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THESIS

of

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**Analysis of the value stream-based transformation
processes of an organizational structure from a change
management perspective by the example of a Hungarian
company**
doctoral dissertation

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I. Research background and justification for the topic

In my doctoral dissertation, **I analyze the directed organizational transformation of a domestic production company, Robert Bosch Elektronika Kft. applying lean management to a value stream-based organization from the aspect of change management.**

. The literature on lean management and organizational change is not novel, but the combination of themes has a novelty value since although literature mentions lean organizations or value stream-based organizations, but as I have noticed in the early phase of my research that the concept requires further analysis and conceptual clarification. In addition, the process of introducing a given value stream-based organizational solution is poorly documented: although some foreign case studies and a Hungarian example are available, but their descriptions are not detailed enough to cover every question on the subject. Thus, my research projects had a dual purpose:

- 1) on the one hand, I attempted to identify a value stream-based organization and describe its features by empirically examining five domestic value stream-based organizational structures beyond literary sources,

2) on the other hand, to examine on account of a specific case how a given value stream-based organizational structure is developed and implemented.

As regards the backgrounds, Womack and Jones (1994) state the following in their paper titled "From Lean Production to the Lean Enterprise": one of the most critical challenges for executives is to synchronize individual goals, operation, the enterprise and the value stream so that all benefits of a lean company be manifest while increasing the opportunities for individuals, their corporate operational strengths and the well-being of member companies. They believe that to achieve this balance, new management techniques, *organizational forms*, principles and joint efforts are needed. (Womack-Jones, 1994, p.99.)

Smeds (1994, p.72.) considers that the incremental process required for developing processes and learning, which may even lead to radical changes can occur if the company's business strategies, *organizational form* and culture change in a harmonized manner.

In their book titled "Lean Thinking" (2009) Womack and Jones point out that after successful kaizen actions, companies and their leaders are "inclined" to think that they are on the right track and even more similar activities will help the automatic transformation of the entire company into a *lean organization*.

Although, one of the most important text steps is that the company should consciously and actively create an organization that "puts the value process permanently on the right track". (Womack-Jones, 2009, p.278.) According to the authors, the company must be reorganized on a product family¹basis to achieve this, each product (product family) must be clearly assigned a person in charge. In their opinion, this means in practice that product families need to be identified, all details of the operation have to be reconsidered in order to create a coherent chain of marketing/sales, product development, production scheduling, production and procurement. Womack and Jones argue that although the exact implementation of this organizational structure transformation depends on the type of company, the sales volume of products and the characteristics and number of customers, the basic idea can be applied to most companies. (Womack-Jones, 2009, p.279.) The authors consider that after organizational transformation, a horizontal organizational chart will emerge in which customer value creation is realized in an organizational structure subordinated to individual product families.

In his book titled "The Toyota Way: 14 Management Principles" (2008), Liker outline Toyota's product development

¹ see chapter 1.2.2 of my dissertation

matrix organization, which adopted an organizational structure along value-creating processes, similarly to the lean organization illustrated by Womack and Jones (see Liker, 2008, Figure 15.2, p.224).

In their book titled "Learning to See" (2012), Rother and Shook merely refer to lean organizations based on the value stream managers' place in the organization. Based on the figure of Rother and Shook, we can only conclude that value stream managers report directly to the top management, just as the lean support organization, and individual value stream managers (and possibly the organizational units they manage) have a coordinated function.

In his book titled "Implementing Organizational Change" (2013) Spector discusses horizontally-linked structures focusing on supply change (after mentioning matrix structures). The main question in such types of organizations is how to coordinate activities to create the maximum value for the company's customers. According to Spector, organizations in this form can use cross-functional teams to promote the interlinking of their numerous and even independent activities along their supply chain.

Like Spector, Daft (2008) also mentions the organizational structure supporting the value chain and/or

(presumably the so-called internal) supply chain under the name of horizontal organization.

When viewing the organizational charts of Womack and Jones (2009), Rother and Shook (2012), Spector (2013) and Daft (2008) concerning a lean / value stream / value chain-based organization, it should be noted that none of them provide clear guidance on exactly what organizational configuration has to be created by a company that wants to focus on value streams as the central feature of its operation.

