

Doctoral (Ph.D.) dissertation thesis

**ANALYSIS OF THE CONNECTION BETWEEN
LEAN TRANSFORMATION AND ORGANIZATIONAL
STRUCTURE**

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1. BACKGROUND, OBJECTIVES AND PRESENTATION OF THE RESEARCH HYPOTHESES

During my consulting work over the past 20 years, I have experienced steadily more companies in Hungary that started or restarted lean transformation, through which they tried to transform their business model and the operational procedures according to lean principles and practices. In the meantime, lean management has taken its place in academic management science as one of the major contemporary management approaches. Methodological frameworks, transformation program, and a wide range of assessment techniques are available to researchers and experts.

The scientific approach to lean is characterized by not only popularity and actuality but contradictions as well. The effectiveness of lean transformation and the measures of the effects of lean on business performance reveal a mixed picture. Despite its 30-year history, there is still no scientific consensus regarding the definition and organizational framework of lean. PETERSEN (2009) stated that the definition of "lean production" does not exist in literature. MIRDAD – ESEONU (2015) examined lean nomenclature used by practicing experts and in literature. They claimed that the ambiguity of lean conceptions could cause the failure of lean transformation. TOARNICZKY et al. (2012) confirmed that a generally accepted definition of lean management had not been defined until today. In the literature review of BHAMU – SANGWAN (2013) – based on 209 selected, relevant scientific research – 33 definitions of lean management were found between 1988 and 2012. RENSTRÖM – NISS (2015) articulated that although lean concept is globally wide-spread both in the industrial and service sector, only few companies succeeded in its implementation. It seems that only 10% or even less of the companies that have started lean transformation can reach their goals.

Researchers are increasingly focusing on the examination and analysis of such organizational environments in which lean transformation is possible. The starting point of this research was that there are open points in the analysis of the interrelation between the transformation of organizational structures and lean transformation.

The research of BHASIN (2011) showed that in cases of lean transformation, the aspect of organizational development was often opted out. However, this aspect could make such

mechanisms possible which "hold things together". SHAH – WARD (2003) stated in their paper on the effect of organizational characteristics on lean management that the consideration of the organizational environment was typically missing from research dealing with the practical implementation of lean production. NORDIN et al. (2012:102) claimed, "Much of the reported literature had discussed lean manufacturing transformation in great detail, but very few had discussed it from the perspective of organisational change management."

These open points create a demand for analysing the link between the effectiveness of lean transformation and the phases of organizational life cycles, the operation of lean teams as independent organizational departments, as well as the strength of the forms of decision-making and communication typical of learning organizations. The other reason for the definition of the hypothesis of this research is to examine the questions, which have been formulated in me due to my professional work over the past 20 years, with evidence-based, academic analysis.

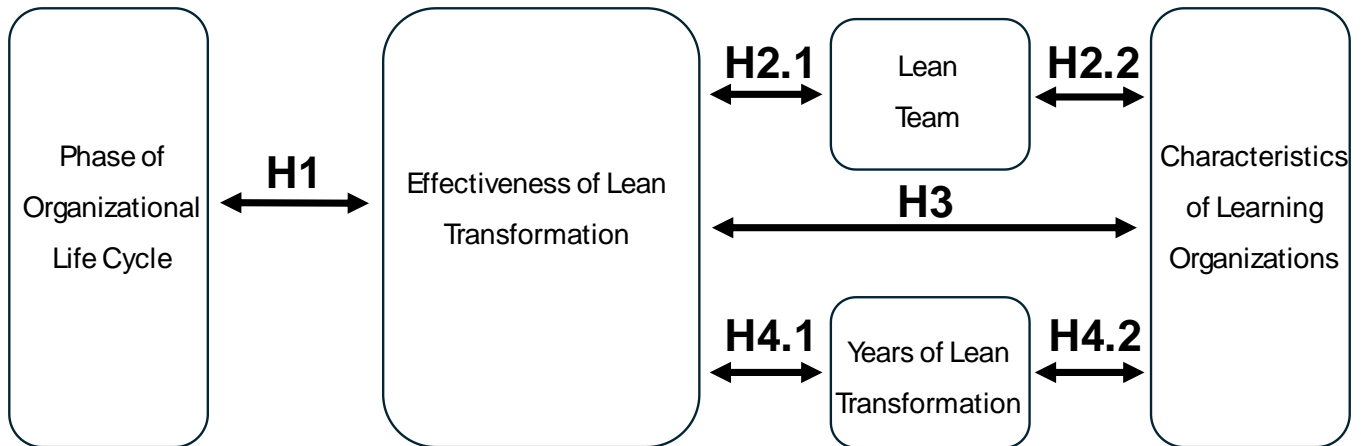
The main objective of the dissertation was to find a connection between successful lean transformation and specific types of changes affecting the organizational structure. The main aim of the thesis was to define whether the creation and integration of a lean team into an organization, the phases of organizational life cycles, the forms of decision-making and communication typical of learning organizations, as well as the number of years spent with lean transformation are in connection with the effectiveness of lean transformation or not.

