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Influence of Supply Chain Management on Universities Development: An Outward Glance

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Abstract— **This study is devoted to assessing the supply chain management impact on universities promotion and efficiency in international and Russian universities' ratings on their development. The peculiarity of the study is that it considers both universities participating in the competitive recovery program and presented in international rankings, as well as those that do not participate therein. The paper analyzes the rating indicators, the development strategy and the positioning of four Russian universities: Kazan (Volga Region) Federal University (KFU), National Research University "Higher School of Economics" (HSE), M.T. Kalashnikov Izhevsk State Technical University (IzhSTU) and G.R. Derzhavin Tambov State University (TSU). The research revealed the positive effects of the promotion in the university rankings on their development, among which the following can be distinguished: the formation of a competitive environment within the university, the definition of a specific strategic goal, the attraction of more qualified personnel to the university, including from the international academic market, etc. Negative consequences were revealed too, such as: increase in the workload on teachers, and as a result, reduced attention to the organization of the educational process, higher risk of losing the quality of scientific research, as a result of increasing the number of publications, ineffective spending of the university funds.**

Keywords— *Supply chain management, university ratings, university development, THE, ARWU, QS, RAEX, Interfax.*

1. Introduction

Nowadays, as a global context it has become common for companies to adopt a more collaborative behaviour focused on their central competencies, outsourcing the less critical processes in order to increase the company's competitiveness. As a consequence, the success of a company will depend on how it can manage the relations along the supply chain management (SCM). Therefore, the focus on management extrapolates the barrier of each firm, demanding the management amplification to the entire network in which it is included, encompassing suppliers and the distribution channels. The peculiarity of our research group was the fact that the group includes two HEIs participating in the program to improve the competitiveness of the leading Russian universities "5-100" - Kazan (Volga Region) Federal University (KFU), National Research University "Higher School of Economics" (HSE), and two universities being out of this race: M.T. Kalashnikov Izhevsk State Technical University (IzhSTU) and G.R. Derzhavin Tambov State University (TSU).

2. Methods

The following scientific methods were used in this paper: analysis, comparison, survey and description. The study was based on the statistical data and experience of four Russian universities, as well as the criteria and indicators of international and Russian university ratings [1].

3. Results and Discussion

3.1 The influence of ratings on the university

It bears reminding that the main goal of the Project "5-100" is to maximize the competitive position of a group of leading Russian universities on the global market of educational services and research programs [2]. The main measure of this

goal is the promotion of universities in international university rankings. The target of the project "5-100" is defined in the decree of the President of the Russian Federation and assumes that by 2020 at least five Russian universities will enter the first

hundred leading universities according to world ratings (Stack, 2016). The following are the data on the criteria that are taken into account in any rankings (Table 1) and the positions of the considered universities (Table 2).

Table 1. The weight of the criterion in the university rating (%)

	THE[1]	ARWU[2]	QS[3]	RAEX[4]	Interfax[5]
Academic reputation	15		40	20	
Scientific reputation	19.5				
Education				50	20%
Teacher/student ratio	4.5		20		
Foreign/domestic teachers	3				
Qualification of teachers (number of employees - laureates of Nobel and Fields Prize)		20			
Qualifications of teachers (the number of the most frequently cited researchers)		20			
Evaluation of employers			10	30	-
The quality of education (the number of graduates - laureates of the Nobel and Fields Prize)		10			
Defense rate	8.25				
Scientific publications (for ARWU in Nature and Science journals)	4.5	20			20%
Citation index	32.5	20	20		
Teacher's remuneration	2.25				
The cumulative productivity of previous indicators per capita		10			
Social environment					15%
Internationalization	2		10		15%
Innovation and Entrepreneurship	11.5				15%
University brand					15%

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[1] https://www.timeshighereducation.com - The Times Higher Education World University Rankings
[2] http://www.shanghairanking.com/aboutarwu.html - The Academic Ranking of World Universities (ARWU
[3] https://www.topuniversities.com - QS World University Rankings
[4] https://raexpert.ru/project/vuz_rating/2017/ranking#4 - Рейтинговое агентство RAEX (Эксперт РА)
[5] http://unirating.ru - Interfax National ranking of universities

Table 2. The positions of universities in university rankings

	KFU	HSE	Derzhavin TSU	IzhSTU
THE	401-500	351-400	-	-
ARWU	-	-	-	-
QS	441-450	382	-	-
RAEX (2018)	16	5	-	89
Interfax (2017)	11	4	84-85	73

KFU is one of the participants in the project "5-100", which determines the target of the University's promotion in international rankings. However, it should be noted that this should not be the goal, but the result of the scientific and educational activities of the university. But, unfortunately, this is not always the case.

With the purpose of developing, updating and monitoring the implementation of the KFU development strategy, as well as coordinating the processes of effective achievement of strategic targets, in 2007 the Advance Development Center of Kazan University was established. The structure of the ADC includes the Monitoring Division, the Planning Department, the Project Office, the Center for Strategic Estimates and Forecasts, the Analytical Department, within which the Sector for Interaction with Rating Agencies is integrated.

Having been participating in the project "5-100" sine 2013, the HSE has certain obligations, including on the positions in the international rankings (QS, THE) and the indicators of the publication activity, which determines the financing of the university [3]. In addition, the university's position in world rankings is an assessment of the level of education and research conducted by the university. In 2015, in order to promote the Higher School of Economics in the international rankings, the Information and Rating Center was created, aimed at analyzing the methods for recording international rankings, communicating with international ranking agencies, collecting, systematizing and presenting data to ranking agencies. The rankings are heavily focused on the research component. In 2016, the Science Metric Center was created, which focuses on various formalized schemes for evaluating the scientific activity of the HSE staff using scientometrics.

