Processes of University Organizational Intelligence: Empirical Research

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The move of the university from a service profile to a market profile has caused significant concern and dilemmas for academics and university policy makers. Universities are seen to be forced into the market place in ways that are reshaping them in their purposes and in the knowledge they create and disseminate.

As a theoretical concept, organizational intelligence takes over more and more important place in organizational theory. After thorough scientific literature analyse about organizational intelligence and after its generalization, in this article the organizational intelligence will be understood as the method of organization’s processes planning, which is based on an open and systemic organizations viewpoint and maintaining social relationships stimulating culture.

In scientific literature are not dealt with the indicators of university’s effectiveness. That is why university’s effectiveness can be evaluated quite subjectively. The absence of universally accepted indicators of university effectiveness creates assumptions to differently interpret results, which distorts objective view of university effectiveness in the market.

In the spring of 2008 the survey of 5 universities was accomplished, in order to evaluate the level of universities’ organizational intelligence according to intelligence processes.

The results of empirical survey enabled to state, that the university, which has a higher level of organizational intelligence, manifests higher effectiveness. But this survey is only a guide to further research in order to prove the above mentioned interrelation. The results just state the assumption that forming an intelligent university would be created premises for the development of university’s processes development.

Keywords: university, organizational intelligence, university activity indicators.

Introduction

Recognizing that a great many factors and forces impact our organizations, and that their number will increase in the future, there are five drivers behind the change, complexity and uncertainty that currently cast a shadow over many institutions that represent fundamental forces that will challenge future organizational survival.

These are: connectivity; data, information, and knowledge; speed; access; and digitization. In addition to impacting how firms structure themselves and the strategies and form they take, these drivers also impact employees, customers, legislative policies, and international relationships, all of them influencing organization’s ability to meet its objectives (D. Bennet & A. Bennet, 2004).

The business community has developed a growing interest in recognizing, formalizing and mobilizing employee knowledge in support of innovation and competitiveness (Nonaka, 1991).

Not surprisingly, much of this literature explores corporate applications of knowledge management including: different conceptions of organizational and personal knowledge strategies for managing knowledge and case studies of the impact of knowledge management on organizational success (Edge, 2005). At the same time, there has also been a growing interest in public sector applications of knowledge management (Edge, 2005).

Within this limited body of academic research, the potential benefits of public sector adoption of knowledge management include: improving organizational quality and efficiency (McAdam, Reid, 2001); reducing costs (McAdam, Reid, 2001); and, decreasing interagency fragmentation (Ardichvili et. al., 2003).

New forces are reshaping higher education. For the last half-century higher education has grown in size, resources, and importance. Higher education has, as well, maintained a remarkably stable structure. Now, powerful changes are underway, driven by the entry of new providers of higher education, both for-profit and non-profit; the explosion of virtual education; rapid advances in technology; demographic shifts; and the globalization of a sector that has typically been open only to indigenous institutions. The higher education environment is increasingly competitive, and the reins of government are loosening worldwide in favor of market-driven decision making – a trend that is disturbing the tranquility of a stable, confident system. (Newman, 2000).

Traditionally, universities were not seen as organizations. More likely, researchers referred to them as either institutions, carrying out a prominent social role (Readings, 1996), or communities, that is, “families” of people brought together, which were accepted for service in a certain social ceremony. Still, several particular conditions render universities as idiosyncratic institutions (Prejmerean, Vaslache, 2007).

