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management**

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## **THE ROLE OF MANAGERS IN LEAN MANAGEMENT PROCESSES**

### **Abstract**

According to D. Woodhouse "organizations exist for a purpose, sometimes set out in a mission or objectives; then they plan and act in ways intended to achieve these objectives"<sup>1</sup>. Defining and documenting of processes and their interaction is basic prerequisite for effective management of the organizations. Therefore, idea of the lean management which is based on processes risks and weaknesses analysis is very useful. The main aims of this paper are to describe common features of processes and documents lean management and to highlight the essence of the documents and leadership for lean concept implementation. The use of lean management concept has to be combined with a total value chain strategy particularly considering process management supported by the documents management and lean managers on different stages of an organizational structure.

### **ROLA MENADŻERÓW W PROCESACH LEAN MANAGEMENT**

#### **Streszczenie**

Według D. Woodhouse „organizacje istnieją w jakimś celu, czasami określonym w misji lub celach strategicznych, później planują i prowadzą działania zmierzające do osiągnięcia tego celu”<sup>1</sup>. Definiowanie i dokumentowanie procesów i ich wzajemne oddziaływanie jest podstawowym warunkiem efektywnego zarządzania organizacjami. Dlatego idea lean management, która opiera się na analizie ryzyka i słabych stron procesów jest bardzo przydatna. Głównym celem artykułu jest identyfikacja cech procesów „odchudzonego” zarządzania i ich dokumentacji oraz podkreślenie istoty przywództwa dla prezentowanej koncepcji lean. Zastosowanie koncepcji lean management musi być połączone ze strategią tworzenia łańcucha wartości szczególnie biorąc pod uwagę proces zarządzania wspomagany zarządzaniem dokumentacją oraz działalnością kierownictwa (lean managers) na różnych szczeblach struktury organizacyjnej.

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<sup>1</sup> Woodhouse, D.: „*Quality Improvement through Quality Audit in Quality in Higher Education*” Volume 9, Issue 2, 2003.

## Introduction

For the past few years almost every manufacturing industry has been trying to get 'lean'. A headlong rush to become lean also resulted in many misapplications of existing lean manufacturing tools often due to inadequate understanding of the purpose of tools.<sup>2</sup>

Lean manufacturing is perhaps the most powerful model devised to-date for efficient design and management of large-scale operations. It integrates simple low-tech tools with advanced production / information technology and unique social / management practices to create highly responsive systems that consistently produce top quality output at minimum cost.

Lean is a revolution, it isn't just about using tools, or changing a few steps in our manufacturing processes, it's about the complete change of our businesses – how the supply chain operates, how the directors direct, how the managers manage, how employees (people) go about their daily work.<sup>3</sup> Nowadays, “lean” may no longer be fashionable but its core principles (flow, value, pull, minimizing waste, etc.) have become the paradigm for many manufacturing (and service) operations<sup>4</sup>

The concept of lean manufacturing involves modeling of the organization, the analysis of these models to identify actual and potential loss of value. Documents management is based on the reasonable documentation of processes and activities. The paper illustrates how to use processes documentation to effectively manage lean manufacturing.

## Lean manufacturing managed by documents

Analysis of the publications of domestic and foreign researchers on modern management leads to the conclusion that the main concepts in the management of industrial enterprises is now lean manufacturing along with documents management. Comparison of these two concepts shows that they have more common features than differences (Fig. 1).

Thus, improvement of the efficiency of any organization depends on two groups of means: a modern set of tools to manage organizations (lean production tools) and managers' ability to make the employees able and willing to set goals and achieve the defined goals (procedures creation). Therefore, usage of the each tool should be clearly defined and easy to use.

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<sup>2</sup> S. J., Pavnaskar, J. K. Gershenson, and A. B. Jambekar., “*Classification scheme for lean manufacturing tools.*” International Journal of Production Research 41.13 (2003): 3075-3090.

<sup>3</sup> Melton, T. „*The benefits of lean manufacturing: What lean thinking has to offer the process industries.*” Chemical Engineering Research and Design 83.6 (2005): 662-673.

