



EXTERNAL CONDITIONS AND IMPLEMENTATION OF THE LEAN MANAGEMENT CONCEPT IN THE ENTERPRISE

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Abstract: Lean Management is one of the most popular management concepts today. Its popularity is increasing due to ever higher performance indicators of its organization. Thus, more and more companies are implementing Lean Management's vision of operational excellence as an effort to implement this concept. The concept is particularly popular among automotive companies, where they come from. The purpose of this article is to identify and characterize the external circumstances of implementing the Lean Management concept. In addition, as part of the empirical research, an attempt was made to determine the impact of individual, previously identified external conditions on success in implementing the Lean Management concept. Completed with conclusions.

Keywords: external conditions, Lean Management concept, implementation

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Introduction

Implementing organizational changes that take the form of, among other things, the implementation of new management concepts often fails because there is no systemic model for implementing these concepts. The implementation of a management concept in addition to the systematic, phased implementation process should also entail the conditions accompanying the implementation of subsequent stages. It should be noted that there is a wide spectrum of factors determining the success of Lean Management. These factors are systemized according to different categories, most often in terms of external and internal determinants. The most commonly considered factors in the scientific knowledge as those that determine the process of Lean Management are the following:

- the capital of an enterprise,
- level of knowledge, education and creativity of human resources,
- ability to implement the latest technology and information systems,
- attractiveness of the market sector,
- the number of competitors in the sector,
- the ability to produce rare and highly qualified services and products,
- skillful and efficient management of staff resources,
- ability to solve conflicts,

- effective promotion and advertising of products, services,
- many distributors in the sector,
- high level of profitability of the company.

The objectives of this paper are: identification of external conditions that determine both the initiation of actions aimed at implementation of the Lean Management concept and the effectiveness of its implementation. Then, based on the empirical research, an attempt will be made to answer the question: Which of the identified factors are particularly relevant in the context of the production staff and which for the managers?

The essence and assumptions of the Lean Management concept

The Lean concept is an improvement of the processes under the Deming concept, which the Japanese managers have worked on for the PCDA cycle, so that it can be applied at all stages of management and in all situations (Imai 2007, p. 86). The concept of wasting and the fight against wasting are in the home literature of the subject, which manifests itself in the elimination of all activities which entail labor costs which bring no value (Matwiejczuk 2009, p. 59). The sources of wasting are the widespread non-productive losses (Liker, Meier 2011, p. 87-93):

- production of products not ordered by the customer, which results in an increase of stocks of finished products,
- the idle time of machines and people on deliveries that are delayed or the next steps in the process, which are caused by bad organization of work,
- unnecessary transport of materials between the areas of operation, which refers to the unnecessary movement of machinery as well as the movement of goods and raw materials,
- excessive time to perform specific operations due to poorly designed tools and products, rapid hardware wear, failure, contamination, defects in quality,
- excessive stockpiles that freeze money for the purchase of packaging or raw materials, they increase the risk of damage and hinder the quality control of stored products,
- moving workers to find parts, manuals, tools or assistance refers to poor work organization and poorly designed workstations,
- errors or mistakes that require correction or repair referred to the cost of scrapping faulty products, manufacturing disruptions, and time consuming complaints.

Consequently, wastes in every enterprise manifests the following phenomena: excess inventory, redundant movements, unnecessary transport, waiting, overproduction, errors in the process, and production failures and errors.

Identification of external conditions when implementing Lean Management

It is well known that the environment influences the shape and the strength and direction of the activities of all the elements that exist in it. In other words, the

environment is conditioned by the circumstances that affect all the businesses in it (<https://sjp.pwn.pl/sjp/...>). These conditions can be beneficial and represent a kind of opportunity, or disadvantage and take the form of barriers or even threats. If we are talking about conditioning (or conditions – the most commonly used synonym), it should be emphasized that these conditions forcefully affect the existing in their zone of influence of the individual becoming sometimes necessary requirements (<https://sjp.pwn.pl/szukaj/...>).

