STANDARDISATION OF WORK AS PART OF THE IMPLEMENTATION OF THE LEAN STRATEGY IN SERVICES

Dragić Tomić [1][ORCID 0009-0002-1699-2166], Milovan Lazarević [1][ORCID 0000-0003-3889-8509], Mitar Jocanović [1][ORCID 0000-0003-1088-5028], Ljubica Duđak [1][ORCID 0000-0003-2858-7897], Sonja Bunčić [1][ORCID 0000-0002-0867-585X]

[1] University of Novi Sad, Faculty of Technical Sciences, Department of Industrial Engineering and Management, Serbia

Abstract: *The application of Lean in various systems for the production of hardware, process, software, and other services and products is increasingly present. Considering the available research and literature on the application of Lean in the service sector, it can be noted that there needs to be more available professional material in the field of operations of public institutions. The Lean system is designed to eliminate waste, variability, and inflexibility.*

Standardisation in the service industry refers to the process of creating a consistent and unique experience for customers across different locations and service providers. This can be achieved by developing standardised processes, procedures, and protocols that ensure every customer is treated the same, regardless of where they are located or who serves them. Standardisation in the service industry is essential as it helps to improve efficiency, reduce costs and improve the quality of service delivery. By standardising processes, operations can be streamlined, errors minimized, and productivity improved. This paper will present the problems that have been identified in a public institution - the Cultural Center "Lukijan Mušicki" from Temerin, and then show how to solve them using lean tools.

Keywords: Lean, service, standardisation, improve, process

1. INTRODUCTION

Contemporary trends require all service providers to continuously adapt, innovate and change the business environment. Some authors claim that competition is one of the critical reasons for resorting to the highest quality offer and that developing different standards for improving and maintaining the quality of services is an essential prerequisite for successful business and survival on the market. Standards ensure that goods or services produced in a particular industry are of consistent quality and equivalent to comparable products or services in the same industry. Standardisation also helps ensure manufactured goods safety, interoperability, and compatibility (Corporate finance institute, 2023). Standardisation aims to ensure uniformity of certain practices within the industry. Standardisation focuses on the process of product creation, business operations, the technology used, and how specific mandatory processes are established or implemented. Every organisation strives for quality, consistency, efficiency, and best practice. Service standards can help an organisation achieve its best results and show how to improve (Corporate finance institute, 2023). They also demonstrate that there are processes to monitor and improve quality and performance in the company's service. Service standards range from the basic level to sophisticated, externally assessed systems. If the company notices that clients regularly complain about the quality of the service received or the staff makes many mistakes in their work, there is a good chance that the problem may result from undefined or non-existent service standards (Schuh, G.,2007). Such an environment leaves staff figuring out what to do or where to draw the line regarding service level or quality. Standards enable greater efficiency in development and processing by individual suppliers. Growth is achieved when service quality can be reproduced over time and across locations (Schlesinger. I and J, Heskett., 1992). Technical know-how and innovation can be distributed more quickly when standards are set. An additional increase in efficiency is contributed by unique evaluation standards that increase effectiveness, which can primarily be explained by the rise in the degree of use by customers (clients) and the accompanying acceptance by increasing the price (Gudergan, G./Hoeck, H., 2002). Creating service sector standards strengthens individual service companies innovative and competitive ability. Standards encourage economic growth and competition, protect consumers, and create fair and accessible trade conditions. Service companies that apply company-specific and sector-specific standards have a

competitive advantage. These companies reduce their transaction costs and are perceived as businesses that actively promote the security of their customers. For customers, standardised services represent structured offers with low risk because they are comparable (Mörschel, 2002). By choosing the right point of standardisation during the development process, the service can be offered to interconnected markets; standardisation fosters competitiveness (Schauerte, 2007).

