

# Lean Management Shifts in Higher Education Towards Networking Units: A View From Russia

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**Abstract**-The aim of the paper is to verify the structural changes in the Russian higher education for their compliance with the lean management principles. The analysis of the main challenges and threats arising in Russian higher education as a result of the structural transformation of universities through mergers and acquisitions is proposed. The viability of alternative approaches associated with the formation of educational clusters and network structures that facilitate the hierarchical management of large universities and the process of delegation of authority is noted.

**Keywords**-higher education, lean management, digital economy, self-competition strategy, networks, organizational structure, educational clusters, market of educational services, change management

## I. INTRODUCTION

Introducing lean management principles in education has quite a long tradition, although the theoretical understanding of the relevant processes is often limited to a more or less consistent overview of individual examples (Balzer, 2010; Comm and Mathaisel, 2005; Doman, 2011).

The theory in this regard is rather contradictory, since lean management is not a coherent concept, but is a set of disparate tools and approaches to implement total quality management, execute continuous improvement, reduce crucial losses in various ways, provide protection against unintentional errors (poka-yoke) etc.

Therefore, the papers in the field of lean management in education focused on anyone of its manifestations (Antony *et al.*, 2012; Holm and Waterbury, 2010), and that, of course, makes it difficult to comprehend the consequences of actions performed by managers, not to mention the quantitative evaluations that permit to use some effective controlling tools.

Add to the fact that certain place in any business process is occupied by intangible operations, the effect of which is not very easy to measure, and for the same reason it is difficult to report about their implementation. Even the standard Shewhart – Deming cycle (plan – do – check – act) contains intangible operations included into planning and checking. In a knowledge-intensive business, where employees' competencies determine a lot (and the sphere of education is a business of a such kind), there are many intangible operations, and this makes it difficult to

standardize the processes taking place in it. No one knows what a reasonable level of procurement expenses are for correcting errors in assortment policy and how long one can be satisfied by the programmer's answer that he is "thinking about the way to do the same things better".

Therefore, the attitude of different authors to lean management in a knowledge-intensive business is quite different. Some researchers describe the joys of standardization in educational systems, rightly pointing out that only the implementation of standards can make educational processes commensurate by key indicators (Stecher and Kirby, 2004). Others, on the contrary, insist that the way to the implementation of lean management principles in a knowledge-intensive firm is unique, and someone else's experience is almost idle on this path (Ries, 2011).

A special place is occupied by works (so far few), in which attempts to measure the level of leanness are made (Bayou and de Korvin, 2008; Shah and Ward, 2003). A great number of researchers believes that key processes in lean management are related to culture and motivation (Mann, 2005), and do not see the need for thorough quantification.

However, in most cases in educational institutions there are obvious losses resulting from the irrational expenditure of resources, especially the time spent by qualified workers on tasks that do not require high qualification. Not that losses of a such kind would be something that needs an assessment, it arises by itself, when the management of a higher education institution takes the trouble to think about how it is possible to use competences more effectively. It's not that we resort to quantify, it figures caught our eyes.

## II. SOME PROBLEMS

One of the crucial principles of lean management is to eliminate or at least minimize the so-called unproductive losses, including the time spent by staff on performing operations not related directly to value creation or service delivery to the client. We have the opposite situation in the Russian higher education in the last 10 years: unproductive losses increase year by year, and this is due to the initiatives of the Ministry of Education. The sharp increase in the volume of reporting provided by higher education institutions (HEIs) to the Ministry, impels university

management to divert highly skilled workers to perform routine operations that are not related to student training. Such innovations have a detrimental effect on the quality of education, since they distract professors from their main work.

Such extravagance, fundamentally contrary to the key ideas of lean management, turns into two troubles. The first is that in order to read the bloated reports coming from educational institutions, you need a staff who can analyze them. Accordingly, each implemented management initiative of that kind leads to the swelling of the Ministry's staff. In turn, the involvement of new employees does not pass without a trace: in order to prove the need for their presence, they come up with the new initiatives that entail more voluminous and sophisticated reporting forms. It is easy to understand that positive feedback of that kind cannot last forever: the trap into which human resources are drawn will end sooner or later with a radical reduction of templates and schedules.