Identification of macro-economic areas and their impact on businesses are an important topic in both Polish and foreign scientific management, especially strategic (Ślusarczyk 2016, p. 12). Authors taking up the above issues can be represented primarily by M. Romanowska, G. Gierszewska, J. Lichtarski, Z. Pierścionek, M. Moszkowicz, A. Stabryła and R. Krupski. M. Romanowska and G. Gierszewska claim that the environment creates unequal conditions depending on the region, industry, sector, size of the enterprise and the form of their ownership (Gierszewska, Romanowska 2002, p. 38). The situation of the company is influenced by many different factors from the environment and their influence overlap each other by creating interactions. When implementing Lean Management as in the case of enterprise strategy development, full analysis of macro-factors is neither feasible nor necessary. It is up to you to have the experience and knowledge of the current macro-level to select the most important influences and only limit the analysis to them (Pierścionek 2011, p. 107).

The environment used to be divided into distant - macroeconomic and a closer environment also referred to as a competitive or microeconomic. Changes in the larger, distant environment affect the operation of the company, while the company has no influence on them, an example may be demographic changes, legal regulations or the political situation (Kozmiński, Piotrowski 1996, p. 76). The situation is different in the case of a closer environment. There is interaction between the closer environment and the enterprise, they can change and shape each other. Typical elements from the nearer environment are the recipients, competitors or suppliers (Obłój 2007, p. 208).

Macroenvironment factors can be assigned to several areas: political, legal, economic, technical and technological, demographic, social and international. Each of the above-mentioned areas affects the company's legal form, ownership structure, technologies used, resources and sources, processes, production and IT technologies used, and the direction and dynamics of changes undertaken, including organizational changes aimed at implementing new ones. management concepts (Seroka-Stolka et al. 2017, p. 128).

According to Skonieczny, the macro-environment factors that significantly determine the activities undertaken in the company should be considered first of all: state policy and legislative acts aimed at creating favorable conditions for operations made by international corporations in Poland (Skonieczny 2005, p. 225-230). These entities, apart from capital, bring organizational practices within the framework of applied management concepts together with tools. Therefore, it can be concluded that the area of Poland is provided with the knowledge and practice of the Lean concept implemented with foreign capital. The production

facilities of international corporations opened in our country are characterized by top-down organizational practices and applied management concepts (Brzóska, Jelonek 2015, p. 52). Most often, the new plant is opened with the help and co-operation of existing employees of corporations delegated from already operating foreign production plants. This solution facilitates and accelerates the implementation of the Lean concept. In addition to specific behavior patterns from industrial entities, other factors of the close environment, which include emerging behavioral standards in a given region, have a significant impact on the enterprise, and even a certain local inclination to take the risk related to introducing organizational changes (Florida 2010, p. 250-267). The amount of subsidies and grants for businesses, inflation and demographic issues are also important, such as the scale of unemployment or the level of education of the population (Sopińska, Wachowiak 2016, p. 21-22). In turn, Czupich in his research identified the factors of distant and closer environment conditioning not only the implementation of the management concept but also widely understood entrepreneurship. The main determinants of the development of enterprises are, above all, the factors of proximity, which include the high socioeconomic level of the region or the traditions of entrepreneurship and innovation in the region (Czupich 2012, p. 211). These factors are important for implementing changes to the new management concepts, as the overall propensity to change also translates into the tendency to change management concepts. Equally important from the point of view discussed herein are three aspects of the closer environment, which include customers, suppliers and competitors (Skowron-Grabowska, Mesjasz-Lech 2016, p. 22-28). Lean terms and conditions almost require the organization to undertake broad cooperation and mutual initiative with both suppliers and customers. These activities are aimed at strengthening mutual cooperation and collective work on raising the standards of offered products (products and services) and continuous improvement of processes (Pabian 2015, p. 7-16). It is worth noting here that both the supply chain and the industry themselves provide the interpenetration of the management and organizational practices used in the units (Kościelniak 2016, p. 65-73).

