



Study of the Applicability of the Restriction Theory and the Value Stream Mapping in the Management of Processes of the Legal Practice Nucleus of a Law Faculty in Rondônia, Brazil

Acsa Liliane Carvalho Brito Souza; Prof. Dr. Ricardo Jorge da Cunha Costa Nogueira

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Keyword: Value Stream Mapping; Restriction Theory; Legal Practice Nucleus.

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1. Introduction

The development of society and human relations required a system of laws to resolve judicial demands and pacify conflicts in society. Therefore, there is an increase in demands from law firms and law faculty to train new professionals in the area and serve as access to the legal world. For this study, we investigated the NPJ (Legal Practice Nucleus) of a Faculty of Law based in the city of Porto Velho, Rondônia, Brazil, defined here as a law firm that administers free legal consulting services from now on 2 reduced installments, at the beginning of the process of each of those served, based on the guidance of the lawyers who make up the NPJ team.

The institution that is analyzed here has a great flow of services, being precise, for the fulfillment of the purpose of legal education, the service to society and the search for the solution of conflicts in a strategic way and with quality. For this, efficient management must be directly linked to the quality of the services performed and to the awareness of employees in the search for a culture of organization with agility and commitment in the realization of legal services. Thus, this study investigated a law firm, based on the combination between the application of techniques from *Lean Manufacturing* and *Lean Office*.

On the other hand, the *Value Stream Mapping* tool was used to compose this research, considering that this instrument aims to identify improvements in processes and enables more agility, eliminating steps that do not add value and generating gain for the entire organization.

Many companies seek strategies to be adopted and this research proposes a model that integrates the Lean

Office and the philosophies of quality management in the management of lawsuits in a Legal Practice Nucleus. In this understanding [1] suggests that the Theory of Restrictions be combined with other approaches, enabling results above the results of traditional models. Based on the application of Restriction Theory and Value Flow Mapping, it is sought to verify the difficulties that generate delays in the development of processes, a fact that can cause financial losses to customers and the loss of rights due to prescription.

In this case, this article was born from observations of the researcher, in the years 2017, 2018 e 2019, on the NPJ process flow of an institution of law, highlighting the processes of the family court, considering that these processes need more urgency and usually take longer in progress. In this research, a study will be elaborated on how the Value Flow Mapping and the Theory of Constraints work to decrease or eliminate the losses of time in the course of family processes filed by the NPJ of a law faculty in Porto Velho, Rondônia, Brazil.

1.1 General objective

Proposed improvement of critical processes, from Lean Office and VSM, in the judicialization of family court cases at the NPJ of a law school in Porto Velho, Rondônia, Brazil.

1.2 Specific objectives

- Mapping the Current Value Flow of Family Court Cases at the NPJ of a law school in Porto Velho, Rondônia, Brazil;
- Identify factors that affect the performance of the lawsuit;
- Propose improvements in the processing of judicial lawsuits.

2. Theoretical Reference

2.1 From Lean Manufacturing to Lean Office

The term "Lean Thinking", defined by John Krafcik, originates from the revolutionary oriental system [2] and is based on the continuous effort starting from the change in mentality, structure and behavior [3], coming from the strategic level and expanded and spread to the operational level [4].

Lean Thinking is a process that aims to eliminate waste, as a means of optimizing results through simple procedures, having five principles [5]: (i) value; (ii) value flow; (iii) continuous flow; (iv) pulled production; (v) perfection. The Lean Production model was born from the Toyota Production System, in Japan, in a post-war period when there was a great need to rebuild the industry and resources were extremely scarce [6].

The creators of lean thinking were Taiichi Ohno and Eiji Toyota and they wanted to solve problems associated with the reduced availability of resources, putting ideas into practice and creating a new vision based on three factors: people, processes and solutions [7]. TPS is a concept that has been adapted from the practices adopted by Toyota's production system with the objective of producing quality goods that meet customer expectations at the lowest possible cost [8].

These methodologies were closely followed for years by James P.Womack and Daniel T. and reported in

the 90's in two works "The Machine that Changed the World" and "Lean Thinking". The objective is to reduce waste, have higher quality products and reduce delivery time to the customer, from this concept of producing more with less and less, the system is now called Lean Manufacturing [9].

