

2nd International Conference on Information Technology and Quantitative Management, ITQM
2014

Predictive model of strategic development of a university

Nadezhda Titova^{a,*}, Aleksey Shutov^b

^a*National Research University Higher School of Economics (HSE)
20, Myasnitskaya Ulitsa, Moscow, 101000, Russia*

^b*National Research University Higher School of Economics (HSE)
25/12, Bolshaja Pecherskaja Ulitsa, Nizhny Novgorod, 603155, Russia*

Abstract

The paper presents an economic and mathematical model designed to forecast development of a university depending on social and economic changes in the country and the amount of public funding of education. The university's internal decisions how to distribute its budget among operational activities, development, supporting science, and improving educational services are assumed as endogenous variables. The development of the university is viewed as a phase space trajectory defined by the four characteristics: quality of educational services, level of development of R&D and consulting activities, image and financial performance of university.

The choice of parameters meets the major interests of the most important stakeholders: state and society, business and science, labour market, prospective students, and the university staff. The model describes relationships between: a) funds obtaining and spending; b) results of university development along various axes and the investments; c) finance obtained and the results of university development; d) results of the university development in adjacent time intervals. The strength of the model consists in its practical use confirmed by the first results of modelling.

© 2014 Published by Elsevier B.V. Open access under [CC BY-NC-ND license](#).

Selection and peer-review under responsibility of the Organizing Committee of ITQM 2014.

Keywords: strategic development; university; economic and mathematical model; prognosis; Balance Scorecard System; recursive relations; quality of education, scientific activity of a university; financial situation of a university; image of a university;

* Corresponding author: Tel.: +7 916 237 79 57; fax: +7 495 772-95-69
E-mail address: ntitova@hse.ru, tite@mail.ru

1. Introduction

Identifying and describing the major problems universities face became a matter of concern in the period of adaptation of the Russian system of higher education to market conditions. Such problems included lack of public funding, low standard of living, decreasing prestige of higher education, and obsolescence of infrastructure and facilities at universities; moreover, highly qualified staff left universities to work abroad or in business. To these is added low level of managerial knowledge and skill among the administrative personnel^{1,2,3}.

As rules of market economy were being adopted in Russia, universities became more and more exposed to the universal problems of higher education: fast changing environment, increased competition, globalization processes, changed stakeholders' requirements to higher education, etc.⁴. The pace and ways of universities' adaptation varied greatly due to significant differences in levels of earnings⁵ and development of labour market sectors, as well as regional peculiarities. As the result, since 2000 the monitoring of the higher education system in general and of the strategic development of universities in particular, has been gaining popularity^{6,7}. The monitoring was aimed at studying the existing situation dynamically, identifying the best managerial practices applied by universities, predicting the future changes in the higher education system, and, most importantly, developing relevant suggestions to the government to improve the state of things.

Approximately at the same time period, the growing pressure of competition forced Russian universities to create programmes of strategic development. The research into those revealed, however, that most of them were unreasonably unified and "made for show". They lacked situational approach, nor did they analyze the consequences of the decisions made⁸. Thus, it seems that developing quantitative prognoses of what consequences the choice of a strategy will have, is becoming more and more relevant in the modern conditions of tough competition in the market of educational services, increased qualification of Russian consumers, and rigorous demands that society and state make on universities. The main criterion of adequacy for such prognosticative model is its ability to consider specifics of universities as objects of strategic management.

2. University specificities considered in the economic and mathematical model

Universities are non-commercial organizations (NCOs) that are believed to emerge when consumer cannot pay the required price for certain goods or services; however, society on the whole or certain social groups are interested in these goods⁹. The major reasons for the state to use NCOs include lower costs, higher quality of service and flexibility when developing curricula, and the possibility to influence indirectly the process of service delivery in political terms.

Consequently, functioning of market mechanisms is somehow limited in the spheres of NCOs' activities. The role of the state in this case is to compensate for the fact that consumers only pay a proportion of the price of the acquired social benefits.

The suggested economic and mathematical model considers the following inherent features of universities and their specificities as NCOs:

1. Consumers do not often have enough expertise to assess the quality of the services provided by professionals: Service provider has more information about its quality and quantity. In the case of universities, such asymmetry of competence¹⁰ escalates due to the complexity of services. One of the implications of this specific feature (included in the model) is that it is significantly stronger influenced by image than traditional commercial structures;
2. NCOs are dependent on external resources provision (resource dependence theory)¹¹. Organizations have to adjust their activities to environment; moreover, they must constantly adjust to the changing requirements set by environment, and obtain new resources (which will be considered in the model);
3. When applied to NCOs, the stakeholder control theory^{12,13} takes new dimension. Universities are less influenced by the end consumer compared to commercial organizations. Consumers provide only a proportion of financial resources and do not have the opportunity to check their quality and quantity. This is compensated by strong influence of other stakeholders, primarily, of the state;

Download English Version:

<https://daneshyari.com/en/article/486386>

Download Persian Version:

<https://daneshyari.com/article/486386>

[Daneshyari.com](https://daneshyari.com)