The further aim of the thesis was the creation of the duties and responsibilities of a full-time lean leader as well as criteria that enable the success of lean transformation and contribute to the execution of successful lean transformation for experts and CEOs at their organization.

Research questions and hypotheses

In the course of the research, a total of six hypotheses were formulated in the system of the relationship between lean transformation and the organizational environment in four areas of study, and I created the research model from their logical relationships (Figure 1).

Figure 1: The hypotheses of the research in the structure of the research model



Source: own editing

The validity and timeliness of the research questions were confirmed by the literature. LIKER (2004) highlighted that the basis of long-term lean success is how the top management can support the process of becoming a learning organization. It was also stated that the untapped potential of employees had been the eighth waste (complementing the defined seven wastes of lean). TORTORELLA – FOGLIATTO (2017), examining the connection between the characteristics of leadership and lean transformation, articulated that in such an analysis, not only lean management principles like the factor of leading environment should have been taken into consideration but also the phase of lean implementation of the given company. However, most research analysing lean maturity did not examine the connection between the organizational life cycle and lean implementation. Regarding the independent lean team integrated into the organizational structure, KOENIGSAECKER (2013) emphasized that the dedication of full-time lean resources due to their experiences was essential if the company wanted to move to the next, more advanced level of performance. MARTÍNEZ et al. (2013) stated that the key to effective lean transformation was the dedication of a committed employee who managed lean initiatives at the company as a full-time job. However, previous research has not examined the

interrelation between lean effectiveness, the formation of the characteristics of learning organizations, and the operation of an independent lean team.

In the dissertation, six research questions and hypotheses were defined in the following hierarchical structure.

Organizational life cycle phases and lean transformation (1)

RQ1: Is there a correlation between the effectiveness of lean transformation and the phases of the organizational life cycle?

H1: There is no correlation between the phases of the organizational life cycle and the effectiveness of lean transformation.

The relationship between a full-time lean leader (lean team) and lean transformation (2)

RQ2.1: Are those companies more effective in lean transformation which have a lean team as an independent organizational department?

H2.1: At companies which have a lean team as an independent organizational department, the efficiency of lean transformation is significantly higher.

RQ2.2: Is there a correlation between the existence of a lean team as an independent organizational department and the forms of decision-making and communication typical of learning organizations?

H2.2: The existence of a lean team as an independent organizational department significantly determines the strength of the forms of decision-making and communication typical of learning organizations.

Relationships between learning organizational characteristics and lean transformation (3)

RQ3: Are the effectiveness of lean transformation and the creation of the forms of decision-making and communication typical of learning organizations interrelated within companies?

H3: The strength of the forms of decision-making and communication typical of learning organizations significantly affects the effectiveness of lean transformation.

The relationship between time and lean transformation (4)

RQ4.1: Are the number of years spent with lean transformation and the effectiveness of lean transformation interrelated?

H4.1: The more years the companies spend with lean transformation, the better their effectiveness in lean transformation.

RQ4.2: Is there a correlation between the number of years spent with lean transformation and the strength of the forms of decision-making and communication typical of learning organizations?

H4.2: The number of years spent with lean transformation significantly affects the forms of decision-making and communication typical of learning organizations on an individual, team and organizational level as well.

2. DATABASE, MATERIAL AND METHODS

The elements of positivist approach, interpretative-qualitative philosophy of science and organizational research methods were combined in my research plan. In organizational research objectivist philosophy approaches (e.g. the contingency model approach) presuppose objective organizational and environmental reality. The subjectivist philosophy approaches assume that organizational reality cannot be seen and thus cannot be examined directly. The essence of organizations is revealed by the underlying meanings and interpretations which exist in the consciousness of the employees of the organization and their intersubjective processes through their interactions and communication (GELEI, 2006).

The classification of methods in the research are shown in Table 1.

Table 1: Classification of methods used in the research

	Traditional (positivist) approach (philosophy of science and methodology)	Interpretative-qualitative approach (philosophy of science and methodology)
Quantitative research tools	- survey: data collection on larger samples and analysis	- survey: open questions
Qualitative research tools	- textual analysis of documents	- qualitative interviews (semi-structured interviews)

Source: own editing based on GELEI, 2006:25

In organizational research examining lean transformation the use of combined methodological structure is not unique, in Hungary LOSONCI et. al. have combined qualitative and quantitative research methods regarding their analysis about the connections in lean transformation (LOSONCI et. al, 2011).