The tools and philosophy of Lean Manufacturing can be applied in several branches, not being limited to manufacturing environments [3]; [10] being expanded to several areas and productive environments, being one of them the administrative [11]; [12]. With the intensification of lean practices in the industrial environment, applications of lean thinking were later developed in other areas of knowledge, such as lean healthy and lean office.

Lean Office has as main objective the use of lean tools to eliminate work or processes from administrative areas that do not add value, that is, waste [13]. Thus, the creation of the idea of "Lean Office", within Production Engineering, returning to the administrative sector of the process, is focused on reducing or eliminating waste related to information and process flows, generating and adding value to it [14].

2.2 Theory of Constraints - TOC

The Restriction Theory created by Israeli physicist Eliyahu M. Goldratt, and defined as a continuous improvement process, began to be incubated in the 1970s, when he developed software for plant production planning [15].

Already in the 80's, with the experiences accumulated by the implementation of the software since its creation, Goldratt develops the Theory of Restrictions that then happens to be a new philosophy of global management, as Just-in-Time and the Total Quality Management [16].

The basis of the reasoning of the Theory of Constraints (TOC) is in the concepts of cause and effect and the relation of interdependence of the elements of a system, where each element of the system depends on each other in some way, and that, the overall performance is intrinsically related to the performance of the set as a whole and not to the individual and isolated performance of each part of the system, thus discarding the optimal site [16]

This theory presents solutions to the problems faced by organizations, regarding the achievement of their objectives. It deals with the identification of constraints (bottlenecks) of systems with the aim of optimizing processes at these points and thus maximizing their performance [17]. Bottlenecks are considered to be restrictive resources, that is, those that limit production capacity and those that do not have a capacity greater than demand, so there should be a flow balance, the resources must not be tied to the bottlenecks so that there is no accumulation of stocks [18].

In the TOC provides a coherent management theory for the execution of an organization's objectives. Restriction Theory has two main components: the philosophy that supports the principle of continuous functioning and improvement, and a generic approach to research, analysis, and the creation of solutions to problems [19].

Every tangible system, such as a service-providing organisation, must have at least one restriction. Such an idea, [20] "is explained by the fact that if there was something that limited the performance of the system, it would be infinite, since nothing would prevent the system from constantly evolving its performance in relation to the goal". Following this reasoning, the process of continuous optimization of the theory of constraints was created, whose orientation is the global goal of the organization and is composed of five

steps, as shown in Figure 1.

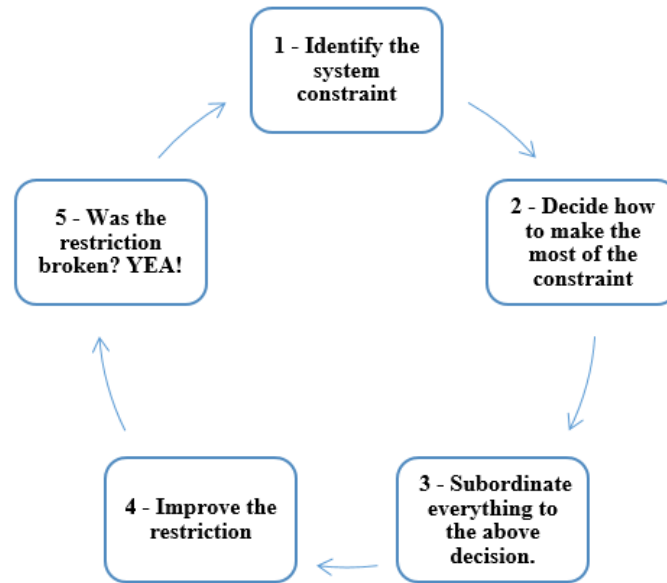


Figure 1. Identification of difficulties [20].

