



## Lean management accounting, elimination of waste in the company

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**Abstract:** The purpose of this study is to outline the current problems with the company's documentation workflow process and propose a plan to implement a new automated system to eliminate waste and improve the company's cash flow. Every enterprise is required to accurately record business operations. Accounting is the foundation of an organization, serving not only to meet legal requirements, but also to support management processes. In the case of large enterprises, complex accounting carries the risk of problems with timely and correct accounting, which can lead to delays in payments, reminders, collection procedures and interruptions in deliveries. As a result, it becomes crucial to put processes in place to safeguard liquidity. The study includes an analysis of the company's current documentation workflow process and identification of problems associated with it. A plan is then proposed to implement a new automated system to eliminate waste. The methodology is based on an analysis of the company's internal data and available technological solutions. The main results of the study include the identification of existing problems in the documentation workflow process and

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a plan for implementing a new system. The findings indicate that improving process efficiency can help increase the company's cash flow. The study introduces a new perspective on records management in enterprises, especially in the context of eliminating waste and improving liquidity. The theoretical value of the work lies in identifying opportunities for effective records management in the context of supporting business processes. The introduction of an automated documentation workflow system can bring practical benefits, such as reducing payment delays, avoiding debt collection procedures and improving the overall efficiency of business operations.

**Keywords:** lean accounting system palette, muda, accounting logistics, workflow

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## 1. Introduction

Each enterprise is obliged to register all economic operations that have taken place within it. Depending on the nature of the business, several available accounting models meet the requirements of the law and allow for proper management of a given type of activity. Accounting books are a registration system used by enterprises implemented in full accounting. They record in detail all financial transactions carried out by the company, thus constituting an important source of information about its financial condition and liquidity. The books contain data on costs and revenues from the main economic activity and information on employee salaries, rent payments, credit obligations and other financial aspects.

Since accounting is the foundation of any organisation, not only due to legal requirements but also as a tool supporting management processes and employees, in the case of large enterprises, bookkeeping is particularly extensive and complicated. The scale of business operations carries the risk of problems with timely and correct settlement and payment of liabilities. Lack of timeliness in making payments, which results from the documentation, leads to further problems, such as reminders, debt collection procedures, and even interruptions in supplies, such as the supply of electricity or materials, which hinders the effective functioning and management of the company. Therefore, it is crucial to introduce processes in the company that secures financial liquidity.

This study aims to present the process of document flow in the company, identify the problems encountered and present the project implementation plan to introduce a modern and automated document flow. The aim is also to achieve standardisation of processes, automate the invoice settlement process, reduce the need to store documents in paper form and facilitate and accelerate the entire process of settling and paying invoices.

## 2. Literature review

The development of the lean accounting concept, introduced by Maskell in 2000, has its roots in the adaptation of management principles originally developed by Toyota in 1978 by Ohno. Lean accounting focuses on improving internal processes, eliminating waste, and respecting people and other organizational participants (Grossi et al., 2020; Lada, Burkat, 2018).

The need to create this concept arose from the inconsistency between the lean approach, which assumes a horizontal flow of information in operational areas, and traditional vertical reporting of results (Wisniewska, 2005; Timm, 2015). The current definition of lean management accounting includes "aggregated financial and non-financial data provided to managers and employees for decision-making, taking into account the desirability of the lean approach in accounting processes and its ability to create value" (Sobanska, 2013).

Due to the relatively new concept of lean management accounting, most of the literature focuses on methodology (Michalak, 2009; Lada, 2012; Wnuk-Pel, 2016) rather than empirical findings. Examples of empirical studies include the work of Fullerton, Kennedy and Widener (2013), which identifies important factors affecting the effectiveness of lean accounting implementation, such as

management support, a simplified accounting system aligned with strategic decisions, inventory and cost control, and visualization of operational information through scoreboards, as well as trained decision-making staff. Other empirical studies (Ahlstrom, Karlsson, 1996; Alvesson, Spicer, 2019) confirm that a lack of understanding of lean accounting principles often leads to failure in its implementation. Therefore, accounting solutions should be considered an integral part of the organization's lean management philosophy (Grossi et al., 2020).

