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Evaluation of Risk Manageability of HEI

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Abstract. The article sets out to consider assessment of risk manageability in institutions of higher education. The study examines a classification of external and internal risks characteristics of the universities, the technology of expert assessment of risk manageability. The methodology of determining the level of experts' competence based on self-assessment allows determination of summarized index of the expert's competence. On the basis of the analysis, three risk groups of the university's internal organizational risks have been isolated depending on the degree of their manageability.

1. Introduction

In the environment of digital economy, the function of the universities has been changing [1-4]. Being historically one of the most conservative types of the organizations, the university occupies one of the key positions in the econ-system of Industry 4.0. [5-6]. This raises the level of the requirements relating to development of the university's strategy and mission, the approaches to conduct of research, the contents and methods of training, the interaction between students and teachers, as well as considerably changes the university manageability requirements [7].

These changes against the backdrop of future uncertainty and turbulence of social processes create both opportunities and threats to development of universities. Opportunities and threats in the activities of the universities are deemed to be risks whose materialization may inflict losses and damage but it may also create additional advantages and benefits for the university. Besides, pivotal to this, is determination of the ability and degree of manageability of various types of risks, an insight into the prospects of risk management in order to mitigate them down to the acceptable level.

2. Capabilities of managing university risks

Within the framework of this article, we intend to consider the methodology of assessing university risk manageability as well as an example of its practical implementation.

University risk management is a process of establishing, assessing, identifying and reducing the level of risks to an acceptable level [8-13]. An important aspect is determination of the acceptable level. This concept is directly connected with tolerance to the university risk. Tolerance to risk is defined as the level of allowable risk which does not influence the current status of the system and does not pose threats in the short term perspective. For example, a situation where several students were leaving the university for some reason, would not impact either the teachers' work or threaten the

university with a loss of revenue. However, a decline in the number of applicants seeking enrollment for studies at the university as a result of a demographic situation, might be critical to the university, because it might mean a loss of revenue and a reduction in the number of valuable teaching staff [14].

Table 1. External and internal risks characteristic of the universities.

Type of risks	Variety of risks	Contents
External risks	Political risks	Simultaneous co-existence of opposing tendencies for globalization of education and conservation of the national educational identity
		Transition to Bologna system, changes in the normative framework of education
		Universities' participation in international ratings
		Merger or reorganization of universities
		Massive nature of higher education
	Socio-economic risks	Risks of change in the budgetary policy in the area of education, in the form of ownership at the university
		Inability to do jobs under business contracts
		Restructuring the market for educational services
		Deterioration of tax burden on universities
		Change in the requirements relating to applicants seeking admission at government level
		Fiercer competition among universities
		Demographic situation
		Low level of teachers' salaries
	Industry risks	Introduction of new educational standards
		Procedure of accreditation and obtaining licenses by universities becoming more complicated
		Education quality requirements becoming more stringent
Internal risks	Organizational risks	Irrational organizational chart of educational institutions
		Blunders in management decisions
		Unattractive image of the university
		Downgrading the quality of education due to an increasing number of branches
		Irrational organization of the training process
		HR risks
		Declining passing grades at entrance examinations,
		Gap between the offered training activities and the labor market demands
	Risks of educational process subjects	Low level of competence characteristic of professors and lecturers
		Low level of motivation typical of teachers and students
		Problem with adaptation of foreign students
		Students' state of health,
		Methodology blunders committed by professorial and teaching staff
		Inadequate assessment by teachers of their capabilities, students' lack of self educational skills
	Innovation risks	Poor liaisoning with stakeholders
		Low level of innovation activities
	Informational risks	High rates of information updating
		Cyber attack risks
		Risks of information distortion,
		Cyber risks
	Financial risks	Risks of price spikes for educational services
		Risks of diminishing financial sustainability as a result of raising borrowed resources
		Risks of lost profit.
	Criminal risks	Costly equipment.
		Security risks.

Achieving an acceptable level of risk is the key task which we are confronted with in the process of risk management. But this is not always achievable because not all the risks easily lend themselves to management [15]. Establishing and identifying the risks would allow a register of university risks to be created. One can consider different approaches to classifying university risks.

Classification of university risks:

– in terms of environment from which they originate: risks of external and internal environment;
– in terms of hazard: allowable, critical, disastrous;
– in terms of subject-object relations: objective or subjective risk;
– in terms of the nature of the activities: operational or investment risks;
– in terms of the place in the induction chain: primary, secondary, tertiary, etc.[16];
– in terms of probability: foreseeable, partially foreseeable, unforeseeable.

However, from the point of view of manageability, it is important to consider two large risk groups (tab. 1.) [17].

As can be seen from table 1, subjects to external risks are political and public institutions. Universities, as a rule, cannot exercise significant influence on these subjects [18]. Hence, a great number of external risks are unmanageable.

The causes of the internal risks are rooted in the universities themselves that is these risks are generated by universities themselves. The problems brought about by errors in administration, with teachers and students, the processes of teaching and learning, cyber security are sources of such risks [19-20]. The majority of these risks can be mitigated or neutralized. Therefore, one can talk about manageability of these risks. However, it is important to understand that the degree of manageability of such risks can be different.