2.1. Document analysis

Several searchable databases (e.g. Google Scholar, Science Direct, Elsevier, ResearchGate) helped me collecting the literature. My investigation also covered domestic doctoral theses written in previous years related to the topic. 179 pieces of literature were examined in my research.

2.2. Quantitative research - questionnaire

The structural elements typical of learning organizations were examined in the research survey, which was measured on a Likert scale. The methodology of this survey was published by MARSICK – WATKINS (2003) as "Dimensions of the Learning Organization Questionnaire". The development and validation of this methodology had two objectives: on the one hand, to create a method for companies with which the current state of their operation can be diagnosed and to give guidance to them about how to change. On the other hand, to create a tool for researchers with which they can make comparisons between companies and find the connections between organizational learning and the productivity of the companies. TORTORELLA – FOGLIATTO (2014) succeeded in conducting the survey in lean organizational environment. Question 1-43 (features on an individual, team and organizational level) were used in my research survey from the practice of TORTORELLA – FOGLIATTO (2014). Other questions (question 44-52) regarding the effectiveness of lean transformation, questions in connection to grouping factors, and the only open question (question 60) were created by me according to the research questions. The questionnaire-based survey was carried out anonymously online (Google Form). The questionnaire was sent to 1751 addresses between June 2020 and August 2023. The number of valid responses was 217, which was a 12.4% response rate. Due to the subject of the research, I asked employees of such companies where lean transformation had started, and the respondents of the survey had a basic knowledge, which can be defined as the curriculum of Lean engineering, of lean management system. I processed the data of the questionnaire with principal component analysis. After dimension reduction, a hypothesis test was carried out in order to answer the six research questions, relying on SPSS statistical software.

As a result of the principal component analysis, the characteristics of learning organizations were examined in the dissertation in six dimensions with indicators of the strength of the following factors: 'INDIVIDUAL 1: behaviours supporting learning'; 'INDIVIDUAL 2: opportunity and resources to learn'; 'TEAM: cooperation in a team'; 'ORGANIZATIONAL 1: knowledge-creating organization'; 'ORGANIZATIONAL 2: support for autonomous thinking and action'; 'ORGANIZATIONAL 3: information sharing and feedback'.

The methods of hypotheses testing in the research are shown in Table 2.

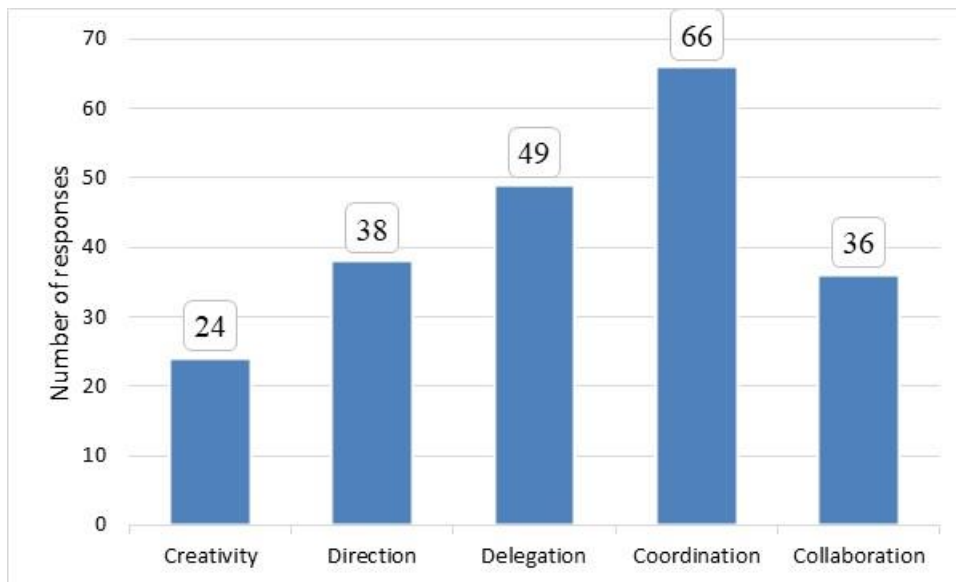
Table 2: Methods of hypotheses testing

Hypothesis	Methods
H1	Analysis of Variance, Post hoc analysis (Tukey's Test) Kruskal-Wallis Test, Post hoc analysis (Dunn's Test)
H2.1	Independent two-sample t-tests
H2.2	Independent two-sample t-tests
H3	Pearson correlation coefficient
H4.1	Analysis of Variance, Post hoc analysis (Tukey's Test)
H4.2	Analysis of Variance, Post hoc analysis (Tukey's Test)

Source: own editing

In my research model, the connection between the effectiveness of lean, the characteristics of learning organizations and the following three elements of organizational environment: (A) the phase of the organizational life cycle, (B) the creation of an independent lean team and (C) the number of years spent with lean transformation were examined. The distribution of the respondents regarding the three examined aspects are shown in Figure 2/A, 2/B and 2/C.