The move of the university from a service profile to a market profile has caused significant concern and dilemmas for academics and university policy makers. Universities are seen to be forced into the market place in the ways that are reshaping them in their purposes and in the knowledge they create and disseminate (Apple, 1999; Carnoy, 1998; Marginson, 1999, 2000; Meek, 2000;
The transformation of university structures and patterns, in order to suit the new, entrepreneurial paradigm, comprises, according to Brunsson and Sahlin-Andersson (2000), three levels: construction of identity (“who we are?”, and hence the organizational goal of “being special”), construction of hierarchy (passage from control to co-ordination, the engagement in common projects and in the building of a shared vision), and construction of rationality, i.e., of the acquiring of adequate means for rendering the university accountable, in the “audit society”. University’s accountability is connected with autonomy: although universities have founders, they do not accept founders’ interference to the creation of new knowledge, if only the founders would have benefit from the created knowledge. So, the social pressure is connected with the payment and with the effectiveness of university’s activities.

The paradigm of intelligent university says that it is necessary to specialization the management of university by separating it from academic personnel. The level of a university’s intellectual capital provides information on university’s innovation rate and on the quality of its liaisons with the business environment (Alaric, 2005).

The scientific problem dealt with in the article is the situation of universities in globalization processes, their management practice and environmental needs, which determine a new approach to university and its management.

The goal of this article is to present the empirical research findings on universities’ organizational intelligence processes and their relation with universities’ effectiveness indicators.

The object of the article is an intelligent university and its processes.

Research methods are scientific literature analysis and empirical study.

In this article there are analyzed internationally known (Prejmerean, Vasilache, Nonaka, Edge, Dixon et. al.) and Lithuanian authors, researching the organizational intelligence processes and its influence on non profit organizations.

The conception of organizational intelligence

As a theoretical concept, organizational intelligence gains more and more importance in organizational theory. It is defined as “intellectual ability of an organization to solve organizational problems” (Simic, 2005). The focus is on integration of human and technical abilities for solving problems. Precisely, organizational intelligence includes totality of information, experience, knowledge and understanding of organizational problems.

In scientific literature it is possible to find different concepts of organizational intelligence, but they all are bounded by the same feature: the organization’s capability to adapt to environment and knowledge management, because organizational intelligence involves knowledge based on organization’s capacity. This competence is a base for knowledge organization success in a rapidly changing or competitive environment. Organizational intelligence is what system theory representatives entitle as emerging ownership – it is an attribute of all system, but not the result of single parts.

After thorough scientific literature analysis about organizational intelligence and after its generalization, in this article the organizational intelligence will be understood as the method of organization’s processes planning, which is based on an open and systemic organizations viewpoint and maintaining social relationships stimulating culture. The product of organizational intelligence is decision, characterized by qualitative features and effective and well – timed implementation of decisions. The surplus value is reflected in organization’s results.

While implementing organizational intelligence, first of all, depending from organization and its peculiarity, it is necessary to decide which kind of organizational intelligence is needed – process or product. The organizational product intelligence is centered on the use of internal and external knowledge in a decision making process. The organizational process intelligence is oriented to the development of organizational processes according to the plan in order to create surplus value and to increase the organization’s effectiveness.

The indicators of university effectiveness

The effectiveness of any organization is expressed by the indicators of its activities system, which enables to compare organization to other organizations which act in the same market. Organization’s effectiveness indicators are not only for comparing the effectiveness of different organizations, but also they become an extra factor, which helps to evaluate the extent to which an organization has reached its goals and mission.

Universities, as other organizations, have strategic goals and their mission. But, despite resemblance to other organizations, universities have a few features, which distinguish them from other organizations. First of all, it is the nature of services – studies and scientific research – the creation and implementation of new knowledge. Secondly, universities are distinguished from other organizations by their management structure – the board, senate, rector and other managers of academic departments are elected for a cadence. Such management is not handy for a change, because after election of other governance organs, they are not interested in changes and the changes may not be proceeded. The third difference lies in university’s effectiveness and its indicators. If in other organizations effectiveness can be measured by particular qualitative and quantitative indicators, in university these indicators are more derivative. For example, the quality of studies is expressed by the number of employed graduates; the quality of scientific research is expressed by scientific publications.

