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LEAN MANAGEMENT IN HIGHER EDUCATION INSTITUTIONS. HOW TO BEGIN?

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Abstract: The objective of this article is to present an outline of a concept aimed at identifying the possibilities of using Lean Management foundations in determining the sources of irregularities occurring in university processes from the perspective of various stakeholder groups. A research methodology is presented that creates the basis for initiating programmes modernising university processes in line with the principles of the LM concept from the perspective of the most important stakeholder groups. Thanks to the obtained results, it will be possible to raise the general level of awareness regarding losses and their causes, which have a negative impact on the effectiveness and efficiency of a university's activities. This would give rise to the active participation of important groups of stakeholders in activities improving university systems. The research results will contribute to the development of management sciences with reference to the sector of public services by identifying the factors determining changes in university management systems in a manner consistent with global trends. It will also be possible to develop a theoretical model supporting the LM-based identification of irregularities and their causes in universities.

Keywords: higher education, lean management, process improvement.

1. Introduction

The basic condition for the effectiveness of the management system is the ability to identify and take up actions by the management in relation to those factors related to the processes of the organisation which contribute the most to the achievement of strategic objectives. Quality of products and services as such a strategic objective is relative to the processes and contexts presented in terms of desired outcomes.

The multidimensionality of quality in higher education results from various factors associated with fulfilment of the mission of higher education. It is open to different perspectives represented by different interested parties. Universities develop quality enhancement mechanisms within an internal quality culture in accordance with their institutional mission and objectives (Wiśniewska, Grudowski, 2019).

Process management, which is gaining more and more recognition, in particular, appreciates learning through experience, on the basis of which motivated employees introduce both breakthrough innovations and minor improvements in the processes they are connected with. Attempts at reorientation towards processes are made by higher education institutions (HEIs) using their own human and technical resources, as well as with external support. However, they face typical barriers to their implementation and, more importantly, to consistent application at all levels of a university's activities. This is mainly due to the problems of ensuring consistency of solutions across an entire organisation, as well as separation of university-wide and local (e.g. related to the specificity of a department/faculty) processes and their owners. In addition, such reorientation escapes schemes referring to the traditional academic hierarchy and typical relations connecting the "headquarters" with organisational units of the university, especially faculties.

The process-oriented transformation of HEIs is negatively influenced by emphasising mainly the area of quality of education in legal regulations and, consequently, in the statutes and other internal regulations of a university. Improving the quality of education is naturally the key goal of a university's strategy, but it can be effectively achieved only in the sustainable, consistent in terms of the applied solutions, participation of other categories of main processes properly managed, including scientific research, administration and relations with external stakeholders.

A definitely overlooked aspect is actions to ensure an appropriate level of acceptance of changes and commitment from all groups of university employees (Gordon, Whitchurch, 2007). While the role of students as key stakeholders has been highly emphasised, both in terms of evaluation of the educational process and other decisions taken by university bodies, the participation of many groups of employees in the management of higher education was almost completely marginalised.

System solutions in the macro scale will not solve typical problems that occur in the everyday functioning of a university. The local economic environment, its interests and expectations also shape the profile of higher education (Altner, & Michelsen, 2005). In the era of globalisation, higher education tasks and processes implemented by universities are not limited to acquiring and generating knowledge, but they shape the ability to predict and reflect on the effects of decisions in a sense of global responsibility (Barth et al., 2007).

The opportunities of creating such solutions naturally oriented to university processes result from the principles on which the Lean Management (LM) concept is based and, in particular, the systematics and management of waste in the processes of an organisation.

The objective of this article is to present an outline of the concept aimed at identifying the opportunities of using the Lean Management foundations in determining the sources of irregularities occurring in university processes from the perspective of various stakeholder groups. As a consequence, this should enable the establishment and initiation of improvement strategies engaging stakeholders and which are consistent with the principles of LM in these organisations in Poland.

The first part of the article presents selected conditions related to the use of TQM and LM elements in HEIs. Next, the most important conclusions from the research on the quality orientation of Polish higher education institutions will be presented, especially with reference to legal regulations in force in Poland. Finally, the research methodology is presented, which, according to the authors, in reference to the title of this article, should create the basis for initiating programmes modernising university processes in line with the principles of the LM concept from the perspective of the most important stakeholder groups. Such programmes, thanks to the appropriate decisions and active attitude of the management, in the initial phase of implementation, should focus on defining the main categories of irregularities in university processes and their causes, creating conditions enabling the involvement of the largest possible group of people related with these activities.

