

Critically evaluate the application of lean management tools for continuous improvement of logistics services.

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Abstract

In this report, we will tackle the subject of the use of lean management methods in companies, based on the case of company X specializing in the transport of food. This allows, through real and precise examples to understand the usefulness of these tools by presenting the gains made or to be made for the company whether it is in financial, structural or with its teams.

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Introduction

« It is in Toyota's DNA that mistakes made once will not be repeated. » Akio Toyoda – President of Toyota Motor Corporation

Company which made lean management popular thanks to its application in its factories, Toyota was the first company to use it fully since the 1950s. The success of this company created a craze which inspired its competitors, as well as companies from all sectors to apply the same methods.

Lean Management is a management principle which aims to improve the functioning of organizations through management focused on improving the quality of products and services by limiting waste in all its forms. So it's about doing more and better using the same resources available. For this, companies focus on just-in-time production, that is, producing only the quantity needed.

To better understand the functioning of certain lean management tools, we will rely on the case study of a food transport company. For this we will make a presentation of the operation of the company at the start of the study as well as a presentation of the concept of lean management. Then we will identify the points to be improved in order to meet the demand of the company which is to reduce late departures from the agency. Finally we will present the solutions to be implemented by the company.

1. Presentation

1.1. Case study

1.1.1. Arrival on site

First the driver comes to the site, parking his vehicle on a dedicated location and then head to the entry service while leaving his keys on the truck, in case it is necessary that someone move the vehicle.

1.1.2. Seizure service

When he arrives at the seizure service, the driver must submit his mission order as well as the time sheets and waybills to pick up the goods. The seizure service enters the route identifier to indicate the time of arrival on the site. This entry is used to follow up on the driver and to ensure that he has complied with the tour times.

The service then performs the so-called reconciliation step to ensure that the goods picked up correspond to the expected goods. In the event of a change of goods, it is necessary to correct the information to print the correct labels. There are one per pallet. These labels make it possible to know the sender, the recipient and the goods transported. When the pallets are stacked, they have several labels. Once they are printed, the driver takes the labels as well as an unloading checklist and goes to customer service for distribution.

1.1.3. After sales service

When the driver has made a distribution round, he also goes to the distribution customer service to give him the waybills. This allows the service to subsequently check the conformity of the documents and to verify the issue of reservations. The driver then returns to his vehicle and prepare for docking.

1.1.4. Docking

When a dock is available for unloading, the driver docks the vehicle and then shuts down the engine of his vehicle. He then opens the quay unloading door by hanging his keys on a carabiner on the door, to avoid leaving the vehicle with a person on board.

1.1.5. Unloading

In the case of our agency, the driver himself unloads the vehicle by depositing the goods in the available locations on both sides of the door. During this time the reception scans the goods to validate their arrival on the quay, and the quay staff takes care of moving the goods in the corresponding loading aisles at the delivery location.

1.1.6. Provision

When the vehicle is unloaded, the driver must make it available for the next rounds. He must therefore wash the trailer and the vehicle if they are not clean. He then makes his vehicle available according to the requests of the exploitation service. The vehicle can be placed ready for loading or parked on site. He may also be asked to carry out a hang-up call to change the trailer associated with the carrier.

1.2. Lean management

The history of Lean Management will then really begin with Henry Ford in 1913 who will create his organization around a flow that begins with raw materials and ends at the departure of the customer with his freshly bought vehicle (ALIZON, et al., 2009). He will in particular develop the concept of standardization with his all similar vehicles built of the same parts with precise and repetitive tasks given to each. Its system makes it possible to reduce the loss of time by reducing the number of movements to be carried out by the operators by assigning them to specific tasks on a line on which the vehicle comes by itself. Finally, he will use a supply chain precept just in time by ordering only the quantity necessary for production (Wilson, 1995).