The concept of lean accounting management focuses on creating value for customers, which leads to the development of a unique approach to assessing an organization's financial position. In the context of this approach, a company's operations consist of two main elements: the value stream and the accompanying waste. The value stream encompasses core business areas such as marketing, research and development, production and product-related logistics, which directly increase the value of the product offered and customer satisfaction. Waste, on the other hand, are processes that do not directly increase value and negatively affect the efficiency of operations (Zarzycka et al., 2019; Michalak, 2009).

The main management goal in the lean approach is the elimination of waste (Womack, 1991), known as *Muda* in Japanese waste management methods. Sources of waste can be found not only in the production of enterprises, but also in non-production areas, such as regulatory compliance, health and safety activities, planning, billing and administration. These activities are necessary to ensure the proper functioning of the organization and often cannot be completely eliminated (Nowak & Kowalewski, 2015).

### **3. Research methods**

This study focuses on identifying and resolving the problems associated with excessive wasted time and extensive invoice accounting procedures in the company. The main source of these problems is the lack of an established process for department managers to approve costs before purchasing, as evidenced by management reports of cases of employees making purchases without prior approval from their superiors, leading to post-purchase invoicing. The description of this problematic process is intended to find an effective solution to help the finance department run it more efficiently in the future. Proof of the importance of this problem is provided by the recommendations of the auditors, who, during their annual audits, pointed out the lack of clear cost documentation and the exact moment of purchase approval, which they considered unacceptable. For this reason, taking steps to address this problem is crucial to the success of future audits.

In addition, a significant problem in the organization turned out to be the retention of documents by employees, resulting in a lack of accurate records of lost documents and dissatisfied customers due to delays in payment.

Given that the company operates in the spirit of continuous process improvement (DBS), it is important to standardize processes, such as the flow and recording of invoices, accounting for business trips, and posting of bank statements, across all countries. Accordingly, each new process, such as Pallet, is implemented on a large scale, involving as many companies as possible at the same time and training all employees who will participate. One of the responsibilities of the department's employees is to monitor the ongoing processes on a daily basis, so that differences in processes or wasted time can be detected. If necessary, project groups are formed to optimize the problems detected.

Research methods include analysis of the cost approval process, investigation of purchasing cases without supervisor approval, evaluation of cost documentation, analysis of document retention, evaluation of processes related to continuous improvement, and monitoring of implemented processes. These studies are aimed at identifying the main problems and developing comprehensive solutions, taking into account the interdisciplinary nature of the problems.

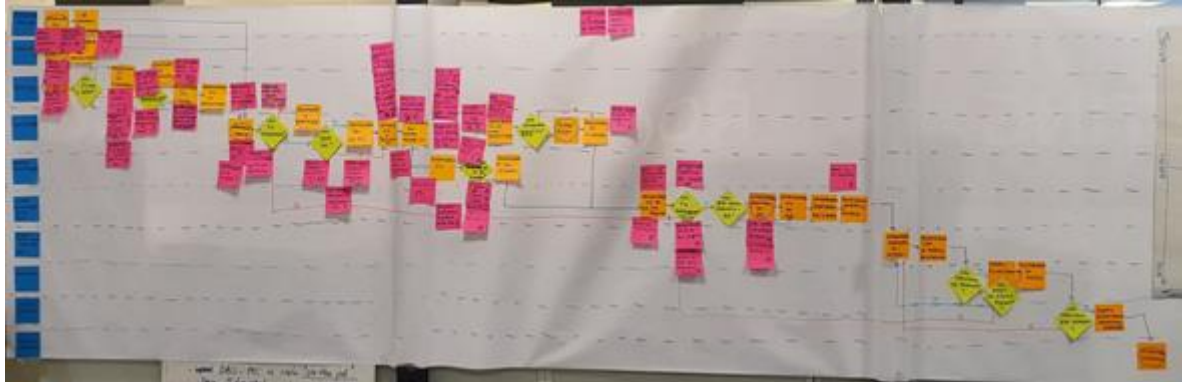
### **Alternative solutions to improve the process**

Analysing the problem of late payments and persistent contacts from suppliers, the finance department decided to thoroughly examine the procedure and identify the areas that needed the most significant transformations.

