



**Latvia  
Lithuania**

cross border  
cooperation programme  
2007 - 2013

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## **Study**

# **BUSINESS AND SCIENCE COOPERATION PERSPECTIVES**

**Daugavpils, LATVIA  
2012**

The study „Business and Science Cooperation Perspectives" was done in frames of the project "Fostering Capacity for Business Development in Latgale-Utena Cross Border Region, acronym REGION INVEST" (identification no. LV-LT/1.1./LLII- 119/2010/25) implemented under Latvia-Lithuania Cross-border Cooperation Programme 2007-2013.



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### ABBREVIATIONS USED

Acad. hr.	Teaching period
Acad.yr.	Academic year
BI	Business incubator
BIC	Business information centre
BSA	Baltic International Academy
CP	Credit point
CSB	Central Statistical Bureau of Latvia
DMK	Daugavpils Medical College
DU	Daugavpils University
EEZ	European Economic Zone
EC	European Commission
EU	European Union
GDP	Gross domestic product
ICT	Information and communication technologies
IT	Information technologies
IZM	LR Ministry of Education and Science
JAC	Jekabpils agribusiness college
JSC	(Joint-) stock company
LATC	Latgale machinery and technology center
LIKTA	The Latvian Information and Communications Technology Association
LLU	Latvia University of agriculture
LR	The Republic of Latvia
LT	Lithuania
Ltd	Limited (liability) company
LU	The University of Latvia
LV	Latvia
NAP	National Development Plan
OECD	Organisation for Economic Co-operation and Development
PSMK	P.Stradins Medical College of the University of Latvia
R&D	Research and development
RA	Rezekne Higher Education Institution
RSEBAA	Riga International School of Economics and Business Administration
RTU	Riga Technical University
SME	Small and medium companies (enterprises)
SPSS	Statistical data analyzing software - <i>Statistical Package for the Social Sciences</i>
TTC	Technology transfer contact-point
TSI	Transport and Telecommunication Institute
UK	Utena University of Applied Science
VAT	Value added tax



## INTRODUCTION

The development of production and commercial success is the basis for national economic growth. Increase of production offers new jobs. This has a positive effect on employment and income growth.

A significant problem in Latvia compared to other EU Member States is relatively low entrepreneurial activity and self-employment rate, which is due to a lack of initiative and entrepreneurial spirit in society.

There are frequent reproaches to universities about preparation of students so remote from the real industry that after graduation they can not be immediately useful and in demand. In all regions, activities are conducted to enhance collaboration between industry and educational and research institutions, including students – so that students would carry out targeted research and studies necessary for a concrete company, compile world experience, gain practical experience in companies; and entrepreneurs, in their turn, would gain valuable research information and the experiences of others. In addition, the entrepreneurs in recruitment cases could save big part of time and resources. They could easier look up the graduates who have been absorbed in a specific company's industry research already during the study years.

This **study aims** to identify and substantiate the business and university (academic sector) cooperation problems and reasons for the lack of innovation in Latgale (Latvian) - Utena (Lithuanian) border region (study area). To achieve the goal, the **following tasks** are being addressed:

1. evaluate entrepreneurial activity, business environment and economic structure in the study area, based on the statistical information and previously conducted studies during the previous 3-year period
2. develop a methodology for the study: to prepare and coordinate the questionnaires and focus group questions, the survey plan, "field work" plan, empirical data collection, etc.
3. organize and carry out the survey of entrepreneurs (N=100+100) within the study area in order to:
  - ✓ evaluate the entrepreneurs' previous experience in business innovation, their incentives for innovative activities, as well as current innovative performance in the study area;
  - ✓ determine entrepreneurs' assessment of the higher educational institutions study programmes' graduates and their adequacy with the region's labor market needs;
  - ✓ explore innovation implementation trends (industry sectors, fields) and barriers in the study area, as well as the cooperation capacity of the target group;
  - ✓ explore the problems associated with poor academic and business sector cooperation, to evaluate and compare the academic sector and the business vision of the cooperation experience, opportunities and barriers;
  - ✓ gather entrepreneurs' proposals for solutions to these problems, which can be implemented with own resources, on local municipality level, regional level, cross-border or national level.
4. organize and carry out the survey of researchers (N=7+7) in the study area (interviews and / or focus groups) with the aim to identifying possible areas of cooperation with businesses in the region and to define specific proposal content (what researchers are now ready to offer entrepreneurs);
5. identify performance indicators (e.g. number of graduates, degree, breakdown, etc.) of universities' study programmes of different levels and types (indicatively 20 study programmes) to see their compliance with regional economy needs; taking into

account the entrepreneurs' survey results, to investigate the reasons and propose solutions for improvement of the linkage and higher education offer according to business sector's demand on a regional level;

6. summarize the collaboration experience of business and academic sector partners (according to the study objectives), to collect the results of this experience in regard to business development goals and application of innovation, to make recommendations to business and research cooperation in the field of innovation and technology, as well as for development of innovation environment and capacity.

During the research, specialized literature, Latvian and EU legislation and policy documents, publications and other materials, previous assessments of study programmes, as well as entrepreneurs and researchers' (experts) survey results were used.

The study document includes the related literature review, research methodology, findings of the study results, conclusions and recommendations, as well as analysis of alternatives to determine the optimal business and research co-operation model. The study text provides a list of persons interviewed, separate annexes available at Daugavpils University show the questionnaire samples, data tables, information about major companies and business support organizations in Latgale and Utena, data masives obtained and used in the study, as well as compact disc (CD) with an electronical version of the study.

## BACKGROUND AND TOPICALITY OF THE STUDY

Today when radical changes affects the market economy and employment, its base consists of small and medium-sized enterprises (SMEs). Small and medium businesses in Latvia and Lithuania as well as elsewhere in Europe account for a large part of the economy, and have an important role in the creation of GDP and employment. In European business structure, SMEs account for 99.8% of economically active businesses (in Latvia - 99.4%, in Lithuania - 99.5%). In SME structure, in its turn, micro enterprises have a growing importance: Latvian micro enterprises account for 76.9%, Lithuanian - 78.3% from all SMEs. Their main advantage is the ability to respond quickly to market changes, thereby, changing trends in the international market and increasing demand in a specific sector brings wide niche opportunities, e.g. in the field of organic farming, eco-tourism, information technology and other knowledge-based areas. The relatively low level of entrepreneurial activity and self-employment in both Latvia and Lithuania is being related to the lack of initiative and enterprise spirit in society, as well as government policies on entrepreneurship education.

The European Union Strategy for *Europe 2020: A strategy for smart, sustainable and inclusive growth* (2010) states that the priorities are education, science and innovation. Innovation is also being considered as a response to the present problems and future challenges such as climate change, limited resources, demographic and social problems. [1.]

In the Global Competitiveness Index<sup>12</sup> ranking of the World Economic Forum 2011, Latvia is ranked nr.70, and Lithuania – nr.47 among 131 countries. According to this ranking, Latvia and Lithuania is considerably below the number of EU Member States as well as Estonia, whose rating is nr.33. If the Latvian position over the last year has become worse (-2), the Lithuanian and Estonian rating has improved by +6 and +2 places respectively (Shwab, 2010, p.15) (see Table 1).

Table 1

### Indices of Competitiveness, Quality of Higher Education, Innovation and Knowledge Economy in selected countries

Country	World Economic Forum Global Competitiveness Index (GCI) 2010-2011	Quality of Higher Education 2010-2011	World Bank Knowledge Economy Index (KEI) 2009	Global Innovation Index (GII) 2009-2010
Norway	14	12	5	10
Sweden	2	2	2	2
Finland	7	1	3	6
Denmark	9	3	1	5
Estonia	33	22	21	29
Lithuania	47	25	31	39
Latvia	70	35	32	44

Source: Schwab, 2010; *Global Innovation Index*. 2011; *Knowledge Economy Index* 2011.

A similar situation exists with the innovation and knowledge economy index. In World Bank Knowledge Economy Index (KEI)<sup>3</sup> assessment Latvia ranks as nr.32, which is the worst index among the Baltic States, while Nordic countries are leaders in the knowledge economy development. Innovation index (GII)<sup>4</sup> puts Latvia in the 44th position, but Lithuania and Estonia - the 39th and 29th respectively.

<sup>1</sup> The Global Competitiveness Report 2010–2011. World Economic Forum Geneva, Switzerland 2010.

[http://www3.weforum.org/docs/WEF\\_GlobalCompetitivenessReport\\_2010-11.pdf](http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2010-11.pdf)

<sup>2</sup> The fifth GCI pillar: Higher education and training as a key to efficiency-driven economy

[http://www3.weforum.org/docs/WEF\\_GlobalCompetitivenessReport\\_2010-11.pdf](http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2010-11.pdf) p.12

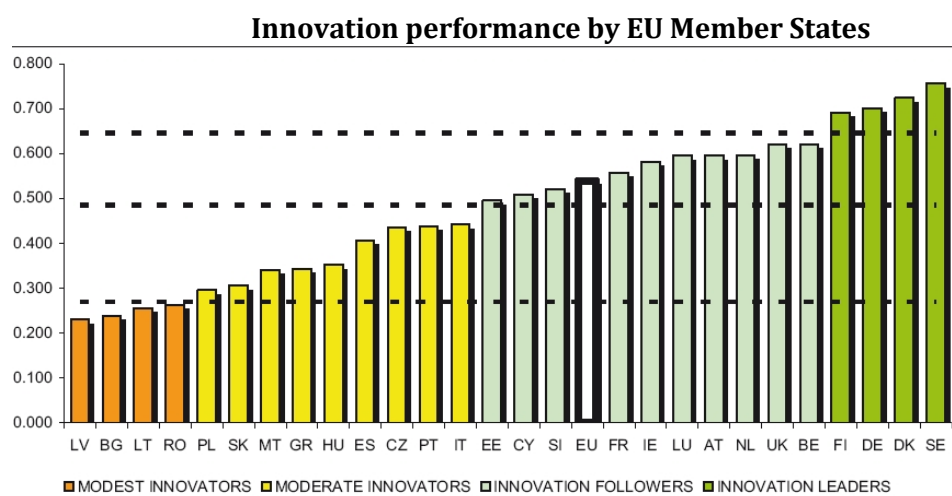
<sup>3</sup> World Bank Knowledge Economy Index includes 109 structural and qualitative variables, assessed in 146 countries to measure their performance in four knowledge economy pillars: economic incentives and equipment, education, innovation, information and communication technologies.

[http://info.worldbank.org/etools/kam2/KAM\\_page5.asp](http://info.worldbank.org/etools/kam2/KAM_page5.asp)

<sup>4</sup> [http://www.globalinnovationindex.org/gii/main/reports/2009-10/FullReport\\_09-10.pdf](http://www.globalinnovationindex.org/gii/main/reports/2009-10/FullReport_09-10.pdf)

In *Innovation Union Scoreboard 2011* published in 2011, that studies 27 countries, Latvia has the last (the 27th) place with regard to innovation performance, while Lithuania is situated in the 25th place, i.e. about 50% behind the EU average, and Estonia's position is considerably higher (the 14th place) (see Fig. 1). The study evaluated a wide range of performance in eight key areas significant for innovation development. When analyzing Latvian innovations, it should be noted that the relatively better performance for Latvia is in human resources development, protection, funding and support of intellectual property, but the **indicators for research environment, innovative companies, business and research cooperation** are lower (*Union Innovation Scoreboard 2012*). A top higher education level and qualification contributes to the fundamental innovation, the transfer and imitation of global *high-tech* practice. However, these opportunities are minimally used in Latvia and Lithuania.

Figure 1



In 2008, on average 24% of companies in Latvia were innovative<sup>5</sup>, in Lithuania - 30%, while in Scandinavian countries, like in EU-27 countries, innovative companies accounted for an average of 52%. The importance of the innovations is also proved by the fact that the turnover of Latvian innovative enterprises (24%) in 2008 was 52.7% of the total business turnover (*Eurostat*).

The development of Latvian economy and increase of the competitiveness of businesses is significant not only for the convergence of economic development levels among EU member states, but also an important precondition for maintaining the economic and social welfare level, retaining and expansion of local business niches in global competition conditions, as well as for the successful transition of Latvian economy into an innovative development model.

<sup>5</sup> An innovative company is the one:

- that has started the production of at least one new competitive product (or new service provision) during past 3 years, or made use of new technologies to increase the competitiveness of existing products;
- whose new product or service is based on knowledge created in the company itself, or in cooperation with scientific research institutions (universities), individual industry experts or other companies in Latvia or outside its borders;
- that invests at least 0.5% of annual turnover into new product or service development, and corresponds to at least two of the three following criteria:
  - at least 25% of turnover comes from products or services launched in the market not earlier than 5 years ago;
  - the profit made by the new (not older than 5 years) products or services is at least 10% of the total profit of the company;
  - the produced new products or provided services provide at least 5% increase in turnover per year.

## DESCRIPTION OF THE SITUATION

### LATGALE REGION

**Latgale region** is one of the five planning regions in Latvia. It distinguishes itself with rich cultural and historical heritage and landscape values, which is also a potential for the development of entrepreneurship in the region. Latgale is characterized by the following statistical indicators:

- **Area** 14'500 km<sup>2</sup>
- **Biggest cities** Daugavpils, Rezekne, Balvi, Kraslava, Livani, Ludza, Preili
- **Population** 340 000 (15,9% of the population of Latvia)
- **Countryside population** 41%
- **Population density per km<sup>2</sup>** 23,4 inhabitants / km<sup>2</sup>

Source: Economic Profile of Latgale Planning Region (2010) Programme of Latgale 2010-2017.

Latgale region is located in eastern Latvia and borders with the Russian Federation, Belarus and Lithuania (see Image 2). There are 21 municipalities in the Latgale region territory, including two cities of national importance (Daugavpils and Rezekne), as well as 19 districts (Aglona, Baltinava, Balvi, Cibla, Dagda, Daugavpils, Ilukste, Karsava, Kraslava, Livani, Ludza, Preili, Rezekne, Rugaji, Riebini, Varkava, Vilani, Vilaka un Zilupe).

Figure 2

Latvia and Latgale region



Source: Economic Profile of Latgale Planning Region (2010) Latgale programme 2010-2017.

### Analysis of entrepreneurship in Latvia and in Latgale region

Entrepreneurship is the basis of any country's rapid and sustainable economic development and is most closely related to the socio-economic development, as it ensures creation of new workplaces, increase of people's income, development of other industries, improvement of goods and services quality etc. The main factor affecting development of entrepreneurship is the entrepreneurial environment in the country. In order to evaluate entrepreneurial environment in separate countries, the World Bank carries out the international research *Doing Business* (DB). According to the DB index, in 2012, Latvia ranks as the 21<sup>st</sup> in the world (among 183 countries) and this result is three places higher than in

2010 (in 2011 it ranked as the 24<sup>th</sup>). Latvia ranks amid those countries (85% from all those included in the DB research), whose reforms, implemented during the last 5 years, have facilitated implementation of entrepreneurship. At the same time, our neighbouring countries Estonia and Lithuania are ranked in the group, where performance of entrepreneurship has become more difficult ([57], page 109). For comparison, Estonia ranks as the 24<sup>th</sup> in the research *Doing Business 2012*, while Lithuania ranks as the 27<sup>th</sup>. In the research *Doing Business 2012*, entrepreneurial environment is evaluated from 10 aspects. Through comparison of researches *Doing Business 2011* and *Doing Business 2012* it is visible, that protection of investors' rights, tax administration and construction authorization have grown worse (*Doing Business 2012*).

Overall, there were 144 430 enterprises in Latvia in 2010, the number of economically active units in 2009 was 128 156, while in 2008 it was 125 908. During the last five years, the number of economically active entrepreneurs per 1000 inhabitants has increased from 17 to 25. But the total economic activity is also characterized by other participants of the market sector. According to European Union institutions' practice, which includes also individual job performers (self-employed persons), agricultural and fish farms and others in estimation of such indicator characterizing the economic activity, Latvia's indicator was 44 (in 2004) and 47 (in 2005) performers of economic activity per 1000 inhabitants and it reaches and corresponds to the average European Union level (see Table 2).

Table 2

**Number of economically active individual entrepreneurs and companies  
per 1000 inhabitants in 2005-2010**

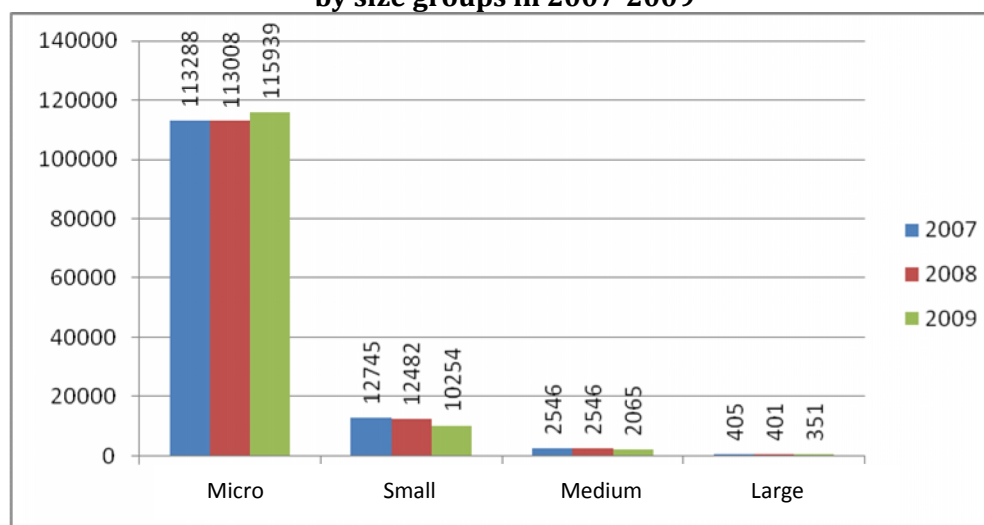
Planning region	2005	2006	2007	2008	2009	2010
Riga Region	35,1	38,7	42,2	43,5	44,9	66
Vidzeme Region	14,9	17,6	18,9	20,2	20,4	63
Kurzeme Region	16,0	18,6	20,6	21,9	21,8	57
Zemgale Region	12,4	15,4	17,1	18,8	18,4	50
Latgale region	11,0	12,7	13,9	15,4	15,4	51
Average in Latvia	23,8	26,8	29,4	30,8	31,5	60

Source: Development of regions in Latvia, 2011 and <http://data.csb.gov.lv/Dialog/Saveshow.asp>

In the National Economic Development Guidelines, the emphasis is exactly on the medium and small enterprises, because they form the biggest part of the national economy sector. Therefore, their competitiveness has to be raised as well as the total number of these enterprises has to be increased. To get a clearer idea of what type of enterprises (by size) mostly dominate in the national economy of Latvia, the author offers to take a look at the data of the Central Statistical Bureau broken down by size groups (see Image 3). Economically active enterprises and companies are divided into three groups, considering the number of employees: with the number of employees  $\leq 49$ , from 50 to 249 and more than  $\geq 250$ .

Figure 3

**Economically active market sector statistical units<sup>6</sup>  
by size groups in 2007-2009**



**Source:** *Economically active statistical units by size groups..2009*

As seen in Figure 3, in 2009 the number of micro-enterprises has increased, when comparing to 2008 and 2007. Overall, significant changes in division of companies by size groups were not observed and the overall trend remains – the largest share is taken by micro-enterprises. The fact, that every year the number of new enterprises in the country is gradually, but steadily increasing, could be explained by the increasing business demand, as well as implementation of various measures to improve the entrepreneurial environment and support programs for young entrepreneurs.

13.1% of the economically active statistical units are situated in the Latgale region. Considering the size groups, the majority of these units in the region are micro economically active statistical units, which is 92.6% per cent of all 16 487 economically active statistical units, whereas only 0.2% are large economically active statistical units. These figures are very similar in all Latvian regions.

Table 3

**Economically active market sector statistical units in the regions  
by size groups (2010)**

Planning region	Total	Micro	Small	Medium	Large
Riga Region	72490	64347	6547	1326	270
Vidzeme Region	14533	13707	690	123	13
Kurzeme Region	17074	15923	920	207	24
Zemgale Region	14011	13134	716	143	18
Latgale region	17031	16096	770	145	20
Average in Latvia	135139	123207	9643	1944	345

**Source:** *SRG03. Economically active market sector statistical units by size groups in the statistical regions, cities and districts of the republic (2012)*

Considering the number of companies, Latgale region ranks as the second behind Riga region, in which there are four times more enterprises than in other regions. Latgale region's enterprises mainly operate in fields of trade and services (46.7%) and agriculture (43.1%).

