



**THE INTEGRATION OF LEAN MANAGEMENT METHODS
IN AN OFFICE ENVIRONMENT TO INCREASE
ORGANIZATIONAL PERFORMANCE**

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ABSTRACT

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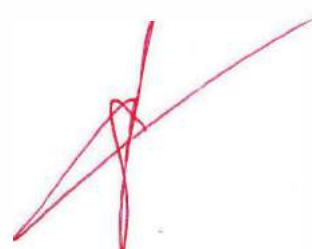
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In times of global networking, the competitive pressure for companies is steadily increasing. Though this increases the market opportunities as well as the opportunities to enter new markets, but competitive pressure is also growing. Most of the companies are in a worldwide competition and have to face growing challenges and higher customer demands. To be able to withstand this pressure and to adapt to the market above all, the companies have to position themselves and increase the productivity of all areas of a company. Lean management is a possible approach that has been used for many years to meet this challenge. In the direct areas, e.g., in production, lean management has become almost a matter of course for numerous companies in a wide variety of industries and can no longer be imagined without it. In the office environment, e.g., in purchasing, in accounting, or sales, lean management methods are still little widespread or even completely unknown. This research paper uses the documentary research methodology and aims to show which lean methods are also suitable for the office environment. In addition, the finding should show how integration works and which factors must be considered, so that lasting success is guaranteed. Also, it should be discussed what are the effects on organizational performance.

Keywords: Lean Management, integration, office environment



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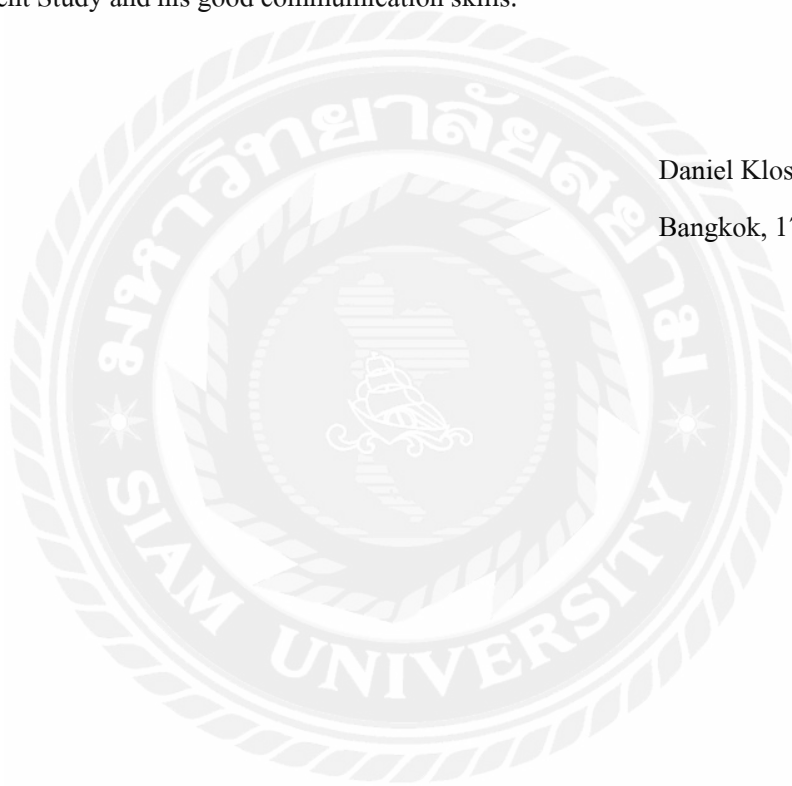