In 2015, the Cultural Center of the Municipality of Temerin was created by separating the cultural activity from the "Lukijan Mušicki" Cultural and Information Center. In 2018, at the initiative of the institution's founder - the Municipality of Temerin, the institution was transformed, and the name changed to the Cultural Center "Lukijan Mušicki" Temerin. For the implementation of cultural programs of various kinds, the Cultural Center disposes of an area of about 600m², which consists of a gallery space, a theatre, and a cinema hall with 320 seats, as well as business premises (administrative buildings), (Cultural Center "Lukijan Mušicki", 2023). The work of the Cultural Center is reflected in the organisation of numerous theatre performances (for adults and children), cinema screenings, art exhibitions, art colonies, literary evenings, book promotion, debates on various current topics, etc. The paper will present some of the problems in the current way of working of the institution, as well as appropriate solutions in the context of improving the operation of certain parts of the business process through standardisation.

2. METHODS

The current situation in the work and functioning of the Cultural Center indicates the need to introduce significant changes in the current way of working. Through the process of detailed analysis of the functioning of the Cultural Center, many problems were observed that must be solved and improved, such as inefficiency and dissatisfaction of employees, organisational confusion, lack of knowledge of responsibilities, conflicts between employees, inability to adequately monitor the work performance of employees, too much dependence on the execution of specific tasks by individuals, poor resolution of problems that arise in daily operations, low level of motivation of employees, poorly developed delegation, reduced level of communication between employees and superiors, complete mess on the desk as well as the cables of electrical devices on the desk (computer, printer...), etc. At the beginning of the work, it was known that there were specific problems in the process of selling tickets for screenings. A data collection plan is being prepared to collect the necessary data. This plan includes what type of data should be collected, the data sources, etc. This paper focuses on the functioning of the ticket sales procedure for theatre and cinema shows. The licensed Microsoft Excel program was used to standardise data entry and manipulation. The workbook layout is designed in which the necessary data is entered, as well as the required reporting. The problem in the analysis of this ticket sales procedure was that the employee who works directly on ticket sales complains that, in many cases, errors occur; this situation creates an environment of uncertainty for employees and the organisation. The existing environment limits employees to work better and with better quality. In the paper, the focus is on one segment in the business of the Cultural Center "Lukijan Mušicki" Temerin, which is the process of selling tickets for theatre and cinema shows. As stated earlier, the process is done manually, slowly, and with a high possibility of error. The employee who sells tickets has in front of him a theatre/cinema seating plan (printed A4 paper) on which he marks the sold seats. The seating arrangement is shown in Figure 1. After marking the seats sold, the employee prints the ticket. The ticket (front and back) is shown in Figure 2. After that, he collects the entrance fee.
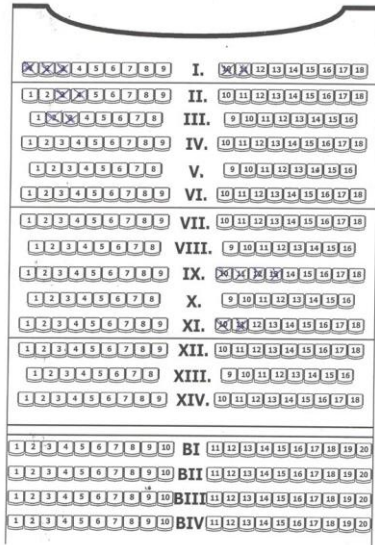
Figure 1: Theater/cinema seating plan (printed A4 paper)

Figure 2: Ticket (front and back)

