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LEAN-BASED EFFICIENCY INCREASE IN ACCOMMODATION COMPANIES

Thesis booklet of the PhD Dissertation

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1. Prelude, aim of the research

The preparation of the dissertation was prompted by the researcher's personal interest and the resulting preliminary studies and publications, as well as the small research results on the topic. The research is carried out at the frontier of the triad of accommodation providers, tourism and lean management. The common feature of all three is that the main element is the human involvement. Accommodation providers have changed significantly over the years, with a shift in their focus. The competitive advantage is the service portfolio, the defining elements of the service are the human resources.

The national and international as well as the global market are cyclical and constantly evolving. It is a paradox to act quickly but to think in the long run. More and more companies are using the lean enterprise model or some version of it.

The subject of the present research is to explore the efficiency-enhancing opportunities of lean management in the tourism sector, including accommodation providers. At the beginning of the research, there is little relevant literature on the relationship between tourism or accommodation providers. The available literature is mostly from the internal audits of the accommodations. The service sector is already open to a lean approach, but there is no approach among accommodation providers. The research establishes the relevance of the set goals by presenting the lean method. After the analysis of the currently available literature and related researches, it can be proven that lean could be a good answer to increase hotel efficiency.

The complexity of systems is likely to increase significantly over the next decade due to new requirements for efficiency, effectiveness and reactivity. Recycling, reverse logistics, the role of flexibility and globalization will be accompanied by the strengthening of local economies and the local workforce.

Exploring the factors that increase efficiency can be a very complex task, and its interpretation as a researcher can be very heterogeneous. In the present research, the researcher has approached the lean approach. For all leaders, the goal is to create effective value, that is, to create more value by using fewer resources. One way to do this is to reduce the proportion of losses in the value creation process.

The aim of the research (**C1**) is to examine the occurrence of loss. Determining the typical characteristics and exploring relationships in relation to loss types. The other pillar of the study is the examination of the presence of the main lean tools in the case of methods and tools often used among SMEs (**C2**). The aim is to determine whether lean is consciously present when working with small and medium-sized accommodation companies.

The research determines the level of presence of the lean approach, for which it first defines the presence indicators (**C3**), and then determines the milestones and levels of “becoming a lean hotel” by exploring the correlations between the indicators. It researches and defines the lean graduation model and then examines its limitations and possibilities among small and medium-sized accommodation providers.

The overall aim of the research is to draw attention to the fact that efficiency cannot only be increased by financial and marketing means, and also emphasize that more attention must be paid to the operational and work organisation background. In addition, the research also does

not support unnecessary meetings and reports, but rather sees the potential for SMEs to improve their value chain at operational level. As I the correlations between lean use and the indicators of accommodation providers are aimed to be explored, correlations and co-movements between the defined loss and lean indicators have been examined in the first and second objective (C4).

The aim of the research is to find out whether the following opinion is true in connection with the parallel examination of the two pillars:

- Accommodation providers who use lean management tools consciously identify their sources of loss.
- Sources of losses are lower for providers that follow the lean methods

2. Content, method, justification

The dissertation is divided into four major logical units and into seven substantive chapters. The triad of tourism management, accommodation providers and lean management appears in the dissertation as mutually reinforcing. For this reason, the author has conducted historical, prospective and present researches in all three areas, exploring the innovative field and the research method to be chosen. In the first logical unit, the historical exploration was carried out by the development of tourism policy, accommodation services, and the place of lean in SMEs and services from the beginning of lean through the Hungarian aspect. In the concluding subchapter, the lean graduation models are elaborated by using and comparing significant international literature, also formulating an own opinion.

In the research methodology, it presents the measurement methods of secondary and primary research, the possible relevant applications of interview types and statistical analyses. It then presents the methodology used, the backbone of which is the interviews and the questionnaire survey.

The researcher based the questionnaire survey on optimizing the questionnaire survey with tourism professional consultations and process simulations. In order for the lean terms and the work processes of the hotel sector to be understandable, identifiable and interpretable, the tourism sector has also undergone thorough and multi-faceted preparation. This was justified and then confirmed by a novel meeting of disciplines.

The preparation was followed by simulation interviews, consultations with experts, and then validation interviews during the processing of the questionnaire.