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Introduction

Research Background

Lean management is a modern process optimization concept and includes the efficient design of the entire value chain. This concept is focusing on making inefficiencies transparent and on altering these into value-adding activities. The value chain reaches from the suppliers over the own operations to the downstream side (Helmold & Samara, 2019). Competitive pressure is increasing worldwide. To withstand this pressure, the companies must increase the productivity of all areas of a company. Lean management is a possible approach for that (Georgescu, 2011). With the help of various lean methods, procedures, and thinking principles, lean management pursues the goal of harmonizing processes and creating a holistic production system without inefficiencies (waste) across all corporate divisions (Shou, Wang, Wu, & Wang, 2021). The central aspects of the approach include both customer orientation and cost reduction. Waste potential should be recognized and eliminated so that values can be created and maintained without waste. The main goal of lean management is to coordinate all processes and activities so that any type of waste along the value chain will be avoided. The staff is also included in the lean management corporate philosophy so that employee motivation is strengthened in a target-oriented manner (Klanitz, n.d.a). A German study "25 years Lean Management" by Staufen AG examined the market size and adaptation of lean management worldwide. Lean management made its international breakthrough a quarter of a century ago. In Germany, 95 percent of industrial companies now use lean methods, primarily in production. This management approach has had a positive effect in more than 90 percent of companies and has significantly improved competitiveness (Staufen, 2016).

In production, lean management is well known as "lean manufacturing" and has successfully proven itself a "best practice". The potential in this direct corporate area has been the focus of improvement activities for a long time (Sanders, Elangeswaran, Wulfsberg, Witt, & Witt, 2016). This enabled significant progress to be made. That is why this procedure is expanded in the indirect corporate areas such as sales, purchasing, logistics, service, development, etc., as well as service and service organizations. For these areas, the terms "Lean Administration" or "Lean

Office” are used. Lean Administration deals with the optimization of office and administrative processes, i.e., in contrast to the production departments, with handling information instead of processing Material. Poorly or barely structured processes and a lack of transparency are the challenges when introducing lean processes in the administrative area (Balsliemke & Behrens, 2019, S.7).

Research Problem

Lean management has been successful in the production areas for many years operated in many companies. The considerable potential in the administrative areas was recognized in many companies, but so far only addressed selectively in different departments (Tapping, 2006). According to a study by the Fraunhofer Institute for Manufacturing Engineering and Automation, almost a third of the working time in the administrative division of the companies and organizations is viewed by employees as waste and therefore not adding value. More than half of the respondents state that this waste is due to uncoordinated procedures and processes. Another 30% of those surveyed name unstructured and confusing workplaces as reasons for waste (Schneider, 2011). Even elementary processes are hindered as a result and the process cycle time increases. The study shows that considerable potential for improvement can be found in the office environment (Saheb, 2014). Sixty to eighty percent of all costs associated with meeting customer demand is an administrative function. The results of a lean office concept integration will be more productivity in less time with and with greater ease. By knowing your customers better than ever before, you can provide a positive experience. (Kulbyte, 2021).

The reason why a lean office concept is more challenging to implement than lean manufacturing is the measurability. The core problems of internal processes are often a lack of transparency and the limited possibility of making the efficiency of these processes measurable. It's easier to measure the output in a production environment. The barrier to engaging administrative departments is initially higher than in production for are several reasons like that the work in the office is not so visible and is mostly unscrutinized. When problems in production occur, it's visible instantly, and employees have to react to avoid a production stop. Also, office

employees have more position power than factory employees in most cases and are therefore better equipped to fight change (McMahon, 2010).

Objective of the study

This research aims to show how tools and methods which are related to lean manufacturing can be used and integrated into an office environment like administrative or service areas. It should also show where the inefficiencies can be found mostly and what are the effects on organizational performance. It is not supposed to be a holistic concept for the introduction or a detailed procedure for the implementation of lean management in an office environment, as this exceeds the scope of this research paper. Instead, potentials or approaches should be uncovered that cannot be found in most companies.

The Scope of the study

This study covers multiple facets, which will show where the inefficiencies can be found mostly and also possible ways how to integrate lean management methods in an office environment. Subjects such as lean management, productivity increase, waste reduction, and integration of a lean system to an office environment will be investigated by doing a case study on past studies in scholarly journals, articles, newspapers, books, and more. To conduct this study, around thirty research articles from databases like 'Google Scholar', 'Emerald Insight' as well as some current developments, and relevant websites are reviewed.