A block diagram was made for a more accessible analysis and graphic presentation of the process. A detailed examination of the created chart revealed certain process bottlenecks, marked on the diagram with the letters A, B, and C. In the case of bottleneck A, slow communication was observed due to additional administrative activities; also, an increased possibility of error is evident. In the case of bottleneck B, more activities were observed that deter and reduce the quality of the provided service. In the case of bottleneck C, the impossibility of data analysis on a more significant number of performances was observed, as well as an increased possibility of error regarding internal records of sold tickets. The block diagram of the process is shown in Figure 3.
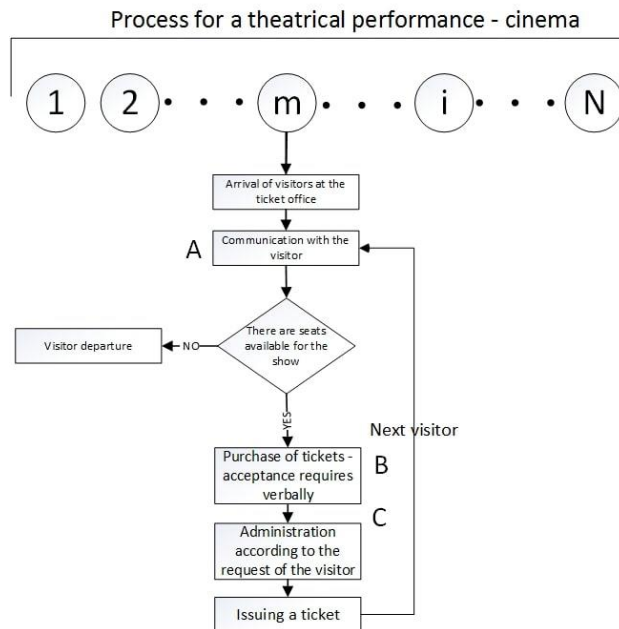
Figure 3: Block diagram (before)

The goal of the work is to establish work standardisation that would provide the opportunity to perform the job better and faster, clearly define how the service will be provided (thus minimizing errors), and increase customer satisfaction with the service provided.

3. RESULTS

To perform the relevant measurements in real time, the first customer waited to start the ticketing process. Immediately after entering the client, the measurement with a stopwatch was started until the sales process was completed. To obtain the highest quality data, this procedure was repeated five times. The procedure was repeated for three days with three different employees. After collecting the initial data, they were systematically arranged in an Excel table, and the necessary analysis was performed. The analysis showed that some workers are more efficient than others (faster) and that they need less time to sell tickets. The average time required to perform the sales service was determined by systematizing the data in the table. It was found that the average time needed to complete the service is 4.24 minutes.

First, the layout of the Excel workbook was designed, as well as what data should be entered into it. In the workbook, the employee enters primary data, namely: ticket price for adults, the ticket price for children, then, if the prerequisites are met, the ticket price with a discount (persons with disabilities, people from vulnerable social groups, etc.). Also, entries (according to a free estimate, the expected number of visitors to the play/cinema screening). Furthermore, in the section provided for this, the employee enters information about the name of the play/film, the name of the person to whom the ticket is issued, the number of adults, the number of children, the number of discounted tickets, the location of the seat (ground floor of the hall or balcony- a predefined text is specified in the cell to reduce the error), the row and the number of desired seats. The initial data entry screen is shown in Figure 4.

Figure 4: Data entry screen

This completes the process of entering the required data. The workbook further provides the necessary data based on automatic procedures. It should be noted that the client can follow the entire process on the additional LCD screen in front of him. After entering the initial data, the seating plan appears before the client. Seating plan - occupied seats (sold) are automatically generated based on previously entered data and marked in red. The seating plan is shown in Figure 5.

Figure 5: Seating plan (Automatically generated)

Empty seats remain unmarked with colour. At the same time, this gives the worker a much faster visual representation of the free places, so he can react quickly and possibly recommend a seat to the client. In this way, one of the problems that often occurs is manual entry. Namely, the duplication of sold places was eliminated. After entering the necessary data and defining the seat, the workbook automatically switches to a new tab sheet where the ticket is given to the client as proof of purchase (all required data is already generated on the ticket). The appearance of the ticket with all the data is shown in Figure 6. Also, according to pre-defined criteria, the ticket is printed in two copies - one that is given to the client (visitor) and the other that remains for internal records. In this way, there is no possibility that the institution does not have a copy of the ticket. When the ticket is printed, the ticketing process is complete.

