

A SUGGESTION ABOUT POTENTIALITIES FOR THE SWOT ANALYSIS'S DEVELOPMENT CONCERNING THREATS

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Introduction

Since its elaboration during sixties of the last century till now, the SWOT analysis has always had the reputation of one of the most popular managerial instruments. Philosophy, underlain in the analysis's model, has the major contribution to this image. It (the philosophy) requires that the organization's future should be subjected to two types of evaluations – internal evaluation, comprising strengths and weaknesses of the organization, and external one, comprising opportunities and threats of the organization's environment. „The idea of correspondence between that whatever the organization could do and quite the thing the outer world asks for“ is emphasized as the most important merit of the model. At the same time it is pointed out its simplicity that converts the model into the working one in the sense that it could be easily understood and used.

However, the level of methodical development of the SWOT analysis model gives way before the ambition of the philosophy, underlain in the model, to a great extent. Sometimes this leads to extremely negative deductions about its practical usefulness. „The most serious disadvantage of the model lies in the thing that it is quite empty of matter. There are methods, but the model contains too few useful recommendations how strengths and weaknesses, opportunities and threats to be evaluated. Attending to many meetings where managers tried to make guesses concerning elements of the SWOT analysis without further assistance, I would say the only thing that on principle they gave wrong answers. Thoughts and self-diagnostics are insufficient“ [3].

During the initial years after its elaboration this problematic situation with the SWOT analysis application, evolving from its methodological insufficiency in the field of measurement and of evaluation, demanded its complementation by other well-known at that time managerial instruments. It is speaking mostly of instruments, elaborated within the framework of the schools, which consider strategy as „great model“, „position“ and „plan“ and which are related in the first place to the name of Igor Ansoff and to the elaborations of various strategic matrices. The contemporary revolution in measurement in the beginning of nineties (see [2]), and especially the Balanced Scorecard application, raised the possibilities of measurement and of evaluation in the SWOT analysis utilization.

However, both classical instruments of measurement and evaluation and more up-to-date ones are focused on strengths, weaknesses and opportunities, while they hardly touch on threats or concern them slightly. Regarding threats, following of the SWOT analysis usually refers to the Michael Porter's model (see e. g. [6]). Particularly, it is speaking of the first one of the triad models „model of fifth powers – model of generic strategies – model of value chain“. This is an extremely useful reference because it suggests a structured approach to the evaluation of threats to the organization, where threats evolves from the market power of both buyers and suppliers as well as from the emergence of new businesses and of substitutes of basic (actual) commodities and services and from the rivalry of active competitors. However, the model of fifth powers, like the SWOT analysis model, doesn't offer instruments for making

that evaluation at the methodical level again. It is once again focused exceptionally on the philosophic-methodological basis of the approach to the identification of threats and to their evaluation.

Realizing the necessity of developing methodical instruments of the SWOT analysis, which necessity is the biggest one regarding threats, the authors of the article are aimed at suggesting a new managerial instrument that to support this problem solving. It is speaking of instrument, called license board, by which implementation of the threats identification, the threats measurement and counteraction to threats to be realized. This instrument is worked out by the authors within the framework of project „Theoretical fundamentals of an internal standard of measurement and evaluation of threats to organizations“, financed by the National Science Fund to the Bulgarian Ministry of Education and Science, which realization started in 2006. The article is illustrated by examples from the license board approbation accomplished for the University of National and World Economy (UNWE) in the city of Sofia.

1. Identification and Measurement of Threats

The approach to the identification of threats to organizations and to their measurement, applied by the authors of the article, differs in two ways from the traditionally recommended one in the SWOT analysis. In the first place, on principle as sources of threats are generally defined various aspects of changes in the organizations environment under the SWOT analysis. These are changes in organizations' competitive environment, socio-cultural environment, politico-legal environment, technological environment and so on (see e. g. [1]). Secondly, by tradition sources of threats of the organizations internal background aren't usually considered.