Within the Theory of Constraints for a company to achieve a satisfactory form, its goal is necessary for the development of three performance measures, explored by Goldratt. Performance measures are [21]:

- Gain (G) - In the theory of restrictions, the moment of recognition corresponds to the moment of delivery of the final product to the customer;
- Investment or inventory (I) - This concept covers the classic concept of inventory and other fixed assets. The value assigned to the inventory corresponds only to the amounts that were paid to suppliers for the items characterized as inventory. In this model, the finished product inventory is valued only by the raw material cost paid by the supplier.
- Operating expenses (DO) - Make a practical point of view, or consider the model of all expenses with something that cannot be saved for future use that is part of the operating expenses. In addition to these values, incorporate a depreciated operating value of assets that is part of the inventory and is used or used in the period (such as a depreciation of machinery).

2.2 Value Stream Mapping - MFV

Lean manufacturing has several tools used to eliminate the waste found in the production process. Among the several existing tools to assist the development of the theory will be highlighted the Value Flow Map since it is the most relevant for the present research.

The value flow mapping (MFV) is defined as follows: The Value Flow Map (MFV) is a tool that consists in identifying all actions/information; that can add value or not in the chain, necessary for the product flow or product line; the flow of production, from raw material to consumer and/or product design flow, from design to launch [22].

Thinking like this "considering the perspective of the flow of value means taking into account the broader picture, not only the individual processes, improving the whole and not only optimizing the parts" [23]. According [4], the value flow is any action that, adding value or not, is necessary to pass a product or

information from the state of concept to the state of product or activity completed. It is a simple tool and requires only to follow the production path from start to finish, drawing, in detail, the map of each process in the flow of material and information.

Also according to [13] Value Flow Management is a process for planning and associating initiatives through systematic data capture and analysis. This process comes from study, research and experience. In this sense, the authors say that in managing the flow of value, it is desired that the work units flow to consumers as smoothly as possible. But this ideal situation rarely exists. Usually there are pronounced curves or constraints in the process that prevent a smooth flow. Lean uses the appropriate tools necessary to make the work flow as smoothly as possible.

Therefore, MFV consists of a tool that designs all the processes through which the products pass "capturing the relevant information for their understanding. Thus, a systemic view of the process is obtained, admitting the improvements that affect the flow" [24].

There are a more comprehensive view of MFV claiming to be "a business modeling process" [25], which serves as a master plan of changes and allows the identification of improvement points, assisting in the process of consensus among the participants of a work team, to define the priority waste that will be aligned with the company's strategy [26].

According to [23], value flow mapping (MFV) is an essential tool for visualizing the entire system, which evidences value flow. In this sense, the value flow maps are drawn at different times, aiming to signal the opportunities for improvement of the current state, projecting the future state and the ideal state. It is important to begin the analysis by the final shipment and then by the previous processes, because the final processes are the ones that are closest to consumers [27].

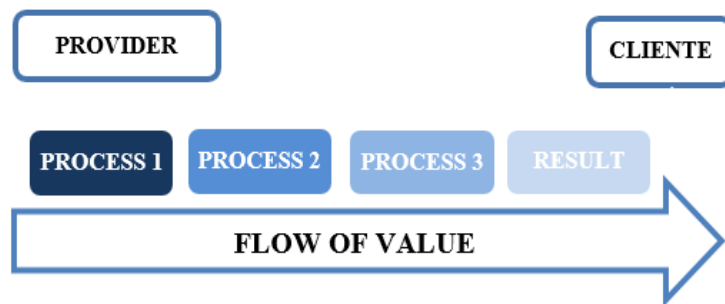


Figure 2. Understanding the Flow [13].

[13] point out the main advantages, among others, of mapping the value flow: - helps to visualize more than individual processes, helps to identify waste and its sources, provides a common language for handling, manufacturing processes, facilitates decision making about the flow, bring lean concepts and techniques closer together, helping to avoid the implementation of isolated tools, form a basis for the Lean Mentality implementation plan, it presents the relationship between the flow of information and the flow of material, it is a qualitative tool that describes, in detail, the way for the production unit to operate in flow.

The MFV tool is essential to visualize the system and for its result to be satisfactory, it is necessary to follow some steps "select the product family; determine the flow manager; draw current and future states;

and plan and implement the action plan” [28].