This research conforms to the documentary research format and is based on resources that have been recently documented, precisely, in the past eight years notably. The referenced articles have been enlisted at the end of my work.

Research Significance

Despite the establishing of lean management tools and methods in production, there is often no statement in the administrative area about how widely it is used. Another quantitative online survey in the industry shows the status quo of lean management methods in the administrative area. The result of it is that it's well mastered and applied in production. But it is still in its infancy in administrative areas and digitization (Pötters, Schindler, & Leyendecker, 2018). Especially in small sized enterprises, lean management tools are not well known (Rauch & Matt, 2013).

This research is significant because it shows which methods can be applied to the office environment, and it should bring more transparency into the administrative processes. The application of these tools encourages the personal involvement of the employees. Their concerns and problems will be heard, and they will work together to improve the work situation.

Literature Review

Lean Management

In the context of lean management, "lean" essentially means flexible, agile, or light. Lean is a concept of principles and methods for the effective and efficient configuration of the whole supply chain. The goal of Lean Management is to create value without producing waste. Value is any action that customers would be willing to pay for (Ohno, 1989). Lean tools and methods can help to identify and eliminate process steps which create no value. The result is improved quality with reduced production time and costs (Womack, Jones, & Roos, 2007).

Various definitions regarding the main principles of lean management exist in the present literature. The book "Lean Thinking" by Womack and Jones is one of the most widespread approaches. According to this reference, the philosophy of lean management is based on five principles. The lean principles show how constant performance increases at simultaneous effort reduction. They help increase the value of the recognized product and organize activities that add

value in the best possible order. All company activities are designed to help with these principles without delay and ultimately more and more efficiently exercised (Womack & Jones, 2013, p. 23).

Lean Office refers to the application of Lean Management in a company's administration, service, and business processes. It's about to make the administration process more efficient by increasing the transparency regarding the costs of these secondary processes (Chiarini, 2013). Lean Management is applied in many different areas and belongs to the most important and most popular management technics today. For instance, it is used in administration, healthcare, construction, maintenance, product development, and many more (Erwin Rauch, Damiana, & Holznera, 2015).

Methods

In the field of lean management exist a lot of different methods and tools today. Since lean was born in the ambit of production, the majority of its tools come from this area. Through adaptation over time, today they are applicable also in other fields and are no longer subjected to single industries. But not every method would be equally suitable for every section and process. An essential factor is to pay attention to whether the known methods from production make sense to use in the office area (Erwin Rauch et al., 2015).

Many changes are required to implement the lean office principles in a company. Poorly or barely structured processes and a lack of transparency are the challenges when introducing lean processes in the administrative area (Balsliemke & Behrens, 2019, p. 7). Basically, the entire corporate philosophy must be "lean". There are several methods and tools to transform the company in this direction (Gorecki & Pautsch, 2014, p. 27). Some of the most suitable lean methods for the office and administration area are presented in this section.

Continuous improvement:

Continuous improvement, or in Japanese called Kaizen, is a method for identifying opportunities for streamlining work and reducing waste. Kaizen originated in Japan shortly after the end of the second world war. It got massive popularity in manufacturing and became one of the foundations of Toyota's rise from a small carmaker to the most prominent automobile manufacturer on the planet.

This method was formalized by the popularity of lean management in manufacturing and business. Now it is being used by thousands of companies all over the world to identify savings opportunities. Many of these ideologies can be combined for excellent results. For example, Kaizen and other lean methods can go hand-in-hand to facilitate continuous improvement (Terry, n.d.). Continuous improvement is not just seen as a method applied to a problem once or several times. The aim is to promote process-oriented thinking behavior. CIP is an essential part of the corporate philosophy. Every operation is viewed as a process that can be continuously improved (Witt & Witt, 2007).

PDCA:

The model Plan-Do-Check-Act is the most popular approach for achieving continuous improvement. The so-called Deming circle (named after its founder, the American engineer William Edwards Deming) or PDCA cycle can be used by employees for all suggestions for improvement after a short briefing. The circle is never-ending and aims to help improving further based on achieved results (Terry, n.d.).