It was after World War II that Toyoda Kiichiro, then president of Toyoda Motor Company, declared " Catch up with America in three years. Otherwise, the automobile industry of Japan will not survive " (Ohno, 1988). It is then a question of creating the production system "Toyota Production System" (TPS) compatible with the geopolitical and economic situation of the country which has a limited absorption market, uncertain supplies and very limited financial and productive means. So it's about eliminating waste to do more and better with limited resources using the Just in Time and Jidoka method (Monden, 2011).

The term "Lean Management" appeared in 1991 with the publication of the book "The machine that changes the world" by James P. Womack, Daniel T. Jones and Daniel Roos presenting the management model created by Toyota.

Lean Management has therefore been recognized thanks to its use within the Japanese automotive sector and then spread around the world by being adapted and adopted in different sectors of activity (NG, et al., 2010).

2. Analysis

The company's goal is to reduce all, or almost all, of its agency's late departures. It is therefore necessary to identify the different causes.

The Gemba Walk comes from the Japanese term Gemba which means "The real place where things happen". It is therefore an approach in which decision-makers leave their offices to go to their business premises to observe the operation and to identify potential problems (Womack, 2013).

The company therefore seized the opportunity to entrust the task of rewriting the process to a non-working student of the business to have a neutral opinion and remote. This allows to observe elements that might escape the people accustomed to running in place.

2.1. Waiting time

During the presence on the site, it is possible to note a first problem to be resolved. The drivers, all starting at the same time during the morning tour, which aims to deliver the goods to the receiving customers and to load the goods to the sending customers.

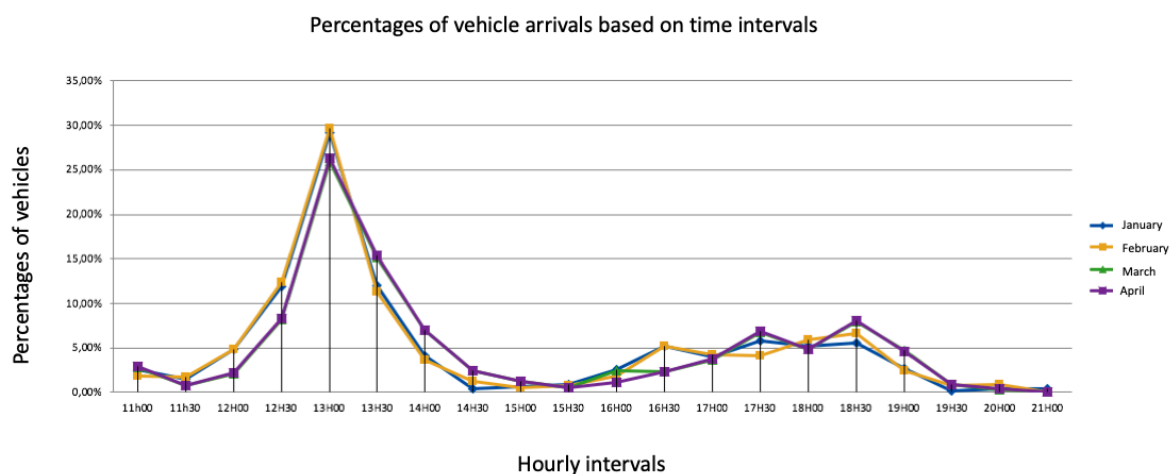


Figure 1 : Percentages of vehicle arrivals based on time intervals - Myself

The drivers therefore all return to the site at the same time. It is therefore possible to observe a bottleneck with a waiting time of the drivers which may be greater than one hour during

the period between 12:30 pm and 1:30 pm. This wait may delay loading for priority deliveries. It is also a time when drivers are paid while waiting, so this is an unproductive expense for the business.