As mentioned, because the company operates in a culture of continuous process improvement (DBS), the finance department has access to tools that optimise operations. It was decided that a group

of employees from different departments would be created who participate in a given process, and an event called Kaizen would be organised. In order to start this event, it was necessary to appoint a leader who would be responsible for the complete organisation and direction of the group in the right direction. Then, they created a team card and collected the necessary information that showed deviations in the analysed process. During the event, a flow map was developed that shows the current status of the procedure.

**Figure 1: Map of the current state (document workflow process before the introduction of Palette)**



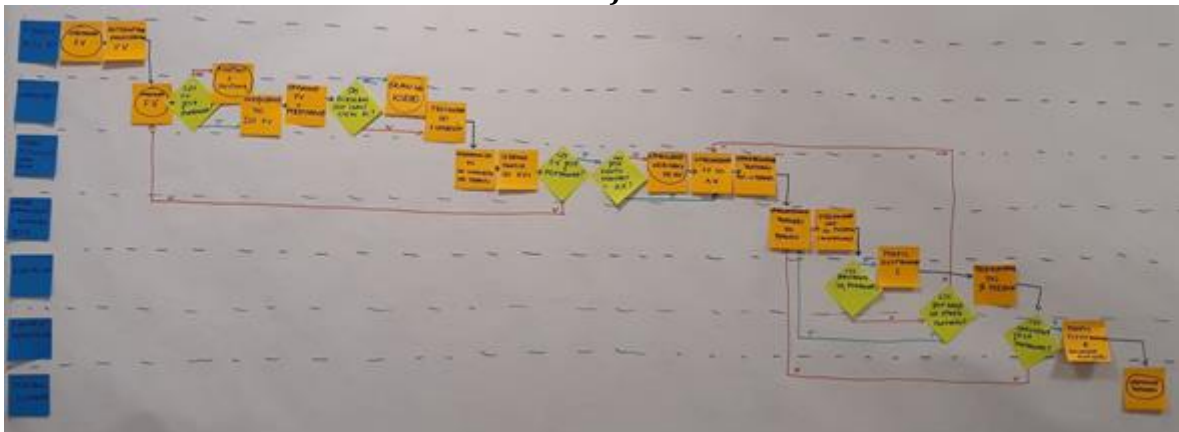
Source: Own elaboration

During the three-day initiative, the group looked at how the process could be accelerated so that suppliers receive timely payments while eliminating excessive losses.

In the next stage, three invoice collection points were liquidated: the warehouse, the reception desk and the person responsible for orders. A new procedure was designed, according to which each supplier was obliged to send invoices only to the e-mail address of the financial department. The mailbox was configured so that each invoice was automatically sent to the person responsible for the service or process in the company. Subsequently, the person receiving the invoice printed it forwarded it for approval, and then delivered it in paper to the financial department. The invoice was posted there, received the appropriate decree, marked with the journal number, and then archived chronologically in a binder.

Sending all invoices to the e-mail address of the financial department enabled ongoing monitoring of invoices that were stuck in the process and determining the stage of the procedure. In addition, this facilitated the creation of provisions for costs that had not yet been posted. The transformation of this process required considerable effort and commitment of employees from various departments. The introduction of electronic invoices, updating the email addresses of suppliers already using the e-invoice service, and, in some cases, updating contracts were necessary to implement these changes.

**Figure 2: Map of the future status (document workflow process after the introduction of Palette)**



Source: Own elaboration

The next stage of activities was also to narrow the list of suppliers available to employees. A list of eligible suppliers was created, which mainly included suppliers with an additional level of acceptance and also impacted the supplied materials used in production. A list of recommended suppliers was also created, including suppliers who did not influence the production process but were often used in everyday work. This list includes suppliers such as florists, hardware stores, bookstores and restaurants. The logistics department then negotiated discounts and other benefits for the company and the employees. The list prepared this way was made available to the company's employees for familiarisation and use. All new suppliers underwent a detailed verification carried out by the logistics department.

### **Concept and plan for the implementation of automatic circulation of documentation**

Despite Kaizen and the implementation of new solutions, the company still encountered difficulties handing over documents. An additional challenge was the undermining of the process by the financial controllers. There were situations when the employee initially received only the oral approval of the supervisor for the purchase of tools or materials, and official and written approval of expenses took place only after receiving an invoice from the supplier. This often happened after the service was performed, which was not consistent with the correct course of the process. As a result of these problems, there were proposals to automate the process and reduce the manual processing of documents in the company. In addition, due to the growing emphasis on eliminating paper documentation, the company decided to implement the Palette system. An important step was to examine the process in all the places and departments through which the process passed.