<sup>4</sup> Lewis, M. (2000) „*Lean production and sustainable competitive advantage*”, International Journal of Operations & Production Management, Vol. 20 Iss: 8, pp. 959-978

The Figure 1 streamlines similar components of lean management and documents management: the same goal (improving the efficiency of the organization); streamlining activities through specific tools; human factor that determines the effectiveness of the organization. The concept of process in the field of competitiveness of the organizations is today mirrored in the prerequisites of normative quality, as the new ISO 9001: 2008 standard encourages a process approach to quality management<sup>5</sup>. The process approach to management of organizations has become even more effective by the revolution in information technology, where IT solutions help to manage the entire process, rather than in a single unit, since at any point in the process you can get the right information, quickly process it and work out the corrective action. Process mapping helps to prevent the duplication of function and indicate bottlenecks, the absence or incompleteness of information; analyze quality of individual transactions; define automation capabilities. In other words, it can be argued that the process approach to management of organizations is a prerequisite of "lean production" principles implementation. The term "lean production" focuses on getting rid of the organization from any waste in the production process, while process management is focused on all the activities in organization, including non-value-added processes.

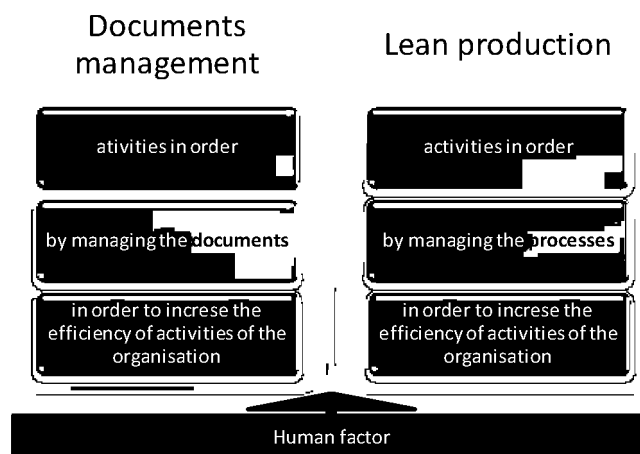


Fig. 1. Key concepts of modern management

Source: own work

Based on the international standard ISO 9001 requirements on process management, process approach can be defined as the application of a system of processes in the organization, along with the identification and interactions between the processes. In order to

<sup>5</sup> Biazzo, Stefano, and Giovanni Bernardi. „Process management practices and quality systems standards: risks and opportunities of the new ISO 9001 certification.” *Business Process Management Journal* 9.2 (2003): 149-169.

ensure that the process approach works, documents serve to provide it. Creating of documents and their content – this is the area of document management, which is based on three basic conditions. The aim of documents management is to systematically create highly regulated rules that every employee can use independently, while the effective document is focused focus on the most important areas of activity. By establishing management system companies can manage the complexity of a global operation so that they can leverage these opportunities where it makes sense for their business. Within times of economic crises each organization makes its best to effectively manage their internal and external processes.

On the other hand, the key role of standardization as a tool of lean manufacturing in the workplace is that it creates routine procedures that managers and employees can follow to complete tasks and responsibilities. Based on personal experience S. Ho believes, that standardization and discipline at the workplace are basic requirements for producing high quality products and services, with little or no waste, while maintaining high levels of productivity<sup>6</sup>. This is also confirmed by Wilson, who in addition place great emphasis to find and eliminate the root causes of variation to achieve the highest routine procedures, as Ho mentioned. Moreover, Wilson points out link between standardization and problem solving. He says that the skills required for good problem solving overlap almost 100 percent with the skills of standardization. Mentioned facts in figure 2 are presented<sup>7</sup>.

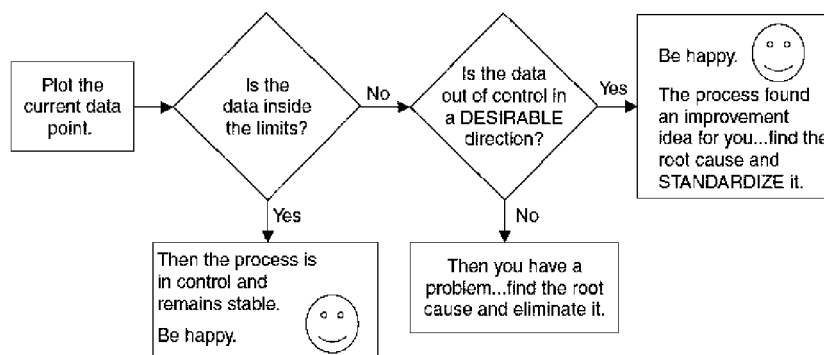


Fig. 2. Problem solving and standardization

Source: Wilson L. „*How to implement Lean manufacturing*”. The McGraw – Hill Companies (2010).

Of course, basically the level of detail of documents depends also on qualification of the worker. Multi skilled workers are required to staff the production facilities, for two major reasons. Firstly, to achieve process improvements it is often necessary to reduce or change the

<sup>6</sup> Ho, S. „Workplace learning: the 5-S way.” *Journal of Workplace Learning* 9.6 (1997): 185-191.