In order to get closer to an organizational structure suitable for practical implementation, I have also processed case studies based on empirical evidence. As regards foreign sources, Haug's (n.a., downloaded in: 2017), Raghunathan's (2006) and Marchwinski's (2006) papers have structures similar to value stream-based organizations. In Hungarian literature, Aradi's (2005) paper describes transition to a value stream organization. My dissertation includes an analysis of the above sources before discussing the roles attributed to so-called value stream managers by the literature.

II. Methods used

In the first chapter of my dissertation, lean is outlined as a process development tool and a philosophy. In connection with the development of lean management, I first present the emergence and development path of production systems in the automotive industry, starting with the description of Ford's production experience and the organizational innovations of General Motors. After that, I continue to discuss the Toyota Production System (TPS) underlying the lean approach and production systems, expounding on its lasting effect on other production systems still being used today. Next, I summarize the meaning and main concepts of lean, including the proposed chronology of lean transformations, the effects of lean approaches on corporate performance, models measuring the lean development level, and agile production as a brief summary.

In the second chapter of my dissertation, I discuss the most important concepts of literature concerning organizations, i. e. the contingency theory, certain special structural features of organizations and basic organizational forms, with special regard to the characteristics of functional, matrix and horizontal organizations. Then, I discuss the organizational aspects of the lean concept one by one, focusing mainly on the models that

have relevant findings on lean organizations and value stream-based organizational solutions. (See the previous section I.).

The third chapter covers the basics as well as success factors and main pitfalls and some special models (Kotter's eight step change model, Prosci's ADKAR model) of change management, to be used as a basis of analysis in the case study.

The fourth chapter of my dissertation presents the main methodology of my research, namely case study-based research, describing the research steps I followed during my qualitative research. The objective of my research and the specificity of my research topic resulted in my analysis of the subject as a qualitative research project, more specifically in the form of a case study. This research method served a profound, analytical understanding of the analyzed company's case and its organizational transformation process.

In the fifth chapter, I explore the features of a value stream-based organizational form by examining the value stream-based organizations of Bosch in Hatvan as well as four other Hungarian companies, thus complementing current literature on the subject.

Based on my own research results in chapter 5, the sixth chapter of my dissertation includes a case study analyzing the directed organizational change of Robert Bosch Elektronika (Electronics) Kft. In this section, I first discuss the lean

development of the company from the introduction of lean management to the backgrounds and motivations of the change in question to later analyze in detail how the company implemented the first major wave of transformation to a value stream-based organization during 2016 and 2017.

The present research thus combines lean management, the literature on organizational theory and the field of change management to explore and analyze the corporate case at the center of my research product, i. e. transition to an organizational structure along value streams implemented while applying the lean approach aimed at maximizing the effectiveness and customer-orientedness of corporate operation.

For my dissertation, the empirical basis was given by the Hatvan site of the Bosch Group, which manufactures automotive electronics under the name of Robert Bosch Elektronika Kft.; I have analyzed the value stream-based organization of this company at the most detailed level from a structural and change management aspect. My examination of organizational structures also included individual sites of Sanofi, Coloplast, Festo and the Miskolc site of Bosch (Robert Bosch Power Tool Kft.) manufacturing hand tools, interviewing executives and/or lean managers of the given companies.

III. Scientific results of the dissertation

In my doctoral dissertation, I started out with an outline of lean management, with particular regard to its concepts of organizational structure. Subsequently, I revealed the structural features and organizational forms of the relevant organizations based on their literature, detailing functional, matrix and horizontal organizational forms. This was necessary because the company analyzed in the case study transition(ed) from a functional organization to the matrix form whereas value stream-based organizations typically adopt a matrix or horizontal structure based on the results of my research. I relied on the literature of organizational change and change management to design my empirical research, and my chosen model used in the case study was Kotter's eight-step change management model due to its top-down, top management approach as well as its acceptance and prevalence in academic circles. I applied a case study-based research as my principal method and the guiding principle of chapter 6, since there was a given corporate case providing for valuable conclusions. During my research, the uniqueness, complexity and particular lessons of the case were of interest, but no generalization or model formation took place due to the nature of the research