As the MFV is also a tool for communication, planning and management of change processes, in the understanding of [13], mapping is a language, and like any new language, the best way to learn is to practice it, the which will allow organizations to visualize their waste by seeing how variables related to stocks, demand, cycle times, takt time (time available for production divided by market demand) are among those variables at that very moment. Taking into account the entire value chain, the value flow must be analyzed following the total path, from the raw material to the finished product [26].

The MFV also allows for the mapping of the administrative area in the organization and the entire supply chain. According to [24] "the mapping process includes steps such as the identification of the product family; the design of the current state, the future state, the work plan and the implementation."

3. Methodology

When carrying out a survey, the methodological trajectory and the classification of appropriate techniques for solving the investigated problem should be taken into consideration [29]. It is then necessary to demonstrate the methods that guided the development of the study in focus, taking into account the nature, objective, approach and procedures used in the construction of the research.

At this stage, the method used in the research had as main proposal to associate the Study of the Applicability of the OCD and the Mapping of Value Flow in the Process Management of the NPJ Family Court of a Faculty of Law of Porto Velho, Rondônia State.

The research sought to identify the most critical processes, i.e., the types of processes that take the longest, from entry into the NPJ to protocol in legal systems, as can be seen, the object of the research is quite broad. In view of this, we have proposed that only cases in the "family stick" category be addressed in this article, as they present greater urgency and demand.

For this study, the analytical review of the literature was used as methodological support, based on the identification, filtering, selection, reading, analysis and organization by topics related to the Theory of Constraints and Value Flow Mapping.

The research subjects were the agents involved in the activity, which are secretary, coordinator and lawyers of the entity and, additionally, the research data were collected through the participant's abstervation method. Thus, the procedures of this survey were carried out according to the steps described in Table 1.

Table 1. Research Steps

STEPS	OBJECTIVE	APPROACH	PROCEDURE	COLLECT
1st Exploratory	Develop a flowchart for processing family court cases.	Qualitative	Bibliographic and Documentary	Observation of Participant
2nd Description	Map the process through the MFV tool and propose improvements.	Quantitative	VSM e TOC	Quantify the times of the process of judicialization of demands based on data from documentary research.

Synthesis of the methodology. Prepared by the author (2020).

4. Results

With regard to the initial purpose of the research, the need to carry out a preliminary diagnosis of the activity to be studied was highlighted, given the purpose of proposing improvements to the processing of family area proceedings with the NPJ of a Faculty of Law, aiming, thus, greater speed in serving the jurisdiction. The first step was to choose the critical processes to be researched, as shown in Figure 4.

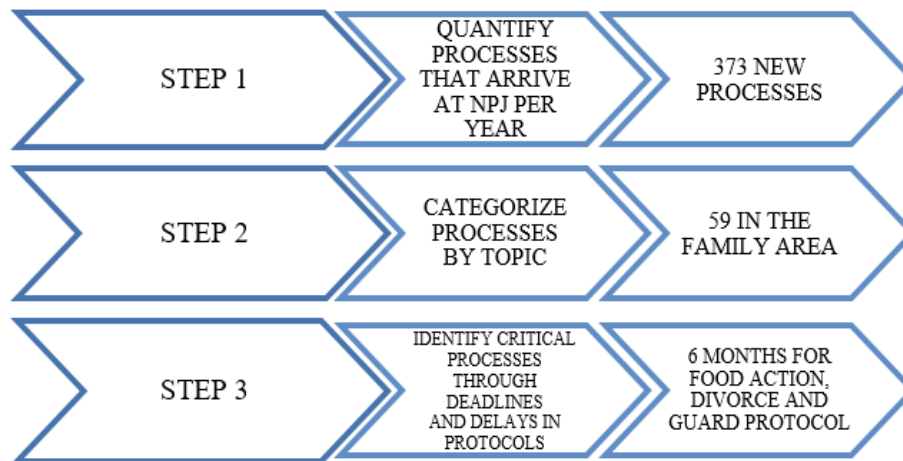


Figure 4. Critical Process Definition Steps. Elaborated by the authors (2020)

As illustrated in figure 4, step 1 included quantifying all new cases, received at the Legal Practice Centre, in the years 2017, 2018 and 2019. In step 2, these 373 (three hundred and fifty-two) cases were categorized by subject. These categories were defined by the researcher in consensus with the employees who work directly with the processing of these processes. Therefore, when analyzing the received demands, five categories were created, defined based on the content of the documents received: Consumer, Family, Civil, Labor and Social Security.