When analyzing the development of the Lean Management concept it is not difficult to see that it was developed and developed in the automotive industry. The spectacular successes in terms of operational efficiency of the car industry have stimulated Lean practices in more production sites, more often in the same geographical area. As a result of the influence of the environment closer to shaping the structure and even the profile of the organization's activity is also the creation of specific geographical areas characterized by the production of a specific product range (cooperation, cluster structures). This is facilitated by the local atmosphere as well as the skills and qualifications of people living in the area, enhanced by the rotation of employees between individual production sites (Skowron-Grabowska, Tomski, Dunay, Illes 2016, p. 10-14).

Effective implementation of various practices and tools that fit into the Lean concept are described and documented in many industries, but most often in addition to the automotive industry they are found in the computer and aerospace

industries. Researchers have explored the possibilities of applying Lean practices in various sectors. Based on the research conducted, they have proved that there are external factors which determine the success of the implementation of this concept in economic practice. It is worth pointing out that there are studies that say that in every sector, Lean management brings the expected benefits. External factors that are the main barrier to implementing the Lean concept are: variable economic conditions, high uncertainty of demand – production risk, high diversification of production in the sector, organizational models characterized by rigid organizational structures. Cooney's research makes it clear that the nature of production in the sector should determine the choice of a specific production strategy and a leading management approach. In addition, his research has indicated that it is a mass-production push system rather than a suction system that is particularly recommended for automotive component manufacturers because of the instability and diversity of customer demand and the customer relationships which get increasingly shorter (Cooney 2002, p. 1130-1147). Katayama and Bennett also pointed out that manufacturers who operated their businesses in line with Lean Management had faced problems related to diversity and reduced demand for the product (Katayama, Bennett 1996, p. 8-23). All started to wonder whether Lean's success in the 1990s was not just the external factors such as the dynamic development of the industry, the absorbing market, the favorable economic conditions of Japan comparing the rest of the world.

The influence of identified external conditions on the effectiveness of the implementation of the Lean Management concept – empirical research

The aim of this article is to try to determine the strength with which external factors determine the success of Lean Management. In order to achieve this goal, surveys were conducted using the questionnaire survey. The selection of companies was not random but their number was small, so the survey is of a contributing character and may be the initial stage of wider research. The research was guided by the following assumptions: the surveyed companies are managed according to the Lean Management concept (in each of the companies surveyed, at least five Lean tools are used, ie, 5S, Kanban, SMED, Just in Time, and Poka Yoke, moreover an organizational unit for everyday activities aimed at achieving operational excellence through continuous improvement activities is in each of the companies).

Fourteen companies from the automotive industry (four large and ten medium enterprises) joined the study. In each company, questionnaires were filled in with both direct production staff and middle managers. A total of 628 correctly completed questionnaires were received – 596 from direct production staff and 32 from middle management. The research was carried out in September 2017, all companies are located in Czestochowa and in Czestochowa powiat (county).

The questionnaire contained 11 previously identified key external conditions that stimulated both initiation and effective implementation of the Lean Management concept. Respondents were asked to identify up to three of their most important external conditions. At the same time respondents had at their disposal three points that they could freely dispose of (they could admit, for example, to each of the three selected factors, one point or one factor, three points). The research results were compiled and analyzed taking into account the division due to the occupied position

Table 1. Distribution of responses in the assessment of the impact of particular conditions on initiation and effective implementation of the Lean Management concept

No.	Condition	Production personnel	Middle managers
1.	High socioeconomic level of the region	79 (5%)	4 (4,2%)
2.	Entrepreneurship and innovation traditions in the region	89 (5%)	2 (2%)
3.	Applying tools and concept assumptions in economic practice among enterprises in the region	57 (3%)	12 (12,5%)
4.	Initiatives stimulating entrepreneurship and innovation in the region undertaken by self-governments	132 (8%)	4 (4,2%)
5.	The ability to improve professional qualifications based on available programs and projects	445 (24%)	25 (26%)
6.	Availability of EU support	3 (0,1%)	2 (2%)
7.	Availability of IT, consulting support	314 (17,5%)	13 (13,6%)
8.	Activity of units with foreign capital within the region	242 (13,5%)	13 (13,6%)
9.	Appropriate educational programs in the mass media	373 (21%)	4 (4,2%)
10.	Higher education of the inhabitants of the region	25 (1,3%)	2 (2%)
11.	Scientific and research activities and cooperation between science and practice zones	29 (1,6%)	15 (15,7%)
Total		1788 (100%)	96 (100%)