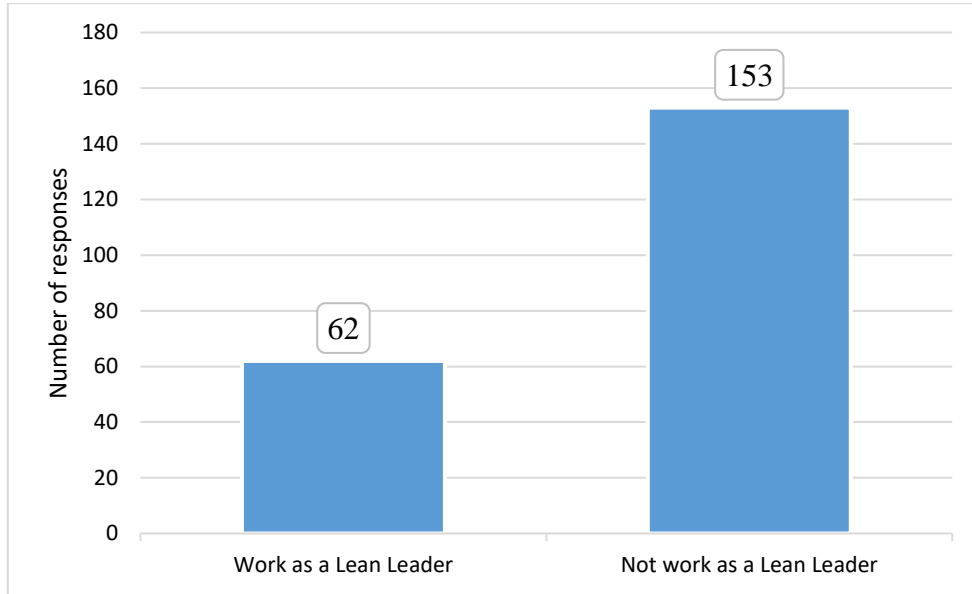
Figure 2/A: Distribution of respondents regarding the phase of organizational life cycle



Source: own editing

The respondents represented at a rate of at least 10% (minimum 11% - maximum 31%) of each of the five phases of organizational life cycle.

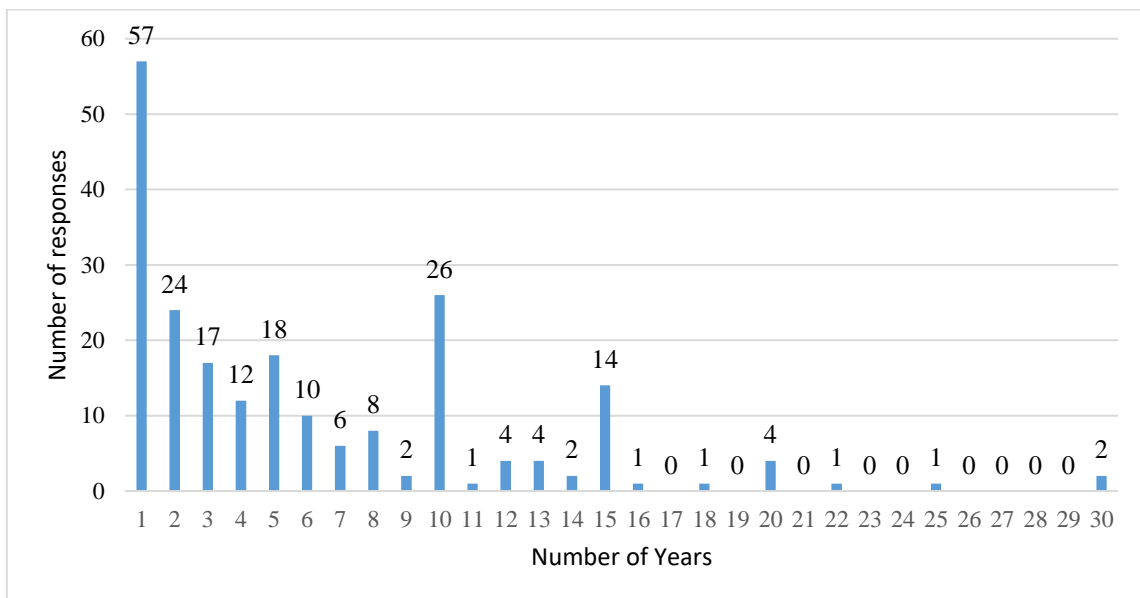
Figure 2/B: Distribution of respondents based on their function as a "Lean Leader"



Source: own editing

29% (62 people) of the respondents work as a full-time lean leader and as a member of an individual lean team in the organization.