<sup>6</sup> **Market sector statistical units:** self-employed persons, individual entrepreneurs, companies, agricultural and fish farms.  
(<http://www.csb.gov.lv/statistikas-temas/statistikas-uznemumu-registrs-galvenie-raditaji-30076.html>)



As shown in Table 4, Latgale and Vidzeme regions are leaders in agriculture. The largest number of enterprises operates exactly in this field. Latgale has the worst indicators in construction, industrial and power industry fields. Industrial and power industry, as well as construction enterprises produce goods with high added value, thus also contributing to regional development. However, Latgale region has the worst figures in these sectors. Considering type of activity (NACE, version 2), in 2009, the most of economically active units in Latgale region were wholesale and retail (46.7% and 43.1%, accordingly) in agriculture, forestry and fisheries sectors. 5.6% of enterprises operate in the manufacturing sector, which is very significant for Latgale region.

Table 4

**Economically active market sector statistical units  
by the main types of activity in 2010**

Planning region	Number	Percentage by types of activity				Other activities
		Agriculture	Industry and energy	Construction	Trade and service	
<b>Riga Region</b>	72490	6,5	6,7	6,3	62,6	17,9
<b>Vidzeme Region</b>	14533	43,9	6,2	4,0	28,9	17,0
<b>Kurzeme Region</b>	17074	37,7	6,9	4,6	34,5	16,3
<b>Zemgale Region</b>	14011	40,2	5,9	3,7	32,7	17,4
<b>Latgale region</b>	17031	44,7	5,4	2,4	32,2	15,2
<b>Total in Latvia</b>	<b>135139</b>	<b>22,8</b>	<b>6,4</b>	<b>5,1</b>	<b>48,5</b>	<b>1,2</b>

**Source:** SRG021. Economically active market sector statistical units by the statistical regions and main types of activity (NACE, version 2).

Entrepreneurial environment of Latgale region does not differ much from other regions, but such characteristics of the region as a lower added value of production, lower purchasing capacity and a higher proportion of self-employed persons have to be noted.

During decrease of employment and increase of unemployment, individual entrepreneurs and changes in the number of companies become a significant economic indicator – both in the whole country and also within each region, because it demonstrates the restructuring of the economically active people. In Latgale region, there are 15.4 individual entrepreneurs and companies per 1000 inhabitants, which is less than half of the average in Latvia (31.5). In other regions, this indicator varies from 18 to 22 individual entrepreneurs and companies.

Table 5

**Economically active market sector statistical units  
per 1000 inhabitants in 2005-2010**

Planning region	2005	2006	2007	2008	2009	2010
Riga Region	50,6	55,7	61,0	60,2	62,9	60
Vidzeme Region	53,5	57,1	60,4	59,0	59,2	74
Kurzeme Region	43,3	50,4	54,9	53,0	54,0	53
Zemgale Region	44,2	47,0	50,1	46,9	44,8	63
Latgale region	40,0	44,0	47,5	47,7	48,3	57



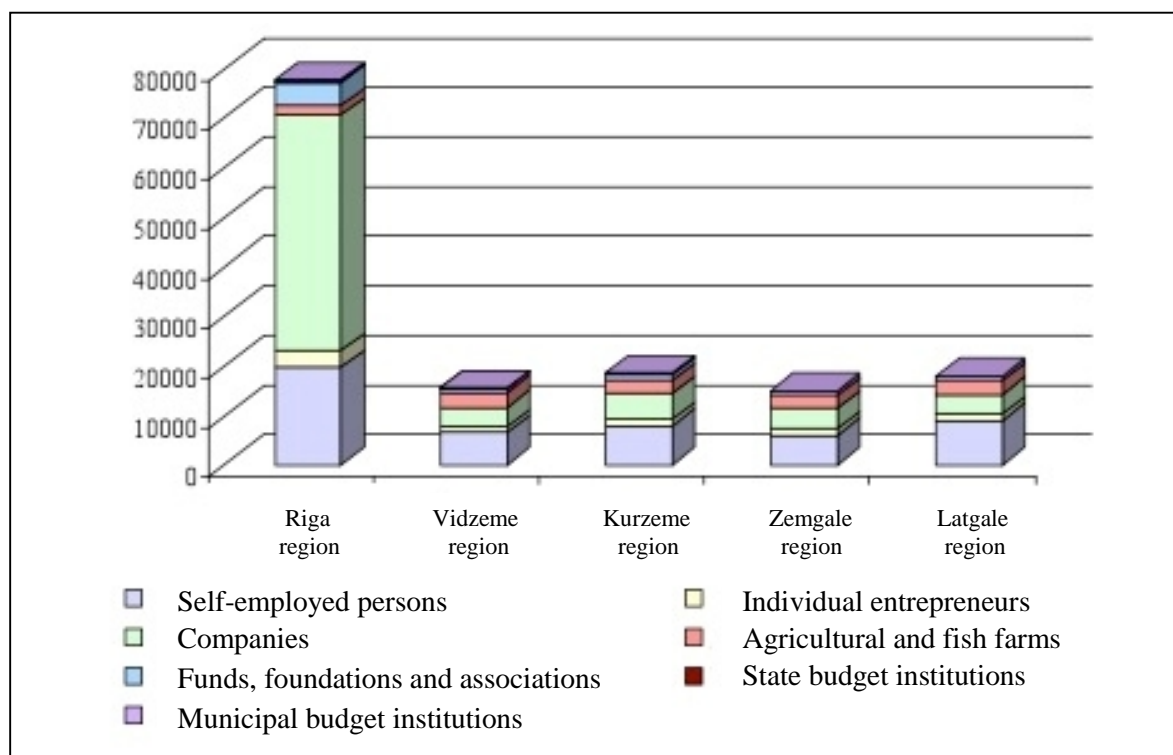
Average in Latvia	47,5	52,2	56,7	55,6	56,8	50
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**Source:** *Development of regions in Latvia, 2010*; SRG051. Economically active market sector statistical units by statistical regions, cities and districts.

During the period from 2005 to 2010, there were no significant changes in the overall structure of market sector statistical units in the regional perspective. The number of self-employed persons, individual entrepreneurs and companies increased in all regions. Difference was in small changes of the total number and proportion of agricultural and fish farms. The structure of entrepreneurs, with predominance of the self-employed, is similar in all regions, except in Riga region, where there is a considerable predominance of companies. On average, there were 56.8 economically active market sector statistical units per 1000 inhabitants in 2009. Most of them (62.9) were in Riga region. In Latgale region there were 48.3 statistical units per 1000 inhabitants.

Figure 4

**Economically active market sector statistical units  
by the form of economic activities in 2010**



When comparing the number of economically active market sector statistical units per 1000 inhabitants in the previous district administrative territories of Latgale region, the leaders are Preiļi district, Balvi District and Rezekne District.

Table 6

**Economically active market sector statistical units in Latgale region district in 2010**

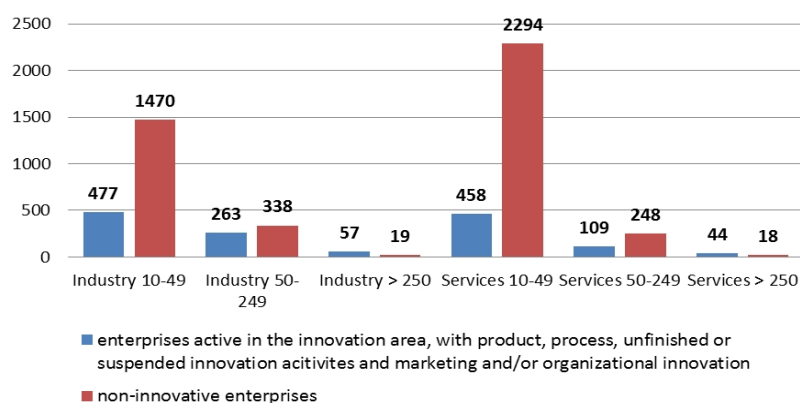
	Self-employed persons	Individual entrepreneurs	Companies	Agricultural and fish farms	Funds, foundations and associations	State budget institutions	Municipal budget institutions

Latgale	8921	1344	3971	2795	728	31	157
Daugavpils	1754	509	1719	11	183	11	30
Rezekne	774	187	753	15	85	7	12
Aglona District	87	11	16	64	11	1	6
Baltinava District	44	2	9	33	2	-	3
Balvi District	614	59	153	203	44	-	5
Cibla District	186	11	19	65	6	-	2
Dagda District	359	35	41	121	22	1	13
Daugavpils District	602	48	154	300	50	1	-
Ilukste District	235	20	55	146	13	1	2
Kraslava District	481	126	130	177	47	-	30
Livani District	443	70	165	195	34	-	3
Ludza District	410	97	143	79	35	2	2
Preili District	467	54	146	169	41	1	3
Rezekne District	968	52	237	548	75	2	31
Riebini District	363	9	29	190	15	-	2
Rugaji District	159	3	16	78	10	-	2
Varkava District	171	2	5	135	7	-	2
Vilaka District	237	13	27	86	19	1	3
Vilani District	166	11	78	55	12	1	2
Zilupe District	70	7	28	16	5	1	2

Source: SRG011. Economically active statistical units in the statistical regions, cities and districts of the republic (2012)

Figure 5

#### Number of active and inactive enterprises in the innovation area in Latvia in 2006-2008



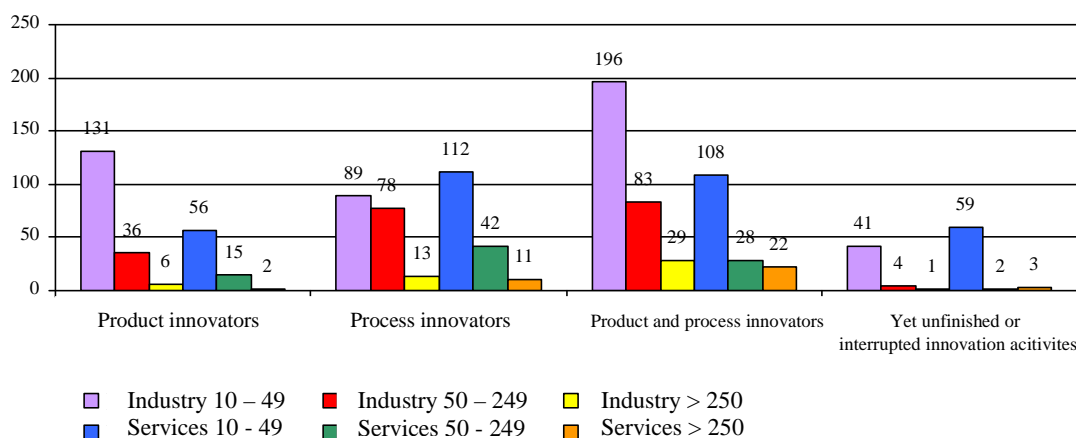
Source: Number of active enterprises in the innovation area in Latvia (2012)

<http://data.csb.gov.lv/DATABASE/zin/lkgad%C4%93jie%20statistikas%20dati/Inov%C4%81cijas/Inov%C4%81cijas.asp>

Data shown in Figure 5 indicates that in Latvia innovation takes place more in the large enterprises (54% of the number of these entrepreneurs). Only 14% of entrepreneurs in the small enterprises are active in the innovation sector, in the group of medium entrepreneurs active are 27% of entrepreneurs. Most active enterprises in the innovation sector are those operating in the industry.

Figure 6

**Number of active enterprises in the innovation sector  
in Latvia in 2006-2008**



**Source:** Number of active enterprises in the innovation sector in Latvia (2012)

<http://data.csb.gov.lv/DATABASE/zin/lkgad%C4%93jie%20statistikas%20dati/Inov%C4%81cijas/Inov%C4%81cijas.asp>

Innovation activity is relatively low in the services field, particularly in the SME sector (see Figure 5). Therefore, the focus should be on the study of these micro, small and medium enterprises.

In the Latgale region, there are several enterprises producing not only for the internal market, but also export its production. Total amount of goods export in Latgale in 2009 was the smallest in Latvia – 125.3 million lats or 3.5% of the total export amount in Latvia. According to the information provided by the Ministry of Economy, there are five enterprises registered in Latgale among the 100 largest exporters of Latvia in 2009. The export mostly consists of metal engineering products, light industry products and food products. Recognizing that the existing sectors form the basis of the potential for economic growth, it is considered that development measures should be based not on specific priority sectors, but on the competitiveness of enterprises as such, regardless of the sector. It is because in sectors with traditionally low added value there are also enterprises producing high added value products and vice versa (*Latgale strategy 2030*, 2010; *Economic Profile of Latgale Planning Region*, 2010).

In order to facilitate faster and more productive entrepreneurship development there have been established more than 40 public and private business support institutions in the Region. Annually, more than 200 entrepreneurs acquire and develop necessary skills in these support institutions. Business advisory councils and support centers operate in the national and regional development centers of Latgale. Important source of knowledge transfer for entrepreneurs are business incubators (5), technology transfer contact points (2) and technological centers (5).

In order to promote the development of innovative entrepreneurs involvement of highly qualified specialists in the SMEs has to be supported. Public funding will have a motivating character, which will embolden entrepreneurs to invest in creation of new workplaces for highly qualified specialists, as well as encourage entrepreneurs to engage in cooperative projects with universities and scientific institutes. The lack of highly competent and motivated employees limits the opportunities for innovation – entrepreneurs have shortage of educated and interested employees, who would not only be able to perform certain tasks, but also devote time to increasing the productivity, acquisition of new technologies and development of new products and services.

### Network of educational institutions in Latgale

In the modern world more and more attention is given to human as the largest value. With the help of his knowledge and skills an individual creates innovations that help make labour and production process more efficient. An educated society is formed in schools, universities, further education and lifelong learning, but it must form regionally evenly.

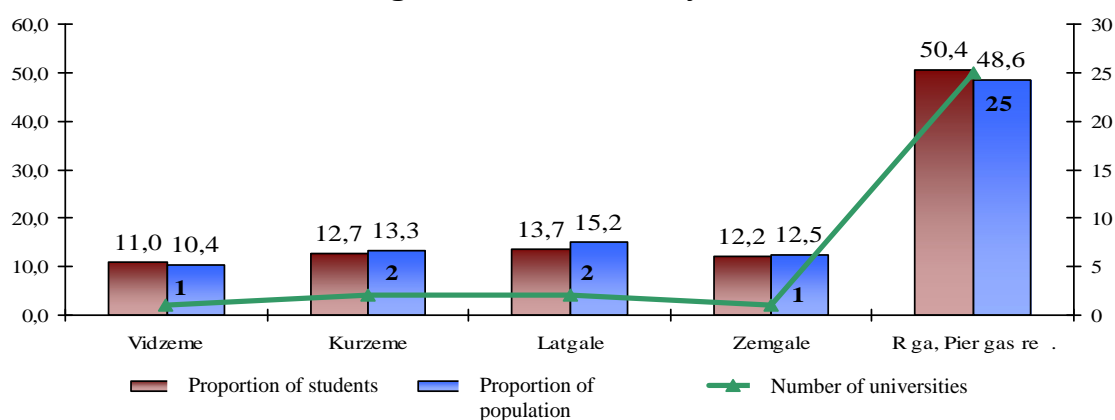
The strong network of universities, covering the whole territory of Latvia, ensures development not only in Riga region, but also in regional centres of Latvia. In addition, exactly the activities of regional higher education institutions, collaborative projects between the higher education institutions and non-governmental organizations, local governments and private sector companies provide a balanced regional development and perspectives, as well as are gradually able to equalize the territory development level in Latvia. Such a network of universities has an important social and economic significance in the region. Therefore, it is unacceptable that the development of universities is spontaneous, without taking into account national, regional and local needs.

As one of the most important factors of economic growth in Latgale, existence of two regional universities is recognized – *the Daugavpils University* (hereinafter - DU), in which there are more than 3 000 students, and *the Rezekne Higher Education Institution* (hereinafter – RHEI) with the total number of students nearly 2 100.<sup>7</sup> Thus, there are more than five thousand young people studying in two Latgale region universities. Apart from these two mentioned regional universities, there are branches of several universities in Latgale, such as the Riga Technical University and Daugavpils Training and Science Center. The total number of students in Latgale makes up, on average, 13% of the total number of Latvian students. Overall, at the beginning of 2008 there were 2 universities and 17 university branches in Latgale (including the DU branches outside Daugavpils).

Students from the respective region mostly choose universities nearest to their place of residence and therefore up to 80-85% of those studying in the DU, RHEI and Liepaja University are residents of the respective region. According to the amount of population, the largest number of university branches is located in Latvia's major cities: there are 12 university branches in Daugavpils, 6 branches in Liepaja, Rezekne and Ventspils, 4 branches in Jelgava and Jekabpils (see Figure 7). However, such situation is problematic from the perspective of the economic efficiency and quality of studies.

Figure 7

#### Proportion of population and students and the number of universities in Latvian regions in the academic year 2009-2010



**Source:** summarized according to the Review of Higher Education in Latvia in 2009 (numbers, facts, trends), 2010; Statistical Yearbook of Latvia, 2010, page 120.

<sup>7</sup> DU Study Section information, RA information: [distribution of students by study programmes](http://www.ru.lv/res/about/stats/studskaitis/stud_sad_pl_2010.doc)  
[http://www.ru.lv/res/about/stats/studskaitis/stud\\_sad\\_pl\\_2010.doc](http://www.ru.lv/res/about/stats/studskaitis/stud_sad_pl_2010.doc)

Distribution of students by regions is equivalent to the proportion of population in the regions. Quantitative distribution of universities is also similar (see Table 7). Universities and their branches are concentrated in the largest Latvian cities: Riga, Daugavpils, Liepaja, Rezekne, Ventspils, Jekabpils, Valmiera. In Kurzeme and Latgale, there are two universities in each of both regions and there is one university in each of Zemgale and Vidzeme regions. 28 from 34 universities functioning in the country in the beginning of the academic year 2006-2007 were in Riga region.

Table 7

**Number of students matriculated in the basic studies  
depending on the number of applicants' place of residence in 2007**

Indicators	Latvia	Vidzeme	Kurzeme	Latgale	Zemgale	Riga, Riga distr.
Number of students	34519	5320	5203	4657	4807	14532
<b>As a percentage of total</b>	<b>100</b>	<b>16</b>	<b>15</b>	<b>13</b>	<b>14</b>	<b>42</b>
<b>Number of universities</b>	<b>34</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>28</b>
<b>Number of university branches</b>	<b>53</b>	<b>10</b>	<b>12</b>	<b>17</b>	<b>10</b>	<b>4</b>
Population (2007)	2281305	240 47	306052	354554	284554	1095683
<b>As percentage of total</b>	<b>100</b>	<b>10,5</b>	<b>13,4</b>	<b>15,5</b>	<b>12,5</b>	<b>48,1</b>

**Avots:** Review of Higher Education in Latvia in 2006 (numbers, facts, trends). Ministry of Education and Science, Higher Education and Science Department. <http://izm.izm.gov.lv/registri-statistika/statistika-augstaka/2006.html>

It is established that the main challenges of Latgale region universities are dealing with ensuring learning opportunities and scientific activities according to the region's needs. While the only way to achieve this goal is to identify the needs of the region – retention and development of research and study directions that important and traditional to the region, namely, a wider cooperation with municipalities, regional institutions, agencies, non-governmental organizations (hereinafter - NGOs) and entrepreneurship representatives. Exactly the fact that a university is located “on the site” in the region, facilitates cooperation with local municipalities, NGOs, business representatives. This improves the local infrastructure of cooperation, civil partnerships and development of civil society in the Latvian regions. Possibilities for cooperation with municipalities, NGOs, entrepreneurship representatives are facilitated exactly due to the fact that the university is located “on the spot” in the region. That improves the local infrastructure of cooperation, civil partnership and civil society in the regions of Latvia.

Universities in the region have much more opportunities to establish and develop common cooperation networks with research organizations, business incubators, SMEs, international investors in new technologies and international high-tech companies. The universities can cooperate with the business sector by offering innovative products and technology specialists, while the entrepreneurs will be able to provide resources support both in education funding and development of the material basis. Wherewith, cooperation systems of the regional universities, employers and other social partners in development of higher education planning, organizing and monitoring is one of the basic challenges.

So far, there has been successful cooperation between universities and social partners, and there are positive examples of cooperation between the region's higher education institutions, local governments and entrepreneurs. Regional university of Latgale, the DU, is successfully cooperating with the local government, State Employment Agency, regional non-governmental organizations and enterprises. The Daugavpils University organizes career days, meetings with executives of local governments and lectures by NGO representatives take place. Cooperation networks between researchers and entrepreneurs

are forming in Daugavpils, which marks a complex of knowledge and practice. As a characteristic example of such networking the DU Technology Transfer Contact Point (TTCP) network can be mentioned. TTCP provides research services within a wide field of expertise (material analysis, laser microscopy, biology research, sociological research, translations). However, in order to promote more rapid and simultaneously also balanced regional development, this experience has to be developed and expanded with new activities.

Universities have an important role in reduction of development of regional disproportions. Increasing the number of highly qualified professionals with scientific degrees will enable universities to significantly rejuvenate the academic staff, which in turn will improve the quality of studies and scientific work and will contribute to preparation of the necessary experts according to the regional needs. Exactly the higher education institutions are able to facilitate participation and responsibility of regional municipalities and employers in ensuring the availability of education, develop offer of education programmes according to the territorial structure of employment and the socially excluded population, resulting in reduction of territorial socio-economic differences between the regions.