In scientific literature the indicators of university’s effectiveness are not analysed, that is why university’s effectiveness can be evaluated quite subjectively. The absence of universally accepted indicators of university effectiveness creates assumptions to differently interpret results, which distorts objective view of university effectiveness in the market.
The goal of this article is not to form the objective university’s effectiveness measurement system, that why in the empirical research there were used the rating of Lithuania’s universities in 2008 – the indicators of effectiveness, which include: scientific activity, activity evaluation on national range, the assortment of study programs and level, the qualification of academic personnel, study conditions; the students’ valuation and the valuation of users.

The theoretical background of research

In the spring of 2008 there was accomplished the survey of 5 universities, in order to evaluate the level of universities’ organizational intelligence according to intelligence processes, which were abstracted from the analysis of scientific literature and which became the base for the conceptual model of intelligent non profit organization’s model.

Above mentioned intelligence processes were composed of 7 organizational intelligence dimensions, which were presented as opposites:

- formal organization vs. informal organization;
- individual work vs. group work;
- individual intelligence vs. organizational intelligence;
- analytical thinking vs. systemic thinking;
- closed organization vs. open organization;
- management vs. leadership;
- individual learning vs. organizational learning.

Each of these organizational intelligence processes dimensions is created from factors, which were distinguished in factorial analysis (Table 1). These factors reflect the main features of organizational intelligence processes’ dimensions. In summary, it can be stated that these factors include all levels of organization: individual, group and organizational, which secure the entrenchment of organizational intelligence in organizational culture.

Table 1

<table>
<thead>
<tr>
<th>The process of organizational intelligence</th>
<th>Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closed vs. open organization</td>
<td>1. the behavior of top management</td>
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<tr>
<td></td>
<td>2. the information throughput</td>
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<td></td>
<td>3. the effectiveness of internal communication</td>
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<td></td>
<td>4. the behavior of supervisor</td>
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<tr>
<td>Management vs. leadership</td>
<td>1. organizational culture, which motivates and involves personnel to management processes</td>
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<td></td>
<td>2. top management behavior – the level of leadership</td>
</tr>
<tr>
<td></td>
<td>3. the behavior of supervisor - the level of leadership</td>
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<td></td>
<td>4. the expression of authoritarianism in management</td>
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<td>Individual work vs. group work</td>
<td>1. the attitude towards individual to organization</td>
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<td></td>
<td>2. the level of group work</td>
</tr>
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<td></td>
<td>3. the attitude towards supervisor to individual</td>
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<td>4. the individual’s attitude towards qualitative work</td>
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<tr>
<td>Individual vs. organizational intelligence</td>
<td>1. the level of organizational intelligence</td>
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<td></td>
<td>2. the top management’s attitude towards personnel</td>
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<tr>
<td></td>
<td>3. the supervisor’s attitude towards personnel</td>
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<td></td>
<td>4. the level of monitoring systems</td>
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<td>Individual vs. organizational learning</td>
<td>1. the existence of organizational learning fostering culture</td>
</tr>
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<td></td>
<td>2. knowledge management</td>
</tr>
<tr>
<td></td>
<td>3. the top management attitude towards personnel and its knowledge and skills</td>
</tr>
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<td></td>
<td>4. the level of new skills and knowledge gain</td>
</tr>
<tr>
<td>Formal vs. informal organization</td>
<td>1. business processes and features of their organization</td>
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<td></td>
<td>2. the managers attitude towards personnel and its work</td>
</tr>
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<td></td>
<td>3. the level of personnel turnover</td>
</tr>
<tr>
<td>Analytic vs. systemic thinking</td>
<td>1. the level of individual system thinking</td>
</tr>
<tr>
<td></td>
<td>2. the level of top management system thinking</td>
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<td></td>
<td>3. culture and human resources</td>
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</tbody>
</table>

One of the research goals was to determine if there is a connection between the level of university organizational intelligence and its indicators of effectiveness. During the analysis of research results, it was sought to deep into the universities’ peculiarities in each of organizational intelligence processes dimension and its factors.