Actions and inactions of various internal and/or external to the organization parties concerned are defined as sources of threats to organizations under the license board building up. In this context parties concerned are viewed in their capacity of licensing institutions. Concept „licensing institutions“ was adopted by Andy Neely. According to him it covers holders of interests that might be critical to the organization. „The concept “holder of interests,

is much broader than the concept „shareholder“, because the circle of interests holders consists of all the subjects that have relationships with the organization, no matter they are external individuals to it (clients and suppliers) or its members (employees and owners, which are often shareholders)“ [4]. By license it is understood both formal and informal relation of consent to interact with the organization under certain conditions. „Everyone that establishes relationships with the organization actually issues it with tacit license to go into action as well as everyone that decides not to establish relationships with it in practice refuses it such a license. Practically this means that all organizations receive licenses to go into action from several different institutions (regulating bodies, employees, clients, suppliers) and that each licensing institution could suspend its license at any time.“ [4]. Conditions of the license refer to specific values of the organization functioning indicators, which infringement licensing institutions are critical to and after given degree become aggressive. In this sense, the license is an aggregate of critical, according to the particular licensing institution, organization functioning indicators and of their critical values. As the prime cause for threats could be defined overstepping the limits of the indicators critical values, defined in the license, by the organization behaviour. Certainly, this license infringement could be initiated by organization itself as well as by an intention of the licensing institution to change the license.

Within the framework of the project implemented ten parties concerned were defined as main licensing institutions of the UNWE (Table 1). They were defined after discussion in a focus group, formed by members of the UNWE guidance, and by subsequent ranging.

At the following stage aggregates of the critical organization functioning indicators by licensing institutions were defined, where functioning indicators were included in the licenses of the licensing institutions to the UNWE. Method of focus groups and investigation method by questionnaires were used in the process of these aggregates defining. So for instance, critical indicators of the UNWE activity, shown in the Table 2, were diagnosed regarding two of the key parties concerned – „Students“ and „Employers of graduated

Tab. 1: Main Licensing Institutions of UNWE

N ^o	Licensing institutions
1	Students
2	Ex-students
3	Employers
4	Administration
5	Lecturers
6	Candidate students
7	Rating agency
8	Chamber of Accounts
9	Mediae
10	National Accreditation Agency

Source: own.

Tab. 2: Critical Indicators, Included in the Licenses of the Licensing Institutions „Students“ and „Employers“ to the UNWE

Critical indicators of the licensing institution:		
N ^o	„Students“	„Employers“
1	Lack of coordination between administration and lecturers	Troubled relations between administration and students
2	Troubled relations between administration and students	Problems in the candidate students' campaign
3	Problems, related to the students' hostel accommodation	Hard č slow administrative procedures
4	Information change or information of poor quality relevant to the organization of education	Lack of enough practical training, business games and relations with the business
5	Hard č slow administrative procedures	Non-administrative corrupt practices
6	Lack of enough practical training, business games and relations with the business	Insufficient lecturers' motivation to do their duties at high quality level
7	Non-administrative corrupt practices	Presentation of insufficient high quality
8	Non-entered marks in the register	Bad communication between lecturers and students
9	Bad communication between lecturers and students	Insufficient students' motivation
10	Slight accent on important subjects for the specialty	Slight accent on important subjects for the specialty
11	Useless subjects in the curriculum	Biased examination and assessment
12	Biased examination and assessment	Permanent changes in both curriculum and syllabuses
13	Bad hygiene in the students' hostels	Poorly developed international activities and mobility of both lecturers and students
14		Limitation of the technical means for education and for research work

Source: own.

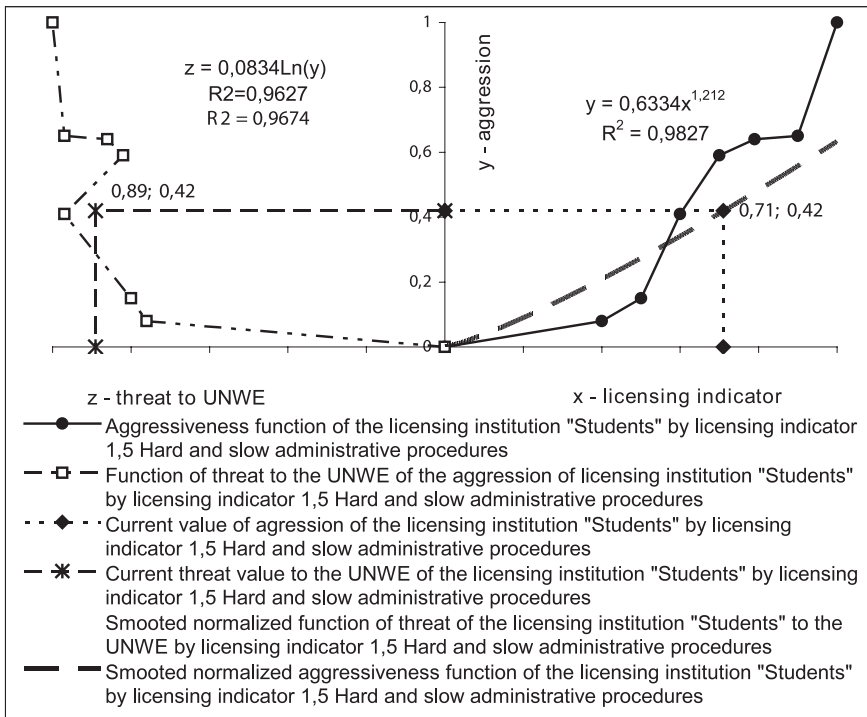
students“. Sixty four critical indicators were defined as the grand total of the UNWE.

