

REDESIGNING ADMINISTRATIVE PROCEDURES USING VALUE STREAM MAPPING: A CASE STUDY

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ABSTRACT

The lean philosophy aims to minimize waste, especially in the production process, reducing activities that do not add value to the final product, increasing quality, reducing time and costs. This philosophy has been applied outside the construction site, such as administrative sectors of companies, known as Lean Office. This philosophy tries to adapt to offices the Lean Production principles: reduce waste in activities that do not add value from a customer point of view. This paper presents an application of the lean concepts to offices in the buying and suppliers' payment processes, which involves both the construction site and financial department of a construction company in the city of Fortaleza (Brazil). The choice of studying the flow of payments process was due to the identification of flaws such as: lack of standardization, failure to meet deadlines and excessive rework, which resulted in waste of resources. The method includes: literature review on the lean office concepts, mapping activities of the process chosen to be studied, interviews with employees involved in the process, defining individual activities and designing the current value stream. From that, a future value stream map was suggested and applied, which resulted in elimination of waste, improving quality and meeting deadlines, generating a 25% reduction on process cycle time. The Lean Office implementation has improved productivity considerably, added value to tasks and eliminated waste.

KEYWORDS

Lean office, value stream map, waste, lean construction.

INTRODUCTION

The current market scenario conditions the companies concern themselves continually search for optimization of organizational processes as well as their suitability and operation in order to ensure stability in the market segment and competitive advantages that stand opposite the strategic realignments.

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From this perspective, the need for systemic view on organizations, naturally boosted the understanding of business processes as a set of interrelated and interdependent, leading the administration to unlink it held focus at work, department or functions to focus on management work processes. Gomes (2006) states that "the processes correspond to a set of resources and activities interrelated that receives inputs and transforms them, according to a pre-established logic and added value in products, services, to respond to customer needs".

Lean Thinking which is based on the principle of the Toyota Production System (Liker, 2004; DENNIS, 2007) confirms that expression, because as is, essentially eliminates all forms of waste or activities that do not add value from a customer's point of view. These wastes are classified (SHINGO, 1996) as: overproduction, waiting, transportation excessive, inadequate processes, unnecessary inventory, unnecessary movement and defective products.

The Lean Thinking emerges as a technique that allows a company to eliminate waste wherever they are and make the customer receives only what he wants, when and in the amount requested. The word 'thinking' implies that an overarching concept is not restricted to interventions on the factory floor, or the field of direct action of the company, but also to the administrative areas of the company and the suppliers (DENNIS, 2007). The method aims for all activities that generate value to the product, whether they are performed in the company or elsewhere, however the applicability of this process in the administrative areas still have been a subject of minor interest.

The idea of making administrative processes leaner has been accepted by companies in Brazil and worldwide. However, the migration of these concepts of industrial concepts for office is not so simple. The complexity in administrative acts requires autonomy and creativity in finding solutions everyday and also in strategic planning, tactical and operational in organizations, since they often have as their work product is information. Therefore, it is necessary to gather and manage the processes by understanding how they work (sort them) and what existing types, and then set how they should be managed to achieve the maximum result.

In this context, given the importance of having a methodology for waste reduction for administrative processes, this paper aims to present the initial results from the application of Lean Office in a construction company in the State of Ceará through Kaizen methodology. This methodology aims to classify waste comprising: people, processes, information, unnecessary or underutilized assets and leadership, as well as purchasing, inventory and payment of suppliers from labor until the financial sector (TURATI, 2007). There are some rules for applying this methodology, ranging from the commitment of people, management support, maintenance of small workgroups and providing specific and detailed actions to be applied.

METHOD

To perform this study, it was applied the Value Stream Mapping, that is a methodology of Lean Thinking in which its possible to identify and analyze activities subdivided as it follows:

- Activities that add value;
- Necessary activities that does not add value;
- Unnecessary activities.

According to Tapping and Shuker (2010), the Mapping of the Value Stream comprises eight steps: commit to Lean; choose the value stream; learn about Lean, map the current state, identify the Lean metrics, map the future state; create Kaizen plans and implement Kaizen plans.