Figure 2/C: Distribution of respondents regarding the number of years spent with lean transformation



Source: own editing

95% of the respondents claimed that lean transformation had started at their company 15 or less years before.

2.3. Qualitative research – text analysis and semi structural interviews with experts

For examining the answers to the open question of the survey, the textual analysis method was used. Each answer (opinion) was the document in the analysis and all these answers created the text. The units of the examination were words. When conducting the analysis, the process of coding, analysing, interpreting was followed. As a first step, text cleaning was executed (removing empty lines and irrelevant contents). This was followed by text preprocessing (removing meaningless words and marks). In-vivo coding was carried out in the cleaned and preprocessed text, as a result of which collective codes and code categories were created. The result of the textual analysis was determined by the frequency of occurrence of codes in the code system as well as the interpretation of their meanings. The textual analysis was processed relying on MAXQDA Analytics Pro 2022. Based on the results of the textual analysis, a full-time lean leader duty and responsibility structure was created, which became one of the results and outputs of the research.

After the hypothesis tests were carried out using quantitative methods to be able to place the defined conclusions in specific organizational environment, semi-structured interviews were conducted with CEOs and practicing lean experts. The primary questions related to the possible organizational reasons for the results of the hypothesis tests as well as the collection of practices which confirmed or contradicted these results. The interviews took 45 minutes. There was no audio or video recording but taking notes. It was taken into consideration that the texts of these interviews were not planned to be used in textual analysis, so verbatim recording was not necessary. The summary of the notes is the basis of the interpretation of the results and their placement in real business environment.

Based on the results of the interviews, a set of criteria was compiled for each research questions, which serves as another result and output of my research.

3. MAIN FINDINGS OF THE DISSERTATION

The findings of the thesis are related to the results of the hypothesis tests: revealing the relationships between the effectiveness of lean transformation, the strength of the learning organizational characteristics, and the factors of the organizational environment under investigation.

Hypothesis H1 of the research posited that there is no relationship between the phases of organizational life cycles and the effectiveness of lean transformation. Based on the results, the hypothesis was rejected.

I discovered that there is significantly greater agreement on the effectiveness of lean in the "Collaboration" life cycle phase. Respondents in organizations at the "Collaboration" life cycle phase rated lean effectiveness significantly higher than those in organizations at the "Delegation" and "Coordination" life cycle phase. No differences were found between the other groups.

Furthermore, additional analysis by company size revealed that for all statements examining lean effectiveness, organizations with 51 to 250 employees had the lowest rank scores.

Hypothesis H2.1 of the research posited that companies with an independent lean team integrated into the organizational structure have significantly higher lean transformation effectiveness. Based on the results, the hypothesis was accepted.

I discovered that the effectiveness of lean is significantly higher in organizations with an independent lean team compared to those without such an organization.

Hypothesis H2.2 of the research suggested that the existence of an independent lean team integrated into the organizational structure significantly determines the strength of the decision-making and communication structures that characterize learning organizations. Based on the results, the hypothesis was partially accepted.

I found that firms with an independent lean team exhibit higher strength in the characteristics of learning organizations at the group level and in terms of information sharing and feedback at the firm level.

Hypothesis H3 of the research proposed that the strength of decision-making and communication structures in learning organizations significantly impacts the effectiveness of lean transformation. Based on the results, the hypothesis was accepted.

I observed that lean effectiveness is positively correlated with all the characteristics of learning organizations. The strength of the relationship is strong in one case (the characteristics of learning organizations at the group level) and moderate in five cases (the characteristics of learning organizations at the individual and firm levels).

Hypothesis H4.1 of the research posited that the effectiveness of lean would steadily improve as the number of years of lean transformation increases. Based on the results, the hypothesis was partially accepted.

I found that the number of years of lean transformation significantly affects lean effectiveness, but the basic hypothesis — that lean effectiveness improves steadily with the number of years of lean transformation — is not clearly confirmed. There is a significant difference in lean effectiveness between companies that have implemented lean for more than 6 years and those that have done so for less than 2 years.