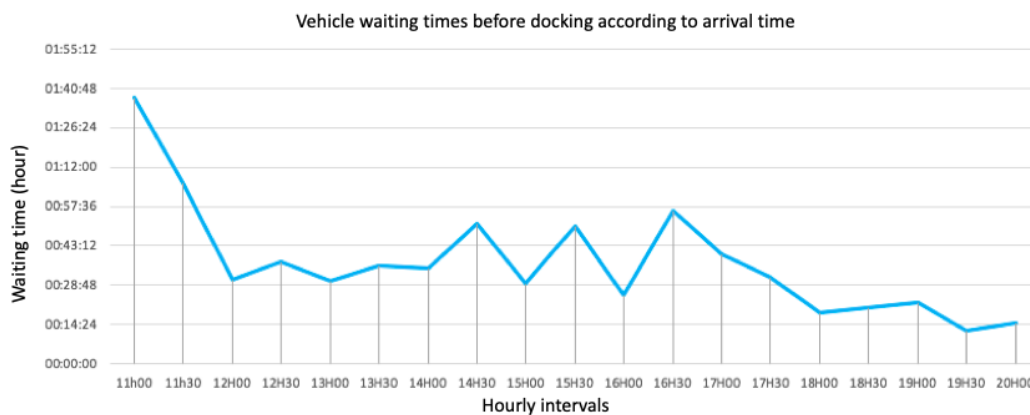


Figure 2 : Vehicle Waiting time before docking according to arrival time - Myself

The data collected clearly indicates that drivers have a waiting time in their vehicle, during which time the company pays its employees, thirty minutes on average, which can be more than an hour. It is therefore a big loss of money and productivity for the company.

	For an employee for a day	For a day	For a week	For a year
Cost	12,50£	387,50£	1937,50£	100.750,00£

Figure 3 : Table of the cost of waiting drivers on site for the company - Myself

To create the above table, we assume that for each of the 31 collection rounds carried out, there is a 30-minute waiting time before the vehicle is docked on site. This is a cost which may seem low for a day for a driver since it represents £ 12.50. However, when you report this price to each of the 31 drivers, the sum is £ 387.50 per day, or £ 1,937.50 per week, for 5 days worked. Over a year, the company posted a shortfall of £ 100,750.

In addition to finding a solution to reduce driver waiting time, there is a need to find a way to make this waiting time more productive for the business.

2.2. Communication

The first axis behind the late departure of vehicles from the site originates in communication between the driver and their managers. Indeed, drivers have strict rules regarding their presence on a customer's site. After 15 minutes without customer support, the driver must notify the operating department to make contact with the customer.

In the case of our company, the driver indirectly informs the agency of the delay on the site of a client. The driver must indeed stipulate on the transport documents the time of arrival and the time of departure on the customer's site. The agency therefore has the duration of the presence time of its driver but the lack of communication makes it too late to act, and as the operating agents are not in direct contact when returning to the site, there is no It is not possible to discuss potential solutions to remedy the customer's delay.

The Gemba Walk revealed that this non-communication was linked to a lack of time for those in charge of operations linked to a non-possibility of conversing with the driver when returning to the site. The drivers, for their part, do not seem to be aware of this 15-minute delay or in some cases, do not wish to contact the manager.

2.3. Unloading

Unloading is also a factor of loss of time, but also of risk. In fact, in our case, the dock manager acts not only as such, but also as a logistics operator responsible for zoning the pallets. This poses a problem since he is no longer able to properly manage his men as well as the incoming and outgoing flows from the dock. It is therefore necessary to give it a central place.

Number of persons	1	2	3
Average time (hour)	00:17	00:09	00:15

Figure 4 : Unloading time table according to the number of people – Myself

During the various Gemba Walk, it was possible to observe that the quay agents, not guided by the quay supervisor, find themselves with 5 people unloading a vehicle when in the nearby unloading aisle, the driver unloads only his trailer. This non-supervision represents a loss of time during unloading since too many people on the same aisle represents a nuisance and therefore a waste of time, but also a risk of accident since the agents are all glued to the others using dangerous

forklifts. It would be possible for the company to save 1074: 40: 00h in time and £ 26,365.20 if unloading is carried out by two people, with a gain of 9 minutes per unloading.