Out of 567 responses, 206 relevant responses from Győr-Moson-Sopron and Vas counties provided the basis for the statistical analysis. The analysis was performed with SPSSv21, followed by the creation of the data table, a one-sample median test and Chi-square fit after descriptive analysis, principal component analysis, and rank correlation variance analysis. The questionnaires were intended for senior and non-managerial positions for several positions, so they examined them in several systems of relationships and compared them to explore the research hypothesis.

The next logical unit of the dissertation is the presentation of the research results, then the sharing of the results and conclusions.

3. Results, including new results

After processing the profiling of the questionnaire, the interviews were processed by the author. Interviews confirmed that lean terms are not generally known in the hotel industry, however, the underlying content of the terms is already used. In-depth interviews highlighted the problems of the sector. The interviews confirmed that the dedicated employees give the spirit of business and service. Tourism builds on personal relationships. Without passion, devotion and commitment, knowledge and expertise are worthless in tourism, but combining them, making them aware, that is, the end result can be more valuable than the sum of its parts. Interviewees were unanimous in their view that with the fall of Covid-19, changes in ownership, and consequently structural, financing, and organizational, are taking place locally, but around the world. There are several approaches to the issue of hotel industry or hotel service. We can talk about the hotel industry in a larger size category, but the individual sectors and activities within the hotel hope that they can stay in service.

The research revealed that the comparison of accommodation services, including hotels, is very heterogeneous. The CSO and other data submission locations are not uniform either, which is a barrier to research and comparability.

Loss studies have shown that the loss type of lean week is different from that assumed. Preliminary loss of transport was not assumed by the interviewees, but the investigation confirmed its presence. The loss inherent in the movement was weak, which occurs in kitchen work and cleaning protocol. Repair loss, however, is not present based on responses. The reason for this may be continuous maintenance, self-interpretation of situations.

The research also yielded unexpected results:

- Literature research has revealed that economist András Schranz wrote a book on “lean” as early as 1938 in connection with rationalization movements, which was also translated into Japanese. The researcher assumes that he can rightly be called the Hungarian father of lean.
- Another result of the literature research is that it collected and summarized the Hungarian tourism policy threads in chronological order, and summarized the current (2020) tourism management of the surrounding countries by country.
- Summary of the evolution of lean representation models.

By reviewing nearly 300 international and domestic literature, the researcher demonstrated the proficiency in the topic of lean by processing lean graduation models with practical examples, which is supported by the answers to the following theses.

The simultaneous identification of the seven types of lean losses among accommodation providers was unsuccessful. Differences were found between managerial and non-managerial employees and in the interviews conducted with owners. There were no loss categories that appeared simultaneously in all three study rounds. The research suggests that, with varying degrees of intensity, six of the seven loss categories can be identified in the study area. The movement and repair loss did not appear dominantly in any of the respondent rounds. The reason for that could be that the industry expects, more precisely requires flexible, mutually

supportive working, so that respondents do not perceive these loss categories as blatant and dominant. If processes are running smoothly and there is only minimal disruption, this category is present to an even lower degree.

T1: Lean loss categories can be identified among accommodation providers. The perception of the presence of lean loss categories is influenced by the status of the employee, such as owner, manager and other workers.

The surveyed accommodation providers meet the definition of a small and medium-sized accommodation and company, so the presence of a lean tool among the sampled accommodation providers was investigated, which can be applied without any limitation among small and medium-sized companies. Both the statistical analysis carried out and the in-depth interviews confirmed the dominant presence of lean tools among the accommodation providers. The results showed that there is no significant difference in the perception of lean between managers and non-managers. All test methods confirmed that the presence of the JIT principle is not perceived by the respondents. The conscious lean presence survey further confirmed the hypothesis that lean presence is detectable among accommodation providers, although it was dismissed by industry representatives at the start of the survey. Therefore, the results of the study refuted the stereotype among accommodation providers that lean is a management method solely for the automotive industry and that it is not necessary or present in their industry.

T2: The majority of lean assets can be identified among accommodation providers, regardless of whether they have been tested for a managerial, senior or non-managerial position. However, the identified use is neither conscious nor systematic.