Hypothesis H4.2 of the study posited that the number of years of lean transformation has a significant effect on the strength of the characteristics of learning organizations at the individual, group, and organizational levels too. Based on the results, the hypothesis was partially accepted.

I observed that the number of years of lean transformation significantly influences the strength of the characteristics of learning organizations in several cases: the supporting presence of individual learning behaviors, team collaboration, knowledge-creating organizational characteristics, and corporate information sharing and feedback.

4. NEW AND NOVEL RESULTS OF THE DISSERTATION

The new and novel results of the research stem from hypothesis testing, interpretation, and text analysis. Table 3 presents a list of these new and novel results.

Table 3: New and novel research results

THESIS	NEW AND NOVEL ACHIEVEMENTS
<p><i>The phases of organizational life cycles in the Greiner model and the size of the company are factors related to the effectiveness of lean transformation.</i></p>	<p>The effectiveness of lean transformation is lowest in medium-sized companies and in the delegation and coordination life cycle phases.</p> <p>Examination of a set of criteria to explore the possible causes of the correlations on the basis of expert interviews.</p>
<p><i>The effectiveness of lean transformation is higher in companies with an independent lean team integrated into the organizational structure.</i></p> <p><i>The establishment of an independent lean team integrated into the organizational structure is associated with the strength of the decision-making and communication structures characteristics of learning organizations.</i></p>	<p>Complementing the " Framework for Organizational Change Management in Lean Manufacturing Implementation " model of NORDIN et al. by creating manual-like validated (guide) recommendations for the responsibilities of a full-time lean manager. Fills a gap in the literature.</p> <p>Companies with an independent lean team have stronger learning organizational characteristics at the group level and in terms of information sharing and feedback at the company level.</p>
<p><i>The effectiveness of lean is positively correlated with the the characteristics of learning organizations.</i></p>	<p>There is a strong positive relationship between the characteristics of learning organizations at group-level and lean performance.</p> <p>The effectiveness of lean is moderately and positively related to the following learning organizational characteristics: at the individual level, behaviours that support learning, opportunity and resources to learn, at the corporate level, a knowledge-creating organization, support for autonomous thinking and action, and corporate information sharing and feedback.</p> <p>Examination of a set of criteria to explore the possible causes of the correlations on the basis of expert interviews.</p>

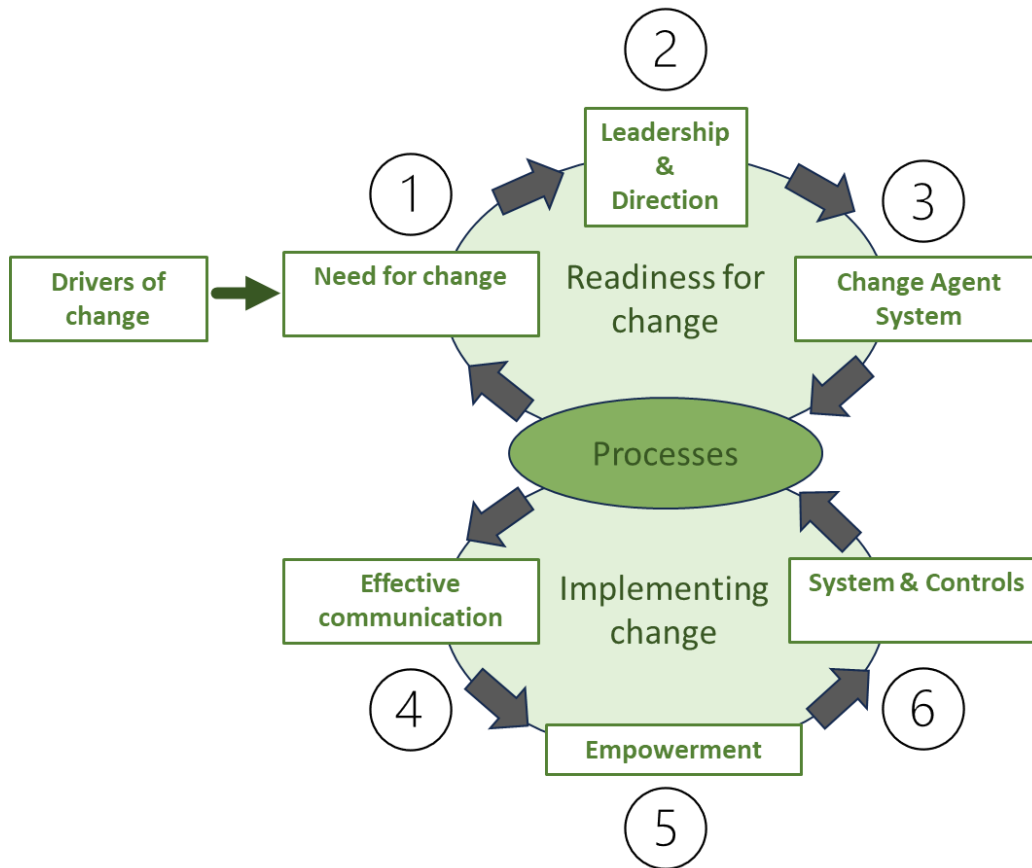
<p><i>The number of years of lean transformation is correlated with the effectiveness of lean.</i></p>	<p>Companies that started lean transformation more than 10 years ago have a higher lean effectiveness than organisations that have been lean for less than 2 years.</p> <p>Companies that started lean transformation 6-10 years ago have a higher lean effectiveness than organisations that have been lean for less than 2 years.</p> <p>The hypothesis "The more years the companies spend with lean transformation, the better their effectiveness in lean transformation" cannot be confirmed.</p> <p>Examination of a set of criteria to explore the possible causes of the correlations on the basis of expert interviews.</p>
<p><i>The number of years of lean transformation is correlated with the the characteristics of learning organizations at the individual, group, and company levels too.</i></p>	<p>Companies that started lean transformation more than 10 years ago have a stronger presence of certain learning organizational characteristics than organizations that have been lean for less than 2 years or 2-5 years.</p> <p>The presence of certain learning organizational characteristics is stronger in companies that have been lean for 6-10 years than in organizations that have been lean for less than 2 years, both at group and company level.</p> <p>The presence of certain learning organizational characteristics is stronger in companies that started lean transformation 2-5 years ago than in organizations that have been lean for less than 2 years, at the company level.</p>