After the definition of the categories, each process was distributed among them, according to the subject approached, reaching the conclusion that the category "Family" was the one that presented the greatest urgency in the solution, when the three years were counted, with 59 (fifty nine) processes. Based on these data, this category was chosen to be worked on in this article, as it represents the most delicate subject that needs special attention, since it deals with minors in search of assistance, including their own subsistence. The next step was to identify the critical processes, illustrated by step 3. To this end, the responses of the 59 (fifty-nine) cases in the chosen category were analyzed per year, identifying the period that most repeats each year was 6 (six) months / 180 (days), from the entry of the case in the NPJ to the Protocol of Action. Following the analysis of the data, in order to begin the mapping of the current state, of the 59 (fifty-nine) cases that presented the critical period of 180 (one hundred and eighty) days for protocol, in step 4 the researcher gathered all the cases that dealt with the "family" issue, to analyze and develop the flow of the NPJ, the receipt of the documents, preparation of the petition and the Protocol of the Action, with the respective information, prepared the flowchart of this process. According to [14] this flowchart elaboration consists of a momentary image of how information travels through the functions of the mapped

environment.

They emphasize the importance of the flowchart being elaborated in a way that can be modified, since the organization tends to be in constant change, being necessary the updating of the referred flowchart.

The authors also call attention to the practice of analyzing and improving information flows, since this is strictly linked to lean principles, since it facilitates the identification of bottlenecks through its representation.

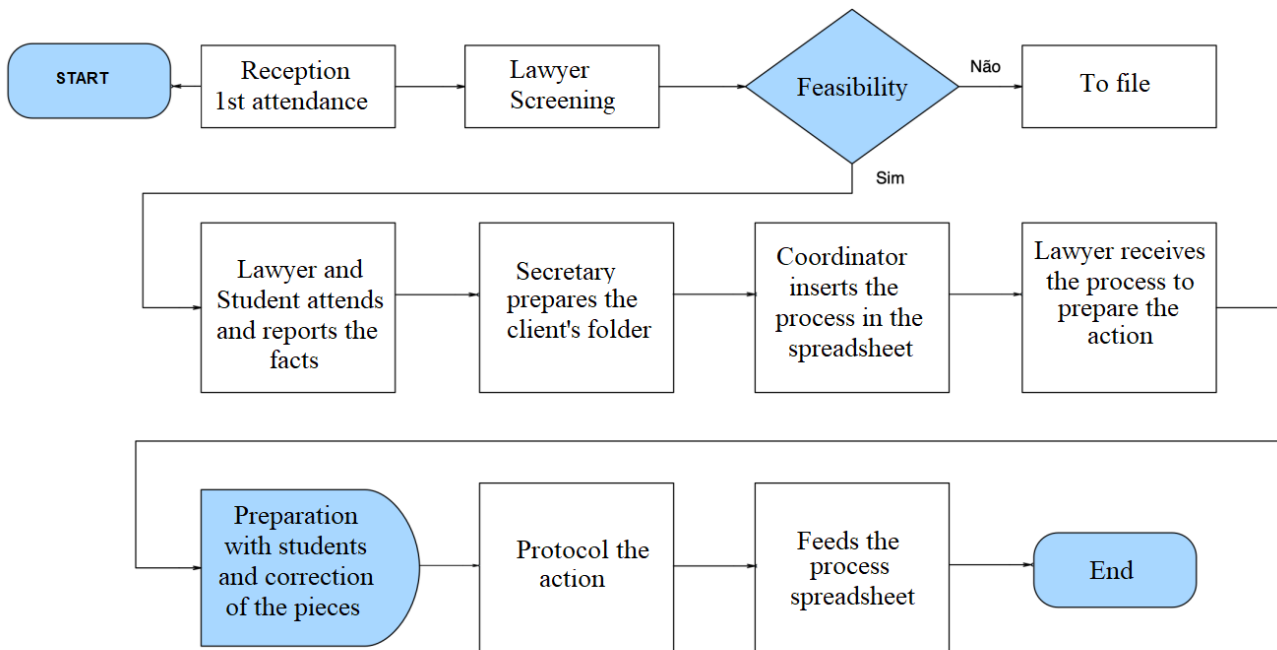


Figure 5. Flowchart of the Current State. Elaborated by the authors (2020).

