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## LEAN MANAGEMENT IN UNIVERSITY LIBRARIES BETWEEN THEORY AND PRACTICE

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### Abstract

A change in current organizational development conditions requires the use of appropriate management methods. In this paper we have addressed relevant issues regarding the importance of the Lean Management method in the current evolution of a university library. The purpose of the paper is to show how one can apply modern methods of improving services, establishing conclusions and recommendations based on them. An important aspect of the work is the integration of the Lean Management concept with other managerial techniques (Kaizen, 5S) that will lead to quality services at low cost.

### Keywords:

Lean Management, university library, strategy, performance, Kaizen, 5S, Quality.

**JEL Classification:** D83, I25, L15, M 12

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### Introduction

Due to the global competition, the implementation of modern management systems has become a necessity and is aimed at improving the quality of service offered to users and at reducing the response interval to their requirements.

Lean is a management system, a set of tools, to be used according to the strategy and development level of an organization and its culture. In order to be used as a management system, it is necessary for the organization to have reached the level where continuous improvement has already become part of the organizational culture.

Users (teachers, PhD students, master students, students, auxiliary staff, external users) are well-known and involved in determining service value (Belás et al., 2017). They are involved in identifying and solving problems with an aim at eliminating non-value added activities.

Problem solving is based on knowing and applying Lean specific tools. The results obtained are long-lasting and losses do not reemerge right after implementing an improvement solution.

A basic analytical and synthetic review of literature underpins the following main objectives of the present paper:

1. Analysis of the Lean-specific tools that have direct and indirect effects upon improving services in the university library.
  2. Identification of the characteristic features of the Lean improvement method in the university library.
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**1. Literature review-definitions and theories of LEAN MANAGEMENT concept.**

**Application in a university library**

Lean Management (LM) provides specialists in the engineering field, and not only, with modern management and more efficient team coordination capabilities (Androniceanu, 2017). The guideline of Lean practice is first and foremost answering the **user's request**.

Here is a definition of this concept adapted to the university library: *a concept that allows for the organization and management of service development and user relationships that requires less human effort and time to deliver high quality services to well-identified users.*

The results of the Lean concept implementation in the university library comprise:

- ✓ total user satisfaction;
- ✓ quality improvement of the services offered to users, reduction of the time taken to meet their requirements;
- ✓ shorter feedback time to market signals;
- ✓ employee motivation.

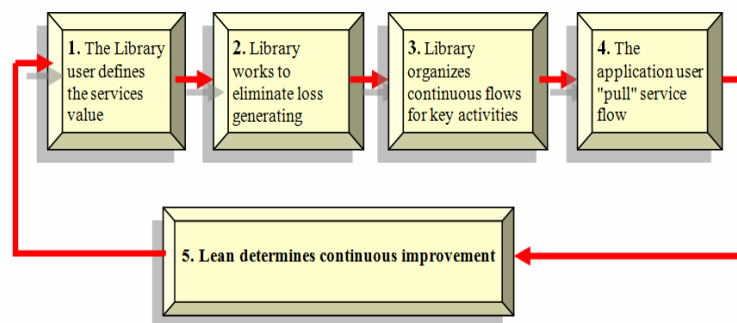
As described by Womack P. James and Jones T. Daniel in *Lean Thinking: Banish Waste and Create Wealth in Your Corporation*, pp. 353-357, (2003), Lean's application of services means a process of thinking and action in 5 steps. The authors present these suggestive steps in fig. no.1.

**2. Research methodology**

Lean is based on a philosophy of respect for people and trust in the potential and contribution of each employee. It may be considered a management system, a philosophy or a set of tools, depending on the scale, strategy and level of development of the organization and its culture (Leskaj, 2017).

**2.1. Principles of applying the Lean Management concept to library services**

The basic principle of the method is to reduce the costs of those activities that do not add value to services (Androniceanu & Ohanyan, 2016). In response to the requirements of this principle, the library must adopt a waste disposal strategy by reducing its losses (Profiroiu & Păceșilă, 2017).



**Fig. no.1. The Lean Steps**

*Source: adapted after Womack, James and Jones, Daniel, Lean Thinking: Banish Waste and Create Wealth in Your Corporation, 2003, Simon & Schuster, New York, pp.353-357*

The elimination of losses can be done by properly managing the time allocated to the service, namely: systematically reducing costs by shortening reaction time to market signals, followed by the development and implementation of the Quality Manual (Upadhyay, 2017).

The implementation of the Lean concept begins with receiving user requests, ends with the delivery of the service and involves the following: changing service processes without large investments; shortening the time for service completion as much as possible; equipment maintenance; ensuring the existence of a resourceful team; manager's concern for the team's morale; improving conditions in terms of order, cleanliness, standardization of procedures, etc.; flexibility in adapting to the variations in user demand.