Functioning of regional universities, cooperation projects of higher education institutions with non-governmental institutions, local governments and private sector enterprises provide a balanced regional development and perspectives, as well as are able to gradually equalize the level of territory development in Latvia. That is why access to the higher education should be as inclusive as possible in order not to only ensure the future of European knowledge society, but also for higher education to serve as a basis for European social cohesion as a whole [15]. Similar objectives are also mentioned in the National Development Plan for 2007-2013, where polycentric development approach of Latvia is perceived [26].

- *Number of universities* **2**
- *Number of university branches* **17**
- *Number of vocational education institutions* **15**

## UTENA REGION

**Utena region (*Utena county*)** is an important cultural, educational and industrial (food and light industry) center in Lithuania. A favourable geographical location ensures diversification of the economy – the region's population actively participates in all the important economic sectors. Utena region is the smallest in the country by population.

- **Territory** 7 200 km<sup>2</sup> (11 % of the area of Lithuania)
- **Administrative centre** Utena
- **Biggest cities** Utena, Zarasi, Visagina, Ignalina, Moletai, Anikščai
- **Population** 172 500 (5,1% of the of Lithuanian population)
- **Countryside population** 41%
- **Population density per km<sup>2</sup>** 24 inhabitants / km<sup>2</sup>

Figure 8



Source: Portrait of the Regions of Lithuania [http://regionai.stat.gov.lt/start\\_en.html](http://regionai.stat.gov.lt/start_en.html)

## Analysis of entrepreneurship in Lithuania and Utena region

Since 2005, the number of economically active market sector statistical units is constantly growing in Lithuania, and in 2012 the number was 83 624 economic units. In its turn, in Utena region there are 2703 units, or 3.2% of the total number of enterprises in Lithuania (see Table 8).

Table 8

**Number of economically active market sector statistical units  
per 1000 inhabitants in 2006-2012**

	2006	2007	2008	2009	2010	2011	2012
<b>Lithuania</b>	73344	76516	81376	84574	83202	86987	83624



<b>Alita region</b>	2880	3001	3181	3234	3130	3362	3188
<b>Kaunas region</b>	14771	15551	16287	16989	16847	17661	17121
<b>Klaipeda region</b>	8734	9306	9992	10403	10254	10570	10036
<b>Marijampole region</b>	2850	2904	2986	3004	2964	3021	2889
<b>Panevezys region</b>	6127	5921	6105	6227	5952	6141	5720
<b>Sauliai region</b>	6297	6359	6625	6825	6665	7004	6750
<b>Taurage region</b>	1823	1863	1994	2037	1973	2079	1960
<b>Telshiai region</b>	3006	3039	3207	3312	3260	3322	3202
<b>Utena region</b>	2710	2753	2852	2873	2811	2941	2703
<b>Vilnius region</b>	24146	25819	28147	29670	29346	30886	30055

**Source:** Number of economic entities in operation by size class of enterprises, administrative territory and year  
<http://db1.stat.gov.lt/statbank/SelectTable/omrade0.asp?Subjectcode=S4&PLanguage=1&Shownews=OFF&tree=false> (10.01.2012.)

Observing the figures about Utena region's economic activity, it is clear that most of the companies in the region were located in the Anikcāja municipality (470 or 17.4% of the total number of region's enterprises), but the least were in Ignalina (253 enterprises and 9.4%, respectively) (see Table 9).

Table 9

**Number of economically active market sector statistical units  
in the Utena region municipalities in 2006-2012**

	2006	2007	2008	2009	2010	2011	2012
<b>Utena region</b>	2710	2753	2852	2873	2811	2941	2703
<b>Anykscāja mun.</b>	478	506	510	502	483	503	470
<b>Ignalina mun.</b>	254	259	261	268	271	281	253
<b>Moletai mun.</b>	382	361	374	388	376	399	374
<b>Utena mun.</b>	873	901	930	934	920	939	857
<b>Visagina mun.</b>	432	428	469	471	463	489	441
<b>Zarasu mun.</b>	291	298	308	310	298	330	308

**Source:** Number of economic entities in operation by size class of enterprises, administrative territory and year  
<http://db1.stat.gov.lt/statbank/SelectTable/omrade0.asp?Subjectcode=S4&PLanguage=1&Shownews=OFF&tree=false> (10.01.2012.)

As seen in the table below, most enterprises in Utena region operate in retail, wholesale and service sectors. There is a strong presence in the textile, food and building materials industry (see Table 10). In Lithuania and outside its borders, the following enterprises from the region are widely well-known: *Svyturys-Utenos alus*, *Utenos trikotazas*, *Utenos Mesa*.



Table 10

**Economically active market sector statistical units  
by the main types of activity in 2011**

	Total	(A) Agriculture, forestry and fisheries	(B,C) Manufacturing	(D,E) Environment and power industry	(F) Construction	(G) Trade	(H-J, L-N) Services	(K) Financial and insurance activities
<b>Lithuania</b>	86987	1655	7142	666	6594	22420	23003	674
<b>Alita region</b>	3362	90	292	23	219	771	735	17
<b>Kaunas region</b>	17661	269	1677	138	1316	4898	4290	136
<b>Klaipeda region</b>	10570	195	865	82	939	2467	3210	62
<b>Mariampoles region</b>	3021	105	242	34	117	868	564	11
<b>Panevezys region</b>	6141	187	621	39	325	1632	1175	20
<b>Sauliai region</b>	7004	288	680	41	430	1784	1354	49
<b>Taurage region</b>	2079	72	202	35	95	635	367	14
<b>Telshiai region</b>	3322	119	281	36	308	901	695	21
<b>Utena region</b>	2941	99	255	38	224	654	553	10
<b>Vilnius region</b>	30886	231	2027	200	2621	7810	10060	334

**Avots:** Number of economic entities in operation at the beginning of the year.

<http://db1.stat.gov.lt/statbank/SelectTable/omrade0.asp?Subjectcode=S4&PLanguage=1&Shownews=OFF&tree=false> (10.01.2012.)

As shown by the data of the Lithuanian Department of Statistics (Statistics Lithuania) concerning the size groups, there is a majority of micro and small economically active market sector statistical units in Utena region, which makes 73%, while large enterprises make up 0.8% of the total number of enterprises (see Table 11).

Table 11

**Economically active market sector statistical units in the regions  
by size groups in 2012**

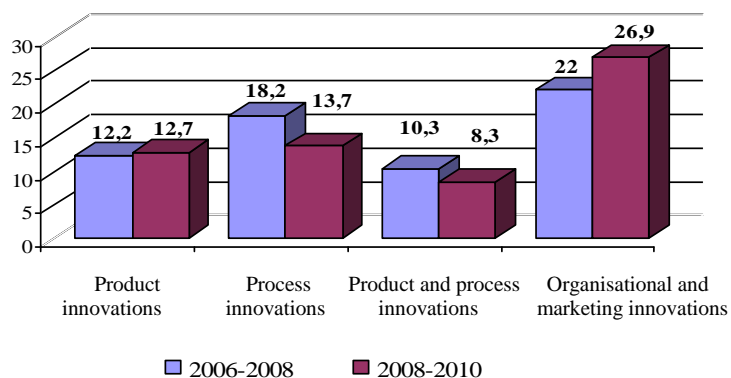
Region	Total	Micro	Small	Medium	Large
<b>Lithuania</b>	83624	65492	13711	3966	455
<b>Alita region</b>	3188	2493	506	176	13
<b>Kaunas region</b>	17121	13314	2913	804	90
<b>Klaipeda region</b>	10036	8014	1564	412	46
<b>Marijampole region</b>	2889	2189	515	172	13
<b>Panevezys region</b>	5720	4514	891	289	26
<b>Sauliai region</b>	6750	5143	1204	375	28
<b>Taurage region</b>	1960	1455	385	115	5
<b>Telshiai region</b>	3202	2453	556	177	16
<b>Utena region</b>	2703	2071	432	184	16

<b>Vilnius region</b>	30055	23846	4745	1262	202
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**Source:** Number of economic entities in operation by size class of enterprises, administrative territory and size class of enterprises <http://db1.stat.gov.lt/statbank/SelectTable/omrade0.asp?Subjectcode=S4&PLanguage=1&Shownews=OFF&tree=false> (10.01.2012.)

Figure 9

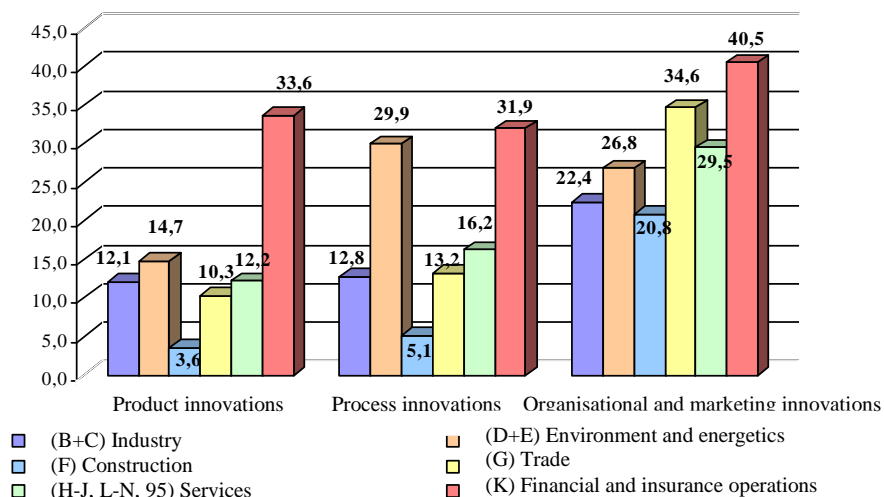
**Innovative enterprises by types of innovation in Lithuania in 2006-2008 and 2008-2010, %**



Data shown in Image 9 indicates that organizational and marketing innovation takes place in Lithuania more widely, that is, in 22-27% of the number of these enterprises. While broken down by sectors, the most active in the field of innovation are the enterprises operating in the financial and insurance field, as well as in the trade and services sector (see Image 10).

Figure 10

**Innovative enterprises by types of innovation broken down by sectors in Lithuania in 2008-2010, %**



### **Network of educational institutions in Utena**

In Utena region there are 6 vocational schools, in which more than 2.5 thousand students study. Vocational education institutions are represented in all districts of the region, except Ignalina district. The biggest vocational education institutions are Visaginas Technology and Business Centre and Utena Regional Vocational Training Centre. Only one institution, Utena University of Applied Sciences, provides non-university higher education for the region's population.

- **Number of universities** 0
- **Number of university branches** 0
- **Number of colleges and vocational education institutions** 7

## REVIEW OF DATA AND PREVIOUS RESEARCHES

In order to identify the researches, the focus was mainly put on the studies that reflect the entrepreneurship situation in Latvia and Lithuania. In Latvia, variety of researches on entrepreneurship, as well as entrepreneurship and researchers' cooperation area have been carried out by the Ministry of Welfare (within the framework of the Ministry's ESF national programme "Labour market studies"), the State Employment Agency, the Latvian Investment and Development Agency, Latvian higher education institutions and some municipalities.

In 2005-2007, the Ministry of Welfare (within the framework of the Ministry's ESF national program "Labour market studies") monitored implementation of the following projects related to the research topic:

1. *Study of labour market in sectors of the national economy* (ESF research).
2. *Research of long-term forecasting system of the labour market demand and analysis of improvement options* (ESF research).
3. *Problems of labour market in the regions* (ESF research).
4. *Compliance of professional and higher education programmes with the requirements of labour market (2007)* (ESF research).

The main results of the research ***"Compliance of professional and higher education programmes with the requirements of labour market (2007)"*** characterize Latvian vocational and higher education as disconnected from the labour market. The results indicate that, overall, the already existing entrepreneurs are often unsatisfied with the ready-to-engage-in-work professionals prepared by the education system, because of the lack of their professional training. As one of the basic problems employers note the insufficient practical skills in the acquired profession. In about 65% of cases employers are not satisfied with practical skills of employees who have acquired vocational education and vocational secondary education and in 53% of cases they are not satisfied with practical skills of those who have acquired higher education. Employers have objections to theoretical qualification of higher education programme graduates in 11% of cases. This confirms that the Latvian education institutions provide insufficient professional, especially, practical skills. Also, if the education programme provides good practical skills in a specialty, skills quickly become outdated in the current rapidly changing conditions and it is necessary to acquire more and more practical skills. It is often noted that academic education graduates have insufficient practical skills, while vocational education graduates have better practical skills, but they have insufficient theoretical knowledge of the current processes.

During the interviews carried out within the research ***"Analysis of human resources and labour availability in Eastern Latgale labour market from the socio-economic aspect"***, representatives of Daugavpils large manufacturing enterprises noted that they cooperate with educational institutions in development of the necessary vocational education programmes and preparation of technical specialists, as well as offer higher remuneration and a variety of loyalty incentive programs to attract qualified employees.

Likewise, a survey for representatives (decision makers in recruitment issues) of Daugavpils and Daugavpils district enterprises, carried out within the framework of the research, shows that, currently, in Latgale labour market the largest demand is for performers of qualified executive work, where the highest professional qualification is not required.

In November-December of 2011, a survey for Latvian universities (Latvian University, Riga Stradins University, Riga Technical University, Latvia University of Agriculture, Liepaja

University and Daugavpils University) graduates was carried out. Within its framework, various topics concerning education acquired by respondents, their future learning plans as well as the activities of graduates in the labour market were studied. As a result of the survey, it was found out that just over 1/10 of those graduates who currently are neither employers nor self-employed, plan to launch own business in the next three years.

While describing their enterprises' cooperation with universities, respondents who were employers most often have indicated that they provide apprenticeships. A total of 29% of entrepreneurs have indicated that they do it “very often, “often” or “regularly”. The second most frequently mentioned form of cooperation with universities was further education of the employees, which was done often or regularly by 26% of entrepreneurs. The third most frequently mentioned cooperation form was attraction of employees from the universities (25%), while the fourth - knowledge transfer and innovation (24%). However, it must be pointed out that the majority of respondents noted that their enterprises rarely cooperate (23% - 26%) or never cooperate (39% - 44%) with universities this way. In addition, most respondents indicated that their enterprises have never participated in the studies process (55%), funded research, participated in research projects (60%), participated in the university career days' events (64%) or provided scholarships and engaged in patronage (70%). Although, 67% of respondents in this group also indicated that henceforth they would like to cooperate with universities.

When asked to name the forms they would like to cooperate, most respondents replied that they would be willing to provide apprenticeships (18% of those engaged in entrepreneurship), provide lecture courses, guest lectures (17%) or continue studies, education themselves (16%). Other forms of cooperation were named more rarely – 9% would like to participate in exchange of experience and knowledge, 8% of respondents would be willing to take part in implementation of researches and research projects, 8% would like to attract employees from among the students for their enterprise/-s, as well as other forms of cooperation were mentioned. Other possibilities for cooperation were mentioned by less than 5% of respondents (*Association of Latvian Universities project “Contribution of universities to the national economy of Latvia”, 2011*).

The data of the research ***“Entrepreneurship education development progress of Latvia after joining the European Union”*** (author of research – V.Bikse) (2009) show that in Latvia compared to other EU countries, those willing to become self-employed make up 50% of respondents. Overall, little progress has been observed in entrepreneurship learning and development of entrepreneurial skills. In order to promote entrepreneurship expertise development, a number of measures are being implemented in the higher education system. Thus, a variety of activities are being implemented at all education levels in Latvia. Separate institutions, cooperation partners or local authority are also carrying out many measures and initiatives to prepare the young generation for starting up business. It is indicated in the proposals that *Entrepreneurship Education Promotion Council* should be created at the national level and in regions to create closer connection to education institutions, enterprises and government institutions, as well as with the leading scientists and experts of the main industrial sectors.

In the research ***“Aspects of economic efficiency increase of Latvian education system”***, carried out by the DU Faculty of Social Sciences (FSS), labour market positions of Latgale region universities' economic and entrepreneurship education programmes graduates, as well as obstacles related to involvement in labour market and in entrepreneurship organization and management were clarified. Overall, only 42% of respondents think about starting up a business (plan to do so or do not rule out such a possibility). Overall, the DU and RHEI graduates work in accordance with the education acquired in the university – in sectors of economics and management. However, most of the surveyed graduates work in state and municipal institutions, while those graduates working in the private sector mainly represent only a few sectors: financial intermediation and real

estate, information technology, transport and communications fields. Summarizing the problems and obstacles, mentioned by the respondents, lack of ideas and respondents' uncertainty of their own abilities were the most often mentioned factor that hinders starting up a business.

In the third chapter “Capacity – for own and society's sake” of the research ***“Latvia. Review on population development. Capacity in regions”*** (2005), while studying the economic, socio-political and cultural capacity of regions, it is stated that the living environment and economic activities in the Latvian regions differ greatly. Differences are observed in the uneven economic development and economic activity, levels of employment and unemployment, population income levels, social and culture conditions of territories.

Often the situation in the regions is significantly affected by development plans of industry and even individual enterprises. In many sectors of the economy (for example, wood-processing, dairy processing) development plans of large enterprises exceed regional scale. One region's economic activity can be significantly influenced by the economic capacity of another region, especially, if enterprise networks are forming. A good example in the entrepreneurship and employment field is the Joint Stock Company “Latvijas Finieris”. This wood-processing enterprise is one of the largest employers in the private sector and also one of the largest taxpayers for the state budget. Although the company is based in Riga region, it wholly or partly owns enterprises in other regions of Latvia (wood-processing factory in Riga and Rezekne districts, an arboretum in Krimulda parish, production units of forestry in Ludza and Liepaja). Ltd. “Verems” is one of the biggest factories of this network (50% belong to the JSC “Latvijas Finieris”). It is located near Rezekne and is the largest employer in the district (employing over 500 workers) and produces 25 000 m<sup>3</sup> of timber per year. JSC “Latvijas Finieris”, also involving EU funding, intends to build a new, more powerful factory in Rezekne district (the planned capacity – about 60 000 m<sup>3</sup> of timber products), which will provide local population with new work places ([www.finieris.com](http://www.finieris.com)).

Publication ***“Science, research and innovation for the growth of Latvia”*** (2007) compiles separate articles about science development issues in various sectors, as well as about science priorities, experience and possibilities of knowledge transfer.

Results of ***the State Employment Agency survey for employers***, which is carried out regularly (for example, 15.01.2008 - 15.02.2008 and 16.10.2006. - 17.11.2006.) show that about half of (955 surveyed) enterprises have had invariable demand for goods/services during the last 6 months. Similar proportion of enterprises expects invariable demand for goods/services over the next 6 and over the next 6-12 months. Objective of such researches is to assess development of labour market demand trends at district, regional and national levels, broken down by occupations and major groups of occupations, as well as to assess employers' expectations and requirements concerning employment.

***“Nordea vitameter – business vitality measurement”*** assesses the competitiveness of Latvian enterprises. Results of the June, 2011 study show that, according to the results of the Latvian enterprises competitiveness research, overall, Latvian entrepreneurs have a sufficiently great potential to use various competitiveness increasing tools much more actively and effectively, in particular, separate business strategies and communications networks. However, given the ability of the majority of Latvian entrepreneurs to profit, as well as the focusing on export markets and relatively efficient utilization of staff and physical resources, the study's results give hope that Latvian enterprises are developing in the right direction. Innovation in this study is defined as a component of the business strategy. Likewise, apart from the enterprise's internal resources, a very important role for implementation of a successful business strategy and, consequently, also for increasing the competitiveness is the extent to which the enterprise is able to attract various resources from outside. These resources can often be obtained free of charge or with a relatively small financial or time investment. As examples of such competitiveness increasing resources the

following can be mentioned: information, which companies can get from suppliers, customers and competitors, cooperation with organizations promoting business, such as creation of new contacts or production sale markets, collaboration with universities and research institutes to develop new, innovative products and services etc.

In the study, the communication networks, which are one of the resources increasing competitiveness, were examined in detail as well. According to this survey, Latvian enterprises are especially inactive in cooperation with business laboratories (1.6 out of 7), universities and scientific institutes (1.4 out of 7). These institutions could potentially be used as a resource for implementation of innovative, competitive products and services, for collaboration with the state (1.9) and non-governmental business promoting organizations (1.7), which in turn could be used not only to affect entrepreneurship policy processes, but also for own development in the foreign markets.

In its turn, according to the results of the Latvian enterprises competitiveness research, the total indicator of Latvian enterprises' innovativeness ranges from 3.4, regarding enterprises' ability to create new, unique production processes and methods, as well as carry out significant changes in products or services, to 3.9, regarding implementation of new products or services (1-7 scale, where 7 is an innovative enterprise).

**„Making Progress and Economic enhancement a Reality for SMEs”, National Report for Latvia** (2011). The report aims to provide in-depth analysis of the performance of SMEs, as well as to explore the needs and limitations of innovation development and process of cooperation with research and technology centres. In the research, it is stressed that an essential drawback of Latvian R&D system is the low supply for business needs, as well as an overall low private R&D funding. The low capacity and lack of understanding of the importance and content of fundamental researches, which in certain sectors are internationally competitive, is also emphasized.