When carrying out the PDCA cycle, the entire process is divided into four phases or steps. In the first phase of the PDCA cycle, planning is the focus of all actions. The problem is first localized and noted in writing. In addition, an analysis of the current situation is carried out. In the second phase the measures that were defined in the planning phase are implemented. All activities must be documented in the Do-phase. It makes sense first to test the measures on a small scale. For this purpose, they can first be implemented in selected departments before they are extended

to the entire company. In the check, the focus is the objective consideration. The previously collected data is evaluated and assessed for this purpose. In the last phase of the PDCA cycle, the entire process is reflected on. The optimized processes are now the standard and should be adhered to by all employees. In addition, the main questions during this phase are what can be optimized and where there is further potential (Klanitz, n.d.b).

5S:

The 5S tool aims to achieve a clean and organized workspace to maintain an out-standing organizational environment. Waste will be minimized through a structured organization of the workplace. The benefits are, for example, reduced costs, higher quality, increased productivity, a greater employee satisfaction, and a safer work environment (5S Today, 2021). The 5-S method enables transparency and the emergence of standards in everyday office life. If there is a deviation from the standards, this is immediately apparent and can be counteracted. The employees develop the measures and standards themselves, and are thus motivated to uncover and then eliminate waste at the workplace, in the office and in administration (Klevers, 2013, 106–113).

The first step of 5S is sort. This step involves going through all the tools, furniture, materials, equipment, etc. in a work area to determine what needs to be present and what can be removed. The second step is to set in order. There must be a place for everything. Everything should be in its place. Quick and visual identification of tools saves time and facilitates processes. The third S means to shine. A cleaned

A clean workspace is crucial. The risk of accidents and aids in the inspection of products is reduced. In step four, standards must be created and followed to optimize the first three S's. The last step means to sustain and consists of developing a method to ensure the 5S technique is followed. Discipline and focus is required. Audits are performed regularly to assure the sustainability of the 5S technique (Oliveira, Sá, & Fernandes, 2017).

Shop-floor / Office-floor:

The lean philosophy is often about the employees who organize their work themselves and should constantly improve it. Any problem that arises are solved independently. The problem-solving process is given a new structure through shop floor management. The organization of work and the structured solution of problems that arise in operational business are combined. In the administration and office sector, this method is also known under the term office floor management. The different terms describe the same method, which is about the structured solving and answering questions (Klevers, 2013).

The shop-floor or office-floor refers to the lowest hierarchical level on which self-management is done. In this way, employees are directly involved in the improvement process and can work on problems in their teams and achieve improvements. This can be done, for example, in shop-floor meetings that take place weekly. You will be led by a manager. Employees can address problems. Corresponding display boards can help to record important, process-relevant information. The focus is on regular communication and reviewing the current situation (Saheb, 2017).

Integration into the office environment

The results of a lean office concept integration will be more productivity in less time and with greater ease (Kulbyte, 2021). Many companies still think that lean management is a concept only to be implemented in the production. However, there are immense opportunities to increase productivity through using lean management in both production and non-production areas. It is crucial for the implementation that the methods mentioned are rolled out in the administrative area. Based on continuous improvement, these should then be operated permanently (Pons, 2017).

A critical influence factor to be successful in lean management is the measurability of the implemented measures. The measurability will be discussed further on. Avoiding waste also plays a significant role. The integration of lean management removes seven types of wastes. These are explained in more detail below (Kostka & Kostka, 2017) (Wiegand & Franck, 2008).

Overproduction:

If work is not done in a customer-oriented manner for internal or external customers, this occurs waste. For planned projects that cannot be implemented, the invested planning time is wasted, and reports that nobody needs can be understood as reactive power.

Stocks:

Excessive stocks lead to losses, increased capital commitment and search times. Filing cabinets, which are full of unneeded copies and too much information and files that are not stored in a structured manner, lead to long search times.

Unnecessary transports:

Unnecessary transports are e.g., caused by office supplies that are stored multiple times in central and decentralized locations. Long distances and transports to office machines and between floors and departments also result in significant time losses.