The main objective of the dissertation is to prove to accommodation providers that the lean presence has an impact on the presence of losses, thus influencing the awareness of the lean presence, which is expected to have an increased impact on the reduction of loss phenomena. In this study, the indicators are not examined in isolation due to the fact that indicators are always accompanied by another throughout the work process. Principal component analysis has been conducted and then the relationship between loss and the components that emerged among lean presence were examined. This revealed that the presence components responsible for the development of loss were less prevalent among non-executives in kaizen, 5S and lean philosophy. A more dominant loss presence was detected in the absence of JIT. However, lean phenomena that generated additional losses were also identified. This was predominantly found during the design of Poka-yoke, i.e. the fail-safe environment. A similar picture emerged from the senior managers, with the difference that in their case there were fewer categories that demonstrated a lean presence while also indicating loss occurrence. Therefore, this suggests that the non-conscious presence studies partially supported the hypothesis and demonstrating an inverse relationship between lean presence and loss presence. However, there are categories (Poka-yoke) for which this claim has not been confirmed. The conscious lean presence study has shown a much clearer picture. The conscious lean phenomenon and the loss components showed a stronger, medium-level relationship. With the exception of one category, redundancy, for which there was no significant result. It can be concluded that lean tools should be viewed as a collection of assets and the focus should be on the combined effect of the tools in improving results.

T3: The relationship between lean presence and lean losses can be demonstrated, but it is not generally accepted that they are opposing each other. While most of the presence of assets has reduced losses, there are also assets that have a loss-generating effect. In the case of the conscious lean presence and loss phenomenon, it can be observed that the relationship is stronger, however, in this case it was not true for all lean phenomena that loss has a reducing effect. There is a lean principal component in which the loss shows the presence in the opposite direction, but this is not true for all loss components.

The maturity assessment of companies, including the exploration of lean maturity, is a potent topic among companies turning to lean. To lean - or to become lean? The question includes whether we are well positioned to deal with lean. This dissertation is intended to lay the foundations for a deeper understanding of lean in hotels. The main result of the research proved that the lean approach has relevance in the industry. However, in order for lean to bring the expected benefits and efficiency gains, it is necessary to start the journey of becoming a lean hotel. To measure whether this process is underway among accommodation providers in the region, a lean maturity survey was conducted. By exploiting the potentials and limitations of lean maturity models available in the literature, a model was defined in order to be applied among small and medium-sized accommodation providers. The limitations of the study sample allowed for a maturity review of only three accommodation providers and the study cannot be considered as representative. However, taking this into account, it can be concluded that all three hotels have the potential to become lean hotels. There were two hotels in the first phase of maturity (already in the process of lean recognition), and one hotel in the beginning of the second phase of maturity (awareness). With this in mind, the following result can be presented.

E1: Based on the small sample, accommodation providers have started to become lean hotels, although they are at the very beginning.

The practice of using the terms resort and hotel are characterised by the diversity of the underlying meaning of the terms, in addition to the diversity of names, which is enshrined in national legislation in addition to customary law. The situation is similar for the terms of hotel industry and hotel services. There is an eclecticism in the use of terms, both in the public sector and in professional, academic approaches, which have also been discussed in more detail in section 5.2. The hotel industry is a key sector of tourism within the tertiary sector and is linked to the economic and political situation of the country.

There is a continuous interaction in the tertiary sector of many economic and tourism products as an integral part of the tourism superstructure.

The hotel industry is a highly competitive industry, but at the same time it also presupposes an operational scale, a standardisable process in uniqueness and diversity, which was confirmed by the interviews.

In the hotel industry, service is a framework of offerings and measures that presupposes comfort, quality satisfaction and the creation of a business reputation (brand). The high quality of guest service is the result of the joint effort of all hotel staff, which is based on lean principles.

The hotel service meets the needs of the customer at the moment, therefore the tangible product of the hotel service, regardless of its size, although it is a commercial economic activity of a

commercial nature, does not switch ownership. The way service is the key driver of the industry and an integral component of the tertiary sector, hotel service is the bedrock and foundation of the hotel industry. Services forge tourism, and the hotel industry within it, into a sector by virtue of its interdisciplinary diversity. According to the view presented by the author, the hotel industry is developing within an economic structure based on services, i.e. it is a special service industry.

E2: The hotel industry is an aggregate of services, drawing on the interactions of the tertiary sector, evolving into a sector.