Figure 6: Theate/cinema show ticket (Automatically generated)

As seen in Figure 7, the theatre/movie ticket sales process has been redesigned to provide the fastest and highest quality service to the customer and, to the greatest extent possible, for the employee to complete the process more easily and quickly. Bottlenecks that appeared in the process before the redesign are now resolved. The possibility of making a mistake during the process is minimised. After the entire process was redesigned and new solutions were implemented, relevant measurements were made, and it was established that the process was faster, safer (in terms of the possibility of error), and more efficient.
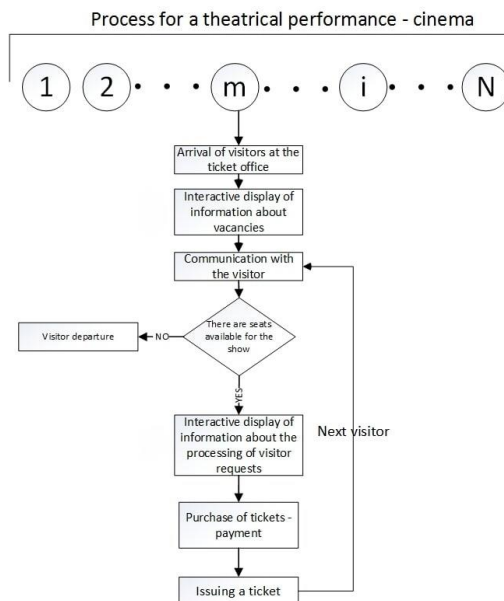

Figure 7: Block diagram (After)

4. DISCUSSION

After the implemented changes in the realisation of the operation of selling tickets in the process of showing a cinema show, there is a noticeable increase in the efficiency of work. Workers now carry out work in a relaxed manner without pressure. Training workers for the job is elementary. Errors during the first research of the developed solution have been eliminated. This does not mean it is impossible to make them and that the current solution is perfect. Precisely the opposite happened. Immediately after implementing the presented solution, new ideas and possibilities for improving the existing system were developed. Compared to the previous way of working, data that is "alive" and can be further performed is obtained. Based on the data collected, the statistics of each performance in all periods of duration can be seen very quickly. Clear key performance indicators (KPI) parameters are obtained. There was no interest in statistical data processing in the previous situation because it took much work to collect them in the first place. Also, their accuracy could have been more debatable.

5. CONCLUSIONS

As can be seen from the above results, the goal outlined at the beginning of the work has been achieved, which is to redesign, improve and simplify the process of ticket sales in the Cultural Center "Lukijan Musicki" Temerin and at the same time eliminate the possibility of loss/error. Significant improvements can be observed by comparing the way of working before and after the implemented changes. Previously, the entire process was done manually, it took a long time, and without clear instructions on how to do it, there was a high possibility of making a mistake during work. By designing and creating software (custom Excel workbook), the whole process becomes faster and, cleaner, more efficient while reducing the possibility of error. The entire procedure of ticket sales is standardised and automated. After this initial process improvement, the plan is to connect the custom Excel workbook to a relational database such as Microsoft Access.

6. ACKNOWLEDGMENTS

7. REFERENCES

Corporate finance institute. (2023, 7 5). Retrieved from Corporate finance institute: https://corporatefinanceinstitute.com/resources[3]

Gudergan, G./Hoeck, H. (2002). *Service standards for global markets.* Berlin: DIN German Institute for Standardization.[1]

Cultural centre "Lukijan Mušicki". (2023, 7 8). Retrieved from KC Temerin: www.kctemerin.org.rs[3]

Mörschel, I. (2002). *A reference model for the development of Service standards: Service Standards Engineering.* Berlin: German Institute for Standardization .[1]

Schauerte, H. (2007). *Summaries of the speeches Innovations and marketability through standardisation.* Berlin: Federal Ministry of Economics and Technology, Berlin.[2]

Schlesinger. I,, and J, Heskett. (1992). *De-Industrialing the Service Sector: A new model for service firms:* New York: McGraw-Hill.[6]

Schuh, G. (2007). *Service standards - success in the Competition with customised solutions.* Aachen.[2]