Three scales were consecutively used with the purpose of measuring of threats, generated by licensing institutions as a result of the indicators values, included in their licenses. At the first scale (indicator scale) various possible values of a given critical organization functioning indicator are booked down. At the second scale (aggression scale) various possible levels of negative reaction, evolving from various values of the indicator, of the relevant licensing institution to the organization are booked down. At the third scale (threat scale) various expected values of threat to the organization, evolving from the negative reaction of the licensing institution, are booked down. Transition between the scales is made by two types of functions. The first one is the aggressiveness function that represents the

dependency of the aggression level of the licensing institution on various values of the organization indicator. The second function is the threat function. It represents the dependency of threat to the organization on the aggression level of the licensing institution.

The following methods were used in the process of scaling and working out both functions: method of focus groups, investigation method by questionnaires, paired comparison method, calculus by confidential intervals, method of least squares and method of attitude to the risk definition by monotonous and continuous utility functions by von Neumann – Morgenstern. Scales and functions were worked out by licensing institutions for all critical indicators of the UNWE. Functions differ by their shape due to both character of scales and mathematical type of the function. An example of both types of functions is shown in figure 1.

Fig. 1: The UNWE Scales, Function of Aggressiveness and Function of Threat by Indicator „Hard u Slow Administrative Procedures“ Regarding the Licensing Institution „Students“