The summary provides, inter alia, directions for further research related to the possibilities of using the Lean HE concept in the context of the Polish HE system.

2. TQM and Lean Management in higher education

The adoption of Total Quality Management (TQM) practices into universities is controversial among the academic community. Some academics view TQM as a new management fad that does not have universal application, while others see it as a major paradigm shift (Cruickshank, 2003; Ullah et al., 2017; Salam, and Al-Salim, 2018). The proponents believe that TQM creates more effective and efficient business processes, with improvements undertaken on a continuous basis by all employees in an organisation (Mehta et al., 2009). If the application of TQM in the higher education industry is to be successful, several fundamental areas will need to be addressed. First, assessing the culture of higher education institutions and introducing changes in attitudes, values and beliefs is paramount. Since most faculty members have never worked in a TQM environment, there may be fear of or a lack of belief in TQM (Youssef et al., 1998). According to Cyert (1993), the sceptical attitude held by faculty members can be overcome by increased knowledge of TQM and why it works as a philosophy of management. In addition, replacing the fear and lack of belief with mutual trust and confidence requires a "strong upper management leadership who themselves are deeply committed to TQM and who can work effectively with people" (Youssef et al.,

1998). Recently, this problem has been addressed by many scholars. Patil et al. (2014) argue that the process toward total quality in universities and educational centres is a slow and steady process. Moreover, they claim that change in TQM needs time, and this change can be achieved with patience, cooperation and assistance. Universities and educational institutions could be successful in implementing TQM if they have the cooperation of managers, which means having knowledge, belief, confidence and skills towards TQM. Hasham (2018) points out that if institutions of higher education want to implement TQM, participative management is to be contemplated. With a clear mission determined by objectives/goals, a well-structured strategy, distinct job descriptions, open communication, allocation of resources for implementation and top-management support, performance will be enhanced. The result will be quality productivity from one echelon to the other. Second, academic members will need to view the institution as a system of interrelated parts. Vidovich et al. (2000) believe that higher education institutions will have to be proactive in developing self-evaluation systems at an institutional level and also interweave quality assurance initiatives closely within the strategic plans of institutions. Over the years, many articles have been published about critical factors in the implementation of TQM in HE institution. Their review is included in the manuscript by Papanthymou & Darra (2018). The authors most of all identified: employee involvement, customer focus, commitment of leadership and the mobilisation and efficient communication of the members of HE institution. In recent years, several articles have been published highlighting the role and benefits of implementing TQM in higher education. According to Zabadi (2013), TQM, when applied with strong leadership support, leads to continuous improvement in management systems, processes, products and services and results in satisfied customers and stakeholders. Prakash (2018) reveals that the quality constructs of student learning, engagement, service quality and satisfaction have received the greatest attention, followed by total quality management and quality assurance. Interestingly, Salam and Al-Salim (2018) confirmed that there is a statistically significant effect of total quality management on the overall performance of higher education institutions.

Lean Management creates a new approach for HEIs. It raises both concerns and hopes. Lean Management is an effective, comprehensive methodology aiming for the reduction of non-value adding activities (Suarez-Barraza et al., 2012; Post, Slaughter, 2013). Defining value, mapping and redesigning processes in order to provide continuous improvement, eliminate waste and to focus on customer expectations are among the major principles of Lean (Womack, Roos, 1996; Grudowski, Leseure, 2013). There is a vast number of publications on successful Lean initiatives experienced by manufacturing organisations, as well as by companies and institutions in the service sector (Lean Service). However, there is much less research focused on LM sustainability in higher education institutions. This is mainly because the interpretation of Lean practices in HEIs is a great challenge (Comm, and Mathaisel, 2005; Jiju, et. al., 2012), and the awareness of Lean Management as a highly effective methodology is quite low (Höfer, and Naeve, 2017). A fundamental difficulty is related to the lack of consciousness of potential

benefits brought by Lean in HEIs. The idea of leanness is not sufficiently clear to senior university leaders (Mathaisel, Comm, 2000). Other obstacles arise from the lack of process thinking and visionary leadership in HEIs (Douglas, Antony, Douglas, 2015).