Looking at the report **„Changing Roles of Universities in Developing Entrepreneurial Regions: The case of Finland and the US”** (Chakrabarti, Rice, 2003), it can be concluded that the authors identify four forms of industry-university cooperation: support for research, cooperative research, knowledge transfer and technology transfer.

In the research **„Higher education institutions as drivers of regional development in the Nordic countries”** (Hedin S., 2009) a number of good practice examples of higher education institutions' collaboration with the local business environment were identified. For example, higher education institution may act as a platform for development of networks, which could further be developed within the framework of region's marketing program, as well as for increasing the region's attractiveness and attraction of foreign investors. Similarly, universities can be a hub facilitating interaction between stakeholders (state and local government organizations, universities, entrepreneurs) and work as a knowledge intermediary between the various university and business "worlds".

Conclusions of the research **„Interaction between higher education institutions and their surrounding business environment - Six Nordic case studies”** (Hedin S., Jóhannesson H., Steineke J.M., Niinikoski E.R., Smas L., Olsen L.S. (2009) are also similar.

The main purpose of the six case studies presented in the research was to illustrate the experience of cooperation between the Nordic universities and business environment. The research offers three approaches that characterize the knowledge transfer process (Reglab 2006): education and lifelong learning, business creation and entrepreneurial activity, as well as cooperation in research and development. In addition, the case studies highlight universities' opportunities in regional development and local business environment improvement. The research is based on document analysis method and interviews with the target groups.

The country report for Lithuania ***“Sustainable Production through Innovation in SMEs”*** (2010) provides an insight into the SMEs sector and its needs while developing and implementing the program *Innovation for sustainable production*. Lithuanian SMEs’ experience shows that there are very essential internal barriers, such as lack of information and competence of human resources. External barriers during eco-innovation and development process are also emphasized.

The aim of the research ***“A demand for innovation support in small and medium sized enterprises in the Baltic sea region”*** (Olczyk 2011) was to analyse the current demand of SMEs for innovation. The research selection consisted of 542 enterprises from 9 Baltic Sea countries. As a result, the intensity and implementation features of innovation were identified and it was stated that the most popular is marketing and product innovation. It was found out, that the innovation environment is based on openness of enterprise's internal culture, and concluded, that universities lead in securing cooperation between the enterprises and the R&D sector. Besides, relatively high cooperation rate was stated: proportion of enterprises that cooperate with R&D in Germany is 50%, in Norway – 64%, in Lithuania – 75%, in Russia – 90%. Most of the enterprises see the following barriers, which hinder cooperation with scientific institutions: inefficient distribution of resources, inaccessibility to external financing, as well as difficulties with the initiation of cooperation, lack of interest from R&D side. Entrepreneurs are basically interested in periodic training and works groups for implementation of innovation projects, informative seminars, that highlight specific types of innovation, but SMEs do not see the potential benefits from cooperation with scientific institutions.

The national report for Lithuania ***“Making Progress and Economic enhancement a Reality for SMEs -End users (SMEs and stakeholders) needs, requirements and feedback to overcome barriers for innovation activities”*** (2011) aims to provide in-depth analysis of the performance of SMEs, to explore their needs and restrictions in innovation development, as well as during cooperation process with research and technology centres. The study stresses that the majority of Lithuanian SMEs are active in research and technological development. Respondents mentioned the increasing intensity of networking with all stakeholders as an important factor in reducing obstacles for collaboration with the R&D sector.

The aim of the report ***“Comprehensive Analysis of Programmes and Initiatives in Lithuania that Assist the Collaboration between Science and SME”*** (Ziegenbalg C., Munteanu O. (LUH) 2010) is to provide a platform for the national SMEs and R&D support programmes analysis. The study is based on desk research and interviews. During the research the contextual framework, in which the programme begins its work, was evaluated. During interviews SME support activities in Lithuania were studied in depth. In the study it was concluded that cooperation between the academic and industrial sector is minimal because of various circumstances. Besides, private expenses on R&D in Lithuania are not sufficiently effective to ensure a successful cooperation with the academic environment.



## METHODOLOGY OF THE STUDY

<b>Target group of the study:</b>	<p><b>entrepreneurs</b> - survey of 200 Latvian and Lithuanian entrepreneurs (N=158+42), in the border region of Latgale (Latvia) and Utena (Lithuania),</p> <p><b>researchers</b> – interviews of 14 Latvian and Lithuanian researchers (N=10+4) and focus group discussions of 20 Latvian and Lithuanian researchers (N=10 +10) in the border region of Latgale (Latvia) and Utena (Lithuania),</p> <p><b>universities and colleges</b> - assessment of the adequacy of 20 study programs (N=7+3) regarding their accordance with the needs of the border region in the respective project territory of Latgale (Latvia) and Utena (Lithuania).</p>
<b>Geographical coverage:</b>	Latgale region (in Latvia) and Utena region (in Lithuania)
<b>Research methods:</b>	questionnaires and interviews in Latvian, Lithuanian, English or Russian, according to the respondent's choice (for wider reach of respondents, businesses were offered the opportunity to complete the questionnaire electronically on <a href="http://visidati.lv">visidati.lv</a> ), focus group discussions among researchers
<b>The size of the study sample:</b>	200 respondents according to the selected target group in the quantitative study, 14 researchers in the quantitative study and 20 participants in four focus group discussions, 20 study programs assessed qualitatively and quantitatively
<b>Duration of the study:</b>	21st of November, 2011 to 20th of June, 2012
<b>Duration of the field work:</b>	15th of February to 2nd of May, 2012
<b>Field work support:</b>	„ArGaumi” Ltd. (manager of the field work – Marika Rudzite-Grike)
<b>Data processing and analysis:</b>	<p>„ArGaumi” Ltd. (200 questionnaires (quantitative survey data analysis), 14 expert interviews with researchers; analysis of the opinions of 20 focus group participants; analysis of 20 study programs);</p> <p>Ludmila Aleksejeva (Daugavpils University, the coordinator of the study)</p>

**The study aims** to clarify the problems in business and university (academic sector) cooperation and the reasons for the lack of innovation, taking into account the entrepreneurs and researchers' views on innovation, cooperation and graduates' adequacy to the labor market needs.

### Basic principles of the methodology

The research methodology is determined by the main objective of the study, the target group's characteristics, and the approved procedures for the application of the study results. Several complementary methods were used to achieve the study objectives and tasks.

A *monographic method* was used for the definition and description of the theoretical and methodological framework of the study, secondary data analysis, in defining and clarifying the phenomenon under analysis, in setting the criteria of the study, and the justification of the research methodology and instruments. Definition and description of the context of the study, the analysis of the legislation and policy documents' framework, and the summary of foreign experience was done using an *institutional analysis method*. Initial data processing, data comparison and grouping, aggregation of the results for the description of Latvian, Lithuanian business sectors was done with the help of a *statistical economic analysis*. *Graphic method* was used for data gathering, the visual presentation of empirical and theoretical results. Interpretation of study results, systematization of the study's theoretical and methodological framework, evaluation and mutually integrated analysis of the results of the activities implemented during the study, as well as development of conclusions were done. Techniques of the *abstract logical method* were used in the development of the final recommendations. Sociological data were obtained using two approaches: quantitative and qualitative research methods. Quantitative research methods were used for surveying businesses, while quality survey was realized in focus group discussions with academic staff (researchers, teachers) in Latgale (Latvia) - Utena (Lithuania) border region.

The quantitative surveys were carried out separately for **entrepreneurs** and **researchers**. Both questionnaires contained several similar questions to make it possible to compare the employees' and employers' assessments. The specific characteristics of different labor markets subjects were taken into account, too.

## QUANTITATIVE SURVEY OF ENTREPRENEURS

To identify the **entrepreneurs'** point of view and attitudes, the **survey method** was used - the indirect questionnaire method (details of the survey were sent to the potential respondent's e-mail offering him/her to use the option of filling in the questionnaire electronically on *visidati.lv*), phone interviews, Skype-interviews, as well as direct (*face-to-face*) structured interviews, which results were entered into the overall questionnaire result database. Recruitment questionnaire was completed individually for each entrepreneur (or completed by the entrepreneur himself/herself) thus it is suitable for further data analysis.

When *face-to-face* interviews were planned, the interviewer agreed on time and place beforehand. The research project team carried out the validity check of all questionnaires received. The questionnaires corresponding quality standards were prepared for data processing and compilation.

Surveys were conducted with entrepreneurs, who by their rank were able to competently answer the questions defined by the purpose of the study, i.e. about the business activity, business environment and economic structure of the study area, barriers to innovation process and motivation, cooperation problems in business and academic sectors. The achieved representative sample in the particular express-survey is 200 respondents (n=200).

### **Objectives of the entrepreneurs' survey:**

- evaluate the entrepreneurs' previous experience in business innovation, their incentives for innovative activities, as well as current innovative performance in the study area;
- determine entrepreneurs' assessment of the higher educational institutions study programmes' graduates and their adequacy with the region's labor market needs;
- explore innovation implementation trends (industry sectors, fields) and barriers in the study area, as well as the cooperation capacity of the target group;
- explore the problems associated with poor academic and business sector cooperation, to evaluate and compare the academic sector and the business vision of the cooperation experience, opportunities and barriers;

- gather entrepreneurs' proposals for solutions to these problems, which can be implemented with own resources, on local municipality level, regional level, cross-border or national level.

#### **Response characteristics:**

Quantitative entrepreneurs' survey was carried out during the period from February 25 to May 2, 2012. Respondents represented 49% female and 51% of male entrepreneurs.

Companies by size represented 4 groups:

Micro enterprise (1 - 9 employees) - 67.7% of all respondents

Small company (10 - 49 employees) - 20.6% of all respondents

Medium-sized enterprise (50 - 249 employees) - 8.4% of all respondents

Large enterprise (250 employees) - 3.2% of all respondents

#### **Representative sample of the entrepreneurs:**

To ensure the full representation of all necessary respondents according to various characteristics (attributes) of the survey, a combined sampling method was used for the formation of the representative sample of the entrepreneurs - *quota and stratified sampling method*. At first, the quotas (total sample size) were established and strata (sub-samples or segments) were pre-defined. Strata were defined by the:

- ✓ company type - sole trader, commercial, farm / fish farms
- ✓ region - Latgale (in Latvia), Utena (in Lithuania)
- ✓ type of location - urban, rural,
- ✓ type of the main economic activity - agriculture and fisheries, manufacturing, trade and services, and other sectors,
- ✓ number of employees in the company - micro (up to 9 employees), small (10-49 employees), medium (50-249 employees) and large (250 employees).

The stratified random method used for sample formation ensured the representativeness of the respondents from the two regions and different settlements. In the first sampling phase, the study area was divided into sampling units (strata) according to the region (Latgale in Latvia and Utena in Lithuania) and according to the level of urbanization (urban and rural areas). The number of entrepreneurs in each stratum was calculated in proportion to the number of companies in typological groups of the general structure (sole trader, commercial company, farm / fishing farms). Random distribution of strata was designed so that the results of the study would best represent the common set of business structure as well as would provide the research result analysis in different sections and aspects - by business type, by region, locality type, by industry, as well as the number of employees in companies. The companies were selected according to the defined strata from the business register database of the Central Statistical Office, using random sampling principles that provide equal opportunities for businesses of the same stratum to be surveyed.

This kind of sampling method and the size of the sample is sufficient to make a representative and detailed analysis of the measured parameters in different socio-demographic groups even if a sampling error occurs.

**The research tools:** a structured questionnaire was designed to carry out quantitative surveys. In questionnaires, besides the common questions developed for both target groups (entrepreneurs and researchers), questions and statements targeted to each separate group were included concerning the assessment of the quality of education, and issues of practice organization and importance.

**Entrepreneurs' questionnaire** module includes the measurements of the following indicators and the respective sets of questions:

1. Respondent's gender, age and information about the company (*Questions 1-7 and 18*)

2. The company's innovation activity and the potential (*Questions 8-17*)
3. The company's collaborative effort with universities, researchers (*Questions 19-27*)
4. Development and potential of the company (*Questions 28-35*)
5. Graduates and employees' compliance with the requirements of the company (labor market) (*Questions 36-41*)
6. Training of the company's employees (*Questions 42-43*)
7. Respondent's education (*Question 44*)

*The template of the entrepreneurs' questionnaire on business and university cooperation is available at Daugavpils University (as Annex 1 to this Study)!*

The research survey data were processed in SPSS program. Based on the survey data summary, an analytical research report was prepared.

The sets of questions included in the questionnaire and the questions themselves have been aimed at achieving the primary objective of the whole research - find out the business and university (academic sector) cooperation problems, clarify the reasons for the lack of innovation, as well as gain information on alternative options and models of cooperation.

## QUANTITATIVE SURVEY OF RESEARCHERS AND FOCUS GROUP DISCUSSIONS

The main quantitative method of obtaining information from the target group of researchers was face-to-face focus group discussions (with a total of 20 participants), but before the discussions 14 (out of 20) researchers were surveyed. Recruitment questionnaire was completed individually for each researcher (or completed by the respondent himself/herself) and thus it is suitable for further data analysis.

### **The aim of the researchers' survey and focus group discussions:**

to identify possible areas of cooperation with businesses in the region and define concrete contents of the scientific offer (what researchers are now ready to offer businesses).

### **Response characteristics:**

Researchers' survey and focus groups discussions were carried out during the period from March 20 to May 2, 2012. There were 9 women and 5 men in the group of 14 researchers interviewed. Researchers represented the following counties, cities: Daugavpils, Riga, Rezekne, Utena.

A specific questionnaire and a survey form (list of focus group questions) were prepared as a **research tool**. The research tool was agreed with the customer and brought into accord with the customer's needs and methodological standards. The questionnaire included basic questions on the researchers' scope of work and research direction, general experience, as well as experience in the area of innovation and cooperation with business sector representatives.

**Researchers' questionnaire** module includes the measurements of the following indicators and the respective sets of questions:

1. Information about a researcher. (*Questions 1-3 in the questionnaire*)
2. Researcher's innovation activity and potential. (*Questions 4-5 in the questionnaire, Questions 1-3 in the focus group*)
3. Researcher collaborative effort with businesses, local governments, NGOs, public authorities at different levels. (*Question 6 in the questionnaire, Questions 4-15 in the focus group*)

4. Business development and potential in the county, region, country and cross-border level. *(Questions 7-9 in the questionnaire)*
5. Graduates' compliance with the requirements of companies (labor market). *(Questions 10-11 in the questionnaire, Questions 16-19 in the focus group)*
6. Passport data. *(Questions 12-13 in the questionnaire)*

*The template of the researchers' questionnaire and the list of focus group questions is available at Daugavpils University (as Annex 2 to this Study)!*

The methodology of **focus group discussions** was chosen because it is effective to identify an individual's perception, understanding and attitude towards a specific phenomenon. Focus group discussions allow identifying the key factors that form one's attitude: the needs, interests, emotions, knowledge, arguments and so on. Qualitative survey was realized in a way of focus group discussions with academic staff (researchers, lecturers) in the border region of Latgale (Latvia) - Utena (Lithuania) in the Latvian, Lithuanian and / or Russian language.

**Representative sample of the focus group participants** (researchers) was purposefully selected according to the following criteria:

- ✓ by region - Latgale (in Latvia), Utena (in Lithuania),
- ✓ by gender,
- ✓ by professional sector / work field (education thematic groups: *education, humanities and arts, social sciences, commerce and law, natural science, mathematics and information technology, engineering, manufacturing and construction, agriculture, health care and social welfare, services*),
- ✓ by the type of occupation (researcher, university lecturer, a lecturer at a college etc., project manager),
- ✓ by the educational and/or research institution's, represented by the researcher, affiliation (academic, NGO, business sector).

There were 4 focus group discussions in total (with 3-7 people taking part in each) where barriers to innovation process and motivation, business and academic sector cooperation problems, as well as graduates' adequacy to the labor market needs were discussed. Focus group interview structure was defined by the study objectives and the questions discussed were consistent with the questionnaire structure of the quantitative survey.

Besides the focus group discussions, during the first phase of the study, interviews and meetings with entrepreneurs and researchers were organized which gave the initial information for the institutional analysis and the identification of the previously performed research base.

## ANALYSIS OF STUDY PROGRAMS

**The aim of study programs' analysis:** identify performance of different indicators (e.g. number of graduates, gained degree etc.) of universities' study programmes of different levels and types (indicatively 20 study programmes) to see their compliance with regional economy needs in order to develop solutions for better linkage between the science's offer and business sector's demand on a regional level. Taking into account the entrepreneurs' survey results, the causes of the discrepancy were identified.

**The sample of the study programs** under evaluation was formed in proportion to the total number of study programs in the region, but within the region - in proportion to the program level and the thematic area in the general scope of programs. The sample included 17

programs in Latgale (LV) and 3 in Utena (LT), including professional and academic, master, bachelor, and 1st level professional study programs.

### **Description of the study programs:**

Selection of study programs is carried out according to the following criteria:

- ✓ by region - *Latgale (in Latvia), Utena (in Lithuania)*,
- ✓ by the education thematic group of the study program (*education, humanities and arts, social sciences, commerce and law, natural science, mathematics and information technology, engineering, manufacturing and construction, agriculture, health care and social welfare, services*),
- ✓ by the level of the study program (*1<sup>st</sup> level professional study program, bachelor's, 2<sup>nd</sup> level professional study program, master's*),
- ✓ the type of the program (*professional, academic*).

### **Analysis tools:**

Evaluation criteria of university study programs:

- 1) study programs in the education thematic group;
- 2) the total number of the 1<sup>st</sup> year students and changes in the number of graduates, linking the content analysis of the study program with the economic situation and business structure of the regions (the theoretical basis of the study);
- 3) graduates' satisfaction with the gained education;
- 4) gained qualification, degree, level of education;
- 5) study program (course) content's compliance with the professional standards;
- 6) study program (course) content's compliance with the employers' requirements (linking the program content analysis with the entrepreneurs' survey results);
- 7) the proportion of theoretical and practical courses in the study program, existence of practice;
- 8) the proportion of guest lecturers (including practitioners) in the program;
- 9) does the program (individual courses) provide business integration (linking the program content analysis with the researchers' survey results);
- 10) employment and unemployment rates of program graduates;
- 11) relevance of the program structure (content) with the region's economic structure (including the links between program structure analysis and the theoretical base).

## **DATA TYPES USED IN THE STUDY**

**Secondary data** - grouping (data preparation for the study purposes), graphic images – for carrying out the obtained data analysis, cross tabulation (to determine the correlation between certain quality indicators), interpolation and extrapolation methods (to supplement time series in cases when specific indicators were not obtained for the required period from the CSB or the Register of enterprises), central tendency and variation parameters, smoothing of time series.

**Primary quantitative data** - grouping (for quantitative data comparison and mutual supplement in entrepreneurs' survey, researchers' survey), cluster analysis (was done to minimize the variance the within groups, but maximize - between the groups), cross tabulation, central tendency and variation parameters, interpolation and extrapolation methods, exponential smoothing of time series, analysis and interpretation of multivariate correlation and regression.

**Primary qualitative data** - grouping, aggregation, interpretation.

A quality control was carried out in all stages of the study. On average, 10% of interviews and a questionnaire were checked. Control stages of the study: questionnaire control, data control, control of the interviewers.



## STUDY RESULTS

### SUMMARY OF ENTREPRENEURS' SURVEY

Number of respondents in each of the border regions was defined according to the total number of companies in the regions in 2010 (according to official statistics), i.e. 17031 companies in Latgale region (or 86% of the total number of companies in both regions) and 2811 companies in Utena region (or 14% of the total number of companies in both regions). Accordingly, there were more entrepreneurs surveyed in Latgale region than in Utena region, i.e. 79% (or 158) while in Utena region - 21% (or 42 entrepreneurs) of the total number of respondents to be reached.

Figure 11

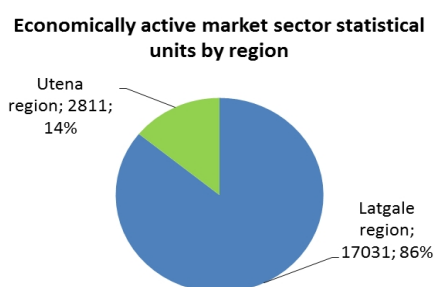
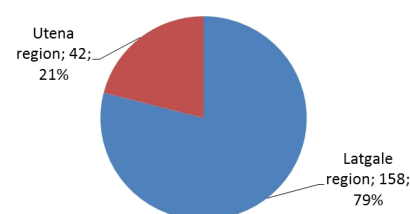


Figure 12

Number of respondents in each of the regions













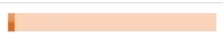


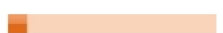










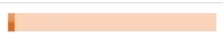


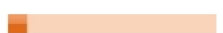










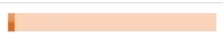


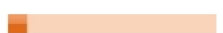



### TECHNICAL INFORMATION ON THE ENTREPRENEURS' SURVEY

Survey technical support	„ArGaumi” Ltd.
Target group	200 Latvian and Lithuanian entrepreneurs
Survey methods	Direct questioning (structured face-to-face interviews) Web survey (completion of a questionnaire on <i>visidati.lv</i> ) Phone interviews, Skype-interviews
Respondents	Legal persons selected according to official statistics, using a combined sampling method
Size of the reached sample	200 respondents
Geographical coverage	Border region of Latgale (in Latvia) Border region of Utena (in Lithuania)
Duration of the survey	25.02.2012. - 02.05.2012.