Lean philosophy, management and tools are less well known among the hotel operators in the study area. However, among the accommodation providers where lean was consciously present, the combined loss presence was lower. Moreover, this awareness is a prerequisite for lean maturity, for becoming a lean hotel. The creation of this precondition can be achieved in several steps. The first step is to assess the lean presence of the hotel operator. The situational questionnaire and statistical analysis methods presented in this thesis provide an appropriate basis for this. Subsequently, it is necessary to determine the current stage of lean maturity and identify key gaps. During the interviews, the most frequently encountered obstacles were process orientation, lack of transparency, information asymmetry and personal attitudes. Finally, by "overcoming" the barriers identified in the previous step in a teamwork with the company's employees, a conscious lean presence among accommodation providers can be developed.

E3: Creating the conditions for a lean awareness project

The mock interviews and the prior research proved that using lean terms, but not explaining them, does not lead to adequate results. A method to eliminate any aversion to the use of unfamiliar (lean) terms by the interviewee was required. Instead of using the term "lean", the frequently used "how typical is...?" type of question from social sciences have been applied, with additional situations formulated for the phenomena to be assessed. Based on a wide range of literature, this methodological approach is considered entirely new in measuring lean and lean loss. A criticism of the methodology is that, as the questions were broken down by job function, a disproportionately large sample size was required. In case of the extension of the research, the questions should be asked in a more standardised and generally acceptable format, only diversifying the list of examples. The results obtained by applying the method were largely confirmed by the validation interviews, therefore it can be said that the research has demonstrated its applicability for measuring the presence of lean assets and losses.

E4: The research has demonstrated its applicability

An unexpected literature processing result is that András Schranz had already discussed rationalization along the principles of lean and wrote a book, which was translated into Japanese in 1938. This took place 20 years before the introduction of the method, which was hailed as a Japanese miracle. Is there any chance that lean is not actually originated from Japan? In any case, the roots can be traced back to Budapest, as in the case of the Hungarian-born engineers of Ford.

E5: András Schranz is the Hungarian father of lean.

4. Conclusion, suggestion

A research project on lean methods becomes credible only if the research project itself creates process-oriented value. This dissertation guides the evaluator and reader through the research trajectory of the doctoral candidate, with the ultimate goal of value creation. In the present case, this value is to establish the validity of a methodology that has not been used before in a given context, and to provide information on the potential efficiency gains that can be achieved by linking the accommodation service segment with lean. The longer term objective of the research is to create the right environment for accommodation providers in order to embark on the journey of becoming a lean accommodation provider.

It was not possible to diversify the results by service profile among accommodation providers in the region. The main reason is that accommodation providers have mixed profiles and even if the given hotel has a clear service profile, often non-managerial employees are not aware of this fact. Given the research method used and the heterogeneous survey of accommodation establishments, it is not worth distinguishing between the service profile of accommodation providers.

In accordance with the literature research, the categories of lean loss perceived in the accommodation service sector are limited, however, it is not the transport loss that is not perceived among accommodation service providers, but rather the repair loss.

The research revealed a latent significant phenomenon of lean tools and philosophy among accommodation providers in the study area. Furthermore, it proved that there are some accommodation facilities in the study sample that are already on the path of lean maturity. The results of the research refute the results of the preliminary interviews and the general perception that lean is not present and does not belong in the accommodation service sector. The research confirmed that the foundations of lean are not known in the sector, it is seen as an automotive, over-mystified management method.

The research revealed a co-movement, albeit weak, but significant in the opposite direction, between the majority of lean asset and loss categories. Further analyses were conducted between the conscious lean use and loss categories, for which this co-movement in the opposite direction was moderate. All this suggests that the efficiency of internal processes can be increased by increasing the awareness of lean tools and philosophy itself.

The conclusion of the literature review is that András Schranz was already discussing rationalisation along the lines of lean principles and wrote a book which was translated into Japanese in 1938, 20 years before the introduction of the method, which was hailed as a Japanese miracle. Is there any chance that lean is not actually originated from Japan? Tribute to all of our engineers and thinkers.

The result of the dissertation was the resolution of the conceptual "confusion". Literature and reports use the terms hotel industry and accommodation services interchangeably. The interviewees were asked to clarify the way they view the segment. Is it considered as an industry or as a service sector? What are the influencing factors in their opinion? The answers highly varied and this is described in details in the results section. In the light of the research, the following approach have been identified: the internal processes of accommodation providers can already be considered as industrial processes, given the right process organisation. The

work of the front office and management depends on the size of the accommodation, its attitude, and the guests and their needs.