This tool helped identify the three main points on which to work in order to improve the service of the company. It is therefore necessary to improve communication between the different teams and their managers, reduce the waiting time for drivers during the different stages and reduce the unloading time, while increasing the safety of dock staff.

The advantage of this tool is to combine theoretical knowledge with the reality on the ground by observing things either yourself or by listening to the comments of the employees who are the first players in these flows. However, it is necessary to perform this step on different days and time intervals to get the most results possible and attend rare events, but which must be taken into account.

3. Solution

3.1. Standardization

After identifying the various bottlenecks and risk areas on the operating panel and on the platform, it is necessary to standardize the processes that occur when the driver returns.

Indeed, standardization, one of the foundations of lean management. In our case, it will serve us to lock the processes, that is to say to specify the procedures to follow precisely for all tasks, to allow an efficient sequence of tasks for safety, quality, deadlines, as well than the cost (Oudhuis & Tengblad, s.d.).

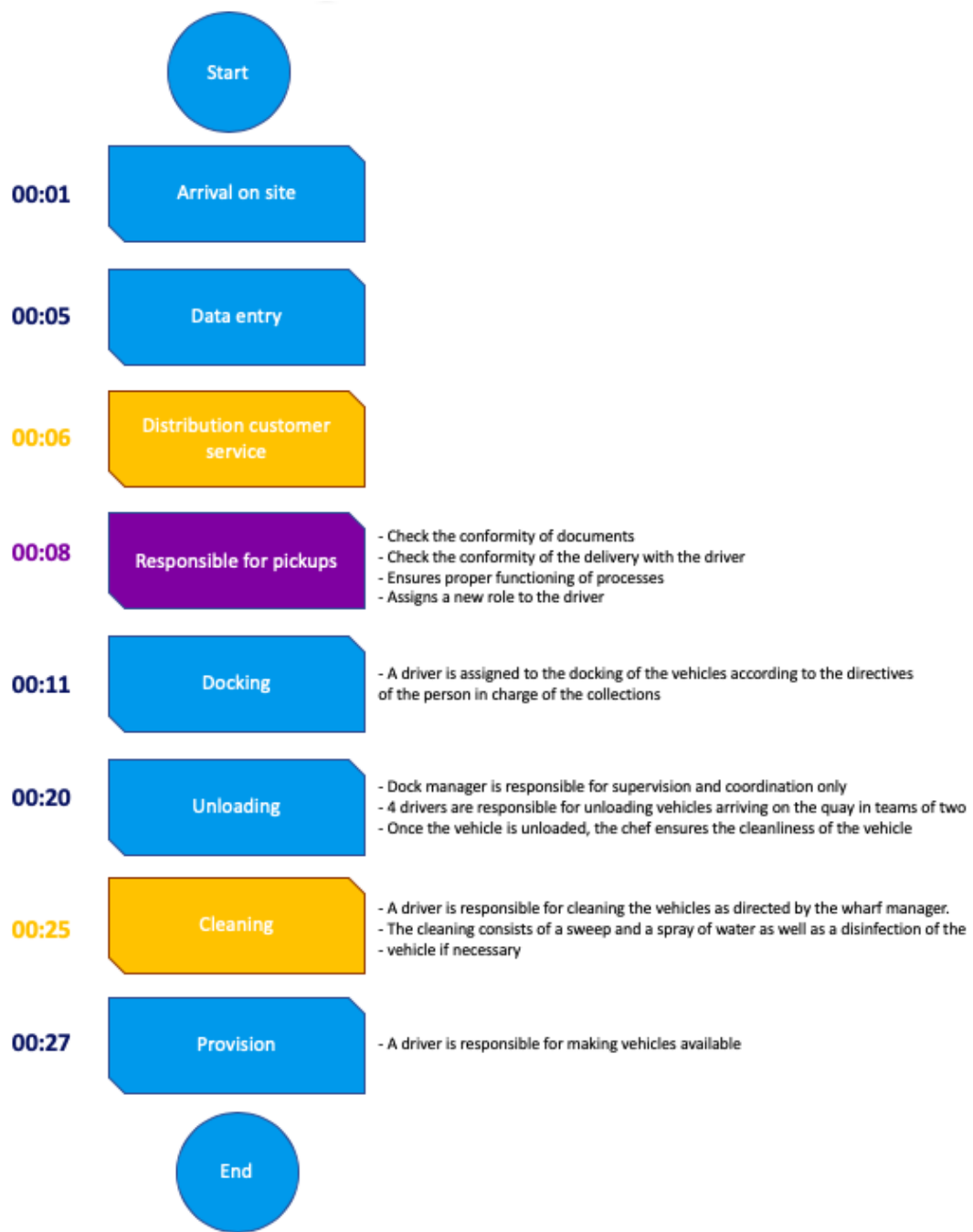


Figure 5 : Standardization scheme for the new process - Myself

This standardization of processes begins from the purple stage with the implementation of a live control on the part of the person in charge of the collections. This control makes it possible to ensure compliance with procedures, conformity of documents as well as the implementation of a driver return on the field mission.

To avoid drivers waiting in the vehicle, they are reassigned to new tasks.

- Two people at the dock and at the disposal

- Four people unloading (two people per unloading door)
- A person cleaning vehicles

This new process allows for a potential gain of 15 minutes per unloading, which eliminates late departures and increases driver productivity.

Nevertheless, the standardization will have to be reassessed, when the agency's operation will undergo changes, in order to be as efficient as possible depending on the situation.

3.2. Communication

In order to increase communication between teams, it is possible to include them in a Kaizen process. Fusion of the Japanese words Kai and Zen which means "Change" and "better", it is a method of quality management. The principle is to carry out small daily actions to test and gradually improve the processes (BRUNET & NEW, 2003). It is a collective approach that involves each person by allowing them to propose changes. This allows not to commit large financial sums but requires a collective effort (Monden & Talbot, 1995). So we can qualify Kaizen as a philosophy, a corporate culture.

