

DAUGAVPILS UNIVERSITĀTE
DAUGAVPILS UNIVERSITY

DAUGAVPILS UNIVERSITĀTES ZINĀTŅU DAĻA
SCIENCE DEPARTMENT OF DAUGAVPILS UNIVERSITY

DAUGAVPILS UNIVERSITĀTES JAUNO ZINĀTNIEKU ASOCIĀCIJA
DAUGAVPILS UNIVERSITY ASSOCIATION OF YOUNG RESEARCHERS

**DAUGAVPILS UNIVERSITĀTES
55. STARPTAUTISKĀS ZINĀTNISKĀS
KONFERENCES RAKSTU KRĀJUMS**

**PROCEEDINGS OF THE 55th
INTERNATIONAL SCIENTIFIC CONFERENCE
OF DAUGAVPILS UNIVERSITY**

DAUGAVPILS UNIVERSITĀTE
AKADĒMISKAIS APGĀDS „SAULE”

2014

DEVELOPMENT OF RESEARCH AND INNOVATION UNIVERSITY IN LATVIA

Arturs Zeps, Leonids Ribickis

Riga Technical University, 1 Kaļķu Street, Riga, Latvia, LV-1658

arturs.zeps@rtu.lv

Abstract

Development of Research and Innovation University in Latvia

The aim of this publication is to offer an analysis of possibility to establish Research and Innovation University in Latvia. Based on current political interest to reform the field of higher education, this publication provides one of possible solutions to the question of how to categorize Latvian Universities and how to establish the Research and Innovation University.

The first part of the publication provides an analysis of the classification principles of Universities, based on global trends and highlights the differences between general types of Universities. Main aims and tasks are provided to these types of Universities, especially indicating prerequisites for establishing a Research and Innovation University.

The second part gives an analysis of current classification of Latvian Universities as well analyses other options of classification offered by the Ministry of Education and Science and by other Latvian Universities.

The third part of publication evaluates potential to develop a Research and Innovation University in Latvia. This part analyses current financial support of the government to the Latvian Universities and the Reform plan of Higher Education system developed by the Ministry of Education and Science.

It also indicates what should be changed in the financial system and within the Reform plan if the government would set an aim to establish the Research and Innovation University.

Recommendation part provides suggestions for government regarding classification of Latvian Universities and establishment of the Research and Innovation University in Latvia.

Key Words: Research and Innovation University, Development plan, classification of Universities.

Kopsavilkums

Zinātnes un inovāciju universitātes attīstība Latvijā

Raksta mērķis ir analizēt iespēju izveidot Zinātnes un inovāciju universitāti Latvijā. Balstoties uz pastāvošo politisko interesi reformēt augstāko izglītību, autori piedāvā vienu no iespējamajiem risinājumiem jautājumam, kā iedalīt universitātes Latvijā un kā izveidot Zinātnes un inovāciju universitāti.

Publikācijas pirmajā daļā aprakstīti universitāšu iedalījuma principi, kas balstās uz pasaules tendencēm un pievērš uzmanību atšķirībām starp vispārējiem universitāšu tipiem. Galvenie mērķi un uzdevumi šāda veida universitātēm tiek piedāvāti, jo īpaši norādot priekšnoteikumus, lai izveidotu Zinātnes un inovāciju universitāti.

Otrajā daļā analizēts pašreizējo universitāšu iedalījums, kā arī citas iedalījuma iespējas, ko piedāvā Izglītības un zinātnes ministrija un citas Latvijas universitātes.

Trešā daļa izvērtē potenciālu izveidot Zinātnes un inovāciju universitāti Latvijā. Tajā analizēts valsts sniegtais finansiālais atbalsts Latvijas universitātēm un Izglītības un zinātnes ministrijas izstrādātais Reformu plāns. Autori arī norāda, kam būtu jābūt izmainītam finanšu sistēmā un reformu plānā, ja valsts izvirzītu mērķi izveidot Zinātnes un inovāciju universitāti.

Rekomendāciju sadaļā ir ieteikumi valdībai Latvijas universitāšu iedalījumam un Zinātnes un inovāciju universitāti izveidei Latvijā.

Atslēgas vārdi: Zinātnes un inovāciju universitāte, attīstības plāns, universitāšu iedalījums.