With the elaboration of the flowchart, one has an idea of the process, since the practice of analyzing and improving information flows is purely linked to lean principles, since it encourages the identification of problems in the sequence of activities, their improvement and the elimination of the difficulties of relationship between sectors. Based on the flowchart of Figure 6 and the information collected in the spreadsheets and documents, it was possible to draw the Current State Value Stream Mapping (VSM).

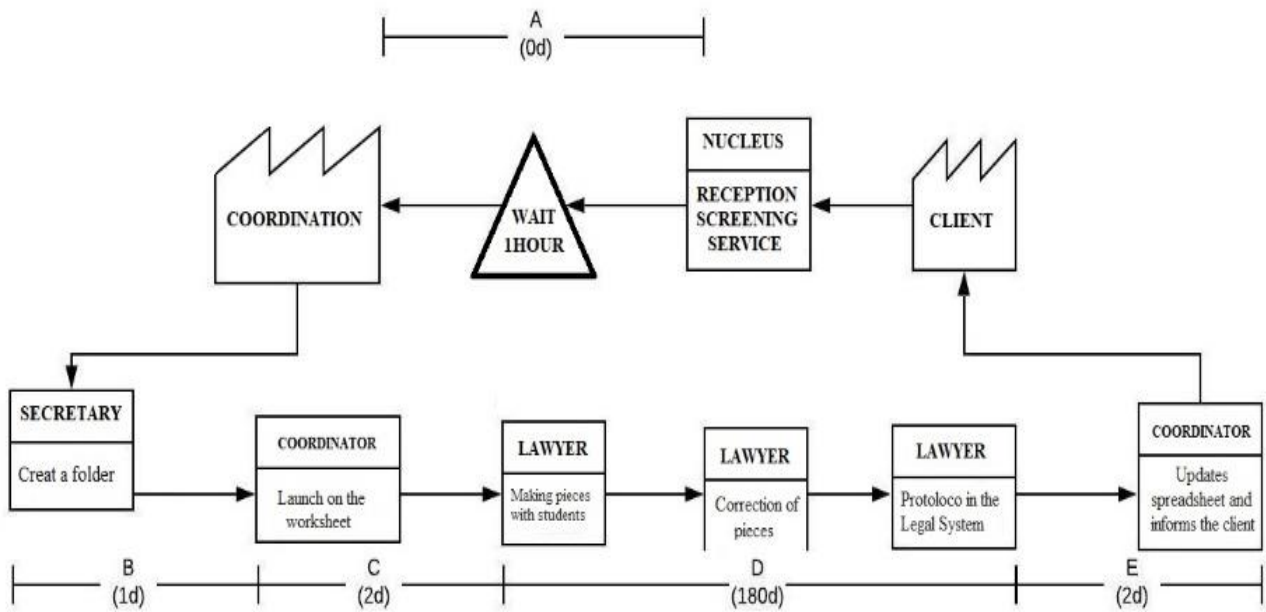


Figure 6. Mapping the Current State Value stream. Elaborated by the authors (2020)

Figure 6 presented the Value Flow Mapping of the Current State of the Process. Due to the impossibility of quantifying in minutes/hours each activity, it was necessary for the researcher to name them by letters to later compare each step of the process in the collected through the observation and physical analysis of demand. The mapping was initiated when the client, the jurisdiction, which are the people of the community, go in search of free legal assistance and seek the NPJ daily.