Source: Own study based on the research

By analyzing the results of the research, many conclusions can be drawn regarding the assessment of particular conditions impact on initiation and the effective implementation of the Lean Management concept.

- Production staff recognize that Lean Management is the most important stimulus and conditioning factor for implementing the Lean Management concept, with the ability to increase professional qualifications based on available programs and projects (24%). It is therefore fair to say that companies focused on implementing Lean Management are concerned about the need for training programs and projects that are closer to the organization where employees will be able to acquire new skills while minimizing the fear of change as a major source of resistance.
- Fear of change and importance of activities aimed at providing the necessary information is also confirmed by the following selection of respondents, who as the next factors supporting the effectiveness of implementing the Lean management concept have identified appropriate media education programs (21%) and the availability of information, advisory, consulting (17.5%).
- The production staff also pointed out that the applied patterns and economic practices are also significant, which results directly from the activity of units with foreign capital in the region – 13.5%.
- As for middle managers, the same as the production staff, the most important factor was the ability to improve their professional qualifications based on the available programs and projects (26% of indications), which may also indicate the need to continuously improve their qualifications among these employees.
- The following are equally assessed among management personnel in terms of their role in initiating and stimulating activities aimed at implementing the Lean Management concept: the availability of information, consulting (13.6%), and activities of units with foreign capital in the region (13.6%).
- Differences in perceptions in both groups are noticed in two cases:
 - educational programs in the mass media, which are important only for production workers and not for managers, and
 - application of tools and concepts in business practice among enterprises in the region, which are important for managers and not for production workers.

This difference is probably due to a different view of the phenomenon resulting from the multiplicity of sources of information about today's popular tooling solutions that fit into the applied management concepts, including Lean Management.

Conclusions

The implementation of the Lean Management concept is conditioned by many factors from the beginning. These conditions come from the company itself, shaping its organizational culture as well as its environment. Macro factors and competitive environment affect the company's strategy, including the choice of management concepts. Research has shown that a closer-competitive environment

largely determines the practices that are practiced in companies. Moreover, the region, its development and initiatives undertaken by local governments in the context of training and development programs for citizens are crucial. It is also important to create favorable conditions for the activities of companies with foreign capital, which often involve new solutions in the organization and management of enterprises.

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UWARUNKOWANIA ZEWNĘTRZNE A WDRAŻANIE KONCEPCJI LEAN MANAGEMENT W PRZEDSIĘBIORSTWIE

Streszczenie: Koncepcja Lean Management należy do powszechnych współcześnie koncepcji zarządzania. Jej popularność wzrasta za sprawą coraz wyższych wskaźników efektywności organizacji ją stosujących. Zatem coraz więcej przedsiębiorstw wdraża Lean Management. Zachęcone wizją doskonałości operacyjnej podejmują wysiłek ukierunkowany na wprowadzenie niniejszej koncepcji. Szczególnym uznaniem cieszy się ona wśród przedsiębiorstw automotive, skąd się wywodzi. Celem niniejszego artykułu jest identyfikacja oraz charakterystyka zewnętrznych uwarunkowań wdrażania Lean Management. Dodatkowo w ramach realizowanych badań empirycznych podjęto próbę określenia wpływu poszczególnych, wcześniej zidentyfikowanych uwarunkowań zewnętrznych na osiągnięcie sukcesu w zakresie wdrożenia koncepcji Lean Management. Całość zakończono wnioskami.

Słowa kluczowe: uwarunkowania zewnętrzne, koncepcja Lean Management, wdrażanie