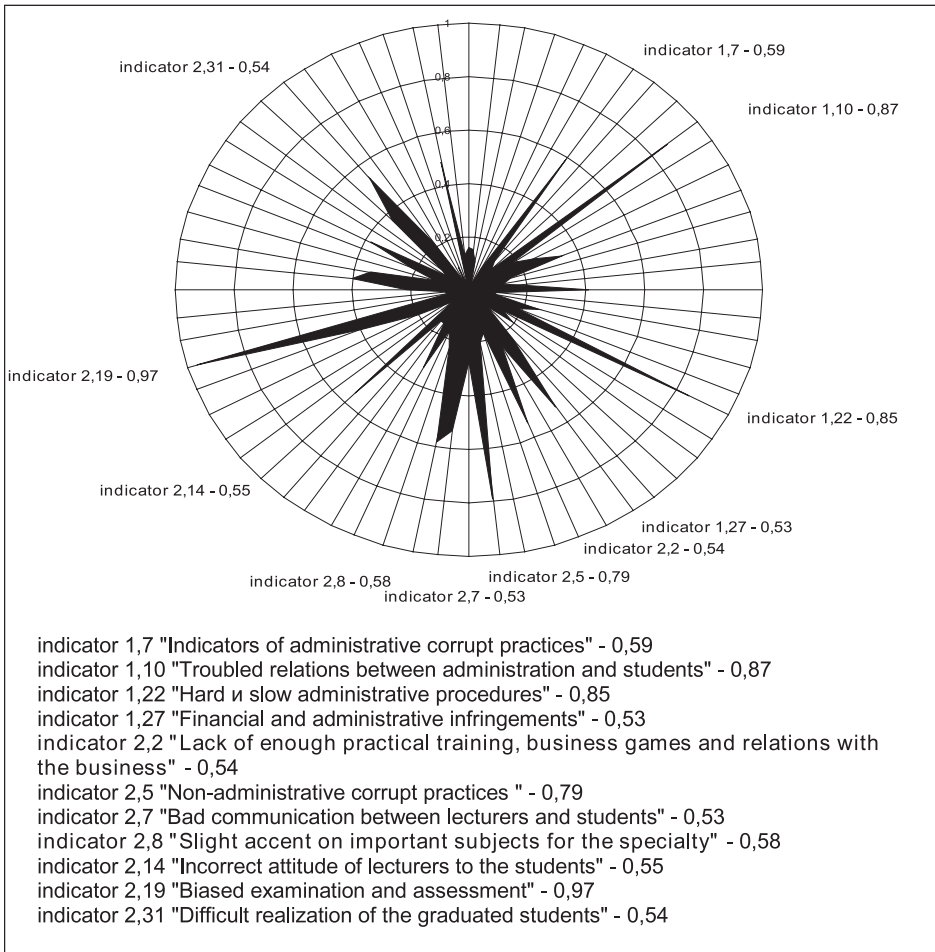


Source: project „Theoretical fundamentals of an internal standard of measurement and evaluation of threats to organizations“, approbated for the UNWE – Sofia

Threats, measured by all the organization critical indicators and evolving from all of its licensing institutions, enable to build up the organization license board. The license board could be represented by licensing institutions as a polygon, formed by co-ordinates „radar“, which surface is limited by values of threats measured by indicators. The second form of presentation refers to the organization as

a whole, where threats by all licensing institutions are grouped by vectors of all critical indicators of the organization. In both cases the intensity of threat is measured by the polygon surface limited by values of threats defined by indicators. The UNWE license board looks like the one, shown in the figure 2. The measured value of the aggregate threat to the UNWE is 0.22 cm².

Fig. 2: Aggregate License Board of the UNWE



Source: project „Theoretical fundamentals of an internal standard of measurement and evaluation of threats to organizations“, approved for the UNWE – Sofia.

The following methods were used in the process of building up the aggregate license board of the UNWE: method of focus groups, investigation method by questionnaires, paired comparison method, calculus by confidential intervals, method of least squares, utility functions by von Neumann – Morgenstern, method of weighted evaluations, working out the surface of arbitrary polygon, normalization into the mathematical interval [0, 1].

2. Counteraction to Threats

After building up the license board, the organization has available measured and evaluated in comparative aspect threats, evolving from values of its functioning indicators, including threats differentiated by licensing institutions now. On that basis versions of managerial decisions are created further, which are due to result in receding of values of these indicators

from the critical values of licensing institutions. The set of managerial decisions is created unbiased towards their operative, operative-tactical or strategic belonging. The only criterion is the expectation they to result in bettering of the relevant indicators values to a greater extent in terms of the licensing institutions. Naturally, attention should be paid in the first place to decisions regarding these indicators which values (intensities) of threats are the highest ones.

So for instance, regarding values of two of the UNWE indicators („Lack of enough practical training, business games and relations with the business“ and „Slight accent on important subjects for the specialty“), generating one of the biggest threats, a focus group, formed by members of the UNWE guidance, formulated the advisable managerial decisions, shown in table 3.

Tab. 3: Managerial Decisions on Threats Limitation Regarding Indicators „Lack of Enough Practical Training, Business Games and Relations with the Business“ and „Slight Accent on Important Subjects for the Specialty“

Advisable managerial decisions
Decision 1: Change in the curriculum
Decision 2: Change in the syllabuses
Decision 3: Improving of the students' practices

Source: own

The evaluation of decisions by various indicators comes from the ambition to maximum expected nearness to the begging of the threat vector by these indicators. The aggregates of both scales and functions, defined in the process of the license board working out, are used for measuring of the expected threats by taking into consideration new (future) expected values of indicators also. The evaluation of decisions set as a whole by all the critical indicators is made by criterion „maximum limitation of the polygon surface“, limited by expected values of threats regarding these indicators. The best set of the managerial decisions is the one that minimizes in the quantitative respect the threats surface to the last extreme. It is obvious that in taking such approach, the appropriate quantitative solving of the problem about mutual effects (influences) in-between various managerial

decisions must be found out. In the end, the „optimal“ set of decisions should be defined that to limit threats to the organization in the extreme. As a result a new license board of the organization is elaborated that reflects the expected results of decisions about threats limitation.