The second trouble is that any reporting directs the efforts of staff only on the achievement of indicators that can be included in the report. For example, if a report is submitted annually, and the professor makes efforts with the expected return in 2-3 years, he will consider his activity ineffective and will move it to some areas that are able to bring faster returns.

One of the pith concepts of lean management is so called Gemba (location of a battle, or – in French – place d'armes). Taking into account the above, it should be recognized that in this case the main place of the battle, causing a significant level of losses, is outside educational institutions, this place is in the Ministry of Science and Higher Education.

This picture is radically different from the situation in educational institutions of most developed countries actively implementing the principles of lean management.

What must we do with that? And what is the remedy?

### III. SOME SOLUTIONS

At the end of the 70s of the last century, when the era of large multi-profile trusts ended, there was a start of rising companies with a cellular structure, i.e. divided into relatively autonomous units – centers of profit and responsibility, which were integrated only by certain forms of statistical reporting and, of course, could rely on the head company in certain emergency cases, but were otherwise independent in making business decisions, including financial ones.

Already in the early 70s, an example of such an organizational structure was shown by Procter & Gamble, divided into divisions, each of which was involved in creating and promoting products under a certain brand. Thus, different divisions of the same company entered the same market, competing with each other. That strategy was later called the *self-competition strategy*. It is extremely effective in the markets of monopolistic competition (Nizhegorodtsev,

2008), because it allows different departments of the company to take strong positions quickly, squeezing from the markets the non-monopolized sector, which is usually characterized by higher costs and poorly managing brands.

Strangely enough, a similar process started much earlier in the education sphere, where the largest universities traditionally represented a network of not too much closely connected educational institutions (often with a similar profile), each of which was independent in the choice of forms and methods of training, and also in most matters of its business activities. An example is the University of Cambridge in the UK, for centuries uniting a number of colleges and institutes, which produce specialists of the same or similar profile, studying almost the same set of academic disciplines.

This experience is extremely significant and useful for various countries, taking into account information technologies that are rapidly being implemented into the educational process. Informatization of educational processes leads to a radical transformation of some of the regularities dictated by the so-called scale effect: in the digital economy, it manifests itself differently than we are used to seeing. Therefore, today, small universities are quite competitive in the market of educational services, like small enterprises in the markets of material goods (Nizhegorodtsev and Reznik, Eds., 2018). They must fill market niches that are inaccessible to large universities.

Ever since in 2016, the leadership of the Ministry of Education and Science of the Russian Federation stopped a flurry of mergers and acquisitions of universities conducted without proper justification and preparation, the need for close study of the abroad management experience of small universities has increased. Recently, the study of the experience of developed countries in that area tendentiously boiled down to studying the experience of managing large universities (Rakitov *at al.*, 2007). Thus, the issues of competitiveness of small universities automatically went beyond the discussion of the problem, and the task was adjusted to the predetermined, required answer.

Meanwhile, well-known large universities, for example, in the UK and in France, whose experience is often (and not always justifiably) used as an example for national higher education, are agglomerations of small educational institutions that *duplicate* each other's activities at a set of specialties and training programs. In this regard, large universities are transformed into network structures that provide training for specialists in a wide range of areas not due to unification and pooling of efforts and resources, as is usually done in Russia, but by increasing the diversity and differentiation of the capabilities of small educational structures they consist of.

A number of recent studies have shown that the mechanism of mergers and acquisitions of universities, which was elected by the Russian Ministry of Education, contains enormous risks associated with increased bureaucratization both within educational institutions and

from outside, from the structures that manage education (Sizov and Sizova, 2012; Sizov and Maury, 2015).

Both the leadership of the universities themselves and the officials who regulate their activities, are increasingly focusing on formal institutions (behavioral patterns, standards, and regulations) in the management process, losing sight of the content side of the pedagogical process. At the same time, the formalization of institutions invariably acts as a mechanism for adverse selection (Simchenko *et al.*, 2018; Nizhegorodtsev, 2018), and as a result, the competitive positions of universities that have undergone formal consolidation on the educational services market are reduced, although their positions in formal ratings still high.