### CHARACTERISTICS ON THE REACHED SAMPLE

	In Latvia	In Lithuania
E-mails addressed with an invitation to take part in the survey	1238	346
Number of completed web questionnaires	66	12
Number of invalid web questionnaires after the validity check	33	0
Number of direct face-to-face interviews	21	18
Number of phone-interviews/Skype-interviews	51	12
Number of written questionnaires completed	20	0
Number of invalid written questionnaires after the validity check	15	0
Size of the achieved sample	158	42
Number of valid questionnaires after the validity check (further used for data analysis)	110	42

## RESPONSE CHARACTERISTICS

Gender of respondents	Male - 77 (51 %) Female - 75 (49%)																																																																										
Average age of respondents	41.6 years																																																																										
Distribution of respondents by region	Latgale region (LV) - 110 Utena region (LT) - 42																																																																										
Distribution of respondents by type of settlements	Towns/Cities - 16 Rural territories – 48 Other – 4 Not specified – 84																																																																										
Business experience	<table> <tr> <td>One year or less</td><td>12</td><td></td><td>7.9%</td></tr> <tr> <td>1-3 years</td><td>17</td><td></td><td>11.2%</td></tr> <tr> <td>4-5 years</td><td>32</td><td></td><td>21.1%</td></tr> <tr> <td>6-10 years</td><td>34</td><td></td><td>22.4%</td></tr> <tr> <td>More than 10 years</td><td>57</td><td></td><td>37.5%</td></tr> </table>			One year or less	12		7.9%	1-3 years	17		11.2%	4-5 years	32		21.1%	6-10 years	34		22.4%	More than 10 years	57		37.5%																																																				
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Breakdown by economic sector	<table> <tr> <td>Agriculture, hunting, forestry and fishing</td><td>29</td><td></td><td>16%</td></tr> <tr> <td>Mining and quarrying</td><td>3</td><td></td><td>1.7%</td></tr> <tr> <td>Food products and beverages</td><td>9</td><td></td><td>5%</td></tr> <tr> <td>Manufacture of textiles</td><td>10</td><td></td><td>5.5%</td></tr> <tr> <td>Wood and cork products, furniture</td><td>5</td><td></td><td>2.8%</td></tr> <tr> <td>Publishing, printing</td><td>3</td><td></td><td>1.7%</td></tr> <tr> <td>Mechanical engineering and metal</td><td>6</td><td></td><td>3.3%</td></tr> <tr> <td>Electricity, gas and water supply</td><td>2</td><td></td><td>1.1%</td></tr> <tr> <td>Construction</td><td>8</td><td></td><td>4.4%</td></tr> <tr> <td>Wholesale and retail trade</td><td>17</td><td></td><td>9.4%</td></tr> <tr> <td>Hotels and restaurants</td><td>4</td><td></td><td>2.2%</td></tr> <tr> <td>Transport, rescue, communications</td><td>6</td><td></td><td>3.3%</td></tr> <tr> <td>Financial intermediation and real estate</td><td>6</td><td></td><td>3.3%</td></tr> <tr> <td>Information technology</td><td>4</td><td></td><td>2.2%</td></tr> <tr> <td>Education and scientific research work</td><td>9</td><td></td><td>5%</td></tr> <tr> <td>Public administration and defense, compulsory social security</td><td>0</td><td></td><td>0%</td></tr> <tr> <td>Public, social, personal service</td><td>18</td><td></td><td>9.9%</td></tr> <tr> <td>Other</td><td>42</td><td></td><td>23.2%</td></tr> </table>			Agriculture, hunting, forestry and fishing	29		16%	Mining and quarrying	3		1.7%	Food products and beverages	9		5%	Manufacture of textiles	10		5.5%	Wood and cork products, furniture	5		2.8%	Publishing, printing	3		1.7%	Mechanical engineering and metal	6		3.3%	Electricity, gas and water supply	2		1.1%	Construction	8		4.4%	Wholesale and retail trade	17		9.4%	Hotels and restaurants	4		2.2%	Transport, rescue, communications	6		3.3%	Financial intermediation and real estate	6		3.3%	Information technology	4		2.2%	Education and scientific research work	9		5%	Public administration and defense, compulsory social security	0		0%	Public, social, personal service	18		9.9%	Other	42		23.2%
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	<i>Other: Tourism, crafts, fur farming, environmental technologies</i> Several respondents indicated that work in several business fields		
Breakdown by business form	Limited liability company (Ltd.)	85	55.9%
	Joint-stock company (JSC)	2	1.3%
	Individual company/Sole trader	35	23%
		30	19.7%
	<i>Other: farmer, sole trader</i>		
Breakdown by company size (number of employees)	Micro enterprise (1 - 9 employees)	105	67.7%
	Small company (10 - 49 employees)	32	20.6%
	Medium-sized enterprise (50 - 249 employees)	13	8.4%
	Large enterprise (250 employees)	5	3.2%

Base: N = 152 (all respondents, whose questionnaires after the validity check were accepted as valid for data analysis)

## RESULTS OF ENTREPRENEURS' SURVEY

The summary of the survey results includes the analysis of 152 respondents' questionnaires found valid after the validity check, incl. 110 from Latgale and 42 from Utena region. The sums of the selected answers were obtained by adding together all respondents' selected answers to a respective question. The percentage of each answer has been obtained dividing the number of times when a concrete answer has been selected by the total sum of the selected answers.

### Respondents' gender, age, education and information on companies

Most of the 152 respondents have more than 10 years of business experience. Only 7.9% of the respondents have business experience of one year or less.

55,9% of respondents represent limited liability companies (Ltd.), 23% are individual businesses (entrepreneurs), 19,7% come from farms or are self-employed. 2 respondents represent (joint)-stock companies (JSC). Breakdown of respondents by form of the business slightly differs in both countries – in Latvia, 52% of all respondents came from limited liability companies, while in Lithuania - 64%. Individual businesses (entrepreneurs) were 24% of all Latvian respondents and 19% of Lithuanian ones. Farmers and/or self-employed persons formed 23% of Latvian respondents and 15% of Lithuanian ones.

Most of the respondents have professional bachelor's degree (at least 4 years), the 5<sup>th</sup> level professional qualification (20,5% of all respondents) or secondary vocational education (18,5%). There are no entrepreneurs with a doctorate who have taken part in the survey, just like no one with primary or incomplete secondary / vocational education.

The most represented economy sectors are agriculture, forestry, hunting, trade, tourism (including recreational services and rural tourism), crafts, textile manufacturing, production of food and beverages, various services (including public services, social and individual services). 67,8% of respondent companies have been operating at a profit over the past 12 months.

### Innovation activity and potential of the companies

Evaluating the activity of enterprises in launching new products and services, entrepreneurs appreciate it by 3,65 points on average (out of maximum 7 points).

Figure 13

**How many significant changes has your company introduced over the last 3 (three) years?** (How do you rate on a scale from 1 to 7 (1-minimal innovative activity, 7-active innovative activities))

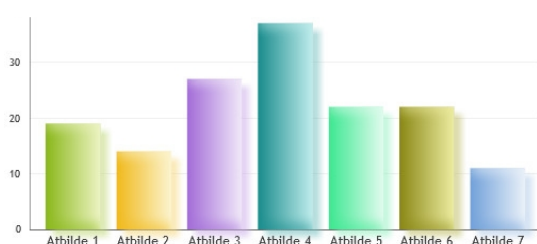


Figure 14

**In the last 3 (three) years, has your company modernized business processes and methods?** (How do you rate on a scale from 1 to 7 (1-minimal innovative activity, 7-active innovative activities))

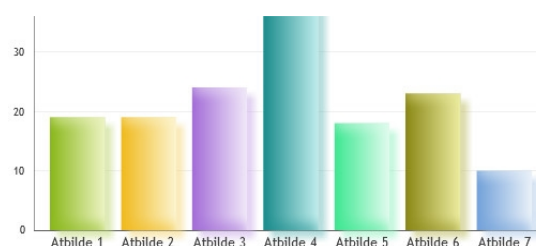
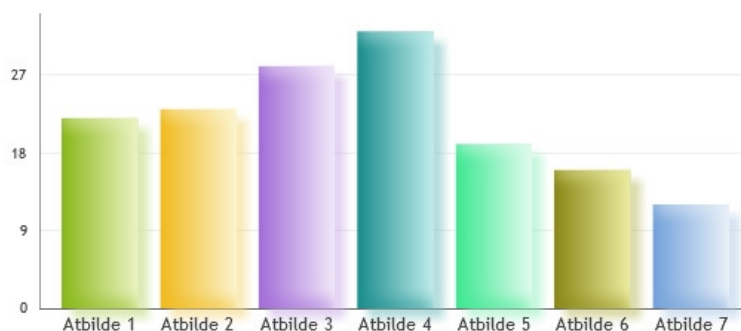


Figure 13 shows the situation of companies introducing significant changes in the last 3 years. "Answer 1" - small changes to the product / service types. "The answer 7" - significant changes in product / service types. The average score is 3,84 points.

While Figure 14 reflects the modernization intensity of business processes and methods. "Answer 1" - preference given to existing methods adjusting them to the needs, "Answer 7" - preference to creating own unique processes and methods. Average score out of maximum 7 points – 3,91.

Figure 15

**How many new types of products or services has your company introduced to the market over the last 3 (three) years?** (How do you rate on a scale from 1 to 7 (1-minimal innovative activity, 7-active innovative activities))



More than half of the businesses use modern technologies. The most widely used new technologies are Internet and mobile Internet, Skype, video conference, interactive websites and different social networking (YouTube, Facebook, Linked, Twitter), Internet bank, GPS devices, digital technologies, translation software, computer aided design programs, as well as more unusual technologies as iPhone applications, iCloud, SQL-based systems, Waze -

guide (navigation application that can be used with a GPS-equipped smartphone), mail server or mail transfer agent (a computer program or software agent which forwards the e email messages from one computer to another), data storage servers, software.

Figure 16

Do you use new technologies in your daily life (including Skype, video conference, etc.)?

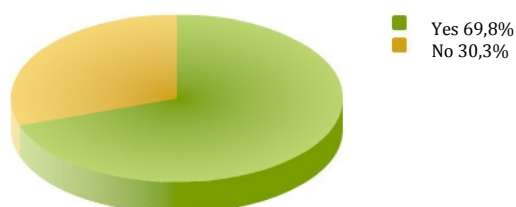


According to the specificity of a business sector, entrepreneurs also mention following **innovations** as new technologies: new tools (e.g. the latest model of a caliper), new technologies of floor installation, wall construction, advanced security systems, communication systems, monitoring and data transfer systems, tachographs, gas systems, printing machines for knitwear, computerized embroidery machines, advanced auto diagnostic methods, modern mechanical plant protection methods, computer systems for data storage and processing, tree protection techniques and frames, metal engineering technologies and techniques (melting, painting, metal cutting, etc.), modern agricultural technique, material tracking systems, data processing systems, woodworking technologies, modern ventilation and air conditioning equipment, PET and PP technologies, the latest technology for fur skin pre-treatment, also skin stretching (controlled by a computer software), mechanized lines, weighing and packaging etc. equipment, design and printing technologies, CMS color management system, geothermal research and evaluation methods, technologies / methods / systems for fuel measurement, stock-taking and inspection, new technologies in dentures, teeth whitening, general dental research and dental evaluation methods.

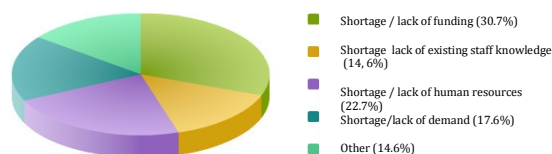
Figure 17

Figure 18

Do you plan, in the near future (1-3 years), to introduce new products or services?



If so, why this improvement has not been implemented so far? What are the main obstacles?



69.7% of the respondents claim that they **plan to introduce new products and / or services** in the near future (1-3 year). The main reasons mentioned why it has not been done so far are shortage / lack of funding and human resources. Moreover, other obstacles are underlined, e.g. unsettled ownership, low ability-to-pay, new systems still under

development, the existing product sales are high so lack of time for new innovation, lack of knowledge, etc.

The companies from trade sector demonstrate the least innovation opportunities and practices. The most active technological innovation takes place in industries, enterprises, where the technology directly contributes to the competitiveness of a product or service - either in terms of design (e.g. printing), or in terms of optimization of the production process (such as metalworking, woodworking, agriculture).

Respondents mention various **types of innovation** in which they are currently interested in: software in specific niches, new technological devices (e.g. new types of melting furnaces, boilers, ventilation, heating technology, new lifting platforms), IT and new technologies (the printing techniques, materials printing techniques), data sharing, integrated security systems, products from non-traditional textile, high-quality time management, combination of technology and handwork, other types of fuel (which would be cheaper), quality certification, eco-materials, eco-products, new recipes for dried fruit and canned (tinned) food, new forms of leisure, tourism offer combining traditional heritage with innovation, new drugs in medicine, new methods to improve patient's comfort during a visit to the dentist, bicycle combination with semi-motorized vehicle, modification of bicycle design to make it easier to carry more luggage, creative combination of industry fields (e.g., to develop a competitive tourism product, sauna offer's combination with active tourism (water, cycling).

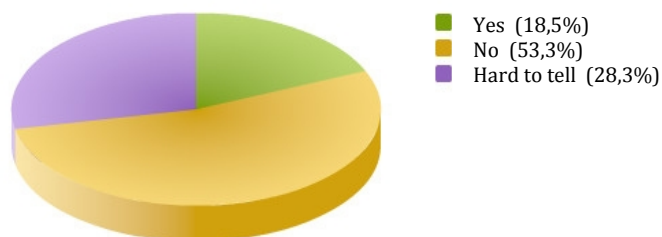
**Areas** in which respondents are interested in innovation implementation: energy supply, arrangement of municipal housing sector (buildings), development of full drinking water supply system (including borehole), increased activity in social networks, Internet marketing, upgrading of company's website news posting, online reservation systems, improvement of company's infrastructure, cost reduction and increase of work productivity with the help of new IT solutions, cooperation among craftsmen and identification of an intermediary for the increase of product sales (because it is hard for a craftsman to organize the sales process at the same time), optimization of the production process.

Respondents mentioned a number of **business activity sectors** they are **interested in** now in Latgale and Utena regions – metal engineering (e.g. new products from sheet metal, design of metal fences and gates, more convenient (automated) design, constructions), rural tourism (including the new local handicraft products as souvenirs), waste recycling, processing of agricultural products, research and growing of new fruit tree species in Latvian conditions, non-agricultural businesses in rural areas, organic (eco) farming, handicrafts, eco-technology in construction (including insulation, energy efficiency improvement projects), trade, cultural tourism, use of wood by-products, cooking, food industry (new dishes and new ways of serving the food, new meat products, wild meat processing, fruit and candied fruit), design (new clothing models, interior design), dairy products, service station services (car wash), agricultural service, woodworking (new products), new plastic, PET and PP product development, processing of dolomite mining waste (e.g. into specific building materials), solutions to dolomite mining-related environmental problems, launch of biofuel (biodiesel) production and trade, promotion of breast-feeding for new mothers, innovative horse-breeding and veterinary products, horse-breeding methods, engineering studies, production of energy from the earth, cranberry cultivation.

When asked about the possibility changing the present business sector or joining the company's present activities with other industry sectors, more than half of the respondents answered in the negative.

Figure 19

Do you plan to **change / complement your company's activity by other sector activities** in the future?



Those respondents who still plan to **supplement their present business activities** with other industry, plan to engage in eco-tourism, rental services, manufacture and distribution of knitting equipment and tools, germicidal sterilization, combating of insects and rodents, use of spring water as a therapeutic, healing means, combination of forestry with the tourism services, the development of so-called participatory tourism (e.g. when a tourist can create a greeting card him/herself), rural tourism, trade, the technology of the latest generation bio-ethanol, pre-feasibility studies and creation of new leisure facilities and environmentally friendly tourism trails, biological products, provision of manicure services, hotels and catering services, hunting tourism, integrating educational aspects in rural tourism complex packages, water and cycling tourism.

#### Business collaboration effort with universities, researchers

When assessing own collaborative effort with universities, 44.8% of entrepreneurs say that they do not have access to sufficient **information about opportunities for cooperation** with universities and / or researchers (research centers), 27% of respondents found it difficult to answer this question. Consequently, the majority of the respondents - as seen in the pictures below - have not cooperated with universities and / or research centers in their region, neither in the country or cross-border level.

Do you as an entrepreneur have **sufficient information on the possibilities of cooperation with universities and / or researchers (research centers)**?

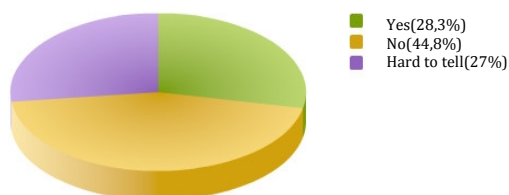


Figure 20

Has your company collaborated with universities and / or research centers **within the country**?



Figure 21

Has your company collaborated with universities and / or research centers **within the region**?

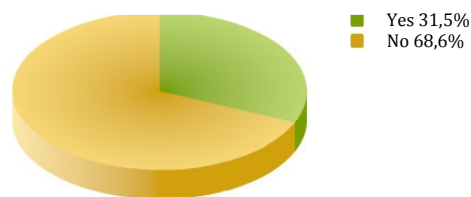


Figure 22

Has your company collaborated with universities and / or research centers **on cross-border level**?

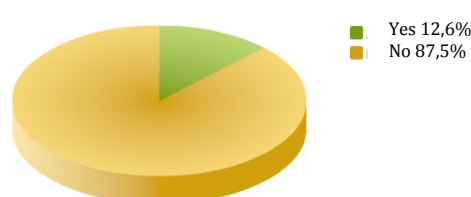
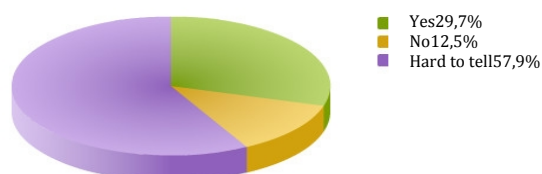


Figure 23

Those who have cooperated with universities and / or researchers (research centers), mention several sources **where they have gained information** about such cooperation opportunities: information obtained from university heads or teachers, through project publicity measures implemented by the universities, through Internet, at seminars and conferences, at municipal local business or business support centers, business incubators, local government websites, the press, through personal contacts, friends, acquaintances, personally known students, from trainees, while studying themselves or afterwards graduating from the university, industry associations (e.g. the Latvian Forest Industry Federation), from “mother company” and cooperation partners, from competitors.

Has the **cooperation**, to your mind, been **successful, worked well**?



Many have mentioned that cooperation is going on for years already; others have been purposefully searching the information and have found. One respondent mentioned that they themselves have own small laboratory, which cooperates with several educational and research institutions.

Figure 24

Most of the respondents (57.9%) found it difficult to assess whether the co-operation has been successful or not.

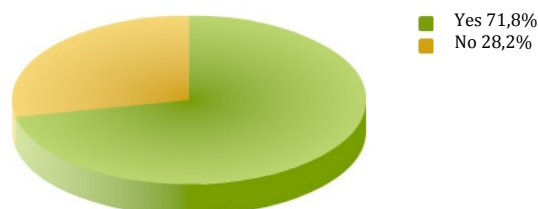
There are a number of **reasons for the failure of co-operation** mentioned: there was no real need for cooperation as no university in our region train the needed specialists and the company has enough of experienced staff, university offers were not practically tested even on a laboratory level, the low motivation of scientists endangered the completion of projects, insufficient communication, lack of time, scientists are too theoretical, busy with their research and routine and are not interested in new, unknown projects and the development of business ideas, there is stagnation and sticking to the classical theories and principles.

Most **forms of cooperation** - knowledge transfer, innovation, funding of research activities, corporate participation in research projects, participation in the study process (guest lectures, program development), a university career day activities, adaptation of technologies, new product development, product improvement – have been implemented either rarely or never. Co-operation in further education of staff, provision of places for student practice, and attraction of employees from the universities takes place more often and on regular basis.

Despite this, 71.8% of respondents say that they are interested in **further cooperation** with universities and / or research centers.

Figure 25

Are you **interested in further cooperation** with universities and / or research centers?