The company must prepare a solid implementation plan when planning to implement a new system. This planning depends on:

- the scale of the company,
- the number of employees employed,
- the scope of system implementation,
- anticipated changes in processes compared to current ones,
- the area where the system will be used.

The first step in the preparations for the implementation of the Palette system was to appoint a project leader, i.e. a person responsible, among others, for organising meetings, supervising the performance of tasks by project participants and ensuring its successful completion.

The next stage was to specify a specific implementation plan, taking into account all stages and selecting appropriate employees from various company departments who were to participate in the project.

The entire project group was divided into two different teams. The first team, consisting of finance employees, dealt with implementing and collecting information from sales companies, focusing on fewer processes and maintaining constant contact with local teams. The second team, composed of employees from various departments, including company administration (reception), logistics, IT and finance, focused on manufacturing companies, where processes were more complex and required more participants.

The first important task of the project was to estimate the time it would take to complete it and to determine how many employees would have to be involved in the various tasks. An essential element of the plan was determining how much time employees could devote each week to perform these tasks. The next step was to identify the number of suppliers in each company, which allowed the team to get a clear picture of the company's size.

The logistics department has established intensive cooperation with suppliers, striving to change invoice documentation from paper to electronic as soon as possible. As a result of these changes, suppliers were obliged to include the requisition number on their invoices, orders, proforma contracts and contracts. The structure and hierarchy of the enterprise are described in detail, and information flows between individuals in project groups are established, which are divided into more and less complex. In order to create "central positions" of suppliers (classification of suppliers in terms of order quantity or value), it was necessary to check them in the Axapta system and assign appropriate references.



## 5. Research results

In the context of implementing the system in the companies, it was decided to conduct Kaizen in one of these companies to measure the time difference between the manual process of settling invoices in these companies and the procedure after implementing the Palette system and other improvements. The next step was to identify redundant steps that were unnecessary but simultaneously prolong the process.

**Table 1: List of losses and wastes**

Waste Recording Form				
Process step #	Waste type	Description of waste	Improvement opportunity	Priority (A,B,C)
3	Anticipation	Waiting for the vendor verification process	A reseller must be created in advance	
25-30	In the process	Approve all invoices		
32-35	Traffic	Print and print your invoice		
42-48	In the process	All data manually entered into the Axapta system		
45	In the process	There is no bank information on the invoice		
50-53	In the process	Status change in ESKER		
56	In the process	All invoices saved in a binder		
57	Stocktaking	Space for binders, archiving costs		

Source: Own elaboration

After accurately recording and measuring the duration of all stages by the local team, managers and the Shared Services Center, data was obtained indicating that the time needed to process the invoice in the manual process is 16 minutes and 12 seconds (per invoice). In comparison, this time was reduced to 8 minutes and 7 seconds for automatic settlement via Palette.

## 4. Discussion of the results

The most critical data obtained during the system's implementation in the company was the time needed for manual document flow. Due to the different sources of documents inflow to the financial department, significant difficulties arose. During the analysis of the situation and the implementation of the system, this process was unified and automated. An important aspect was also to determine the time needed to process documents in local company teams worldwide and identify processes that required additional improvements. This process, first of all, showed the management board how significantly it impacted the success of the entire project, including employees, rotation in the team, designation of the project owner, readiness for changes, and support for local leaders in implementing new processes in the organisation.

The critical stages of project implementation were preparing a test environment, integrating suppliers with the system, defining VAT rates and limits, designing invoice flow, creating and completing the chart of accounts, providing company data, conducting tests, configuring the production environment similar to the test environment, training employees, support in the change process, enforcing compliance with the new process and gradual implementation of solutions in subsequent countries by the set plan.

The most important benefits resulting from the implementation of the system were the ability to monitor the frequency of posting using reports in the system, identification of the location and status of documents in the event of late delivery to the financial department, shortening the time required for manual analysis of documents through access to the accounting system, which automatically directs to the posted invoice, immediate visibility of the approval of the managers of individual departments and the ability to document compliance monitoring.