This philosophy is integrated within the company studied. In fact, in order to control driver feedback, we have implemented software that allows documents to be checked and drivers' opinions to be incorporated into their way of working. Indeed, given that upon their return they intervene at different stages which leads to the provision of the vehicle and the departure of the goods, it is necessary to collect their opinions concerning the processes and to listen to their proposals to try to implement them. The implementation can take place in small groups to verify the viability of the change, without impacting the operation of the business.

Nevertheless, although interesting in the long term, this method means that it is necessary to include the employees of the company since they are the first actors in the operational chains. It is therefore important to successfully integrate them and show them the advantages of their participation because without them, it is more complicated to propose and test small improvements (SINGH & SINGH, 2009).

4. Conclusion

The realization of this study on a transport company was very enriching on several points. Initially, the case study is broken down into several succinct missions which make it necessary to have an overview and not only service by service of the organization. It was also an opportunity to reflect on the improvement and implementation of a new cross service process. Lean management takes on its full meaning in an organization like this in which it is necessary to improve quality and reduce disruption while retaining the resources available

Lean management is therefore a solution to the evolution of companies. These tools must be used on a daily basis in order to improve its processes in order to meet customer demands, especially in a world that is becoming more and more competitive.

Today we are in a world that is constantly growing, accelerating and innovating. Companies must therefore be more and more aware of current affairs and new management methods and tools to remain a leader in its field. Lean management is therefore a solution for companies to evolve internally in order to offer better services to their customers. Today this improvement is no longer due to the quantity of personnel in a company, but to the use made of resources. There is a need to do more and better, with the same resources.

However, the evolutionary steps to orient in lean management must include the teams on the ground who are the first to be affected by these developments. It is therefore necessary to constantly listen to them to have their vision of operational service.

Nevertheless, in the case of our study, the use of lean management tools, for the identification of problems and their solutions was relevant since it allows the company to no longer deliver late, and to save money using all the resources available.

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