At the first moment, the reception and analysis of the feasibility of the action and the service is carried out, which lasts on average one (1) hour. If the action has viability, after the initial service, the documentation is forwarded to the NPJ coordination, where the secretary receives the documents and formalizes the client's folder, this stage lasts one (1) day.

After the folder is created, the process/action is forwarded to the coordinator, who includes the information in a control sheet, being the following data: name of client, date of entry and lawyer responsible and subject. It is an internal control spreadsheet, in excel format, since in NPJ, it does not have a specialized management system for internal monitoring of processes. The coordinator takes on average 2 (two) days to include it in the spreadsheet and deliver it to the lawyer.

After that, the case is handed over to the responsible lawyer, who receives the documentation and, together with the students, starts to prepare the initial petition. It is important to emphasize that the unit of analysis, is an extension of the law course, therefore, the purpose of the NPJ and bring knowledge to academics, therefore, all documents relating to the lawsuit to be filed, which are processed on site, must be submitted to analysis, in order to provide qualification in the legal field and a familiarization with the various types of lawsuits.

After the students work and analyze the documents of the lawsuit, they are returned to the lawyers, who now have the function of making the respective corrections. Once the corrections are made by the lawyer, they are filed in the judicial systems. The cycle time of this "D" process, according to the mapping of figure

6, was 180 (one hundred and eighty) days.

The major bottleneck is in the processing of case "D," which, according to the documents and to the spreadsheets analyzed, there is no internal system to control the entry and exit of legal claims, and division by priorities, so that the order of arrival and urgencies are not observed, and the same are recorded at random.

During the research some critical situations were found, especially with regard to the use of the proper management system, where those involved in the process do not have control of priorities and seniority of the demands, most of the manual processing, causing this processing not to be registered, by the absence of a system and still running the risk of the action documents being lost, making it difficult to locate them, or be forgotten.

Another problem identified was the inexistence of an internal regulation about the procedural proceeding with the NPJ, which could establish a reasonable period for the proceeding, thus avoiding the loss of deadlines and even the loss of the right.

In this sense, based on the analysis of the data gathered at the NPJ and with the application of Lean Office tools associated with VSM and TOC, it is suggested: - Updating of the organizational structure and internal rules that provide for internal procedural procedures, with stipulation of deadlines; - Implementation of a process control and management system, to categorize the processes, and signal that it is a demand with urgency, including the pre-determined deadline, automatically generating the deadline for action protocol. - Creation of reports where it is possible to visualize the demands with due date, in chronological order.

5. Conclusion

Through the analysis carried out, it was possible to identify some models of Lean Office practices, in which it was noticed the existence of significant changes in the applied environments, also identifying that the application of dry practices, are strongly allied in reducing the delays in the processing of cases, including in legal offices and similar. This gain is not exclusive to manufacturing, as [13] well explain in the work "Lean Office: management of the flow of value to administrative areas".

The Lean Office philosophy is a great ally of the manager, independent of the area of application, in particular regarding the elimination of various types of waste through the Value Flow Mapping tool, since it allows the visualization of bottlenecks throughout the process, be they of services or manufacturing, which according to [14] has the objective of organizing the work environment, seeking the elimination of unnecessary costs, taking into account that a well-managed information flow therefore serves as a support for proper decision-making.

In the progress of the research, some limitations were found, the need for a change of organizational culture and behaviors, which with the help of the Lean Office philosophy, through the tool Mapping of the Flow of Value and the Theory of Restrictions, it is possible to implement the lean mindset in the institution and make use of all the benefits and gains it will bring.

The study suggests for future research that the Nucleus of Legal Practice can use it in the effective implementation of the leaning mentality by mapping the flow of value, which can be implemented gradually, without time pressure, according to the response of those involved in the process.

As a suggestion, the improvements indicated should be implemented, such as the updating of the organizational structure and internal rules that provide for internal procedural procedures, with stipulation of deadlines, implementation of a system of process control and management, to categorize the processes, and to signal that it is a demand with urgency, including the predetermined deadline, automatically generating the deadline for the protocol of the action and the creation of reports where it is possible to visualize the demand with term to overcome, in chronological order, ensuring agile, loss-free processing, transparent and with online management.

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