Some managers in HEIs mistakenly treat LM as a tool for headcount reduction (Post, Slaughter, 2013). The communication in HEIs is known to be doubtful, leading to the development of a so-called "silo culture" across various departments of universities. This usually implies the passive attitudes of employees convinced that personal involvement is a waste of time (Anthony, Krishan, Cullen, Kumar, 2012). Another challenge for HEIs, as well as other public sector organisations, is the lack of resources needed for implementation of LM - mainly budget and time (Comm, Mathaisel, 2005; Drotz, 2014).

Implementation of LM requires application of certain tools and techniques. In the case of HEIs, the most relevant tools involve, among others, value stream mapping, cause and effect, as well as rapid improvement workshops (Balzer, 2010 – this author first introduced Lean HE – Lean in Higher Education – in his publications). The list of fundamental factors that need to be fulfilled in HEIs was also developed. These are so-called "readiness factors" (Anthony, 2014).

3. Quality reorientation in higher education in the Polish context

Legal regulations concerning higher education in Poland have emphasised the quality criterion for over a dozen years as crucial in the development of both academic education and scientific research. Despite the evident occurrence of many beneficial changes in the approach to the quality of services of universities, the lack of coherence within these regulations is one of the most important barriers in the effective and efficient improvement of the competitiveness of Polish higher education internationally.

In only a few domestic publications (e.g. Wawak, 2012) have reservations been made regarding the coherence of the system of legal provisions related to quality in Polish higher education with a rich heritage of quality management. Research conducted by the author in the framework of various initiatives, in particular within the framework of the Polish National Science Centre project titled "Quality management achievements and the legal context of quality-oriented management in Polish higher education. Contradiction or harmony?" (years 2013-2017) made it possible to identify a number of inconsistencies in the area of legal regulations concerning quality in relation to specific solutions applied in Polish universities. These comments have been presented in many publications related to this project, including the following articles: Wiśniewska, Grudowski, 2014; Grudowski, 2015; Grudowski, Szefler, 2015.

The majority of Polish universities, especially larger public universities, despite their essential role in strengthening the innovative potential of the economy, did not adapt their organisational systems to current trends in the area of quality management. This conclusion results not only from the observation of the situation in Poland, but also from an analysis of foreign literature concerning HE (Bargh, Scott, Smith, 1996; Escotet, 2006; Shattock, 2003; Zechlin, 2008; Thieme, 2009; Final Report, 2011; Wawak, 2012; Leja, 2013; Grudowski, 2015).

In reference to the current situation, formal solutions supporting quality orientation in Polish universities are characterised, among others, by the following features:

- marginalisation in the context of ensuring the quality of other areas of the university's activity than just the education process by narrowing the goals defined in the planning area of the quality systems of universities,
- dispersion and inconsistency of detailed quality requirements in higher education institutions (HEIs) in many regulations, including accreditation of fields of study and institutional assessment conducted by the Polish Accreditation Commission, unfortunately covering only some areas of university quality management systems,
- lack of properly formulated requirements regarding design, ongoing control and improvement of quality management systems in universities and their units in a consistent manner, e.g. using models presented in the ISO 21001 and ISO 29990 standards, developed especially for educational organisations,
- difficult to justify, persistent reference to the long-obsolete paradigm of "quality assurance" instead of the wider scope of the "quality management" paradigm of services provided by HEIs.

4. Proposal of research methodology on Lean HE

The presented results of studies concerning quality in Polish HEIs, although interesting and valuable in the context of potential decisions of university management regarding the improvement system, only open a much broader research perspective. These studies should support programmes stressing the natural need to involve the most important groups of stakeholders in the process of improving university management systems. Lean management is a very good basis in this case.