The following instruments were used in the evaluation process of the results of decisions about counteraction to threats, including both first and second generation of mutual effects and delayed (forgotten) effects between decisions and threats: algebra of fuzzy trapezoidal numbers; mathematical calculations by (non)reflexive incidence matrices for the function „experton“, represented by confidential intervals with four evaluations („confidential fours“); both probability distributions and mathematical expectation of the matrices with random fuzzy evaluations and with expertons;

representative numbers of confidential intervals with four evaluations.

The expected new values of threats regarding both specified above indicators are formed by representative numbers of the

confidential fours, describing the average mutual effect (influence) of decisions on the both indicators. Detailed results regarding both indicators are shown in table 4.

Tab. 4: Expected Results „First and Second Generation“ of the Decisions about Threats Limitation Regarding Indicators „Lack of Enough of Practical Training, Business Games and Relations with the Business“ and „Slight Accent on Important Subjects for the Specialty“

Decisions regarding licensing indicator	Mathematical expectation for the expected values of threats by indicator							
	Lack of enough practical training, business games and relations with the business				Slight accent on important subjects for the specialty			
	min for $\alpha=0$	min for $\alpha=1$	max for $\alpha=1$	max for $\alpha=0$	min for $\alpha=0$	min for $\alpha=1$	max for $\alpha=1$	max for $\alpha=0$
Decision 1								
evaluations	0,333	0,355	0,378	0,444	0,333	0,4	0,4	0,467
representative number	0,37				0,4			
Decision 2								
evaluations	0,333	0,355	0,377	0,444	0,333	0,4	0,4	0,467
representative number	0,37				0,4			
Decision 3								
evaluations	0,333	0,355	0,377	0,444	0,333	0,4	0,4	0,445
representative number	0,37				0,4			
Set of decisions (1, 2 and 3)								
evaluations	0,333	0,355	0,3773	0,444	0,333	0,4	0,4	0,4597
representative number	0,37				0,4			

Note: is the possibility of occurring of the evaluations.

Source: own

Prognostic license board of the UNWE, which reflects the expected results of managerial decisions only regarding both indicators „Lack of enough practical training, business games and relations with the business“ and „Slight accent on important subjects for the specialty“, looks like the one, shown in the figure 3.

The calculations done indicate that the aggregate surface of threats to the UNWE, described by the representative number of the evaluations of decisions effect regarding both indicators, could be limited within the framework of 0,205 cm² (by 6,8 %). Maximum and minimal possible limitation for the possibility of occurring „naught“ could be respectively 0,2016 cm² (by 8,4 %) and 0,2089 cm² (by

5 %), and for the possibility of occurring „unity“ – 0,2046 cm² (by 7 %) and 0,2052 cm² (by 6,7 %).