Waiting time / laytime:

Waiting times have a direct impact on the lead time. This includes e.g., waiting for meeting participants and colleagues as well as waiting for callbacks, signatures, information, and system response times. When an offer is requested until the offer is prepared, waiting times, and idle times also delay the commissioning, the provision of services, and the income for the project.

Improper use of technology / improper work process:

The IT systems and work processes must be designed appropriately. Incompatible IT systems, programs, and work processes can mean additional work for employees.

Unnecessary movements:

Poorly planned office layout causes unnecessary movement. Other examples are filing systems that are too far away from the user. Also, a missing one Structuring the folders leads to unnecessary movements that should be avoided.

Questions and quality problems:

Inquiries arise when internal and external customers are not supplied with the necessary quality. The process is disrupted, and the lead time is increased (Skhmot, 2017).

Past research

Many other researchers have examined the problem and requirements of implementing lean methods in the office. According to Tapping (2006), the considerable potential in the administrative areas was recognized in many companies, but so far only addressed selectively in different departments. This claim is supported by a study by the Fraunhofer Institute Schneider (2011), and by Pötters, Schindler and Leyendecker (2018).

Saheb (2017) went a very practice-oriented way. In this work, methods are mentioned that are particularly important for the office area. The actual application in a company was also illustrated there. To ensure the success of lean office implementation, first, transparency should be ensured by determining the current progress of the various departments individually. This can be used to determine which tools should be integrated (Balmsliemke & Behrens, 2019). There is agreement, that the successful implementation of lean methods can also result in considerable productivity and motivation improvements in the office.