3. Assessing manageability of university risks

Depending on the goals set, a study has been developed and conducted to investigate manageability of university specific risks. As a research method, the expert survey was chosen which allowed data to be obtained, in view of lack of statistical information about threats and risks, based on the experts' experience and knowledge or expertise. The research consisted of two stages. The first stage set itself the aim of selecting experts in line with self-assessment of their level of competence in the area of risk management in education [21]. As competence indicators, the following ones were established (tab. 2.).

Table 2. Criteria for Determination of Experts' Competence.

Competence criteria, $\boldsymbol{i_j}$	Degree of criterion influence
Competences in the area of managing HEI, $\boldsymbol{i_1}$	0.5
Availability of access to data about organizational and managerial processes in HEI, $\boldsymbol{i_2}$	0.3
Independence of interests in relation to managerial processes being implemented, $\boldsymbol{i_{j3}}$	0.1
Interested in results of expert analysis, $\boldsymbol{i_4}$	0.1

The experts judged their level of competence using such indicators as "high", "medium", "low" which corresponded to the following numerical values 1; 0.5 and 0. After that, the expert's competence index was determined which corresponded to the expert's level of competence on the basis of the arithmetic mean value of the indicators per the following formula.

$$K_j = 0{,}5i_1 + 0{,}3i_2 + 0{,}1i_3 + 0{,}1i_4 \quad (1)$$

K_j– competence index of the j-th expert,

$i_j -$ value of the corresponding competence indicator.

The deficiency of this method is the likelihood of overstated self-assessment.

As a result of this phase of study, 8 were selected with the following indices of competenceK_j.

$$K = (0{,}91; 0{,}88; 0{,}79; 0{,}91; 0{,}96; 0{,}89; 0{,}79; 0{,}75) \quad (2)$$

To carry out the expert analysis, 8 experts were invited (50% men and 50% women, experts' ages: 25 % - up to 40 years old, the rest – older than 40 of age) from four Russian universities (Northern (Arctic) Federal University, Southern Federal University, Astrakhan State University, Crimean Federal University) and two universities from the European Union (Technical University of Dresden (Germany), the University of Szczecin (Poland). Such a number of experts correspond to the degree of analysis authenticity at the level of up to 90%. The aim of the second stage of research was to assess the degree of university risk manageability. As the target, the organizational risks of the university were taken. The organizational risks are related to characteristic features of the universities management. The risks were assessed based on the following scale of manageability: "absolutely manageable", "highly manageable", "moderately manageable", "poorly manageable", "unmanageable". This made it possible to pinpoint the place of risks as a row of natural numbers according to the degree of manageability. That was followed up by the ranking of the assessments obtained. Rankings were determined in the following manner: risks were arranged according to the sums of their rankings, obtained as a result of each expert's individual assessments. Besides, the first place was awarded to the risk whose sum of rankings was maximum. Therefore, all the internal risks were arranged according to the degree of manageability (tab. 3.).

Table 3. Assessing Degree of Organizational Risks Manageability.

Item No.	Organizational risks	Absolutely manageable - 5	Highly manageable - 4	Moderately manageable - 3	Poorly manageable - 2	Unmanageable - 1	Ranking
1	Irrational organizational chart	5	24	3	0	0	32
2	Copying the functional activities areas	5	8	12	2	0	27
3	Errors in management decisions	0	16	6	4	0	26
4	Unattractive image of the university	0	4	18	2	0	24
5	Ineffective marketing	0	8	18	0	0	26
6	Downgrading the quality of training due to increasing number of branches	0	0	0	12	2	14
7	Irrational planning of training activities	0	8	15	2	0	25
8	HR risks	35	4	0	0	0	39
9	Irrational organization of training process	5	24	3	0	0	32
10	Enrollment of students with low level of knowledge	0	0	0	12	2	14
11	Non-conformity of training load to students' capabilities	0	20	9	0	0	29
12	Non-conformity of disciplines taught to demands of the labor market	0	0		8	4	12

The results obtained correspond to the following levels of manageability (tab. 4.).

Table 4. Levels of University Risks Manageability.

Level of risk manageability	Ranking	Risks
Low level	1-14	Downgrading the quality of training due to increasing number of branches
		Enrollment of students with low level of knowledge
		Non-conformity of disciplines taught to demands of the labor market
Medium level	15-27	Errors in management decisions
		Unattractive image of the university
		Ineffective marketing
		Irrational planning of training activities
		Copying the functional activities areas
High level	28-40	Irrational organizational chart
		HR risks
		Irrational organization of training process

The analysis of the results obtained shows that the following risks are typified by the high level of manageability: HR risks and the risks related to irrational organizational chart of the institutions of teacher training education, as well as irrational organization of the teaching process. These risks are highly foreseeable, which increases the possibility of managing them. The low level of manageability is characteristic of the risks caused by enrollment of students with low level of knowledge and the problem of non-conformity of training disciplines for prospective teachers to the labor market demands. The contents of these risks, in many respects, are determined by the subjects of the educational process which simultaneously are part of the external environment of education. This is the cause of the difficulties with the management of such risks.

4. Conclusion

The need to manage risks dictates creation of risk orientated educational system. It is important to create a set of tools allowing educational institutions to develop, on their own, risk management systems. Assessment of manageability degree would enable simultaneous projection of undesirable results, creation of a system of situational response to unforeseen circumstances and, ultimately, design of a strategy for development of education, consistent with the actual needs of an individual, society and state.

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