Introduction

The aim of the research is to investigate the possibility of creating the Research and Innovation University in Latvia. The research analyzes existing classification of Universities, defined by the Law on Institutions of Higher Education, and new typology developed by the Ministry of Education and Science. At the end of the paper the new classification of Latvian Universities is presented developed by the authors.

The research defines guidelines for the Government on how to create the Research and

Innovation University in Latvia and what support should be dedicated to this aim.

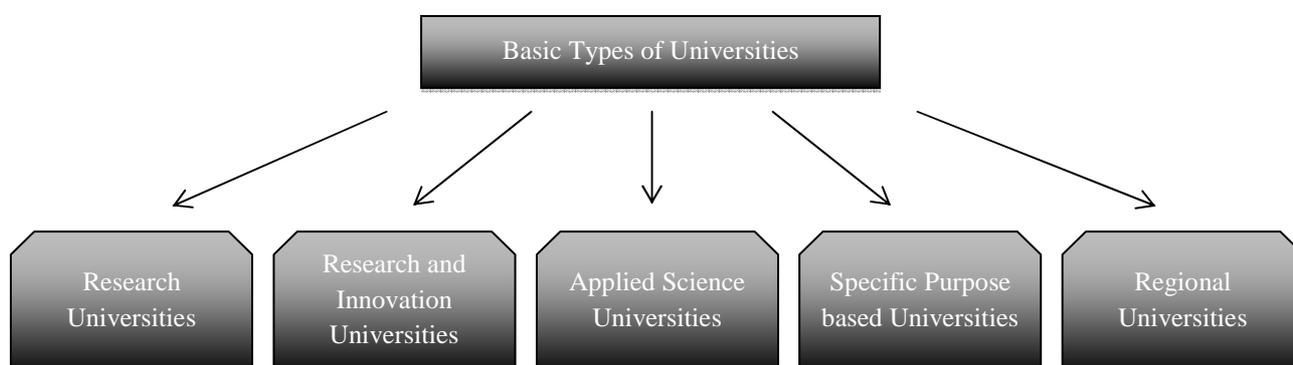
The methods of the research are: qualitative methods – analytical and case study analysis.

Classification of Universities

Diversity between higher education institutions in the world offers a great possibility to create different classifications of Universities. It is possible to differentiate Universities by so many criteria and measures that sometimes it is possible to get mixed up with all kinds of rankings, classifications and typologies. Some countries divide higher education institutions based on awarded scientific degrees, while others based on placement or research intensity within the institution (Benneworth, Charles, Humphrey, Conway 2010). It is possible to categorize Universities by purpose of establishment or major field of science taught within higher education institution, for example, technical or art sciences (Bohmert 2006). In some countries Universities are differentiated based on their founders – state founded Universities or Universities founded by private persons. This clearly indicates that each country has a possibility to divide Universities by its own criteria, what is done for example, in United Kingdom (Howells, Ramlogan, Cheng 2009) and United States of America (Richard, William 2008). Both countries have defined their own typology of Universities that cannot be directly applied to other countries. It can be concluded that each country needs to establish its own strategy for development of higher education and create typology of Universities in compliance with this strategy.

Although there are exist different typologies of universities, most of them have some similarities. Higher education institutions may be called by different names, but there still are some basic types of Universities found in majority of classifications. Figure 1 shows these types of Universities.

Figure 1. Basic types of Universities in different classifications



Source: Figure developed by authors.

The five types of Universities (Figure 1.) are represented within majority of classifications of Universities and represent a certain group of higher education institutions. The Government defines educational priorities and strengthens them by creating and implementing higher education

development strategy. For example, strengthening regional Universities can support equal regional economic growth. By providing greater support to research and innovation Universities, the government can promote research and development process in Universities, technology transfer and new product development. Further description provides more information on main aims and tasks of different Universities.

Research Universities are generally dealing with fundamental research. They tend to have large research capacity in terms of infrastructure and scientific personnel. It is also important for them to involve students in the research process. Most of these Universities tend to specialize in higher-level studies – offering master and doctor study programs. The government must provide funding for Research Universities, since the results of their research activities are fundamental science (Duse, Duse 2011).