The main objective of the suggested in-depth research by the authors is to identify the irregularities in the processes characterising a university's activities based on the concept of LM and to identify factors supporting the identification of their causes in the management systems of these universities. Taking this into account, the specific research questions are:

1. What is the typology of processes that most accurately characterise the activities of a university in the context of LM?
2. What irregularities, according to the typology of muda, mura and muri, on the basis of literature sources and opinions of various stakeholder groups, occur or may appear in a university's processes?
3. What are the reasons for the occurrence of individual types of irregularities according to the opinion of the groups of stakeholders of the university?
4. What factors support effective identification of causes of irregularities by university stakeholders?
5. What factors can affect the effectiveness of improvement activities – elimination of the causes of irregularities?

The process of research will consist of two phases (Figure 1):

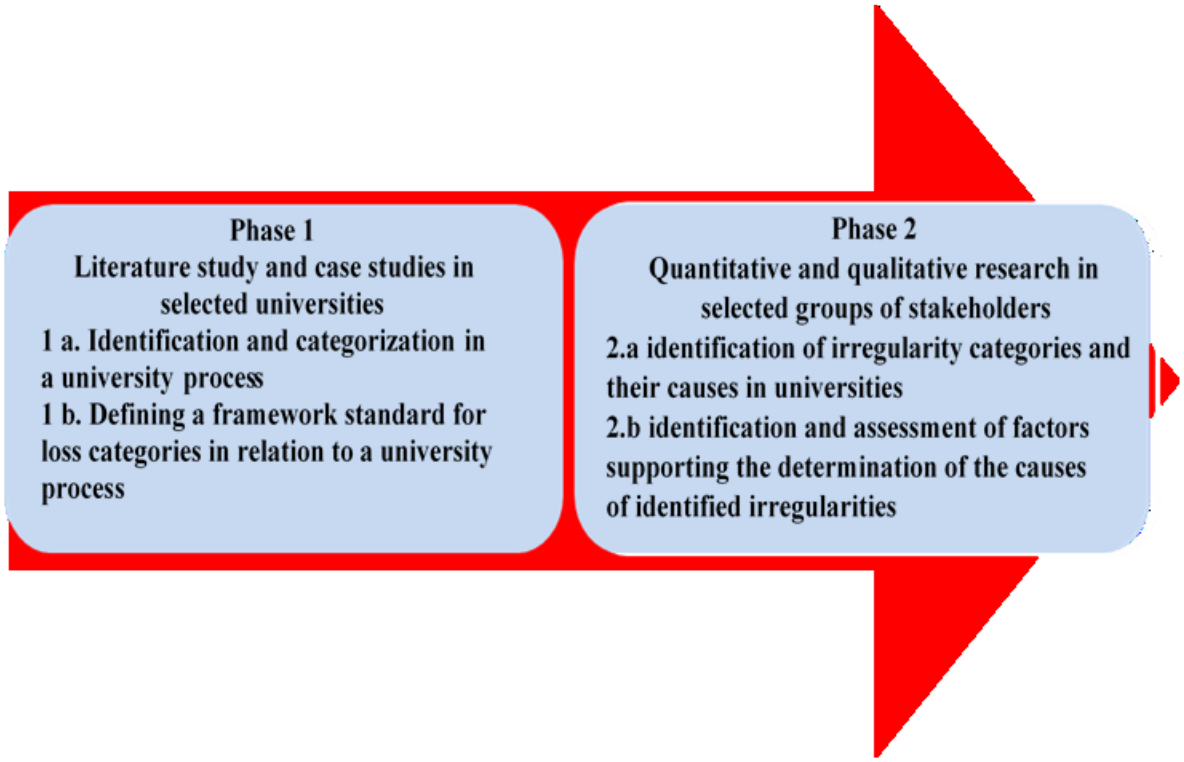

Figure 1. Phases of the planned research realisation process. Source: own elaboration.

In Phase 1 of the study, the following research tasks have been established:

– identification and categorisation of main, strategic and supporting processes in universities,
– elaboration of the framework of the categories of irregularities in relation to a university processes on the basis of the convention adopted in the LM concept (3M – muda, mura, muri).

In Phase 2, on the basis of quantitative and qualitative research, the following research tasks are planned:

– identification of individual categories of irregularities and their causes in universities by key stakeholders associated with these universities – management, employees (academics and supporting staff), students, graduates and employers,
– identification and assessment by stakeholders of factors supporting the determination of the causes of identified irregularities (qualitative research).

