? *Social Science and Medicine*, *74*(3), 364–371. https://doi.org/10.1016/j.socscimed.2011.02.011

Rechavi, A., & Toch, E. (2022). Crowd logistics: Understanding auction-based pricing and couriers' strategies in crowdsourcing package delivery. *Journal of Intelligent Transportation Systems: Technology, Planning, and Operations*, *26*(2), 129–144. https://doi.org/10.1080/15472450.2020.1797503

Reverol J. (2012). Environmental Quality Mgmt - 2013 - Reverol - Creating an Adaptable Workforce Using the Coaching Kata for Enhanced. *Enviromental Quality Management*, 19–31.

Reynders, P., Kumar, M., & Found, P. (2022). 'Lean on me': an integrative literature review on the middle management role in lean. In *Total Quality Management and Business Excellence* (Vol. 33, Issues 3–4, pp. 318–354). Routledge. https://doi.org/10.1080/14783363.2020.1842729

Saabye, H., Kristensen, T. B., & Wæhrens, B. V. (2021). Developing a learning-to-learn capability: insights on conditions for Industry 4.0 adoption. *International Journal of Operations and Production Management*, *42*(13), 25–53. https://doi.org/10.1108/IJOPM-07-2021-0428

Samuel, D., Found, P., & Williams, S. J. (2015). How did the publication of the book The Machine That Changed The World change management thinking? Exploring 25 years of lean literature. In *International Journal of Operations and Production Management* (Vol. 35, Issue 10, pp. 1386–1407). Emerald Group Holdings Ltd. https://doi.org/10.1108/IJOPM-12-2013-0555

Santa, M. (2015). Learning organisation review – a "good" theory perspective. In *Learning Organization* (Vol. 22, Issue 5, pp. 242–270). Emerald Group Holdings Ltd. https://doi.org/10.1108/TLO-12-2014-0067

Sarkar, S. A., Mukhopadhyay, A. R., & Ghosh, S. K. (2013). Root cause analysis, Lean Six Sigma and test of hypothesis. *TQM Journal*, *25*(2), 170–185. https://doi.org/10.1108/17542731311299609

Seddon, J., & O`Donovan, B. (2010). Rethinking Lean Service. *Management Services*, 14–19.

Senge P. (1992). Building Learning Organizations Senge, Peter ProQuest document link. *Business and Economics*, 1–30.

Solaimani, S., Veen, J. van der, Sobek, D. K., Gulyaz, E., & Venugopal, V. (2019). On the application of Lean principles and practices to innovation management: A systematic review. *TQM Journal*, *31*(6), 1064–1092. https://doi.org/10.1108/TQM-12-2018-0208

Soltero, C. (2012). Rediscovering the kata way Modified Toyota continuous improvement method can lead to the next frontier of innovation. *Industrial Engineer*.

Stone, K. B. (2012). Four decades of lean: A systematic literature review. *International Journal of Lean Six Sigma*, *3*(2), 112–132. https://doi.org/10.1108/20401461211243702

Suárez-Barraza, M. F., Ramis-Pujol, J., & Kerbache, L. (2011). Thoughts on kaizen and its evolution: Three different perspectives and guiding principles. *International Journal of Lean Six Sigma*, *2*(4), 288–308. https://doi.org/10.1108/20401461111189407

Taque, N. (2014). *A PLAN FOR IMPROVEMENT MANY MODELS ARE AVAILABLE FOR CONTINUOUS IMPROVEMENT. SPEAKING OF QUALITY*. www.qualitymag.com

Tay, H. L., Singh, P. J., Bhakoo, V., & Al-Balushi, S. (2017). Contextual factors: assessing their influence on flow or resource efficiency orientations in healthcare lean projects. *Operations Management Research*, *10*(3–4), 118–136. https://doi.org/10.1007/s12063-017-0126-3

Thomas, D. R. (2006). A General Inductive Approach for Analyzing Qualitative Evaluation Data. *American Journal of Evaluation*, *27*(2), 237–246. https://doi.org/10.1177/1098214005283748

Toivonen, T. (2015). Continuous innovation - Combining Toyota Kata and TRIZ for sustained innovation. *Procedia Engineering*, *131*, 963–974. https://doi.org/10.1016/j.proeng.2015.12.408

Torkkola, S. (2015). *Lean Asiantuntijatyön johtamisessa* (7.edition). Alma Media.

Tortorella, G. L., Fettermann, D., Cauchick Miguel, P. A., & Sawhney, R. (2020). Learning organisation and lean production: an empirical research on their relationship. *International Journal of Production Research*, *58*(12), 3650–3666. https://doi.org/10.1080/00207543.2019.1633028

Tortorella, G. L., Marodin, G. A., Fogliatto, F. S., & Miorando, R. (2015). Learning organisation and human resources management practices: An exploratory research in medium-sized enterprises undergoing a lean implementation. *International Journal of Production Research*, *53*(13), 3989–4000. https://doi.org/10.1080/00207543.2014.980462

van Dierendonck, D. (2011). Servant leadership: A review and synthesis. In *Journal of Management* (Vol. 37, Issue 4, pp. 1228–1261). https://doi.org/10.1177/0149206310380462

Villarreal, B., Garza-Reyes, J. A., Kumar, V., & Lim, M. K. (2017). Improving road transport operations through lean thinking: a case study. *International Journal of Logistics Research and Applications*, *20*(2), 163–180. https://doi.org/10.1080/13675567.2016.1170773

Vincent C. (2014). Thinking Lean. *Six Sigma Forum Magazine*, 30–31.

Vuorinen, T. (2014). *Strategiakirja 20 työkalua*. Talentum Media.

Zarbo, R. J., Varney, R. C., Copeland, J. R., D'Angelo, R., & Sharma, G. (2015). Daily management system of the Henry Ford production system: QTIPS to Focus Continuous Improvements at the Level of the Work. *American Journal of Clinical Pathology*, *144*(1), 122–136. https://doi.org/10.1309/AJCPLQYMOFWU31CK

Zhang, A., Luo, W., Shi, Y., Chia, S. T., & Sim, Z. H. X. (2016). Lean and Six Sigma in logistics: a pilot survey study in Singapore. *International Journal of Operations and Production Management*, *36*(11), 1625–1643. https://doi.org/10.1108/IJOPM-02-2015-0093

Zhou, B. (2016). Lean principles, practices, and impacts: a study on small and medium-sized enterprises (SMEs). *Annals of Operations Research*, *241*(1–2), 457–474. https://doi.org/10.1007/s10479-012-1177-3

Zulfiqar, M., Hussain, K., Yousaf, M. U., Sohail, N., & Ghafoor, S. (2020). Moderating role of CEO compensation in lean innovation strategies of Chinese listed family firms. *Corporate Governance (Bingley)*, *20*(5), 887–902. https://doi.org/10.1108/CG-03-2019-0092