Building on the concepts of Value Stream Mapping, a visit was made on an experimental basis in all sectors of the company with the goal of identifying a process involving a larger number of sectors which have a higher value within the organization. According to those involved, the process chosen was the buying and payment posting, because it was time consuming, presented flaws, rework and delays was usual, was compromising the quality of all stages of the process and, hence, was generating to the final customer, the company's president, dissatisfaction.

One of the main concerns of the project was to integrate the administrative sector of the construction site with the central office aiming to eliminate waste. Due to many construction sites in progress and due to the fact that is a pilot project, it was understood that the best would be to choose one construction site to be a model, being chosen the construction site of the building *Lumni*. The choice was made by that stage of the construction site was in and the proximity from the central office. With the definition of the process to be analyzed, weekly meetings were made with the presence of the Project Manager, Financial Coordinator, Supervisor and IT's Manager and in a few moments with the ones in charge of the warehouse and the sector of payable accounts.

To map the current state, were followed four steps of preparation (TAPPING & Shuker, 2010): set individual tasks, define core processes, collect data from real processes and finally make discussions away from the project area. To complement these steps, were performed the following questions with the employees involved:

- How do you perform your activities?
- It was ever like this?
- Have you been trained?
- Have you ever done something differently in the process?
- Do you understand the flow entirely or only a part of it?

The impersonality of the answers helped in understanding the activity and consequently the current flow mapping.

After the design of the current flow, were defined the following metrics:

- Employees involved (P);
- Time spent to perform the job (TRA);
- Total time spent in the process (TP).

With the survey of the metrics were identified errors, therefore it was able to start designing the future state of flux. This process happens in following three stages (TAPPING & SHUKER, 2010):

- Customer demand phase;
- Continuous flow phase; e

- Leveling phase.

After finalizing the design of future flow, a Kaizen plan was developed in order to ensure that the suggested improvements are sustained (TAPPING & SHUKER, 2010), and that the same happened at an event of the teams involved directly and indirectly in the process updated. The article was developed in a construction company based in the city of Fortaleza / CE. This company is ISO 9001 certified, Green Buildings certified (buildings environmentally friendly) and won in one of his projects a pre-certified LEED-CS 2009.

The Lean philosophy is already a reality in the company, since it is already consolidated in the various construction sites. Thus it was easy to demonstrate the importance of using it in the administrative area.

DISCUSSION OF RESULTS

During the mapping of the flow of the current value, were identified faults that did not generate value to the process in the administrative construction site and the central office as:

- Duplicated controls
- Lack of a systemic view of the company by the employees involved
- Overhead activities;
- Manual activities can be automated;
- Lack of systems training;
- Overhead of unnecessary activities;
- Unnecessary waiting time for completion of an activity;
- Unnecessary movement.

According to the survey of the metrics we observed that:

- P: 15;
- TRA: 6 h e 30 min;
- TP: 40 h = 5 labor days.

Figure 1 shows the result of Value Stream Mapping current process of buying and payment postings of the Lumni Project:

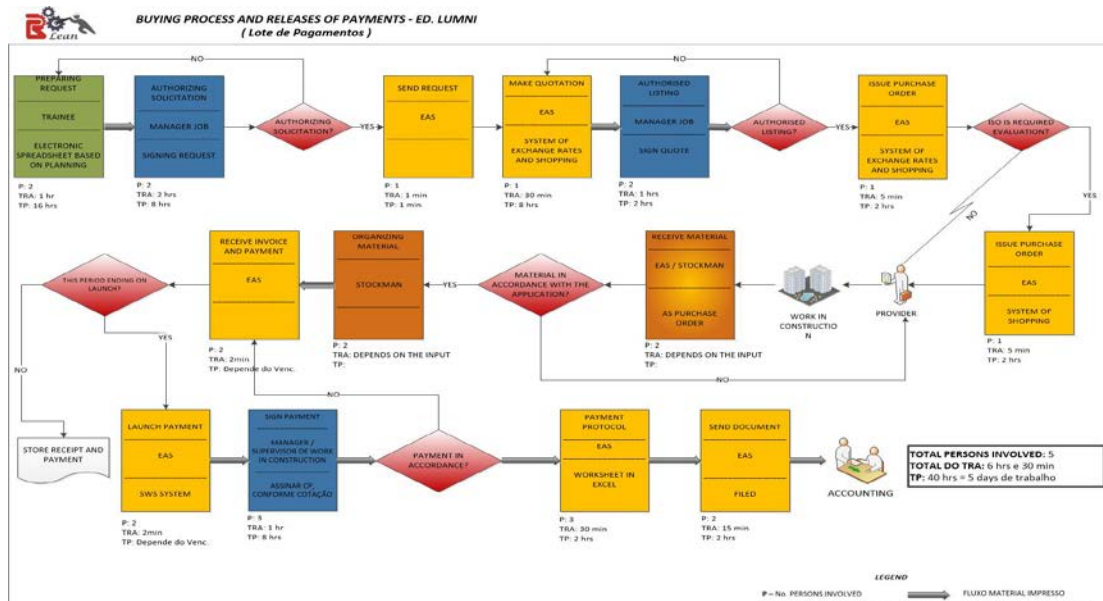
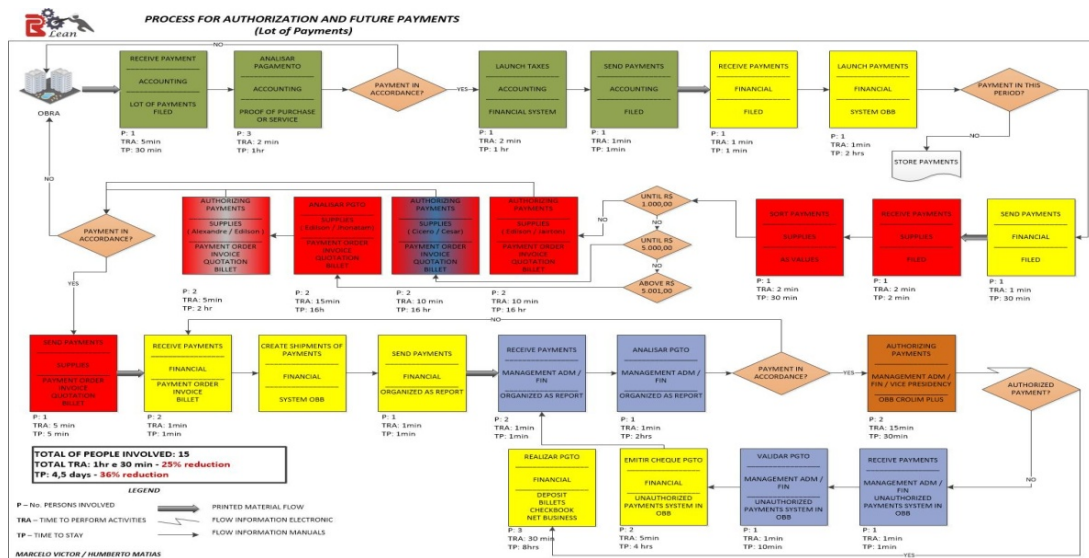


Figure 1: Value Stream Mapping Process Current Release of Purchase and Payment Postings.⁶

According to the survey of the metrics it was possible to identify what follows:

- P: 15;
- TRA: 1h e 30 min;
- TP: 48 h = 4,5 labor days.

Figure 2 shows the result of Value Stream Mapping of current process and payment at the Central Office.⁷



⁶ www.crolim.com.br/pdf/processo01.jpg

⁷ www.crolim.com.br/pdf/processo02.jpg

Figure 2: Value Stream Mapping Process of Current Process and Payment at the Central Office.

To begin the process of mapping the future state, was used as a basis all information obtained in the mapping of the current state, having as the main focus the improvements suggested by the employees involved.

According to the concept of continuous improvement, to perform the mapping of future flow was necessary for the elimination of deficiencies identified, to align the team's thoughts preached by the Lean philosophy:

- Generate value from the view of internal and external customer;
- Align the best sequence of activities that generate value;
- Perform activities without interruption;
- Always seek better efficiency in activities.