The methodology of research

An original research methodology, which was compounded from 146 rank scale questions, was created. The internal reliability was computed by using Cronbach alpha rate. The rate of prepared questionnaire was 0.987. As it is near 1, it can be stated, that the internal reliability of this questionnaire is high – the questions are interrelated and they measure the same phenomenon.

As it has been mentioned above, five universities participated in survey. Each university returned approximately 10 percent of all questionnaires (476). Conditionally low percent of respondents’ participation could be explained by too many questions, which required too much time to answer them.

As the universities effectiveness evaluation indicators were used Lithuania’s universities rating in 2008. The rating can be found in the Internet: http://www.veidas.lt /lt/leidinys.nrfull /46d2cbb19f485.
The main statistical methods used to process the survey results were correlation and qualitative methods, in analyzing the connection between organizational intelligence processes dimensions and university’s effectiveness.

The fundamental characteristic of causality principle is that most often one way causality is used, but modern processes state dynamic flow of information and data in different directions that is why it is possible to use two-way causality principle (Shields, Luft, 2003).

The described principle of two-way causality enables to measure and to value relations between factors, that is why practice states the procedures of such causality by using statistical methods.

In the theory of chances and statistics correlation coefficient outlines the strength and direction of linear dependence between two variables (Čekanavičius, Murauskas, 2002). In this case, from few correlation coefficients it is purposeful to use Spearman rank coefficient of correlation, which is computed by the formula:

$$ p = 1 - \frac{6 \sum d_i^2}{n(n^2 - 1)} \quad (1) $$

Where:

- \( p \) – correlation coefficient for non parametric variables;
- \( d \) – the difference between each rank’s \( x \) and \( y \) meaning;
- \( n \) – the number of variables pair.

The Spearman correlation coefficient is used not for the variable meaning, but for their ranks. The correlation coefficient’s and the parameter’s meaning are analysed. Thus it is decided if the correlation is statistically significant.

To determine if the correlation is statistically significant the hypothesis about correlations coefficient equality to zero is used. First of all, it is hypothesized, after that it is computed and is the decision made, giving picked significance level \( \alpha \). If a zero hypothesis is eliminated, then it can be stated that \( X \) and \( Y \) statistically significantly correlate.

The survey results

The survey results were analyzed by using classification, comparison, statistical and mathematical methods of data analysis. The results were processed by using statistical package of data SPSS 13.0.

The comparison of universities by their effectiveness has showed quite a big dispersal – the indicator of universities’ effectiveness meaningly differs.

Figure 1 presents the universities effectiveness indicators according to the rank of 2008 year. University I is the leader in scientific activity, then goes university II. University V has minimal score in this activity. In activities evaluation on national rank there leads university I. University IV can be distinguished from other universities in personnel qualification.

Figure 2 presents the scores of organizational intelligence process level. It shows that none of the universities differ significantly, but intelligence processes show weak and strong sights of each university. For example, University III has a high score in organizational intelligence, but at the same time has a low leadership score.

The lowest score for University II is the lack of group work, but the highest score is in leadership.

Evaluating responses according to universities, it can be stated that though universities differ in intelligence processes, a trend can be seen that in some of universities there is expressed more than one intelligence process.
The correlation of university’s effectiveness and intelligence processes revealed certain causality results. The correlation analysis showed that university’s scientific activity is interrelated with such organizational intelligence process factors as knowledge management and total personnel involvement in university’s management. The activity evaluation on national range is interrelated with knowledge management, total personnel involvement in university’s management and attitude towards quality of work.

The quality of academic personnel is interrelated with personnel involvement in university’s management, individual’s attitude toward university and attitude towards quality of work, the extent of organizational intelligence, knowledge management and with business process organization.

Although correlations aren’t strong, existing trend in university’s effectiveness and organizational intelligence interrelation allows to make an assumption that these phenomena can be interrelated.