The results and conclusions provide a good basis for further research and extension. The first step includes a national outreach to be implemented within the ÚNKP „Tudománnyal fel” research grant in 2022. The second step will be the international outreach. The challenge of the extension is to increase the willingness to complete and to further segment the sample. It is possible - in parallel with the extension of the survey - to compare the outcome with the results of an on-site audit of a pre-screened accommodation provider with a higher completion rate from the questionnaire. There is also a potential to raise awareness of lean among accommodation establishments, therefore the medium-term goal is to continue the research by implementing a "lean awareness project" in an open accommodation establishment.

5. Publications

Scientific works published in a foreign language in chronological order

1. Fruzsina, Magda PANKOTAY: *Diversiti of SME sizing policies and delimitations in the word* (2022) *Gazdaság és Társadalom* 13: 3-4 pp. 102-126., 25 p.
2. Fruzsina, Magda PANKOTAY: *The “Third Missionary” Impact of Universities through a Regional Example* In: IBIMA, (szerk.) 37th IBIMA Conference on 30-31 May 2021, Cordoba, Spain. Conference proceedings Cordoba, Spanyolország International Business Information Management Association (IBIMA) (2022)
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4. Fruzsina, Magda PANKOTAY: *Lean knowledge of Hungarian SMEs and influence of German parent companies.* In: 25th EBES CONFERENCE - BERLIN PROCEEDINGS: May 23-25, 2018 Berlin, Germany Volume 1 – Volume 3 Berlin, Németország: Eurasia Business and Economics Society (EBES) (2020) 2,034 p. pp. 1591-1609., 19 p.
5. Fruzsina Magda PANKOTAY: *The Large German Companies Effect on the Lean Employment of Hungarian SME's* In: Soliman, Khalid S (szerk.) Proceedings of the 35.th International Business Information Management Association Conference Seville, Spanyolország: International Business Information Management Association (IBIMA) (2020) pp. 7496-7503. 8 p.
6. Fruzsina Magda PANKOTAY: *The interpretation of SME's around the world* In: Horváth, Bálint; Földi, Péter; Kápolnai, Zsombor (szerk.) VI. Winter Conference of Economics PhD Students and Researchers: Book of Abstracts Gödöllő, Magyarország : Szent István University, Doktoranduszok Országos Szövetsége, Közgazdaságtudományi Osztály (2020) 128 p. pp. 99-99., 1 p.

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9. Fruzsina Magda PANKOTAY, László Koloszár: *Lean Management in the Hotel Sector – Opportunities and Threats* In: Robert, Holman (szerk.) Book of Abstracts of the 9th Business & Management Conference, Prague International Institute for Social and Economics Sciences (IISES), International Society for Academic Studies (2019) 31 p. pp. 20-20., 1 p.
10. Fruzsina, Magda PANKOTAY ; Koloszár, László: *Lean Management in the Hotel Sector – Opportunities and Threats* In: Robert, Holman (szerk.) Proceedings of the 9th Business & Management Conference, Prague Prága, Csehország : International Institute for Social and Economics Sciences Konferenciakönyv (IISES) (2019) 120 p. pp. 49-61., 13 p. DOI ISSN: 2570-6543
11. Fruzsina Magda PANKOTAY: *Unternehmensgründungsmöglichkeiten für Jugendliche in der österreichisch-ungarischslowakischen Grenzregion pp. 1-1., 1 p. (2013)*

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18. PANKOTAY, Fruzsina Magda *Lean elterjedése a gyakorlatban* In: Resperger, Richárd (szerk.) Geopolitikai stratégiák Közép-Európában : Nemzetközi tudományos konferencia, Sopron, 2017. november 9. : Programfüzet és előadáskivonatok : Geopolitical strategies in Central Europe : International scientific conference, Sopron, 9 November 2017 : Schedule and book of abstracts Sopron, Magyarország : Soproni Egyetem Kiadó (2017) 111 p. pp. 22-22., 1 p.
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22. PANKOTAY, Fruzsina Magda *Aprófalvak a LEADER tükrében, avagy a 2007-2013 as időszak eredményei a szombathelyi járás határfalvaiban* In: Koloszár, László (szerk.) Talentum a tudományban Sopron, Magyarország: Nyugat-magyarországi Egyetem Kiadó (2016) 174 p. pp. 141-155., 15 p.
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