The **forms and areas of cooperation** that entrepreneurs name as interesting: joint development of new products and technologies, the introduction of new working practices, use of university laboratories, site visits to companies, educational seminars on

the latest achievements, informative literature (including electronic) on narrow sectors, further training of employees, provision of places for practice, innovation in the development of nature tourism, attracting scientists to the investigation of surrounding nature, environmental research, student attraction to clean the Daugava river bends, offering job places to graduates, recruitment of qualified staff, fulfillment of business orders (cheaper than at analogues foreign suppliers), statistical and market research, studies of psychological character (e.g. about the impact of a person's image, appearance on the well-being, health, self-confidence, so that the knowledge could be used as a marketing tool in the work), processing of forest products.

Respondents also mention that **cooperation could be developed** as joint meetings discussing the potential attraction specialists for translation, research services, introduction of new aspects in guide services, cooperation in sports medicine, in finding of efficient fuel systems and their application for cars and heavy transport, improvement of study programs (which is already successfully being done, for example, with the Latvian University of Agriculture, Forestry Faculty), introduction of innovative solutions in organic (biological) production, participation in joint projects, universities participation in promoting the image of the region (e.g. promotion of Utena as a nice tourist town, including exploring the region, its history and creating new souvenirs), creation of inclusive tourist offer (in creative crafts area), cooperation in specific sectors (the plastic, PET, PP, product development, marketing, fur breeding and reproduction issues, promotion of export to Russia, discovering interesting ways of attracting tourists to a small rural place, biologically clean and healthy recipes' development, improving metalworking technologies, new sheet metal product development, etc.), interior solutions, building design, energy efficient technologies, design, in the field of software (drawing), expansion of selling channels, studies of the material, color and other physical and chemical properties, social research on public attitudes, mindset change, and other areas.

Entrepreneurs mention a variety of **options that could contribute to university-industry collaboration** for innovation in the area of new products, processes and improvements (local, regional, national, cross-border level): more information on the forms of cooperation and regular exchange of updated information, including informing (but not too often) on universities' offers to businesses, so that businessmen clearly know where to turn with specific questions, specific research needs or training needs.

*"I know that next year I would gladly provide a praxis placement for students, but do not know how I could get them from the „right” university and the „right” faculty."*



Respondents mentioned on-site meeting, where both parties would regularly provide information about themselves, their activities, needs and interests. It is necessary to show companies more real examples of where research results have led to a successful new product or service - they will see what and how is possible; there will be no cooperation if both parties do not see a real need for it.

Other useful solutions are workshops, closer contacts, special state or EU aid programs, bilateral involvement in projects and attraction of funding (including when a businessman gets an order, which cannot be met without the university's academic potential), increase of scientists' motivation (creation of *Start Ups* on a scientific institution level), cooperation with the manufacturers or service providers (thus the universities would better understand what kind of professions and what knowledge should be more taught to future specialists), scientists' interest in the companies' problems and challenges, creative approach, initiative (university representatives are often too theoretical-thinking, far from practice, have no idea of the practical things).

Real cooperation could be facilitated if universities were ready to take risks for the share of their expenditure and were willing to earn a percentage of the practically sold innovative products / services. On a regional level, it would be useful to organize exhibitions and seminars on technology applications, their installation, etc.

*Individual addressing (a phone call, on-site visit to the company) and introductory seminars would also improve the university - industry collaboration; I was very pleasantly surprised on the achievements by DU shown during Kraslava county representatives' visit to DU - short, professionally done YouTube clips sent to companies or vice versa."*

Entrepreneurs recommend that universities should offer research topics and results to businesses; universities should "go" to the companies, since the businessmen often do not understand what innovation is and how they could foster innovation in their businesses. Entrepreneurs' interest and awareness of mutual co-operation is low, it is related to the lack of understanding of potential real benefits now and in the future. Students should purposefully go to the set target. Students should actually work during their praxis; university or the student should pay his/her supervisor for praxis training; and free practice places distorts student thinking, i.e. that someone will lead them in their business just like in practice.

Cooperation would be beneficial if students or researchers carried out studies needed for a concrete company, compiled world experience, as the company is short of time to do this itself. Meaningful innovations are necessary – the role of universities should be not to discover new things, but to adapt, synchronize the discovered things with the current needs of businesses. Respondents admit that the creation of new innovation "from scratch" is very resource-consuming; therefore it is better to work for further development and implementation of already discovered new solutions.

*„... cooperation for innovation development should be determined in accordance with the National Development Plan concept, so that there is no mess and unnecessary duplication among regions. It would be essential to promote co-operation among universities, participating in various programs taking into account the size of the country - in this case, size does matter!"*

*"Universities must be consolidated in Latvia – there are too many universities in such a small country, the money gets fragmented."*



University-industry collaboration, in the view of entrepreneurs, could also be facilitated through a "refresh" of academic staff (unfortunately, low wages do not encourage young people to stay in the academic work), the study programs' closer links to real life. Respondents mentioned other possibilities: transfer of positive foreign experiences when our businessmen would wish to implement similar measures in LV-LT cross-border area; students could qualitatively collect data on consumers, to conduct customer and market researches, which are directly necessary for businesses. Universities should be able to clearly describe what and how they can help companies, so that it is not a waste of time. University teachers' more creative and practical approach to study issues as well as universities' adequate financial resources would also improve the situation.

Respondents emphasize the cooperation in joint projects (with specific objectives), such as elaboration of management plans, development and installation tourism trails, training projects (including cross-border projects), new specialists' training (practice) projects, regional cooperation projects for product / service sales promotion (when companies do not fight for their place in market individually, but one sector companies do it together), a joint business-university business ideas (a true desire to engage in joint projects, where everyone sees own benefits, mutual motivation and common goal; it could give profit opportunities for higher education institutions). Cooperation success is influenced by entrepreneurs' ability to find time for this collaboration, also a kind of competition, competitive spirit (between universities, regions), a course in Business basics for all university teachers and students, work of practice forms during the study period (incl. where students are consulted by an experienced entrepreneur from the industry).

*„I know that some universities organize experienced and successful Latvian entrepreneurs and leaders act as mentors and share their experience, knowledge and expertise with new and less experienced companies.”*

Cooperation could be promoted by the availability of funding for practical introduction of new knowledge-based products into the market - funding as grants for research and market studies (EU or national funding, such as Erasmus multilateral projects - cooperation between universities and enterprises), public support for research of new market opportunities and promotion of export to potential markets, as well as exhibitions, presentations, where students have opportunity to meet and communicate with the entrepreneurs from companies they are interested in.

Some respondents also mention that cooperation with universities is hardly related to their business, without knowing specifically what he/she could receive from universities in his/her business field. Some have not thought about this question because there has been no need.

### Enterprise development and potential

When assessing the business development opportunities, most entrepreneurs are positively disposed and believe that their development perspectives are rather good both in the county and region, country and across the borders. 32,4% of respondents admit that their development opportunities on county-level are even very good. Thinking of business development on cross-border level, respondents are more pessimistic, 12% state that the development is very poor.

Please rate your company's development prospects **on county level!**

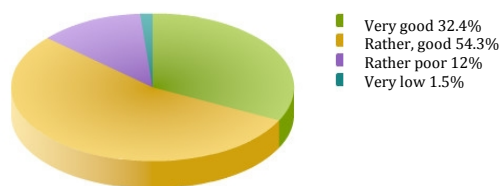


Figure 26

Please rate your company's prospects **on regional level!**

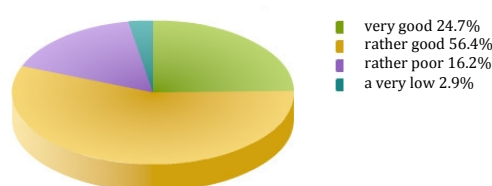


Figure 27

Please rate your company's development prospects **on national (country) level!**

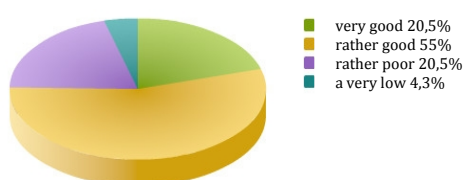


Figure 28

Please rate your company's development prospects **on cross-border level!**

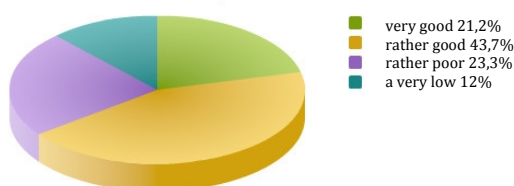


Figure 29

As shown in Figure 30, one third of respondents indicate that they **need support** in attracting EU structural funds for their future growth, 20,2% recognize the need for support of launch of new products, 15,4% need consultancy for new business planning and marketing.

What kind of training, counseling or support programs would you need for growth?

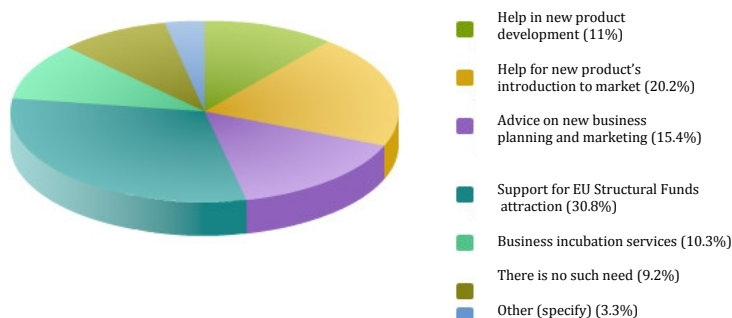


Figure 30

The other answers show that entrepreneurs simply need more time, because they know what should be done and how, but they lack time. They also mention the need for latest information on the industry achievements in the world, support for shaping public opinion (for example, in promoting environmentally-friendly behavior by all forestry specialists (on daily basis, in

study programs etc.), support for industrial production development, purchase of equipment, participation in foreign trade missions, current assets that would facilitate the growth. 9,2% of respondents state they do not need any support.

Assessing the extent of the use of different **sources of information and advice** necessary for business, the respondents were asked to use a scale from 1 to 7 (where 1 stands for “not used”, 7 – “used to a large extent”). The sources of information and advice were ranked as follows, starting with the most commonly used and ending with the least frequently used:

1. Customers
2. Internet Resources
3. Competitors or other enterprises
4. Suppliers
5. Friends, family
6. Business media (newspapers, TV)
7. Business promotion organizations (chambers of commerce, incubators, etc.
8. Local governments
9. Banks, financial institutions
10. National business promotion organizations (Investment and Development Agency, etc.)
11. Universities / research institutes

Respondents name the following current business priorities that are listed in order of importance:

1. To increase sales in the Latvian market
2. To enter new foreign markets
3. To improve the service quality of products
4. To survive
5. To attract new skilled workers
6. To increase marketing activities
7. To improve the product / service distribution
8. To introduce changes in technology
9. To introduce new products / services to local market
10. To improve employees' professional skills
11. To improve management skills
12. To reduce other costs
13. To reduce personnel costs (salaries)

Entrepreneurs mentioned several **key factors necessary to achieve faster growth**; the factors can be divided into 10 main groups:

- Access to finance for business expansion and development (state aid, EU aid, including a higher intensity of the EU co-financing in projects, more EU funding targeted to purchase of raw materials, equipment and fixed assets, less bureaucracy in EU funds' implementation schemes, more operative work of Hipoteku bank (in LV) and the administering institutions, more favorable credit conditions, the state should provide additional export support instruments, not only support of export guarantees and participation in international exhibitions)
- Customers (the amount, trust, reliability, financial ability-to-pay, access to both local and foreign clients, stability of customers' access)
- Legal factors (settlement of land ownership rights, the protection of the Latvian market from products from other EU countries)
- General state policy for country's economic growth and prosperity (suppression of increasing energy prices, lower fuel prices, decreased bureaucracy, eliminating corruption on the institutional level and EU funds' allocation, improvement of road infrastructure, change of the basic principles of Latgale regional development (definition of priorities), formation of border relations and not only with the European Community countries, improved street and road infrastructure, decrease of emigration, return of people from abroad, demographic effect)
- Sales, marketing channels (for Latvian goods in the Latvian market, in cooperation with the Russian market at the national level, focused and targeted business development)

- Workforce (sufficient amount, increase of work productivity, quality, workers' responsibility, motivation, stability in the availability of specialists)
- Tax policy (labor tax cuts, lower VAT, tax discount systems, cooperation and support by controlling institutions, rather than just punishment)
- Access to information (on industry news, latest discoveries, technological achievements, more comprehensible words from government officials, the right contacts, experience of other similar businesses in the industry, professional experience, marketing research in potential export markets, measures to promote business contacts)
- Technological and IT improvements (the introduction of automated production, new translation software to speed up the translation process, a new farm machinery, new dolomite mining technology, which has less effect on the environment, etc.)
- Company-specific internal factors (improvement of product quality, cost optimization, cheaper raw materials, development of a unique product, unusual packaging, lower rental costs, export growth, marketing, foreign language skills).

*"Something might change if Latgale population will be able to compare not just gasoline prices, but also the salaries with European countries..."*

*„Dreadful state of the road not only scares away the clients, but also makes negative publicity to the farm and district as a whole"*

*„A harmonization of business environment with the neighbors is needed to avoid such an absurd when a person registers his car in Estonia because of greedy Latvian tax system"*

*„[In my business], it would be beneficial to change public thinking, to promote healthy lifestyle choices, community awareness of how harmful pangasius fillets from MAXIMA are. Supermarkets are full of harmful food. "*

The main **reasons hindering business DEVELOPMENT** in Latgale / Utena region, in the view of respondents, are "Decrease of demand", "Legislation is not favorable for business development" and "High tax rates." Business development is least interfered by "Communication (including language) problems" and "Strong competition". 36 respondents (out of 152) stated that there are no significant obstacles to business development (especially on county level and cross-border level – the opinion of 33.3% of 36, or 12 respondents).

As **reasons hampering the business START** in Latgale / Utena region, the most frequently mentioned factors are: "Fear to risk, to fail, go bankrupt," "There is no financial support" and "The economic situation in the country."

Which of the reasons, in your opinion, **hinder business start-ups** in Latgale / Utena regions?

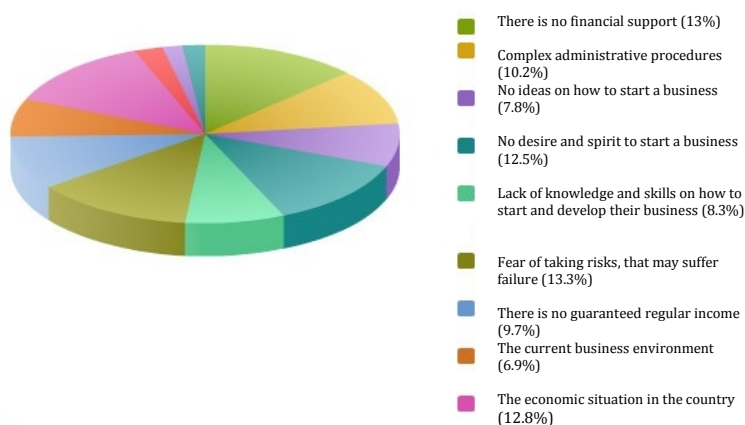


Figure 31

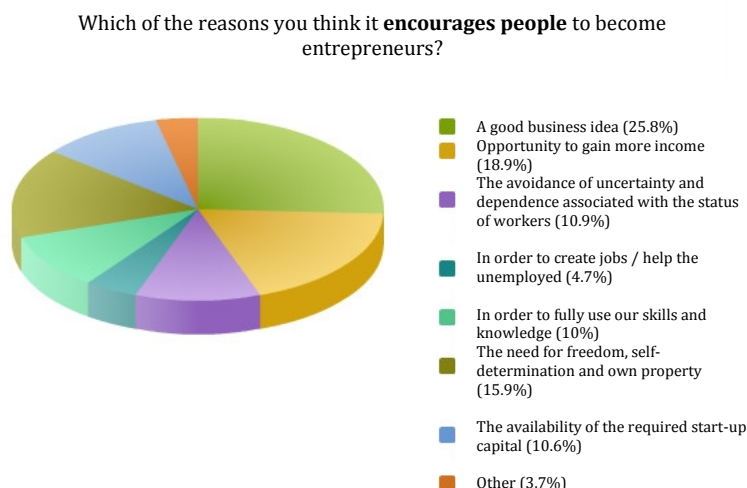
2.4% admit that there are no obstacles to business start, while 1.9% mention other obstacles, including laziness, unresponsiveness by public authorities when searching for new ways of business support, fear of the exaggerated requirements, fines by controlling authorities, general depression, rules of local governments, local

inhabitants' discontent "if someone wants to do something, not just beep about unemployment", as well as non-observance of the 3rd paragraph of the LR Constitution, which "makes it clear that Latvia is internationally represented by four regions, not the coalition". 1.7% of respondents found it difficult to answer this question.

As shown in Figure 32, respondents mention a variety of reasons that encourage people to become entrepreneurs. The most popular answers among the 152 respondents are "Good business idea" (25.8%), "Ability to generate revenue" (18.9%) and "Need for freedom, self-determination and own property" (15.9%)

Figure 32

Other answers include: competitive knowledge and entrepreneurial spirit, desire to combine pleasant activities with the useful ones, unemployment, an obsession with a business idea, family traditions when the business is taken over from one generation to another, pleasure after a well-done work, business success, availability of the necessary knowledge, desire to prove that I can do that, self-assertion, hellion.



### Graduates and employees' compliance with company's (labor market's) requirements

Respondents were asked whether they are employing / have employed university graduates immediately after their graduation. As shown in figure 36, 27.7% or 42 respondents have done this.

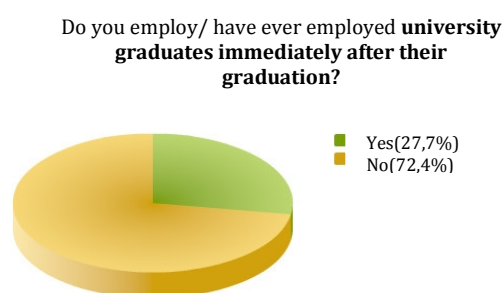


Figure 33

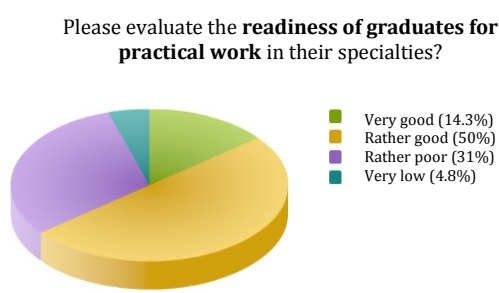


Figure 34

Asked to evaluate the **readiness** of the graduates **to work in their specialty**, 50% of respondents evaluate the graduates' training as rather good, 14.3% - very good. At the same time, 1/3 of the respondents find it rather poor, 4.8% - very poor.

Assessing the university graduates' **readiness for professional work** in the county, the region, in the country as a whole, and cross-border level, more than half of the respondents consider that graduates' training at all levels as rather good and very good. The most frequently reported **strengths** of young professionals, starting to work immediately after graduation, are: enthusiasm, initiative, theoretical knowledge, ambition, knowledge of foreign languages, good IT, new technology and computer skills, creative thinking, ability to

find original solutions and approaches, a different view from aside, fresh thinking, baggage of ideas, modern education, self-confidence, high self-esteem, desire to work, optimism and hopes, progressive vision, flexibility, youth, determination and desire to prove themselves, communication skills, openness, freedom from bias, self-presentation skills (marketing), youth maximalism, resolve, enterprise, loyalty to the employer, dedication, willingness to learn additionally and work well if they see personal benefit and motivation, not afraid to take risks even if are not fully aware of what they are doing, transnational thinking, global thinking, patriotism.

*„Strengths are obvious if the profession is taken over from a generation to a generation, when the youngster have all the time been in the respective business environment.”*

*“... If one is willing to work, all can be learnt.”*

*“Many graduates whom I know, still want to stay in their native region and not to go abroad. Others have collected ideas from abroad and willing to implement them here.”*

One respondent has noted that the graduate's strengths depend on the graduate him/herself as well as on the educational institution; many young people are very knowing and versatile, talented, with great working capacity, discerning, quick learners and with relatively good perception.

When asked for the observed **drawbacks of young specialists** (cons), the respondents, in their turn, mention the following features: lack (shortage) of practical experience, inadequate knowledge ("gaps" in education), laziness and unwillingness to work (incl. with a lower payment and lower status), too big ambition, arrogance, lack of initiative and responsibility, inability to link the gained theoretical knowledge with practical life, failure to take risks, fear of the first failures, communication problems, lack of understanding about the relationship with the employer, inability to follow subordination, inaccuracy, disloyalty to the job place, wish for easy and fast success, imprudence, over-diligence, poor skills of working with information, irresponsibility and search for easy life, wish to enjoy the juvenescence.