Figure 2. The distribution of organizational intelligence processes level by universities

3 picture. The comparison of universities’ organizational intelligence and activity evaluation
The above given picture shows the interrelation of university’s effectiveness and organizational intelligence processes level. University I leads in effectiveness, but not in organizational intelligence processes. University II is almost the last by effectiveness and by the organizational intelligence processes. University III distinguishes itself in the level of organizational intelligence. University IV has a high score in organizational intelligence processes, but it is only the third in the score of effectiveness. University V is the last in both categories.

According to these findings it can be said, that the relation between effectiveness and organizational intelligence processes is possible. The correlation confirmed this conclusion. Though correlation is not strong enough to make statistically significant conclusions, it also does not allow to eliminate it, so it should be stated that more surveys of this phenomenon is needed.

Conclusions

What is increasingly needed by higher-education institutions is the model for strategic management; i.e. for forward management of tasks rapidly changing world; for forward management of training structures in order to meet the compelling requirements of life-long education and the necessity for a more regional and international vision; for forward management of research structures in the light of the necessity for more interdisciplinary research in networked teams; for forward management of entry and departure flows with more attention to relevant and higher-quality training; for forward management of financial, material and human resources in order to better carry out tasks and respond to trends; for forward management of sub-cultures inside and outside the institution so as to create an innovation-oriented culture serving the construction of harmonious and sustainable human development (UNESCO, 1998).

Universities, turning to the market profile, have to concentrate on organizational intelligence development strategies. The first step is connected with the evaluation of existing organizational intelligence level. As organizational intelligence is not static, but a dynamic process, universities have to create functions, which are sensitive to environment and in such a way to warranty a certain level of organizational intelligence.

The results of empirical survey enabled to state, that university, which has a higher level of organizational intelligence, has accordingly higher effectiveness. But this survey just is a guide to further research, in order to prove the above mentioned interrelation.

The results only state the assumption that forming an intelligent university premises would be created for a development of university’s processes development.

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Universiteto organizacinės įžvalgos procesų tyrimas

I. Staškevičiūtė, R. Čiutienė


Universiteto perejimas į socialines sferas į rinkos ekonomiką lėmė daug dėlumų universitetų politikų kūrėjams. Universitetai buvo priversti perėti į rinkos ekonomiką ir tai paskatino keisti savo tikslus, kuriuos ir užtenka su autonomija: nors universitetai turi steigti universitetų veiklos efektyvumą, universitetai turi ir palaikantis socialinius ryšius skatinti savo tikslus, kuriais gali išlaivinti nuo perspektyvų ir atitinkančių aplinkos prieigos universitetų veiklos kokybės vaizdą rinkoje.

Žvelgiant į įžvalgus universiteto išraišką iš praktinės perspektyvos, teigta, kad siekiant sukurti įžvalgų universiteto, visų pirma reikia ji išlaivinti nuo perspektyvų ir atitinkančių aplinkos prieigos universitetų veiklos kokybės vaizdą rinkoje. 

Îžvalgų universiteto organizacijos procesų tobulinimą pagal tam tikras schemas tam, kad būtų sukurtas pridėtinė vertė bei padietų organizacijos veiklos efektyvumas. 

Mokslinėje literatūroje iki šiol nėra suformuotų konkretų universiteto veiklos efektyvumo įvertinančių rodiklių, todėl universiteto veiklos rezultatai gali būti vertinami pakankamai subjektyviai. Visuotinai priimtų universitetų veiklos rodiklių nebuvo sudaro priežasčių skirtingai interpretuoti veiklos rezultatus, o tai iškreipia objektyvų universitetų veiklos kokybės vaizdą rinkoje. 

Organizacinė proceso įžvalga orientuojasi į organizacijos esančių procesų tobulinimą pagal tam tikras schemas tam, kad būtų sukurtas pridėtinė vertė bei padietų organizacijos veiklos efektyvumas. 

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The article has been reviewed.