Research and Innovation Universities or sometimes called the third generation Universities define three priorities - study process, research and commercialization – technology transfer activities. These priorities must be balanced and well managed, since they overlap and are closely linked with each other. Research and Innovation Universities also tend to pay more attention to higher-level studies, but they offer bachelor level studies as well (Mintrom 2008). These Universities strive to diversify their income streams. Although great amount of funding comes from the State, the University must manage its collaboration with the industry to earn great portion of income by its own. The Research and Innovation University is closely linked with business industry providing many different services, such as consultations and research and development services. Also great deal of income comes from commercialization of new products developed by the University (Tornatzky 2000).

To create and strengthen the Research and Innovation University, the government must define that University integration with business industry is important and dedicate significant funding for development of this kind of University. Additional funding in early stages of development of the Research and Innovation University is important for creating infrastructure, attracting the best academics and professionals to set up the processes and services for the business industry.

Applied science Universities are higher education institutions that in general bachelor and master level study programs. They may offer studies in different scientific fields, mostly applying scientific results within study process. Applied science Universities may be financed by the State, but they may as well have a tuition fee for students (Bohmert 2006).

Specific purpose based Universities are Universities that are established with specific aim, for example, medical or defense Universities. These higher education institutions generally are

financed by the State and serve specific purpose – prepare specialists in certain areas (Bohmert 2006).

Regional Universities ensure regional sustainability and are important to ensure the equal economic development across the country. These higher education institutions help to keep the bright young people in the region thus supporting regional business industry. Regional Universities must be financed by the State to ensure their sustainability in the long run (Bohmert 2006).

All different types of Universities have importance to the country's development. Though, the Research and Innovation University is able to deliver more visible financial gains in a shorter period of time since it works closely with business industry. This type of University, by developing new products and innovations, create an added value for companies that commercialize new inventions. If the government decides to establish the Research and Innovation University, it must provide additional resources and support at the first stage of development of this kind of University.

Existing and discussed classification of Latvian Universities

So far discussion on classification of Universities in Latvia has mainly served as a tool for gaining additional funding from the State and was not done with the purpose to define Governmental priorities in higher education. Currently, the Law on Institutions of Higher Education separates 4 general types of the higher education institutions:

- Universities;
- Academies;
- Higher education institutions;
- Colleges (LR Saeima 1995).

These higher education institutions are separated by different criteria, such as number of study fields performed at the institution, percentage of elected academic personnel with doctoral degree and level of degree presented.

In the past few years, there have been a number of attempts to develop a new classification of higher education institutions in Latvia. The Ministry of Higher Education and Science, the Council of Higher education and some Universities them-selves have developed new proposals for the classification of Universities. Based on all proposals the Ministry of Higher Education and Science has prepared an overview of the most dramatic changes. The Ministry foresees that all Higher education institutions in Latvia should be divided into 5 groups:

- Science (National) University – for research development;
- Technology University – for development of innovations;
- Regional University – for regional development;
- Academies – for educating professionals;

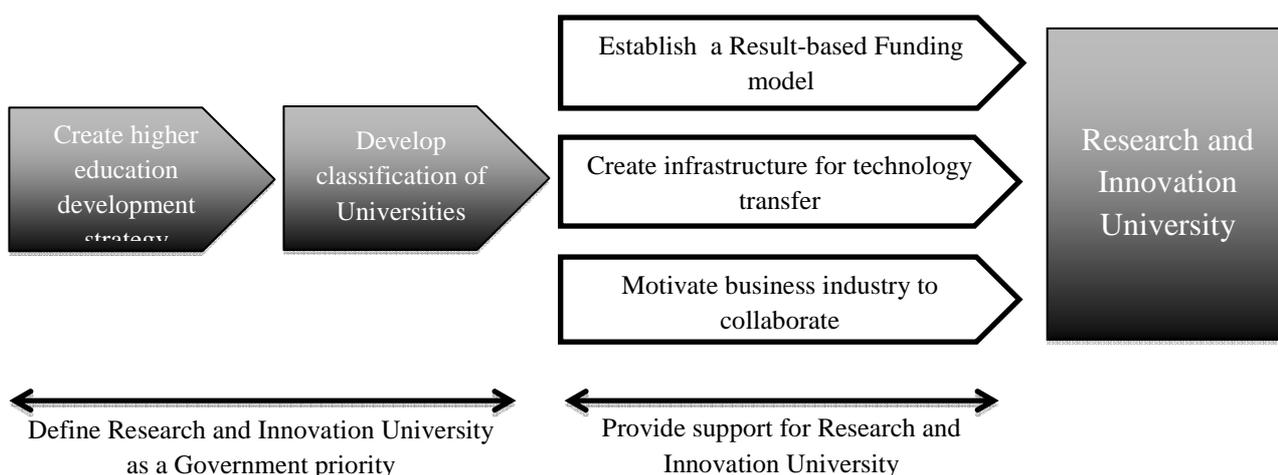
- Regional higher education institutions and colleges – for educating professionals in regions (MoES 2011).