One of the unfortunate consequences of structural transformations of that kind is that educational institutions face adverse selection for personnel (Shklyayev and Goridko, 2015), scientific schools disappear, research teams are destroyed, and their rebuilding will take many years. Of course, those processes negatively affect the quality of education.

Some researchers (there are, unfortunately, quite a few) explain the failure of the merger institution to the insufficient personal responsibility of university management for fulfilling key indicators set by the Ministry, and suggest tightening its responsibility (Vinslav, 2018). Such a path is proper in the cases where the decision making unit is firmly convinced that meaningful success might be ensured by a formal institution, deviating from which is proposed to be punished severely. So far, in the education sphere, such institutions, to put it mildly, are extremely few. The view that having a class journal with marks (in a paper or an electronic form) is crucial for students to get strong and high-quality knowledge is like an assurance that the door cannot function normally until a lock is embedded in it.

Institutional filters operating in the system of higher education, direct huge budget funds to achieve, generally speaking, imaginary and highly controversial goals, in particular, the entry of domestic universities in the first lines of international rankings. This import institution, like other similar institutional solutions, is toxic, because pursuing goals of this kind goes against the substantive improvement of the educational process, and the achievement of those goals is unrelated to the main function of a university – to high-quality student learning (Nizhegorodtsev, 2013; Nizhegorodtsev, 2017).

A reasonable alternative to the tactics of mergers in the market for higher education services can be the formation of educational clusters (Goridko and Glebanova, 2018), within which it is possible to combine efforts to the extent that it is beneficial to the various cluster members, but no more. Here mutually beneficial personnel decisions are possible, as well as sharing facilities, and the extraction of status rent for the development of a cluster as a whole.

Of course, within the educational cluster, internal competition (“self-competition”) occurs, especially if the educational institutions that are parts of the same cluster

prepare specialists in similar areas of training. But this problem is partly solvable by specialization of programs, taking into account the uniqueness of sought-after competencies.

The timely structural transformation of universities by their transition to a cellular structure, accompanied by formation of educational clusters, can solve some general problems of the Russian economy, reflecting the contradictory and uneven character of its entry into the digital reality. In the final period of the planned economy, a similar model was provided by Lomonosov Moscow State University, which was the separate authority with the rights of a Ministry, uniting faculties where there was a completely autonomous structural and personnel development, there was a certain degree of autonomy for economic activity, with their own personnel departments, financial and accounting departments, clerical offices, and the deans acted like rectors of educational institutions. Nowadays, Lomonosov Moscow State University is just a state educational establishment, it’s moving away from that model.

Among the newly founded universities, the Higher School of Economics is close to that kind of structure, including fairly autonomous units that prepare students for the intersecting range of directions and specializations. The other universities, having been enlarged, turned into hard-to-manage monsters, trying to eliminate at all costs duplication of functions between their functionally separate units. An alternative to that approach is the formation of network structures on the basis of large educational institutions, which facilitates hierarchical management based on a wide delegation of authority.

#### IV. FINAL CONCLUSIONS

In countries where the incomes of a population are on average not too high, and the system of educational loans only takes its first steps, the education sector inevitably remains primarily in the care of the government. The low level of solvency of the population reduces the competitiveness of private universities, and large-scale state universities easily squeeze them out from the market. The Ministry of Education provides them with patronage, believing (not unreasonably) that private universities do not ensure the proper quality of education.

Under those conditions, the decisive word in the implementation of the elements of lean management belongs to large universities-monopolists, and the bureaucratization of the education sphere is reflected primarily in them.

Of course, with any preferences of regulatory structures, universities are impelled to streamline internal processes and look for answers to external shocks inside themselves. However, in today’s Russian institutional environment, the path to continuous improvements and the implementation of the six sigma model most often lies through making of a cellular structure for large educational institutions, and

through participation in network processes and cluster educational initiatives for the small ones.

There are very few administrative barriers on this path so far, and it would be wise for providers of educational services to use that to gain or maintain strong competitive positions. In this area, as in many others, the development prospects of network structures are improving due to the emergence of the digital economy, dramatically reducing information exchange transactions and accelerating the circulation of temporarily free resources not engaged in business processes.

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