Figure 3 shows the result of Value Stream Mapping future process of buying and payment postings of the Lumni Project.

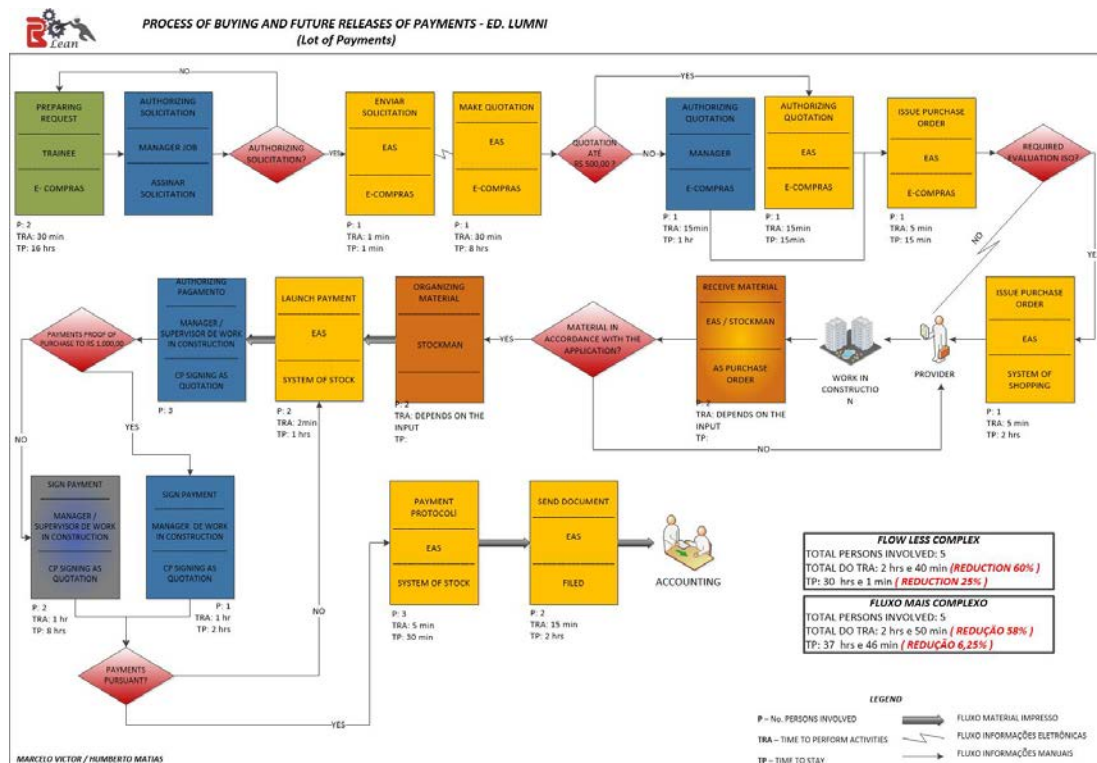


Figure 3: Value Stream Mapping Future Release of Purchase and Payment Postings.⁸

After the implementation of the future value stream mapping, were obtained in relation to the previous state, a 60% reduction in the time to perform the activities and a 25% reduction in the total time of flow.

⁸ www.crolim.com.br/pdf/processo03.jpg

CONCLUSIONS

As the analysis was conducted during the project implementation of the concepts of Lean Office in the company, it could be concluded that it was possible to obtain a reduction of time and gain improvements in performing the activities flow, generating value to internal and external customers. It has been verified that the use of value stream mapping was a tool within the philosophy of Lean Office ensured that both the survey of the problems experienced by the employees involved in the process as indicated a solution and desired improvements.

This study allowed, beyond the central goal of waste reduction, involvement of teams and therefore a concern about the problem, causing a wave of enthusiasm and dedication to the stream to work. This wave of enthusiasm is spreading to other parts of the company which is very good because it is in the interest of the organization to disseminate the lean philosophy in other administrative areas. With the success of the results, it was increased the interest from other sectors of the company, enabling the deployment of Lean Office in other key processes of the organization, it was found that the spread of such further elevate the concept of lean enterprise company.

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