Finding and Conclusion

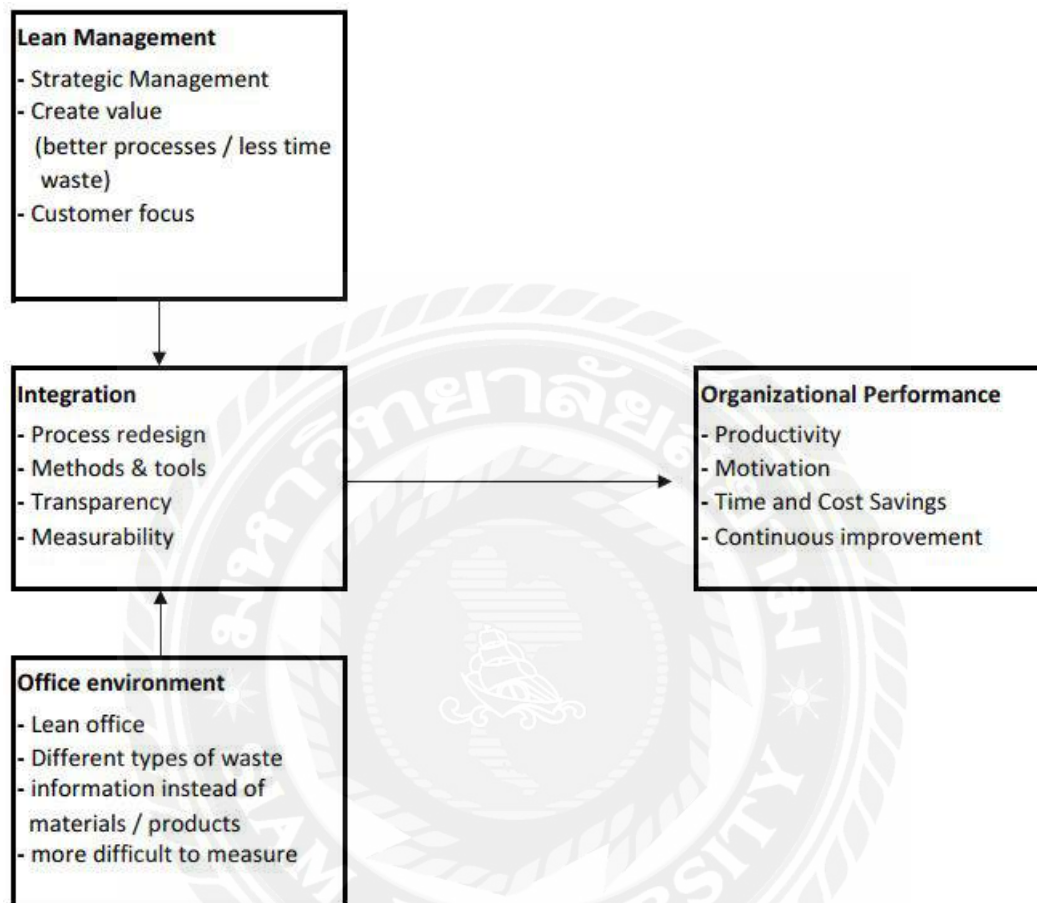


Figure 1: Conceptual Framework Model

(Helmold & Samara, 2019); (Georgescu, 2011); (Shou, Wang, Wu, & Wang, 2021); (Klanitz, n.d.a); (Sanders, Elangeswaran, Wulfsberg, Witt, & Witt, 2016); (Balsliemke & Behrens, 2019); (Tapping, 2006); (Saheb, 2014); (Saheb, 2017); (Kulbyte, 2021); (McMahon, 2010); (Pötters, Schindler, & Leyendecker, 2018); (E. Rauch & Matt D.T., 2013); (Womack, Jones, & Roos, 2013); (Chiarini, 2013); (Terry, n.d.); (Witt & Witt, 2007); (Klevers, 2013); (Pons, 2017); (Kostka & Kostka, 2017);

The following findings were obtained from the literature review of lean management integration in an office environment. Figure 1 illustrates a schematic framework established based on the findings of the research.

The relationship between lean management and an office integration

The measurability was named as an essential factor. It is more difficult to measure the processes in the office environment than in production. The core problems of internal processes are often a lack of transparency and the limited possibility of making the efficiency of these processes measurable (McMahon, 2010).

Another critical factor is to pay attention to whether the chosen methods make sense to use in the office area. First, a careful assessment of the situation must be made to determine how far the lean integration has already progressed in that specific area. Then it must be looked at which methods can be particularly valuable for the area. (Erwin Rauch et al., 2015).

The impact of an implemented Lean office on the organizational performance

Successful integration of lean office has different effects in many areas. The main goal of lean management is to coordinate all processes and activities in so that any type of waste along the value chain is avoided. This includes customer orientation and cost reduction. Waste potential should be recognized and eliminated so that values can be created and maintained without waste. Also, there are effects for the employees. The employees motivation is strengthened in a target-oriented manner (Klanitz, n.d.a).

The results of a lean office concept integration will be more productivity. There are enormous opportunities to increase productivity through lean management in both production and non-production areas (Kulbyte, 2021).

Conclusion and recommendation

In the following chapter of this paper, the results are finally summarized to get an overview of the work. The primary goal of this work was to discover which lean management tools that are used in production can also be used in an office environment. In addition, it should be shown where most of the inefficiencies in the office can be found and possible potentials should be discovered. In the further course of the paper, theoretical foundations are presented to create a basic understanding of the methodologies used, lean management, and implementation.

In summary, it can be said that the employees should be made aware of lean management and that the culture of continuous improvement should be expanded in this way (Witt & Witt, 2007). This can be done through initial improvement workshops in the departments. The prerequisites for the implementation of lean management in an office environment were also discussed in this paper. The need for implementation must be seen by the different departments.

The current progress should be determined individually for the different departments. In this way, it can be determined which methods are particularly useful. Individual areas can be selected as pilot areas. In order to do justice to the classic CIP procedure, you should progress in small steps. The organization must learn, and if problems arise, the planned approach should be adapted (Saheb, 2017).

Overall, the possibilities and opportunities to increase productivity using lean management in both the production and non-production areas are huge. It is essential for the implementation that the methods mentioned are rolled out in the administrative area. Measurability and the creation of transparency are also important factors for success. With the help of continuous improvement, these measures should then be operated on a permanent basis (Pons, 2017)

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