**2.2. Tools, techniques and methods used in Lean services**

The library needs to identify areas that require change. In this respect, **table no. 1** identifies the necessary transformations from a conventional organization to a Lean based organization.

**The library needs to adapt to user requirements and act to eliminate waste.** Waste in the frame of library services might refer to:

- o time lost in waiting for getting a publication loan;
- o unnecessary, cumbersome movements that do not bring value to university library activities.

The employee must understand and assimilate the process of change and be aware of the manager's expectations with respect to her/his achievements

*The ultimate goal is to reach a certain level of cooperation, coordination and team planning among all library employees.*

Usually, a problem-solving methodology is applied after some indicators have been set up to monitor the progress of the necessary changes and the achievement of clear objectives (Abrudan, I., 2002). Previously, conditions must have been created for improved results to become irreversible.

The fundamental Lean philosophy is grounded on the definition of value from the user's point of view. All those activities that fail to add such a value and that only generate costs are identified as waste.

**Table no. 1. Transition from conventional to Lean type organization**

Field	Conventional Organization	Lean Organization
Communications	There are communication problems between manager and staff	Employees are updated on the current state of affairs and cooperate with the manager
Problem solving and decision making	Managers identify problems and decide solutions	Every employee identifies and solves problems in accordance with the manager's decisions
Teamwork	Managers guide individual work	There are complex teams for pinpointing and solving problems
Implementation-whole organization process	Everyone tries to succeed individually, ignoring organizational success	The most important is the (constant) achievement of the organization's objectives

*Source: Authors*

Losses can be caused by a multitude of factors, such as: uncontrolled working methods; lack of personnel training; boredom; lack of workplace organization; lack of responsibility; long waiting times for service delivery.

The most important typical Lean tools (that libraries can also adapt) that can be used after a careful assessment of the initial situation are: Kaizen, 5S.

**3. Case studies**

**3.1 Application of the 5S method in University POLITEHNICA of Bucharest Central library**

As known from the literature (Imai, Masaaki et. al., 2004) the 5S method derives from the Kaizen philosophy and is a method of organizing the workplace by:

**1S- Sorting and Filtering (Seiri)**- Making the correct choice of necessary essentials;**2S- Stabilizing, Ordering, Arranging (Seiton)** -organizing the activity;

**3S- Shine, Clean (Seiso)** – keeping a clean work place;

**4S- Standardization (Seiketsu)** - maintaining the level achieved after implementing the first 3S; the new situation must be standardized so as to preclude return to the original state;

**5S- 5S-Maintaining Support or Maintenance (Shitsuke)** - maintaining and applying the first

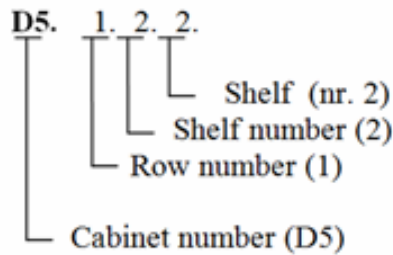
The **table no. 2** presents a several actions undertaken in order to reach the 5S principles in University POLITEHNICA of Bucharest Central Library (UPB-CL).

**Table no. 2. Application of 5 S in the library. Loan service area**

<b>5 S System</b>	<b>Actions undertaken</b>	<b>Rezults</b>
<b>SORT</b>	Choice of shelves for publications storying according to their format and the frequency of their circulation	-Efficient storing of publications without space waste -Quickly publication retrieve – no time waste
	-RFID system implemented to publications security	-Evoiding publication stealing -Tagged publications for a facile inventoring
	-Choosing a proper equipment (PCs, scanners, printers) and library integrated software	-Automatization of the entire library activity -improving the activity at circulation desk
<b>SET IN ORDER</b>	Choosing the proper publications arrangement on the shelves in an order determined by certain classification criteria -Application of specific methods for highlighting/identifying of the publication on the shelves	- Labeling (barcode or RFID) - visual identification by color codes, mirror lists, etc.
	-verifying by scanning the correctness of the publication storing and daily returns (correct interting on shelves)	-identification the wrong positions or missing publication on the shelves in the loan area.
	-information layout in a logical order useful to readers on a notice board at circulation desk or on library website	-usefull notice board -interactive use of the library site
<b>SHINE</b>	-regular cleaning	-mentenance of a clean, airy space
<b>STANDAR DIZE</b>	-application of operational procedures -use of valid rules in the field of information science	-no mistakes in entire activity
<b>SUSTAIN</b>	-update the work environment	-no interruption in activity

*Source: Authors*

For example, we highlight the application of the *Set in Order* principle assisted by an informatic application that provides publication identification and retrieval in a depository. This makes the document loan service more efficient by shortening the time for arranging and retrieving shelved documents. In order to implement 5S, one resorts to the layout presentation of shelved books under flow chart form. This makes it possible to encode these data. The coded marking corresponding to the shelved documents arrangement (identification) in an organigram format can be done as shown in fig. no. 2.