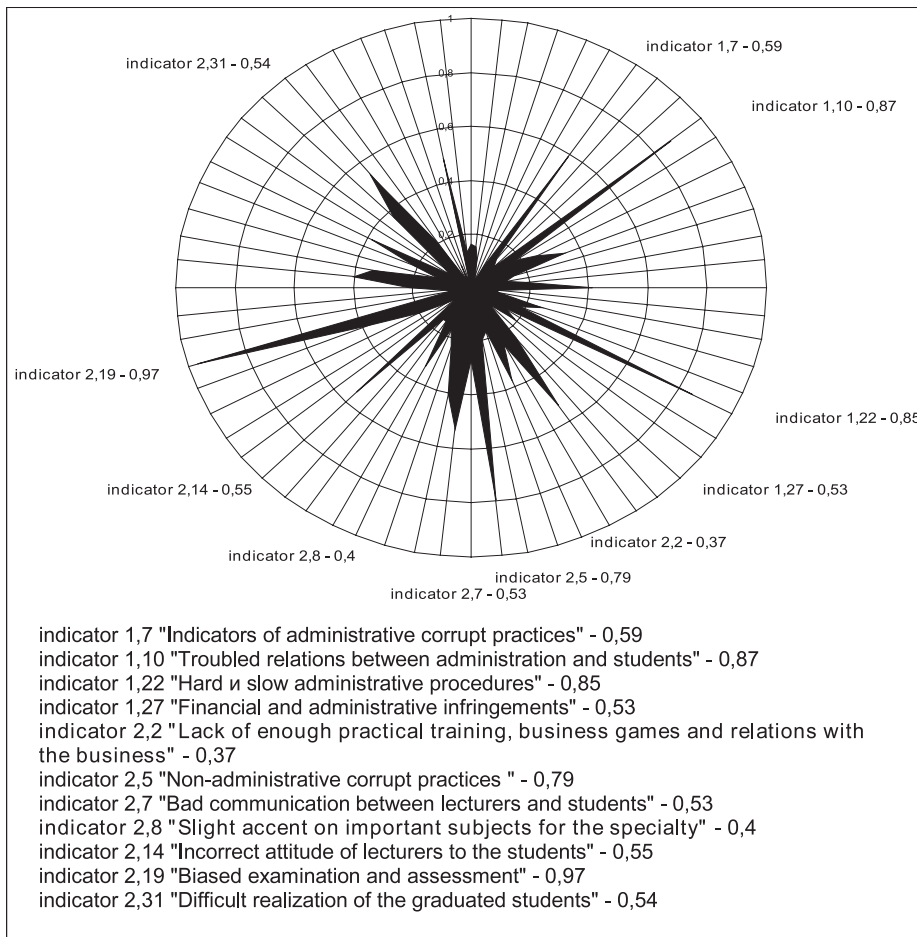
Main Conclusions

The work done by the authors of the article regarding the elaboration and approbation of the license board gives them reasons to draw the following key conclusions concerning its utilization for developing potentialities of the SWOT analysis:

Firstly, the license board applies an original approach to identification of threats to the organizations, as well as comprehensive instruments of their measurement and evaluation, by which theoretical and methodical fundamentals

Fig. 3:

Expected License Board of the UNWE for Decisions about Threats Limitation Regarding Indicators „Lack of Enough Practical Training, Business Games and Relations with the Business“ and „Slight Accent on Important Subjects for the Speciality“



Source: project „Theoretical fundamentals of an internal standard of measurement and evaluation of threats to organizations“, approbated for the UNWE – Sofia

of the traditional SWOT analysis are developed. Potentialities of the license board are proved empirically for a large organization. Realistic possibilities of simplification of the instruments, used by the authors, are available with the view to its wider practical applicability. This applicability could be reached by writing relevant computer program for the large scale usage.

Secondly, except for traditional SWOT analysis, the license board adequately services realization

of the so-called extended SWOT analysis (see e. g. [5]), which covers working out of strategies for counteraction to threats and for limitation of threats also. Contribution of the board in this respect is that, unlike the existing models, it provides possibilities of measuring and evaluating of results from various counteraction measures that could be taken by organizations.

Thirdly, the invention and the utilization of an instrument like the license board is a step

forward to multidirectional development of up-to-date revolution in measurement. In general terms, the license board sets better prerequisites for focusing of the organizations on threats and in this sense it is an essential addition to widely used managerial instruments at present, which are predominantly focused on identification and utilization of opportunities.

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Abstract

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Emphasizing merits of the SWOT analysis, its insufficient methodical provision, as its main disadvantage, is diagnosed in the introduction of the article. The conclusion is drawn that this disadvantage of the SWOT analysis characterizes the analysis of threats in the extreme. The authors of the article are aimed at suggesting a new managerial instrument that to support this problem solving. It is speaking of instrument, called license board, by which implementation of the threats identification, threats measurement and counteraction to threats to be realized. The article is illustrated by examples from the approbation accomplished for the University of National and World Economy in the city of Sofia.

Key aspects of both elaboration and implementation of the new instrument, worked out by the authors, are presented in the essential parts of the article. An original approach to the threats identification is offered, by viewing threats as products of actions and inactions of various, internal and/or external to the organization, parties concerned in their capacity of licensing institutions. By presenting empirical results of their implementation, the instruments of measuring and evaluating of threats are substantiated, provided threats evolve from the aggression degree of licensing institutions. The aggression is viewed as a result of the license infringement, where the license is issued from licensing institutions to the organizations and it covers organizations critical indicators and their critical values. The instruments of the consecutive measuring and evaluating of various managerial decisions about limitation of the threats to the organizations are substantiated further in the article. The empirical results of the instruments implementation are presented also.

In the article conclusion the authors' fundamental conclusions are suggested about contributions of the managerial instrument, elaborated by them (the authors), to the potentialities for development of both classical SWOT analysis and extended one.

Key Words: SWOT analysis, threats, license board.

JEL Classification: M10, C65, B16.