This classification suggests establishment of one Research University, one Technology University and one Regional University. Other higher education institutions are divided into the last two sections. The current classification of Latvian higher education institutions give no clear reason why the first three sections are represented by only one institution, while the rest of institutions represent the last two sections. At the first glance one might tend to think that the general purpose was to separate one University – Science University for devoting additional funding to it and not much attention was drawn to other higher education institutions. For example, if the government wants to ensure equal regional development it is not clear why there is only one Regional University and what happens to the other two regional Universities if only 3 out of existing 6 are left.

Development of Research and Innovation University in Latvia

As stated earlier the Research and Innovation University has three basic priorities - study process, research and commercialization – technology transfer activities. In order for the government to establish or strengthen one such University, it is important to provide appropriate support by defining it as a priority and providing a constant support. Model of establishment of the Research and Innovation University is seen in Figure 2.

Figure 2. Establishment process of Research and Innovation University



Source: Figure developed by authors.

If the government has decided to strengthen economy by developing new products and innovations it must elaborate the higher education development plan according to this decision. The next step is to develop a classification of Universities, where one of the leading higher education institution is the Research and Innovation University. This will help to promote collaboration of

researchers and business industry, allow creating new products and establishing new spin-offs (Closs, Ferreira, Soria, Sampaio and Perin 2012). In Latvia, it is possible to adjust Riga Technical University to the status of Research and Innovation University, since it has wide study and research areas and executes the strong collaboration with business industry.

Based on the existing variety of higher education institutions, authors offer following classification of Latvian Universities:

- Research and Innovation University – University that performs study and research activities and as one of its priorities defines collaboration with business, new product development and commercialization process. This University must work in three main directions – engineering and natural sciences as well as business management and design.
- Research University/-ies – University that executes high-level research, mostly in fundamental sciences and incorporates the results of scientific research and the research process it-self in study process.
- Regional University/-ies – University that ensures regional development and equal economic growth. This University implements study programs and research that is required by local business industry.
- Specific purpose based higher education institutions or Academies – institutions that provide specific study programs, such as fine art, music and other. Some of these institutions might be situated in regions, but they might not apply to the status of Regional University.
- Colleges – institutions that provide first level study programs.

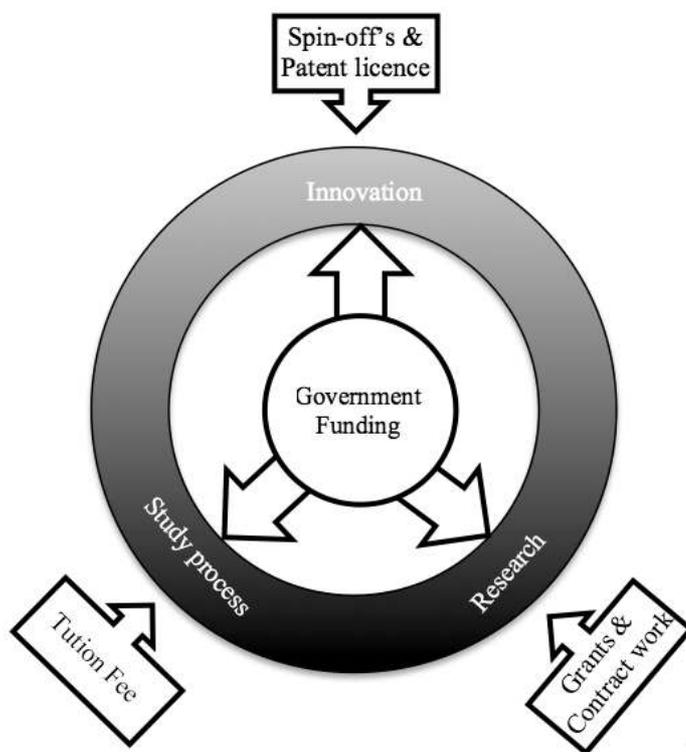
Constant support of government to the University is important for establishment process of Research and Innovation University. Development of a result-based funding model is one of the priorities for the support. The Government can define clear results to be achieved by the University and grant the funding based on these results. Another important support line is infrastructure for technology transfer. The Government in collaboration with local municipality must participate in the creation of such infrastructure, for example, by developing joint business parks or technology parks. And last but not least, third but not last support area is motivation of business industry to use University's services is also important support area. There are different ways to motivate the business industry such as granting tax benefits for the funding spent in Universities.