**Fig. no. 2. Example of coded notation and coding key**

*Source: Authors*



**Fig. no. 3. Books in closet D5**

*Source: photo made by Authors*

The application is done with Java programming language using graphical features. By way of illustration, we will consider an application: finding the location of book coded ST3/MAT, (located in the Reference Library of UPB-CL). Starting from typing the code of the book you are looking for you will get on the computer monitor:

- code D5.1.2.2 (indicating the place of the book on the shelf); (fig.no.3)
- title of book.

*One can similarly extend this procedure to any other item.*

### 3.2 Pilot study on the management process involving the implementation team

The authors have developed and sent an assessment questionnaire to the people in the study group.

The study group included: the organization's manager, team members, consultants, analysts, experts.

The objective of the questionnaire was to improve teamwork, pinpoint and solve problems. 50 questionnaires were distributed.

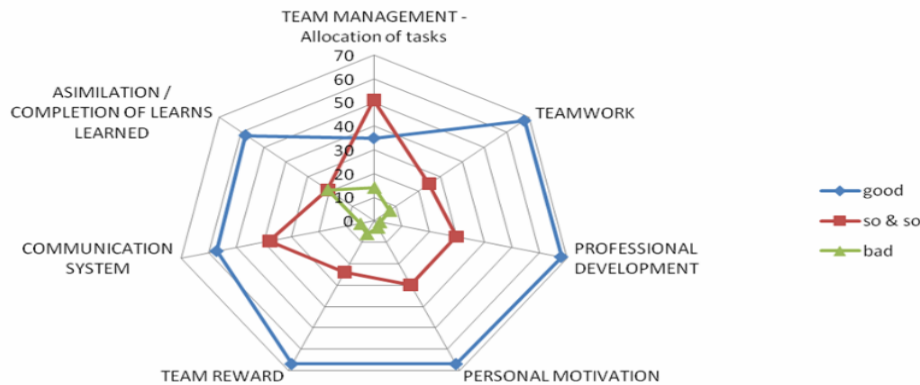
The questions, answers and respondent feedback to the questionnaire have been listed in **table no. 3**.

Based on the questionnaire conclusions, fig. no.4 shows the correlation among team management processes.

## 4. Results

The results of the questionnaire suggest that:

- work efficiency decreases if team members lack a clear picture of their individual tasks;
- some of the team tasks require permanent clarification; task assignment can be optimized;
- the time taken by the team to establish communication needs pays off;



**Fig. no. 4. Correlation of team management processes**

Source: Authors

An overview of lessons learned is often neglected, but when it is not, there is a definitely positive impact on future tasks improving the process of overviewing the lessons learned may result in a reduction of the deficiencies that were identified in the questionnaire based assessment.

The graph presented in fig. no. 4, based on the questionnaire presented in the table no. 3, highlights the fact that there are some problems in assigning the service tasks. The graphical presentation in fig. no. 4 helps the management team of the UPB library to observe the weaknesses of the provided activity and help focus the team on the reported issues.

**Table no. 3. Questionnaire items and results**

	QUESTION	POSSIBLE ANSWER	RESPONDENTS (%)	THEME
1	Does task assignment seem efficient to you?	Yes	35 %	<i>Efficiency of Tasks</i>
		Not really	51%	
		No	14 %	
2	How do you evaluate work in a team?	Good	68 %	<i>Teamwork</i>
		Not so good	25%	
		Not good	7 %	
3	Do you have opportunities to grow professionally?	Yes	68 %	<i>Professional Development</i>
		Not really	30%	
		No	2 %	
4	Does team motivation have an impact on your work?	Yes	67 %	<i>Team Motivation</i>
		Not really	30%	
		No	3 %	
5	Is there an efficient team communication?	Yes	57 %	<i>Communication</i>
		Not really	38%	
		No	5 %	
6	Are merits recognized and rewarded?	Yes	67 %	<i>Recognition of Merits</i>
		Not really	24%	
		No	6 %	
		No response	3 %	
7	Are the questionnaire results learned and carried though at the end of each task?	Yes	58 %	<i>Further Development of Outcomes</i>
		Not really	21%	
		No	21 %	

Source: Authors

## Conclusions

The scientific and pragmatic value of research enables university libraries to use this work for both academic and practical purposes. Lean tools can only be implemented after several preliminary milestones -that are essential for their long-term success – have been covered i.e. specific cycles of problem solving and PDCA cycle. In addition to material and financial resources, the human resources (the "TEAM") are essential in the successful completion of a project. It is very useful for team members to check how the team evolves at regular intervals, in line with the expectations defined at the beginning. The factors that influence team effectiveness are: performance targeting, clear tasks, effective communication, capable team, reward system, Leadership. The advantage of applying Lean management is expressed in a simple formula: "give the user more value, made with less waste".

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