<sup>7</sup> Wilson L. “*How to implement Lean manufacturing*”. The McGraw – Hill Companies (2010).

elements of the work. This in turn often requires a redistribution of the work. In addition, work cells are often designed so they can be operated by one, two, three, four, or five people, for example, depending on changes in demand. If the workers are not multi skilled, the dynamics of Lean are lost. Multi skilled workers are at the heart of flexibility in Lean Manufacturing.

Description of simple work carried out by qualified personnel can be carried out by technical drawing or even by a single image. It is assumed that the skilled worker knows how to achieve the desired result. Vice versa, simple tasks description by means of complex instructions usually has a negative impact on the efficiency of work instructions. Such complex descriptions are essential in carrying out of complex operations, where it is extremely important to observe the established sequence of steps when carrying out the activities. The main aim of documented procedures is teach someone how to reach the required result.

Generally, it can be stated, that good documents show evidence of analysis of problem situation, awareness of unique characteristics of intended audience and implications for instruction, selection and implementation instructional strategies consistent with analysis of the learning situation and intended learners, selection and justification of appropriate medias, and evidence of both formative and summative evaluation strategies.

The activities of lean manufacturing should be integrated to the management system, managed by the documents of different levels. Documents must satisfy both the requirements of the concept of lean manufacturing and requirements of documents management. The composition of the documentation that describes the organization must consist of a generic process model of the organization, which shows all the processes of the organization and their interactions (macro process), and processes maps. This model should be built in a value chain. The value chain integrates all the activities of the organization from the pre-production stage, finishing with delivery of product to the customer, customer service and satisfaction surveys. The aim of such models (process maps) creation is consonant with lean manufacturing goals: to ensure a gradual and sequential decision making in the value chain without interruption, loss and congestion.

Processes in organization should fully support vision implementation. The creation and establishment of a clear and compelling vision is useful to guide the organisation through change, and the pre-requisite set of guidelines is included for formulating a vision. Documents are also proffered for implementing change for political or organisational or people-oriented actions. Throughout the change process, the role of the leader is a key<sup>8</sup>.

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<sup>8</sup> Yukl, G. A., and Heather, H. „Leadership in organizations.” (2002).

## The role of leadership in lean concept application

Having processes mapped and well-documented is one of the key aspects of lean concept implementation. However, there is one more critical issue which directly influences lean production concept efficiency in an organization. In order to make lean concept systematically work, the organization has to engage in process improvement every employee touching value streams. As far as many organizations nowadays (along with problem with not clearly identified processes) are struggling with the problem of not clearly defined purposes in terms of solving the customer's and internal problems and the fact, that people are not engaged in optimizing the whole value stream rather than the point where they work; thus leadership is the second key critical factor in lean concept implementation process. According to Wilson, the biggest of all is the ability to mold company's culture to not only accept but invite and even encourage change<sup>9</sup>.

Lean production principles implementation and using of lean methods tools help to clearly identify and solve problems. The tools implementation leads to value stream identification and processes interaction more clear.

One of the tools of lean implementation is value stream mapping (VSM). The **VSM** method belongs to the first ones that are applied in the concept of lean production. Implementation process is difficult process, which consists of a number of processes, as is shown in the figure 3. It is possible to reveal areas in which improvements start through VSM. This method reveals most of the waste in logistics. The most important part of the implementation is to determine VA (Value added) and NVA (Not Value Added) processes.<sup>10</sup>

According to Womack and Shook lean management addresses the process problem by assigning a leader to each value stream<sup>11</sup>:

1. Makes current condition of entire process clear to everyone.
2. Proposes a better "future state" process and takes responsibility for implementing it.
3. Makes condition of the new "current state" clear to everyone.
4. Proposes a still better "future state".

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<sup>9</sup> Wilson L. *How to implement Lean manufacturing*, The McGraw – Hill Companies (2010).

<sup>10</sup> Bednár, R., Horňáková, N., Vidová, H., *Implementation procedure of Lean methods in logistics processes*, 22nd International Conference on Metallurgy and Materials, (2013) Ostrava, s. 6.