The HSE participates in the QS and THE ratings (since 2008), U-Multirank, Webometrix, SSRN RePEc, as well as in national ratings Expert RA, Interfax, Future Today, Superjob.ru. and others. The HSE is building up its reputation through effective promotion in industry and subject ratings. For example, Sociology (51-100 QS, ARWU), Business and Economics (101-125 THE, 101-150 QS), Mathematics (101-150 QS, ARWU), Philosophy (101-150 QS), Arts&Humanities (176-200 THE), History (151-200 QS), etc.

Derzhavin TSU is a classical university, the largest university in the Tambov region (Derzhavin, 1984). As can be seen from Table 2, the university takes part in Russian ratings, stably taking middle positions. The University does not participate in international rankings due to insufficiently high rates. The university provides no special services for the formation of rating indicators. Hitting certain indicators in the ratings is not the task of the university. This is primarily due to the fact that most of the rating indicators for their modification require a large investment of resources. At the same time, higher education in the university does not give an economic, reputational or other positive effect for the university.

In its activities, the university is focused primarily on regional entrants who are not interested in international ratings. Surveys conducted by the university among students show that the overwhelming majority of students do not know about the international and national ratings of universities, and accordingly, when entering a university they are not interested in the rating of the institution. The same picture is typical for foreign students. In Derzhavin TSU about 15% of students are foreigners. Experience with foreign students shows that foreign applicants are not interested in

national ratings, but are guided by other criteria when choosing a university [3,4].

External partners and regional authorities are also not interested in the place of the university in the ratings and do not consider this important. The amount of funding does not depend on the position in the ranking (unlike the universities participating in the program "5-100").

A similar pattern is typical for IzhSTU. The university plays an essential role in the socio-economic development and industrial complex of the Udmurt Republic. It occupies approximately average positions in national university rankings, however, it does not participate in the best-known international rankings due to relatively low indicators on a global scale [5]. This is also due to the fact that the university mainly prepares staff for its region and is not focused on international educational markets. Consequently, the influence of the well-known international ratings does not affect the activities of IzhSTU due to the discrepancy in the scope of activities. The influence of national ratings on the choice of the university entrants is minimal or absent, since most of them choose a place to enter based on its territorial proximity. A small part (about 10-15%) of applicants are chosen by universities of other regions, mainly Moscow and St. Petersburg.

Sociological surveys of students confirm that the ratings, as a rule, have no significance, do not affect the learning process and do not cause the transfer to another university. Most students (as well as applicants) do not have any idea about any rating; for example, most universities, including IzhSTU, do not use their indicators in their marketing strategy.

Employers also do not give meaning to the ratings, because when choosing graduates, they are guided primarily by the way graduates of the University of Previous Years show themselves. In the current system, ratings are most important for the administration of the University with the aim of positioning the founder in the person of the Ministry of Science and Higher Education of the Russian Federation.

4.   Summary

4.1   Positive influence of ratings on the university

We decided to limit the circle of stakeholders in this assignment to the administration of the university and its employees. Work in the brainstorming format allowed the participants of the assignment to come to several common positive consequences from the introduction of the rating system of universities, both inside the system and in the external environment.

With the start of the project "5-100", many university staff first discovered international university rankings and world-class publications (the range of the Supreme Certifying Commission's journals has expanded significantly), the staff in the first years of the program had a powerful system of financial motivation for increasing the number of publications and activating the scientific research activity. As shown in the paper by Poldin and co-authors, the dynamics of the total number of publications of universities "5-100" outstrips the publication trend of other universities by 12.2% and 26.6% in 2014 and 2015, respectively [6]. There was a need for an international collaboration. Many universities created a system for assessing the publication activity, introduced an internal academic staff rating system, which formed a competitive environment within the university [7-10]. The strategy of universities is beginning to acquire a more precise framework and formulating a specific strategic goal.

Analysis of their place in international and national rankings, promotion of competing universities is the source for the management to analyze the errors of the university, identify its weak points, which does not receive enough attention in the university.

The universities participating in the project "5-100" have an additional source of funding. Strengthening the reputation in the global market allows them to attract more qualified personnel, including from the international academic market.

In turn, high positions in the ratings may be a trump card for information noise and the assertion of the university in front of the regional authorities and the founder.

4.2 Negative influence of ratings on the university

At the same time, the rating system has a number of adverse consequences.

In particular, the need to meet the minimum requirements (meeting the requirements of an effective contract) has led to an increase in the workload on teachers, and as a result, less attention is paid to the organization of the learning process. A number of university staff, unaware of this, confined to the strict framework of an effective contract, worsen both the academic and their reputation.

Often there is a process of identifying the tasks of university development with the task of formal promotion in global rankings, with a possible tendency towards the development of research to the detriment of the development of the educational process. Universities face the risk of following the path of "buying" publications by concluding contracts with highly rated researchers from other organizations (an indication of affiliation), and not along the path of real integration into international research.

As a result, in the absence of any significant economic, reputational or other effect from the resource-intensive activities of the university to improve indicators in the ratings, the pursuit of ratings generates inefficient spending of the university's funds (Newman, 2018).

5. Conclusion

The purpose of this study is to determine the underlying dimensions of SCM practices and to empirically test a framework identifying the relationships among SCM practices, operational performance and SCM- related organizational performance with special emphasis on Russian universities.

Thus, despite the fact that today the promotion in international and Russian rankings is one of the main strategic goals for the development of universities, this study reveals a number of possible negative consequences. In this regard, particular attention should be given to a clear system for planning and organizing scientific and educational activities.

Theory of SCM is not too old and there is wider space for theorizing in the area. This research contributes in the theory of SCM, which is relevant for academics. Value for practitioners also lies in the model presented in this study. Managers can use the model for improving organizational performance through strategic SCM.

Acknowledgments

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