Source: own editing

The output of my text analysis is a new model and recommendation for the role of the full-time lean manager in organizations embarking on lean transformation.

In their work, NORDIN et al. (2012) link the implementation of a lean system with organizational change management. They conclude that the implementation of a lean production system requires fundamental changes in change readiness, leadership characteristics and management, change agent systems, teamwork development and empowerment, and communication. I have integrated my results on the lean manager's role into the change framework created by NORDIN et al. (2012), which describes the lean transformation process and presented in Figure 3.

Figure 3: Six Elements of an Organizational Change Framework



Source: Based on NORDIN et al. (2012).

Below, I present the recommendation for the responsibilities of a full-time lean manager, which is derived from the six main steps of the organizational change framework identified through textual analysis.

Defining the duties and responsibilities of the Lean Manager



Duties of the Lean Manager – Creating a Need for Change

- Participation in the creation of the company's vision together with top managers and stakeholders and conveying it to the whole organization.
- Setting common goals, policy deployment, supporting the coordination of organizational and employee goals.
- Defining the direction of development supporting the company strategy, leading continuous improvement (CI).
- Understanding customer demands and keeping them in focus through lean transformation, prioritization of improvements in order to maintain and improve business excellence.
- Supporting and ensuring internal customer-supplier approach.
- Analyzation of processes and mapping the potentials, searching for improvement opportunities in the operational processes.
- Defining the potentials which have the greatest business impact.
- Investigating the wastes / non-value added processes which can be reduced and communicating them to the members of the organization.



Duties of the Lean Manager – Leadership and Direction

- Spreading lean approach among top- and middle management, supporting the corporate culture change.
- Supporting top- and middle management in order for their teams to be able to use lean tools, leadership coaching through lean transformation.
- Creating lean transformation strategy with top management which is in harmony with the company goals.

- Defining lean measures and KPIs in the whole value chain, measuring process effectiveness.
- Representing lean to the management, leading lean transformation.
- Coordination of lean strategy, project management support.
- Defining the source and time needed for the execution of lean strategy, the optimal allocation and the coordination of availability of them.
- Creating process-based operation, supporting process management.
- Process improvement based on effectiveness, analysing work for defining wastes objectively.



Duties of the Lean Manager – Change Agent

- Supporting corporate culture change, transferring lean philosophy and thinking to employees.
- Leading paradigm shift, inspiring and leading by example in lean transformation.
- Bringing about openness towards lean approach.
- Respect for people and CI: strengthening and representing the 2 principles of lean.
- Authentic representation, creation and maintenance of CI carried out together and the culture of trust.
- Make people understand and spread lean across the whole organization by practical methods and learning by doing.
- Integrating lean approach in the everyday operation of the company by individual cases, best practices and implemented improvements.
- Demonstrating the gist of lean activities and their advantages for all the employees of the company.
- Strengthening awareness, supporting strong workplace cohesion and cooperation.
- Facilitate change management and sustainable lean transformation.
- Leading MUDA-hunts, demonstrating the goals of lean tools and their usefulness for the colleagues.