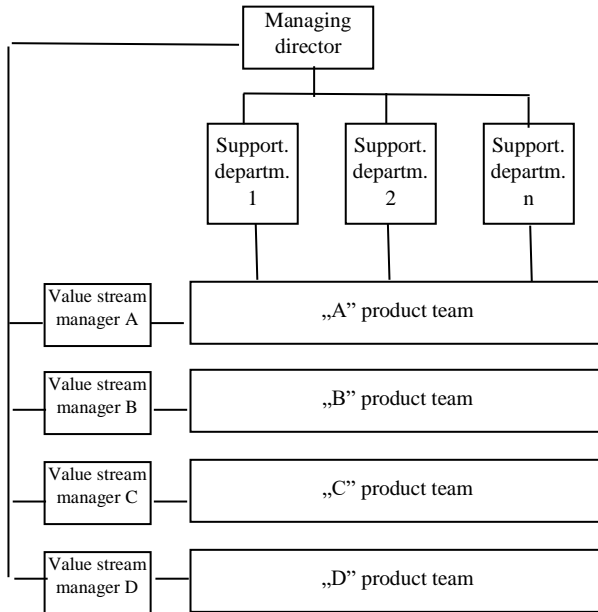
project. However, the patterns identified in practice were correlated to Kotter's eight-step change management model, and I also tried to discover lean features in the change management process. However, before doing all this, I analyzed and compared the five practical types of implementation of a value stream-based organization in chapter 5 of my doctoral dissertation, which led me to draw conclusions about a value stream-based organization - thus achieving my intended reduction of existing theoretical deficiencies and gaps.

Main results of my research:

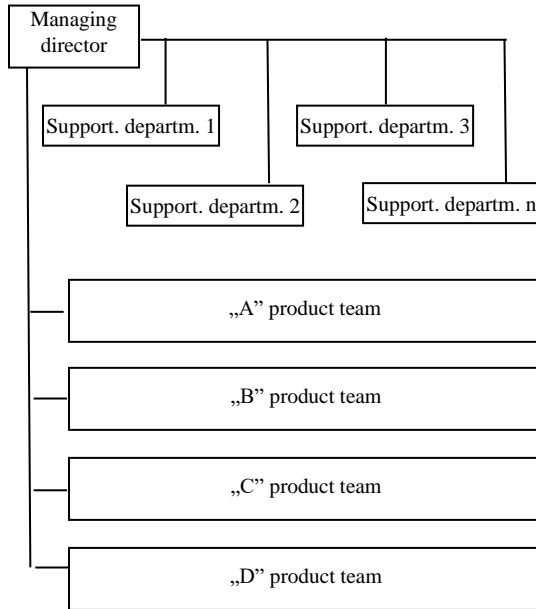
- 1) The results of my research confirm that value stream-based organizations typically take a matrix or horizontal organizational form since thinking in terms of value streams (as opposed to traditional, vertical coordination) introduces a horizontal co-ordination principle among organizational dimensions, typically relying on product families (or technologies in certain special cases) to mutually separate value streams.

Typical configurations of the value stream-based organization

A) Matrix-type value stream-based organization



B) Horizontal-type value stream-based organization



Source: own illustration based on Bosch (2015) and Womack-Jones (2009)

Three of the Hungarian companies examined by me are operating in a matrix-based and two others in a horizontal value stream-based organization, and the latter two also started transition on a matrix basis, which suggests that an organization first has to become multidimensional (as indicated by literature

on organizations) to almost completely switch to horizontal coordination (this would require further investigation). The reason for the fact that "nearly" complete horizontal coordination is the only conceivable approach in a horizontal organization, as well is that as stated in literature on organizations, certain corporate functions beyond value streams remain in their integrating or strategic role - as also exemplified by my empirical research.

- 2) In the case study part of my dissertation, I examined the process of organizational transformation by means of the selected change management model - not with the goal of generalization, but to determine whether the observed corporate operation and the relevant change support the related theories. I have discovered that the steps described by Kotter have not been fully implemented during the organizational change of the company analyzed, there are still some sporadic tasks to be completed within individual sections and implementation of the last three phases can take place during or after 2018. Even certain aspects of the change management case analyzed have served as examples of what is confirmed by literature: namely, a matrix organization is a "conflict organization", i. e.

the structural characteristics of the organization to be introduced must be carefully planned and change management must be associated with the process of introduction. Although introduction of a matrix organization consequently involves challenges, my research results shown in chapter 5 suggest that if an organization intends to move towards a horizontal structure, the matrix form may also be needed as a quasi-intermediate step.

My dissertation helps to refine the concept of a lean organization and clarify the conceptual confusions related to the subject; studying value stream-based organizational models as well as tracking and analyzing the process of change can add valuable experiences to the production management literature.

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