In order to supplement the LeanHE theory, the following specific tasks were adopted:

– development of a method allowing to determine the rank of irregularity in the context of the university's strategy (own concept),
– defining the assumptions for knowledge management systems in universities supporting the identification of irregularities and their causes.

The basic risks associated with the realisation of the research relate, in particular, to Phase 2 tasks. According to the experience of applicants, it is most difficult to obtain information from employers' representatives and university graduates. In order to reduce the risk of obtaining information from too small a number of respondents in these groups, actions will be taken to obtain support from all considered HEIs, local employers' organisations, local clusters gathering enterprises and universities, Voivodship Marshal offices, graduate associations and organisers and committees of local and nationwide business awards (e.g. regional quality awards, Polish Quality Award).

The implementation of activities under Phase 1 will result in developed graphical and tabular frameworks of processes in HEIs and adequately classified possible irregularities based on LM foundations with their potential causes in the processes of these universities.

Activities under Phase 2 of the study (quantitative and qualitative research) are presented in Figure 2.

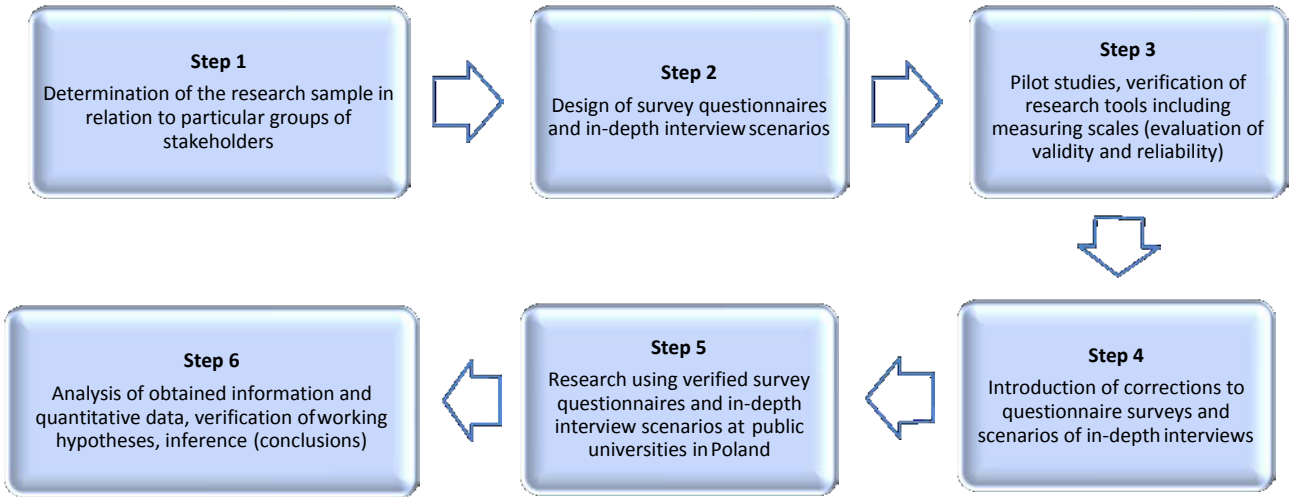

Figure 2. Diagram of the course of activities under Phase 2 – quantitative and qualitative research. Source: own elaboration.

5. Conclusions

In the last 5 years, the concept promoting LM in higher education institutions, Lean HE has been gaining popularity in such regions of the world as North America and some countries of Western Europe – mainly Great Britain and Scandinavian countries. The first experiences of foreign universities introducing the idea of Lean HE are very promising.

For this reason, the authors of this article, having experience in both research on quality in higher education and in LM, decided to carry out research aimed at defining the foundations enabling better understanding and appreciation of this concept in Polish universities. The management representatives of Polish HEIs: rectors, deans, heads of university-wide centres and administration units and other employees – academics and supporting staff – are interested in this type of research.

Thanks to the obtained results, it will be possible to raise the general level of awareness regarding losses and their causes that have a negative impact on the effectiveness and efficiency of a university's activities. This would give rise to the active participation of important groups of stakeholders in activities improving university systems. These studies are of great social importance, as they should contribute to determining specific directions of modernisation in universities providing their real pro-quality transformation. Undertaking the proposed research is an urgent task, as problematic solutions are now consolidated in the management systems of many universities in Poland.

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