<sup>11</sup> Womack, P. J., Shook, J. *Lean management and the role of lean leadership*, online [http://www.lean.org/images/october\\_webinar\\_project\\_slides.PDF](http://www.lean.org/images/october_webinar_project_slides.PDF)

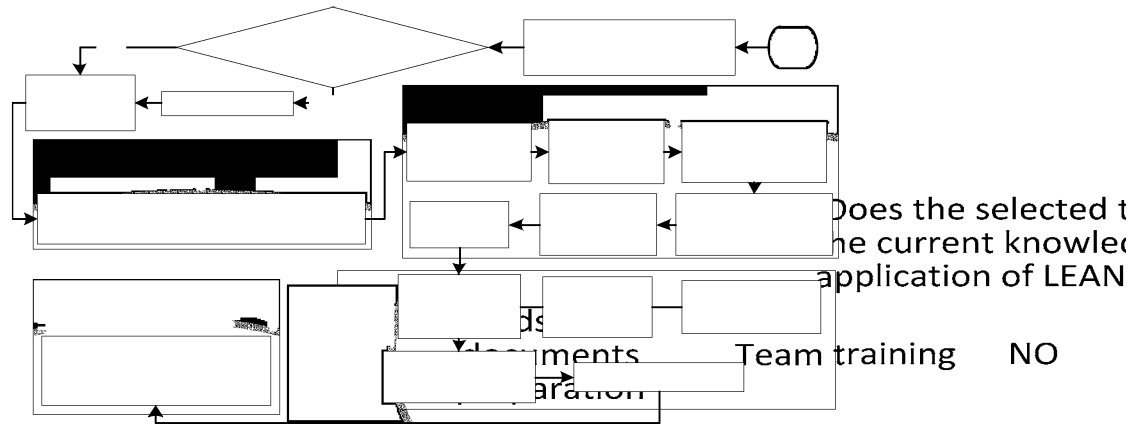


Fig. 3. The sequence of VSM implementation steps

Source: Bednár, R., Hornáková, N., Vidová, H., *Implementation processes of lean methods in logistics processes*, 22nd International Conference on Metallurgy and Materials. (2013), Ostrava, s. 6.

Due to the fact, that organizations manage people in terms of organizational structure, managers usually get oriented on vertical flows in organizational structure improvement. However, horizontal relationships between processes can get lost. Thus, lean concept oriented organization have to change their approach to management and to get more oriented on horizontal flow of value stream to customer with the strong support of other processes (supporting and managerial processes) in the organization.

Lean managers are responsible for the processes efficiency leading to creation of high-quality products focusing on waste reduction. The functional managers, (e.g. finance, quality, production, maintenance, etc.) role in lean concept is support for lean managers. Functional managers are responsible for people in their department who perform their activities better to better support the value steam. Lean managers create the culture in the organization to get each person to take initiative to solve problems and improve his or her job. Functional managers assign tasks to employees and motivate their subordinates. Besides, the role of lean managers is to ensure that each person's job is aligned to provide value for the customer and prosperity for the company.

Selection of product family representative

Selection of product family representative by ABC analysis or similarity of technological processes

Implementation

A proposal of actions and changes based in action plan

Assess the future state value stream man





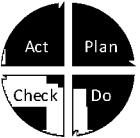

	Senior managers	Middle managers	Supervisors	Lean coordinators
	<i>Create vision, strategy</i>	<i>Cooperate on strategy creation, set targets for departments</i>	<i>Provide results monitoring</i>	<i>Detect key processes</i>
	<i>Provide resources</i>	<i>Provide resources, set targets for department</i>	<i>Coordinate actions - departments results orientation</i>	<i>Coordinate actions - value stream and customer orientation</i>
	<i>Provide resources</i>	<i>Results monitoring in relation to strategic targets</i>	<i>Employees results monitoring</i>	<i>Process flow analysis and waste monitoring - results</i>
	<i>Provide resources</i>	<i>Set operational targets</i>	<i>Reach operational targets</i>	<i>Process optimization - actions coordination</i>

Fig. 4. Managers responsibility in lean organizations  
Source: own work

Lean management as well as process management is based on measuring of the results. While, it is assumed, that financial results (as a key reason for organization existence) are the results of all the processes management and reflect the past performance of the processes. Lean management is based on managing of present processes performance and therefore is more effective than vertical management model by organizational structure (Fig. 4). The key to understanding how to implement Lean successfully is to realize, that Lean leadership is an integral part of the Toyota Production System (TPS).

## Conclusion

Lean as a key concept of modern organizations which focus at the customer and make their best to flexibly satisfy customer's needs is based on processes analysis and optimization. Therefore, the processes mapping and processes documentation should become the basis for the lean manufacturing principles implementation and should be supported by managers on different organizational levels. Considering lean activities as processes or part of processes as well as making lean activities a part of the organizational strategy supported by managers

make lean concept work systematically. Similarly, the ambiguity of lean production in practice means that the implementation process can create strategic resources to underpin sustainable competitive advantage. But, of course, Implementation is not easy in any way, because every company is an individual entity, where individual managers and operators work.

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