Entrepreneurs mention that youth do not have aims of life that they would pursue purposefully, that youth do not know themselves what they want, but want to earn a lot, are too optimistic and lack durable stability, accuracy and quality. Other drawbacks mentioned are lack of versatility, adroitness, inability to take quick decisions, lack of physical strength, endurance, do not want to do physical work, fear to go and ask for help, infidelity in themselves and own strength, many do not know Russian, have only episodic interest in the profession, lack permanence, are naive, fear of the new and unknown, their productivity does not meet the ambitions, they are passive, lack motivation and creative thinking.

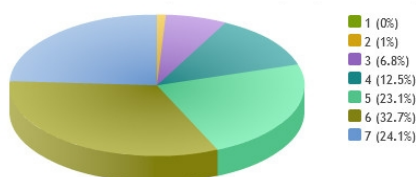
*“Young professionals lack comprehensive view of a common scene (they see one thing, but miss another one which is related to the first one).”*

*„... one needs at least 5-6 months to fit in a new company, its working specifics.”*

*„They want to come to a complete solution, but they must strive more; they lack motivation to increase their competitiveness (just a diploma is not enough).”*



Does the **PROFESSIONAL education/training of your company's employees** meet the qualification needs in your company? (Provide your opinion on a scale from 1 to 7, where 1- does not meet at all, 7 - in full compliance)



Respondents rated their employees' educational attainments and compliance with company's needs. The survey data shows that the highest score is given to the professional education which is in compliance with the employers' requirements; while higher education needs the most improvements to correspond to business environment (see Figures 35, 36 and 37).

Figure 35: Professional education

Does the **UNIVERSITY education/training of your company's employees** meet the qualification needs in your company? (Provide your opinion on a scale from 1 to 7, where 1- does not meet at all, 7 - in full compliance)

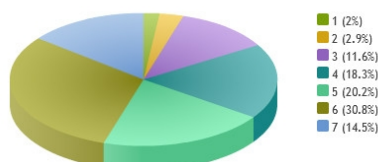


Figure 36: Higher education

Does the **FURTHER ADULT education/training of your company's employees** meet the qualification needs in your company? (Provide your opinion on a scale from 1 to 7, where 1- does not meet at all, 7 - in full compliance)

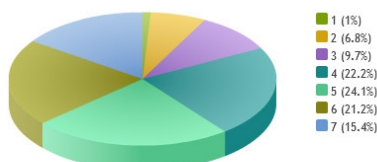


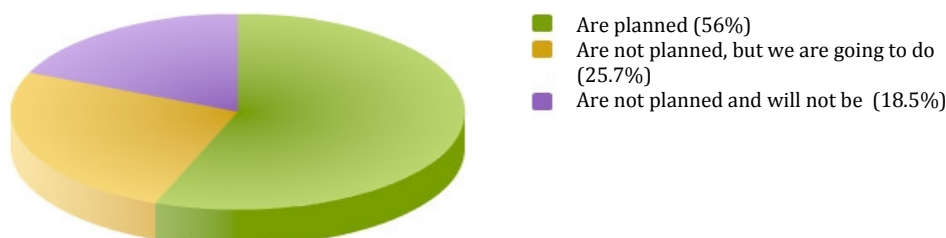
Figure 37: Adult further education

### Company employees' training

56% of entrepreneurs surveyed admit that they budget **financial resources for training**, 25.7% do not do it now, but are going to do it in the future. 18.5% do not do it now, nor intends to finance the training of employees in the future.

Figure 38

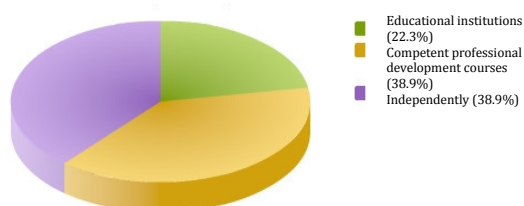
Does your organization / institution plan the **financial resources for staff training**?



Company representatives (directors, responsible managers) who participated in the survey were asked for information about their own **continuous education activity**, improving their knowledge and skills during the last 3 (three) years either in educational institutions (such as a school or university), professional competence courses or independently.

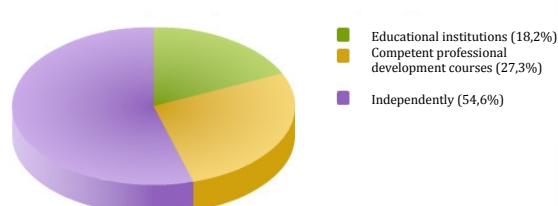


Do you have **improved your knowledge and skills** during the last 3 (three) years - in educational institution (e.g. school, university), professional competence development courses or independently?



*Figure 39: Improvement of both professional, as well as general knowledge and skills*

Do you have **improved your knowledge and skills** during the last 3 (three) years - in educational institution (e.g. school, university), professional competence development courses or independently?



*Figure 40: Improvement of only professional knowledge and skills*

As shown in Figures 39 and 40, professional and general knowledge and skills most often have been improved individually and in professional development courses, rarely - in educational institutions. Those entrepreneurs who complemented only professional knowledge and skills, most often have also done it independently, rarely - in educational institutions. Similar figures are also referring to the improvement of comprehensive knowledge and skills. 30 respondents (19.7%) have not done anything for the improvement of their knowledge and skills over the past 3 years.

## EVALUATION/ANALYSIS OF ENTREPRENEURS' SURVEY RESULTS

Given that the majority of respondents are engaged in the business for more than 10-15 years and represent different industry sectors, business forms and company sizes, the survey results reflect a well-grounded opinion of experienced entrepreneurs.

### Companies' innovation activity and potential

In general, companies show a fairly innovative activity. Entrepreneurs in the regions of Latgale and Utena are relatively traditional, have successfully chosen their business niche that they try to develop, improve through innovation and thematically expand. There are several positive examples of innovative interconnection of industries and business fields, such as combination of forestry and tourism or introduction of educational dimension in a complex offer of rural tourism. It will allow also small businesses and sole traders to keep the necessary competitiveness of the market.

More than half of the surveyed businesses use modern technologies in their work, incl. not only the widely used ones as Internet, mobile Internet or Skype, but also unusual and specific software, IT-based manufacturing technologies and sales channels (e-marketing).

Information technologies (IT) increases the added value of the existing product or service significantly, IT infrastructure helps the businessman to share data, integrate a variety of manufacturing and service processes, allows faster access to relevant information and thus ensures more quicker respond to changes. Modern technologies in a company are something more than just networked computers - Latgale and Utena businessmen need to distinguish the IT's role as a profit-making "tool" even more.

It must be noted that both Latvia and Lithuania are currently facing the shortage of IT specialists in several directions. It is confirmed by almost all sectors. The reason for that is the "brain drain" to other countries that can offer more competitive wages and other bonuses to employees. There is a need for targeted promotion and development of IT sector in both countries.

More than 2/3 of respondents plan to introduce new products and / or services in different types and areas of innovation in the nearest future (1-3 years). In order to maintain and further develop this activity, a determined support by state, local governments, industry associations and academic sector as well as fruitful and well-considered cooperation schemes are needed. The conclusions and recommendations section of this Study provide some of the proposals.

### Businesses' collaboration intensity with universities, researchers

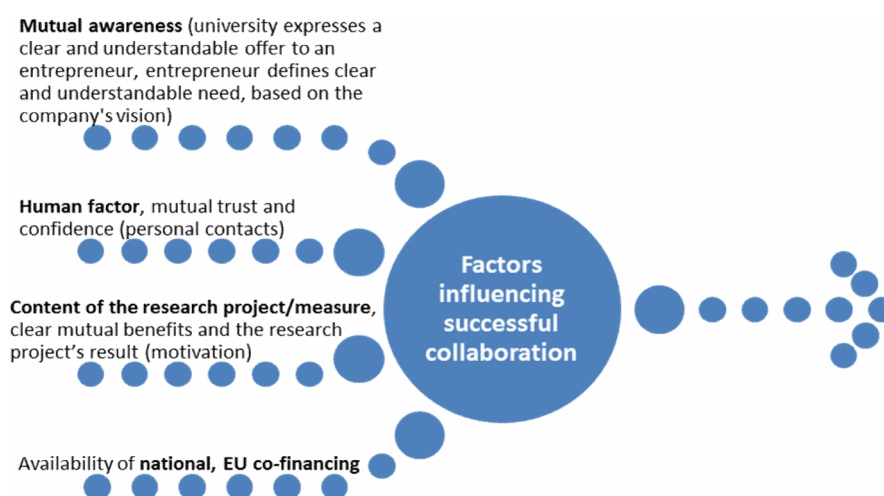
Only 28.3% of businessmen admit that they have enough information about opportunities for cooperation with universities and / or researchers (research centers), an average of 20% have practically cooperated with universities and / or research centers.

Significantly, that there are several entrepreneurs who answered negatively to the question about the previous cooperation with universities, but later, however, we see that there has been cooperation in ensuring placements for student practice, as well as in employees' further education and attraction of new specialists. This suggests that with the word "cooperation" entrepreneurs understand larger scale, specific, measurable, objective-oriented projects and research.

The surveyed entrepreneurs indicate many activities and tools to promote university-business cooperation in the areas of innovation, new products, processes and improvements (on local, regional, national, and cross-border level).

Regarding the distribution of the information on cooperation opportunities with universities and / or researchers (research centers), entrepreneurs stress the importance of its regularity, practical applicability, as well as the reliability of the source of information that can be not only a state or local authority, educational or research institution, but also a friend or acquaintance, a former trainee, a concrete employee from a business information center. Survey results suggest that the human factor and personal contacts play a very important role in ensuring successful cooperation, when the entrepreneur has already been familiar with the researcher for a longer time. The need for a "mediator" between universities and companies has been identified, e.g. Business Information Center or Business Incubator with "a fiduciary" that entrepreneurs – when receiving an email with some information – will trust more than the universities.

The main factors affecting the cooperation between business and educational / research institutions are shown in Figure 41.



*Figure 41:*  
*Summary of the key factors influencing businesses and universities' successful collaboration*  
*(Author: M.Rudzite-Grike, based on the results of the study)*

In addition, survey results suggest that co-operation intensity would increase by competition, the spirit of competition (among universities and / or regions) in the form of business idea competition, or business plans and new products competition, where a company and a university (college) would jointly apply and developing a new product or service. The competition results could be measured by the turnover, number of clients and / or sales growth.

A number of entrepreneurs who were questioned in person, as an important condition mentioned the fact that the cooperation exists as an opportunity, but it is not being used enough, one needs to work a lot to implement it in practice. The same applies to university researchers; therefore, there should be a strong mutual motivation and desire to cooperate.

Some respondents interviewed face-to-face and by telephone admitted that the academic sector and the business co-operation is delayed due to insufficient understanding of the business environment by universities' leadership, teachers' weak link with the market needs, as well as ignorance of direct business needs – if the leaders of the universities engaged in manufacturing, production processes, applied research more, they could "bring" the concept forward to all teachers, search for "practically-oriented teachers" who primarily carry out applied research supported by the theory (rather than vice versa).

During the direct interviews with businessmen, it has been concluded that entrepreneurs understand the terms "new product", "new service" differently as some had

difficulties assessing their level (intensity) of innovative activity. The realized survey facilitated the entrepreneurs' understanding of innovation as a process, by encouraging their thinking of any kind of improvement of a product and process as an innovation needed in current market conditions (incl. the role of introducing also small changes) – beginning with highly innovative high-tech applications or launch of new export markets, and ending with the shift from petrol to natural gas, or implementation of a new type of packaging material and design.

### **Business development and potential**

In assessing the business development opportunities, most entrepreneurs are positively disposed when thinking of the county and the region level, as well as national and cross-border level. It is important to maintain this and ensure the necessary support for the companies' future growth, incl. organization of targeted implementation of EU structural funds, improvement of state support programs for new products' introduction to the market, providing necessary advice to new business planning and marketing. Almost all support measures mentioned by the entrepreneurs include (or may include) the contribution by academic sector - students, trainees, researchers, as well as research infrastructure. Proposals for cooperation activities are provided in conclusions and recommendations' section of this study.

When analyzing the sources of information and advice needed for businesses, Internet resources and business media are the most popular. Perhaps it is because these are more and easily available. In order to use other information sources, one needs more time (sometimes also financial resources) – entrepreneurs often cannot afford it, or really do not see the sense in it, if a concrete final result and benefit is not clear, and there is no set time period when the investment will pay off.

For succeeding in the achievement of current priorities, the businesses require skilled use of IT, mutual cooperation, collaboration schemes, ensured new skilled staff, as well as further training of the existing employees (and management). Here, too, a great part of the measures can be more successfully implemented with the academic sector's smart and targeted participation.

The growth of many businesses is influenced by the overall national (sometimes regional) development processes, e.g. tax policy, increase of the number of tourists, the overall economic development. This means that even if an individual company wants to promote innovation, there is no guarantee that the result will be most successful. We need to have a broader perspective to a definite development area.

### **Graduates and employees' compliance with the company (labor market) requirements and employees' training**

Only 27.7% of respondents employ or have employed graduates immediately after graduation assessing their readiness for professional work differently. However, most respondents consider that graduates' training is rather good and very good. Very often a graduate's readiness depends on each individual person, a student's wish and commitment to study qualitatively, and the teacher's wish to work qualitatively.

It is notable that a number of young professionals' features, which some entrepreneurs point out as strengths (e.g. ambition), others consider being graduates' drawbacks hampering successful integration into a company. Communication skills are recognized as both a plus and a minus, if they are not sufficiently developed. This again shows that the human factor and a graduate's personality is of great importance.

Quality of human resources is undoubtedly one of any company's success factors; therefore, it is a positive trait that 56% of the respondents are planning financial resources for staff training in the companies. Company managers and responsible staff improve their knowledge and skills on a fairly regular basis - if not in formal education institutions and courses, then individual self-instruction. There still exist opportunities for educational institutions, training centers to improve the study/training programs to make their content more relevant to the entrepreneurs' further training needs and requirements.

## COMPARISON OF THE VIEWS OF BUSINESSMEN ON REGIONAL AND SECTORAL PERSPECTIVE

The authors made a comparison of several aspects of a survey in both regions - Utena and Latgale. The comparison shows several common features, as well as a number of differences. Utena region's entrepreneurs on average use new technologies more than the businessmen the region of Latgale - 62% of the respondents in Utena, 52% in Latgale.

However, in both regions, 69% of Lithuanian and 70% of Latvian respondents plan to introduce new products and / or services in the coming years. This points to an understanding of the significance of innovative activity in both regions, as well as to support higher educational institutions' role and importance in development of competitive products and services, gathering information about target markets, development of cooperation networks, firstly on a regional level and later an international scale.

Taking into account the economic situation in Latvian in recent years, the difference the number of companies operating at a profit over the past 12 months is easily explained – in Latgale such were 64% of the respondents, while in Utena significantly more - 79% of the respondents. Entrepreneurs from both regions similarly lack sufficient information on the possibilities of cooperation with universities and / or research centers and researchers. Proportionally, the entrepreneurs in Utena (LT) feel it feels even more than in Latgale's businessmen (LV). It should be noted also that for a large proportion is difficult to assess the adequacy of the information, which may indicate that the businesses have not really had a concrete need, they have not searched the information, and nobody has purposefully offered it to them, therefore, it is difficult to assess.

Figure 42

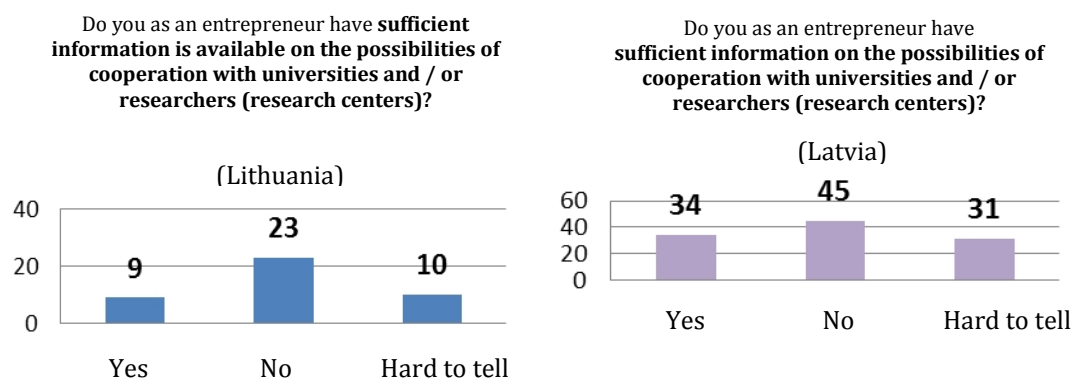
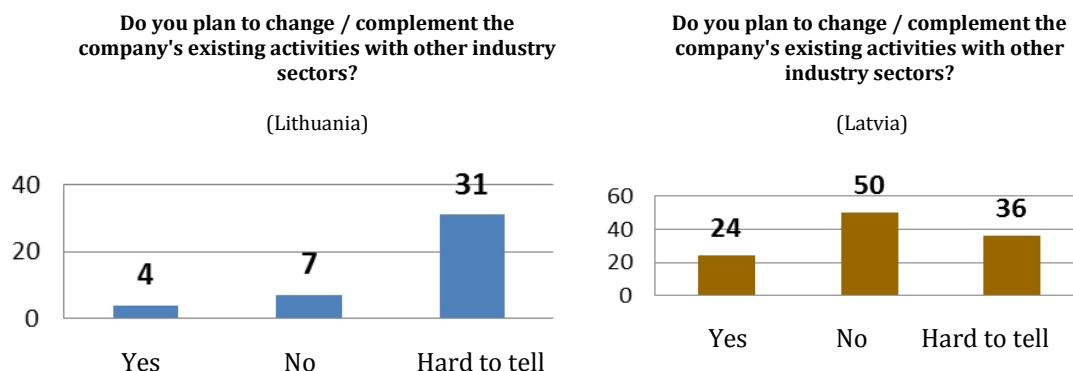


Figure 43 reflects a significant difference between the two regions entrepreneurs regarding their business plans for the future. The majority of Utena respondents is uncertain and is not sure whether to stay in the same business sector in the future, or to address a new one. Whereas, almost 50% of the Latgale's respondents are confident that their scope of work will not change. The views are definitely affected by the overall economic instability in countries which pose a greater risk for new business or new start-up activities (compared to the business areas that are already known). In addition, Latgale businessmen are more traditionally thinking and there is a kind of fear from change / insecurity. It should be noted also that a large proportion of companies in both regions are working in several business sectors already now.

Figure 43



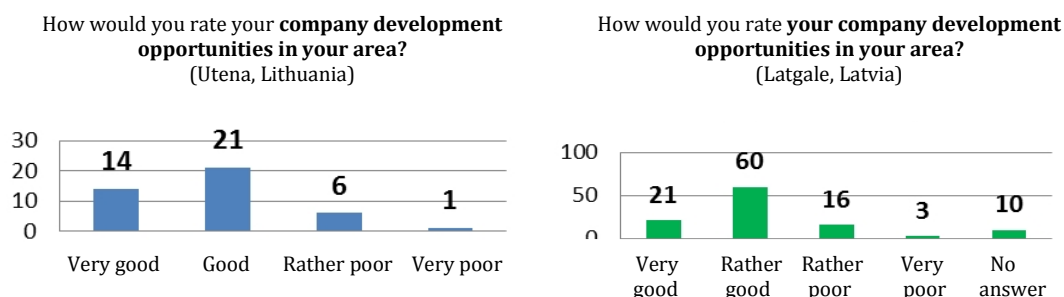
Assessing different sources of information and advice, entrepreneurs of both regions ranked universities and scientific institutions low - most of the respondents have never or very rarely used these institutions to gain information and advice. However, there are several companies in Latgale work with universities and scientific institutes to a large extent.

The survey data show that primarily large and medium-sized enterprises (11% of all respondents) organize co-operation with universities and scientific institutions, as well as the companies operating in the agricultural and forestry sector (16% of respondents), mining and quarrying (1% of respondents), education and scientific research work (5% of respondents), or performs public, social, personal services (10% of respondents).

Undoubtedly, most of the respondents in both regions - 83% in Utena and 67% in Latgale - are interested in further cooperation with universities and / or research centers. There is a need to look for the best and most effective ways for the organization of practical co-operation (see some suggestions the conclusion and recommendation section of this Study).

Analyzing the respondents' views in both regions on development opportunities in the region and across borders, the situation is similarly assessed as mostly positive. Despite the unstable economic situation in the country, the business development opportunities are valued as good or very good.