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## Conflicts of interest

The authors declare no conflict of interest.

## Data availability

Some or all data and models that support the findings of this study are available from the corresponding author upon reasonable request.

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## Appendix

Table A.1: Analysis of current and future state

Process Walk Form							
Process Being Observed: TPI Forms Vendor Invoice and Palette					Observed By:	xxxxx	
From:		XYZ RLTD			Observation Date	xxxxx	
To:		Scenario 1	Scenario 2	Total Component	Task Time	0.49375	
Process	Component	Performed	Comp. Task Time (Secs.)	Value Added Time (Secs.)	Number In Queue	Future State	# Of Feet (Paces X 3)
Step #	Task	By					
A	Sign in to Palette	Local Team				00:23	
B	Issue a requisition and submit it to your manager for approval	Local Team				01:55	
1	Receiving an invoice from the supplier by email (most)	Local Team	01:16			01:25	
2	Open email attachment	Local Team		02:00			
3	check if the salesperson is in AX	Local Team		01:16			
4	Checking the invoice date	Local Team					
5	Name check	Local Team					
6	Checking the price	Local Team					
7	after the check, send the invoice to ESKER via email to the Esker email box	Local Team	00:05	00:05			
8	For invoices received by mail, open the mailing envelope	Local Team					
9	Perform similar checks as above	Local Team					
10	walk to scanner (00:10), scan (00:10), walk back (00:10)	Local Team	00:30	00:30		00:20	
11	scanning the invoice directly into the Esker program	Local Team	00:30	00:30		00:23	
12	Esker doc login - local initiator	Local Team					
13	"Unassigned invoices" overview	Local Team	01:06				
14	Click on the document - check the invoice number	Local Team					
15	Checking the invoice date	Local Team					
16	Checking the total amount	Local Team					
17	Assignment of tasks to the appropriate manager	Local Team					
18	Invoices under review - awaiting review by local managers	Manager	0:40			00:33	
19	logging in to Esker - Local Manager	Manager					
20	Viewing invoices that are pending	Manager					

21	Open Document	Manager		
22	Checking the amount	Manager		
23	Enter the faculty code	Manager		
24	Document Approval - Review Status	Manager		
25	Log in to Esker – Financial Manager	Manager	00:42	00:00
26	Invoices awaiting approval	Manager		
27	Select Document	Manager		
28	provide a Cost Centre (Cost Department))	Manager		
29	change of status "waiting for AX input"	Manager		
30	kliknij przycisk Zatwierdź status	Manager		
31	log in to Esker - accountant	FSS	00:55	00:48
32	Go to invoices waiting to enter AX data	FSS		
33	Select an invoice	FSS		
33	Click - Print button	FSS		
33	cut commit	FSS		
34	Print invoice and approval separately	FSS		
35	Go to the printer and take the printout, go back to the desk - inventory	FSS		
36	Take a look at the invoice	FSS	03:45	01:40
37	log in to AX	FSS		
38	change entity	FSS		
39	go to AP invoice journal	FSS		
40	open JE	FSS		
41	Click on the line	FSS		
42	Fill in the documents doo date, dept, vendor,inv no, trans text	FSS		
43	Enter the amount and ledger account	FSS		
44	fill in the sales tax group and select the VAT check box	FSS		
45	check the payment terms (automatically).in case of notification of a change in the bank account - contact xxxx to verify the seller	FSS		
46	click the Check button	FSS		
47	put the JE number on the document	FSS		
48	Fill in the voucher description (date, initials, text) and publish the voucher	FSS		
49	go back to Esker and log out	FSS	00:22	00:40
50	Log in as user xxx	FSS		
51	go to the tab "Invoices waiting for input of AX data".	FSS		
52	Open a posted invoice	FSS		
53	change the status to "Archive" and click "Archive invoice".	FSS		

54	Log out of your xxxxx account	FSS	02:00			00:00
55	Take paper invoices, punch a hole	FSS				
56	putting invoices in a binder and storing them on a shelf	FSS				
57	completing archiving procedures (filing, putting into boxes, sending to an external archiving company, etc.)	FSS				
Totals			11:51	04:21 18:12	0	08:07 08:07

Source: Own elaboration

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