- Avoiding unnecessary, ineffective projects and dummy activities during lean transformation.



Duties of the Lean Manager – Effective Communication

- Supporting the creation of an open and honest communication culture
- Supporting policy deployment and its communication throughout the whole company.
- Creation of lean knowledge management, support of using lean tools appropriately.
- Planning lean trainings, active participation in the education of employees in the entire company.
- Facilitating cooperation, communication and transparency among functions / departments / work teams.
- Facilitating CI workshops.
- Making employees understand lean and spreading lean approach through practices and learning by doing.
- Continuous follow-up and evaluation of the results of lean improvements, recognition of successes.
- Ensuring transparency, continuous feedback about the results of improvements for everyone in the organization.
- Supporting the use of lean tools, communication of standard and best practices within the organization.



Duties of the Lean Manager – Empowerment

- Engaging, winning over and mentoring employees on the lean way.
- Focusing on people, supporting the development of employees, maintaining continuous learning.

- Leading part in the creation of a learning organization, improving and encouraging employees' critical thinking.
- Facilitating lean team work focusing on flow, supporting team leaders and team members in CI.
- Ensuring lean coaching and consultancy for improvement teams.
- Role of the "train the trainer", supporting the mapping of potentials.
- Improving employees' skills and knowledge in order for them to be able to do autonomous lean activities.
- Creation of an organization and work environment which support achieving business excellence and encourage improvements.
- Managing bottom-up improvement framework, encouraging employees' ideas, managing suggestions for improvements and coordinating execution.
- Professional management of lean teams and lean specialists of departments.



Duties of the Lean Manager – System and Controls

- Creating standard lean syllabus and its continuous improvement.
- Initiating, managing, coordinating and monitoring QCD improvement projects which are in harmony with company goals, increase customer satisfaction and the results can be measured.
- Supporting efficiency improvements in direct and indirect processes with lean tools, active participation in the improvement activities of various departments (support of quality improvements, cost reduction, on-time delivery and flexibility, resource optimization, layout, material flow and scheduling).
- Improving organizational systems thinking, coordinating processes.
- Facilitating problem-solving work, creating a rapid-intervention system in the organization.
- Organizing and managing incentive schemes, maintaining motivation.
- Creation, management and evaluation of frameworks supporting lean operation.

- Administrative support of lean transformation, creating budget plans, preparing decisions.
- Planning and managing a lean audit system, implementing daily "Gemba walks".
- Participation in the change of the organizational structure in accordance with lean transformation.

4. PRACTICAL APPLICABILITY OF THE RESULTS

1) During the research, a recommendation was formulated for the responsibilities of a full-time lean manager within the organizational change framework. This list of job responsibilities serves as a guidance for future leaders of the organizations undergoing lean transformation, illustrating how to effectively integrate the lean manager's role into the organizational structure. The newly developed model can be utilized by organizations that have already established a full-time lean manager role or are planning to do so in the future.

2) Furthermore, there is practical utility in exploring the relationships between the effectiveness of lean transformation and the three characteristics of the organizational environment: (1) the the phases of organizational life cycles, (2) the strength of the learning organizational characteristics, and (3) the number of years of lean transformation. The interpretative criteria gathered from expert interviews can provide a foundation for practitioners and managers to enhance the effectiveness of lean transformation and mitigate the organizational risks that may impede its success in a given environment.

3) Additionally, the correlation between the effectiveness of lean transformation and the relationship among the phases of organizational life cycles, company size, and the duration of lean transformation can serve as a basis for future empirical research. This research aims to understand and interpret the organizational structure factors associated with lean success and with the goal of maximizing the value of lean methodologies to improve operational and financial performance. Ultimately, this approach seeks to foster a sustainable, conducive organizational culture centered on respect for people and continuous improvement.

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6. LIST OF PUBLICATIONS RELATED TO THE DISSERTATION

Foreign language scientific journal

1. Mátrai, N. (2024): Correlation Between the Effectiveness of Lean Transformation and the Strength of Organisational Learning Factors, in: APSTRACT - APPLIED STUDIES IN AGRIBUSINESS AND COMMERCE, “Accepted by Publisher” pp. 1-8. , 8 p. (2024)
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A scientific journal in Hungarian with a summary in a foreign language

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Articles, studies (9)

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