In year 2011, total funding for higher education assigned by the Government for study and research process constituted LVL 73,5 mil. (MoES 2011). There was no funding allocated for commercialization or innovation activities performed by Universities. It indicates that all innovation and technology transfer activities implemented by Universities were financed from the

money received for study and research process or other internal sources. As previously mentioned, authors emphasize that Universities should receive result-based funding to be allocated according to the model seen in Figure 3.

Figure 3 shows that the governmental funding should be allocated to the Research and Innovation University for three interrelated activities – study process, research and commercialization. University has a duty to attract external funding from three basic income streams. The first - tuition fee that provides income for study process, the second - grants and contract work that provide income for research and the third - technology transfer – income from spin-off's and patent licenses - and commercialization on new products for innovation process.

Figure 3. Funding for Research and Innovation University



Source: Figure developed by authors.

If the Research and Innovation University receives the basic funding for these three core activities it can seek external funding as well (Bienen 2012).

Conclusions

The analysis conducted by the authors shows that there are many different classification types of Universities and each country should pick one that best suits its economic development needs. Latvia has defined old-fashioned classification of Universities and the Ministry of Education and Science and some Universities have offered some new possible options for discussion.

However, none of the existing classifications suggests establishment of the Research and Innovation University, which is crucial for interconnecting business industry with research process.

The Research and Innovation University performs study and research activities and one of its priorities is collaboration with business, development of new products and commercialization process. In order for the government of Latvia to establish such institution or apply the status to one of the existing institutions, it is important to develop higher education strategy and proper University classification. Next task for the Government is to ensure appropriate support for the Research and Innovation University by participating in infrastructure development for technology transfer, motivating business industry to use University's services and granting funding based on these results. Funding should be allocated for three core activities – study process, research and commercialization and must closely linked with results the government desires the University to achieve.

Bibliography

- Duse D.S., Duse D., Nemes C. 2011, Influences of the Organizational Culture on Academic Management Change and Development in Classical Universities
- Closs L., Ferreira G.C., Soria A.F., Sampaio C.H., and Perin M. 2012. "Organizational Factors that Affect the University-Industry Technology Transfer Processes of a Private University", Journal of Technology Management & Innovation, Vol. 7 Issue 1, pp 104-117
- Bohmert D. 2006. Developing a Typology of Higher Education Institutions in Europe. In: Workshop «Ranking»
- Bienen H.S. 2012. The Financial Future of Research Universities. In: social research Vol. 79: No. 3: Fall 2012
- Howells J. Ramlogan R., Cheng S-L. 2009. The Role, Context and Typology of Universities and Higher Education Institutions in Innovation Systems: A UK Perspective
- Mintrom M. 2008. Managing the research function of the university: pressures and Dilemmas. In: Journal of Higher Education Policy and Management Vol. 30, No. 3, August 2008, 231–244
- Benneworth P., Charles D., Humphrey L., Conway C. 2010. TOWARDS A TYPOLOGY OF UNIVERSITY/ COMMUNITY ENGAGEMENT
- Richard C. A., William A. B. 2008. Research Universities: Core of the US science and technology system. In: Technology in Society 30 (2008) 30–48
- Tornatzky L.G. 2000. "Building state economies by promoting university-industry technology transfer", Washington, DC: National Governors', Center for Best practices
- Academic Ranking of World Universities 2013. "University categorization by science field", Available at: www.arwu.org (accessed 4 April 2013).
- Ministry of Education and Science 2011. Informative report: „Par Izglītības un zinātnes ministrijas turpmāko rīcību zinātnes un augstākās izglītības reformu jomā” Available at: www.izm.gov.lv (accessed 20 April 2013).
- LR Saeima 1995. Law On Institutions of Higher Education Available at: www.likumi.lv (accessed 4 May 2013).