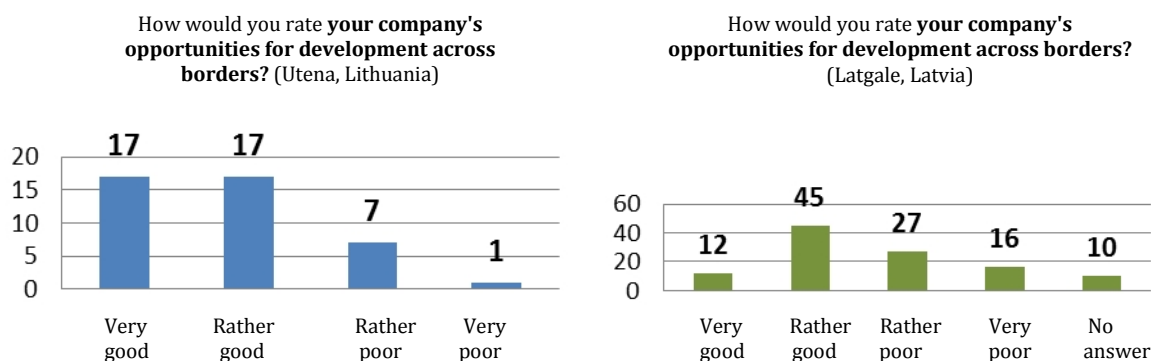
Figure 44



Business development opportunities for cross-border level are higher evaluated by the Utena region's businesses - 81% of respondents, while only 52% of Latgale's respondents feel hopeful for cross-border business development, the rest regard it as rather bad or very bad, or fail to give an answer.

Figure 45



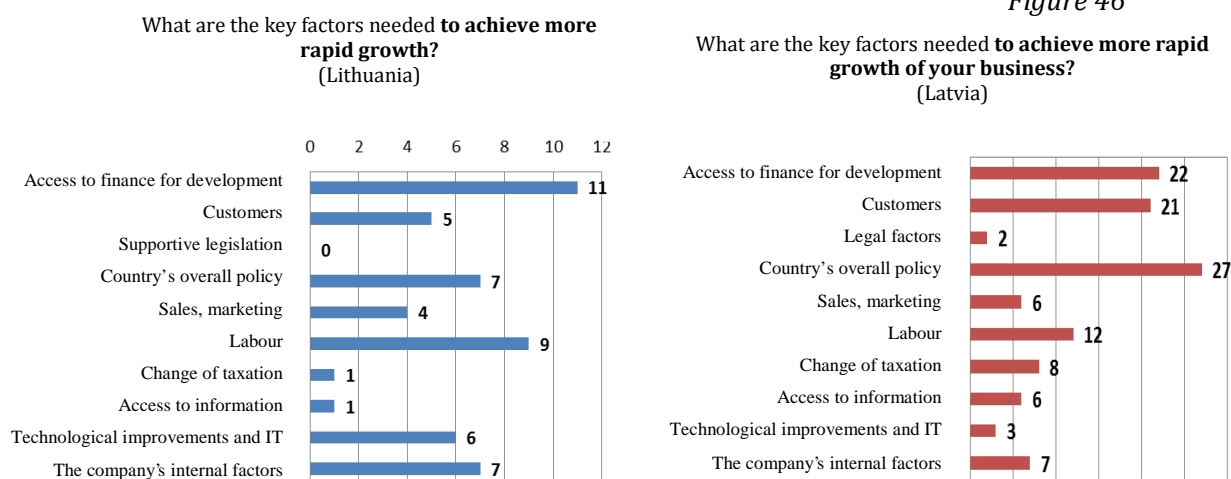


Entrepreneurs from both regions provide interesting insights on the key factors necessary to achieve rapid business growth (Fig.46): Utena region's respondents name the availability of funds as the most important factor (funds for fixed assets, development of infrastructure, equipment, incl. the availability of loans for current assets; the surveyed company representatives in Latgale rank this factor as the second most important while the first importance is given to country's general policy (incl. the reduction of bureaucracy and corruption in public authorities, changes of the attitude by controlling institutions, improvement of road infrastructure, better arranging of business environment and its harmonization with the adjacent territories)).

Utena's entrepreneurs consider skilled labor as the second most important factor. General state policy is ranked third in order of importance (next to the company's internal factors – e.g. new product development, professionalism in their field, an availability of cheaper raw material, etc.). In Latgale, a customer access (stable demand) is recognized to be a very important factor, emphasizing repeatedly the importance of skilled labor for the company's growth.

The assessment of technological improvements and IT significantly differs – 14% of Utena's respondents confirm the high importance of this factor, while there are only 3% of Latgale's entrepreneurs who think so.

Figure 46



Comparison of the survey results by sector shows that the companies from manufacturing industries, machine building, metalworking, textile production, as well as public, social, individual services (3.44 points out of 7) have been more active in introduction of new products and services to the market over the past three years. In comparison, wholesale and retail companies have appreciated their work for new products and services'

introduction in the market by an average of 3.24 points, agricultural and forestry companies – by 3.07 points.

As to the plans for introduction of new products and / or services in the near future (1-3 years), the most active are companies operating in the information technology industry, mining, timber, wood products and textile manufacturing, food and beverage, machine engineering, metalworking, tourism, but companies in the sectors of agriculture, financial intermediation, and scientific research will be less active.

## SUMMARY OF EXPERTS INTERVIEWS AND FOCUS GROUPS

The number of the researchers interviewed in each of the border regions was based on the number of the educational and research institutions the regions in 2011.

### TECHNICAL INFORMATION OF RESEARCHERS' SURVEY AND FOCUS GROUPS DISCUSSIONS

Conducted by	„ArGaumi” Ltd.
Target group / Respondent	14 Latvian and Lithuanian researchers (purposefully selected experts from educational and research institutions)
The achieved sample size in survey	14 respondents (9 women and 5 men)
The achieved sample size in focus group discussions	20 researchers (14 men and 6 women)
Methods	Direct survey (structured face- to- face interviews) WEB survey Phone interviews, Skype-interviews, Focus group discussion (structured face- to -face discussion)
The number of discussions in focus groups	4 discussions ( 3-7 members in each)
The discussion venues	Daugavpils, Rzekne, Jekabpils ( in Latvia ) Utena ( in Lithuania)
The geographical coverage	The border region of Latgale ( in Latvia) The border region of Utena ( in Lithuania)
The period of survey and discussions	20.03.2012. - 02.05.2012.

### THE CHARACTERISTICS OF THE REACHED REPRESENTATIVE SAMPLE

	In Latvia	In Lithuania
Number of E-mails addressed by the invitation to participate in the survey	20	12
Number of completed WEB forms	5	3
Number of invalid WEB forms after the validity check	4	2
Number of direct face- to- face interviews for filling the questionnaire	6	2
Achieved sample size	10	4

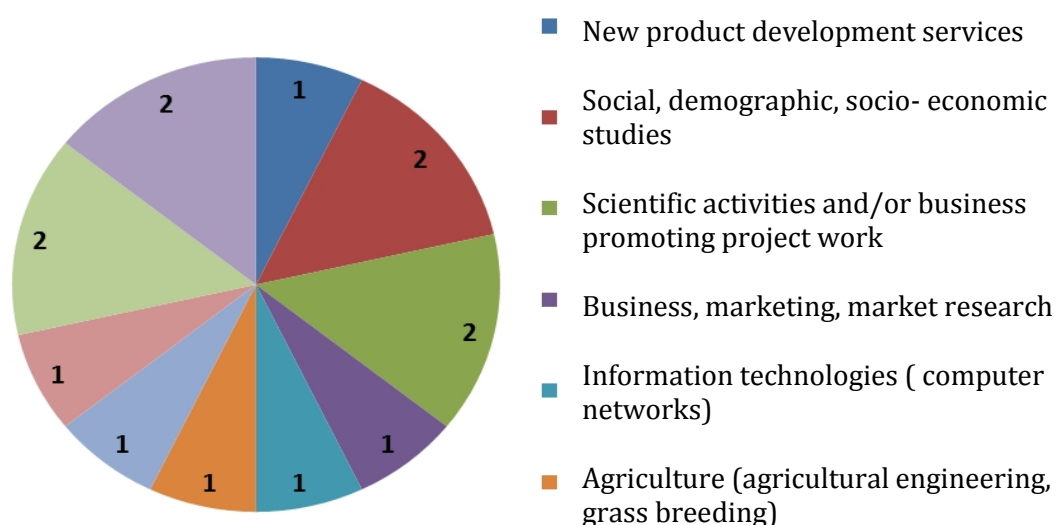
### RESPONSE CHARACTERISTICS

Gender of the respondents	Men - 5 Women - 9
The average age of respondents	36.9 years old
Distribution of respondents by regions	The region of Latgale ( in Latvia – 10) The region of Utena ( in Lithuania – 4)

The **represented research areas**: environmental technology, engineering industry, transport and logistics, agriculture, social and socio-economic studies, regional development, etc.

Figure 47

**Research areas** represented by the 14 researchers who participated in the survey



## RESEARCHERS' SURVEY RESULTS

The given responses by researchers during the survey reveal that most of the researchers (8 out of 14 researchers) in their daily work do not relate to new products (goods and services) and / or technology development and implementation. The most popular direction of research in educational institutions is to explore various market types. The examples on the use of the new technologies after the interview with researchers face-to-face include only patent and prototype development and technology adaptation.

The study explains the level of access to information on cooperation opportunities with businesses. 7 of 14 researchers admit that they do not have an access to sufficient information about possibilities of cooperation with businessmen and business needs, 6 researchers have sufficient information, one researcher admits saying that it is difficult to say. The most commonly stated reason for the absence of information is related to the lack of feedback process.

In both regions the educational institutions on their websites have enumerated the possible ways and directions of research on their websites, but in most cases it is hard for a businessman to find information. Meeting in a wide variety of conferences, there are discussions about possible co-operation - how to use the potential of higher education institutions best. A part of the businessmen, if they do not see quick profit types through education, mostly do not use these opportunities and possibilities.

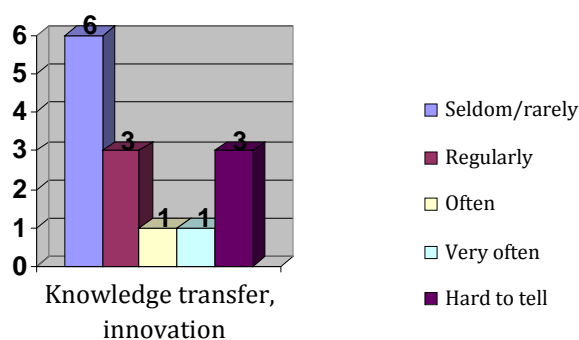


Figure 48

Figure 48 shows the response of a collaborative effort with the entrepreneurs and it should be noted that there are no answers of no collaboration at all.

Most frequently mentioned forms of cooperation with education institutions are:

- Research order by companies which is fulfilled by the research institution (e.g. market research on the dairy market saturation);
- Student research within diploma work (a student is studying a certain enterprise (mostly in tourism, IT, business management));
- Organizing practice placements for students.

Some researchers have already mentioned the long-term experience of cooperation. For example, the researcher of Agriculture Institute has been collaborating with businesses studying *out-root* fertilization methods and systems (for example, Ltd. Latagra). Environmental Technology Transfer contact-point at RA helps to make prototypes for manufacturing companies.

There is also international cooperation (for example, the company AXON (France) has a factory in Latgale, which takes measures in the development of new products and production. Research service provider is an organization "Latgale Machinery Technology Centre" (LATC), which provides the necessary quality of facilities and services right here in Latgale (in Rezekne ) and the AXON does not need to order them in France or elsewhere in Europe.

The study respondents have not been practically related to the funding of research projects or participation in the started research projects of entrepreneurs.

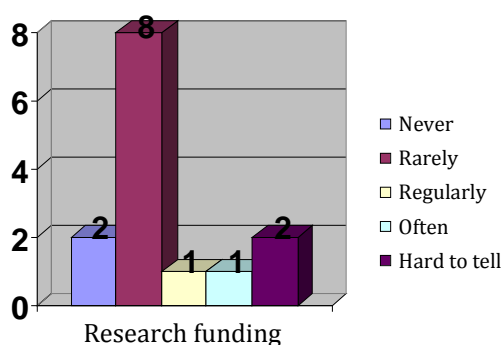


Figure 49  
Research funding, participation in research projects

The interviewed respondents have rarely been associated with the company personnel training services. Respondents have never experiences scholarship or sponsorship activities, which would be the type of cooperation between entrepreneurs and university (students).

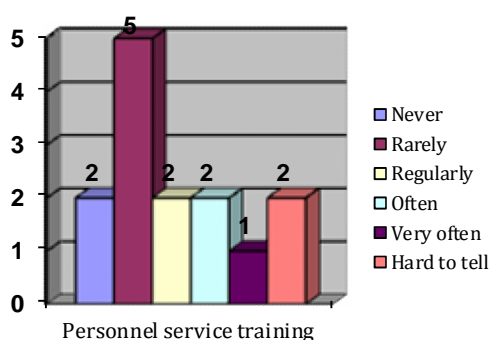


Figure 50: Personnel service training

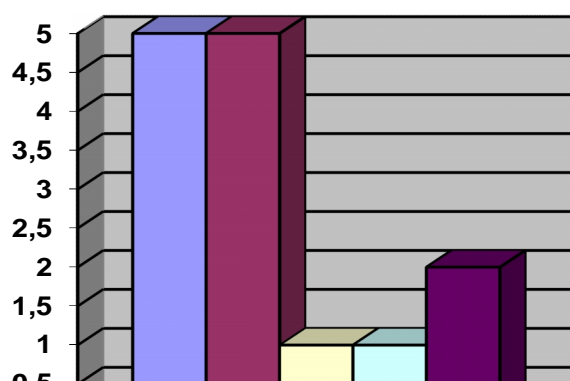
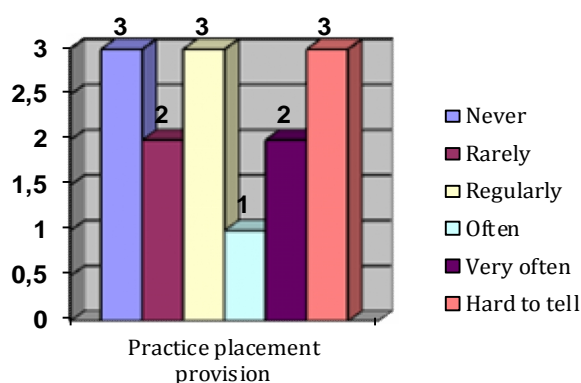


Figure 51: Scholarships, patronage

Figure 52: Practice placement provision

In connection with the placements for students, the researchers reflected the two views - the place of practice in the educational and / or research institution, and the organization of graduates' placements in local enterprises. The objectives, functions and operations of a number of educational establishments are not always able to provide internships and work for trainees. In contrast, the representatives of the educational institutions commented that there is a very good co-operation with entrepreneurs that provide work placements for students.



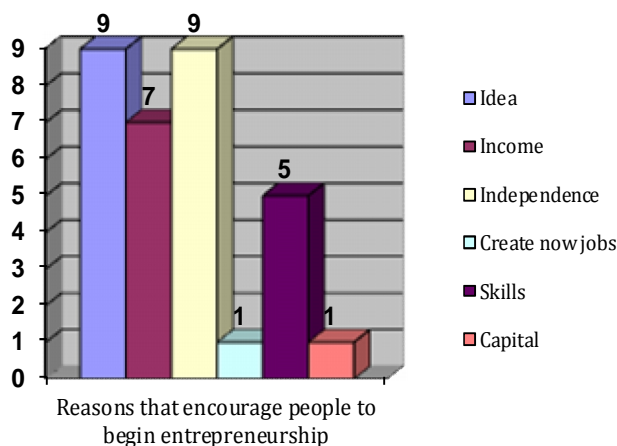
Utena College, for example, has signed about 300 agreements with Lithuanian entrepreneurs, who often provide work placements for college students.

When analyzing the answers to the question - what encourages the respondents to start an entrepreneurship, it can be concluded that the basis is a good idea. The other most frequently mentioned answers are related to personal skills, test of ambition and the desire to receive an income and thus to pay off the initially invested capital. 13% of respondents believe that one of the most important reasons is to test their skills. Less frequently mentioned option is that they are creating new job places and start-up capital availability.

Researchers' and entrepreneurs' views of the main reasons for starting a business are similar. The entrepreneurs also consider that the most important motivation arises from a good business idea; secondly the opportunity to generate revenue is mentioned. However, the researchers have raised the need of independence, personal freedom and self-determination (that was ranking in the third place in entrepreneurs' survey) higher than the chance of getting higher returns.

Responding to the question about hindrance for starting an entrepreneurship in Latgale / Utena region, researchers have proposed various options - the summary starting with the most frequently mentioned and ending with the least is shown below:

1. Economic situation in the country (if there were a common demand, there would be ideas and fear of taking risks would reduce, and the funding would be found)
2. No initiative to start a business



3. No financial support
4. Complex administrative procedures
5. Fear of taking risks that can lead to failure and bankrupt
6. Lack of knowledge and skills on how to start and develop own business.

Figure 53: Reasons that encourage people to begin entrepreneurship

In this respect the views of businessmen are quite dramatically different from the researchers' point of view - entrepreneurs have mentioned the fear of taking risks and possible failures as the most serious obstacle to business start-up, ranking secondly - the lack of financial support and the third obstacle - the economic situation in the country. The lack of entrepreneurial spirit - on the degree of importance - was given only as the fourth reason in the entrepreneurs' survey.

Some Latvian researchers pointed to the unsettled business environment, namely, inefficient infrastructure - all concentrated in Riga, as well as social guarantees for unemployed are too good compared to the working people which does not motivate the unemployed to change anything.

Responding to the question - what are the main causes which hinder the business development of Latgale / Utena region, respondents had different views, depending on whether the situation was described in the county, region, country or on cross-border level.

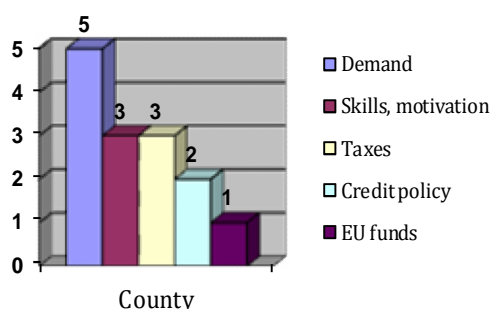


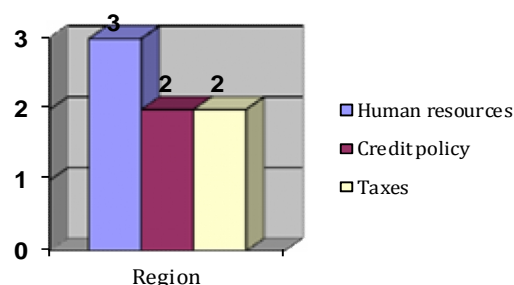
Figure 54:  
What hinders the economic development of Latgale / Utena region (on county level)?

As the major factor hampering the business development **on county level**, the researchers mention decrease in demand caused by the economic crisis and people's decreased ability-to-buy. The next factor is the lack of human resource skills, initiative

and motivation. The most significant obstacle to the development mentioned by the entrepreneurs was the decreased demand.

Figure 55:  
What hinders the economic development of Latgale / Utena region (on regional level)?

Describing the **situation in the regions**, researchers' answers were much more diverse. These are most often mentioned ones: the human resource skills, initiative, lack of motivation, the problems of getting access to credit for project development, high tax rates. The other answers listed separately were: lack of own co-financing of EU funds for projects, communication (including language) problems, fierce competition, a decline in demand.



**On national level**, high tax rates were mentioned as the most visible drawback, while the second was lack of human resource skills, initiative, lack of motivation.

**On the cross-border level**, both Latvian and Lithuanian researchers mentioned communication problems and the decrease in demand. Interestingly, that businessmen mention communication (including language) problems almost as the last (the ninth) in terms of importance.

All 14 respondents, researchers presented their views about the graduates. Their opinions on the whole are overwhelmingly **in favor of young professionals**. Most universities and research centers in the assessment of certain graduates, evaluate their preparedness for the labor market as "rather well prepared", 8 respondents (57%) have even



indicated "very well prepared". Among entrepreneurs surveyed, only 6% of respondents declared that the training of graduates known to them (on local, regional, national and trans-boundary levels) was very good for the labor market. It is also noted that it was difficult for researchers to express their views on the preparedness of graduates for cross-border area, so the answer "Hard to say" was chosen often, followed by "Rather well prepared."

In response to the question – in what **types of innovation** and in what areas and sectors you (your institution) are more interested in, the respondents provided the following responses:

- Innovative product manufacturing
- The implementing of the new technologies in training techniques and methods
- Environmental technologies, clean- farming, resource preservation, efficient heat circulation
- Agricultural industry, agro chemistry
- Sociālās inovācijas, kapacitātes paaugstināšana visās tautsaimniecības nozarēs Social innovation, capacity increase in all sectors of the economy
- Collaboration of practical nature between businesses and higher education institutions
- Introduction of IT to improve work efficiency.

The scientific results of the surveyed researchers that have been used for business purposes up to now are:

- Prototypes - manufacturing
- Results from out-root fertilization tests
- Prepared skilled professionals
- Provided accounting services and consultancy, research services
- Scientific advisory, supervision of student research work, the diploma work.

Recommendations for improvements, which the researchers believe are necessary in the process of studies in order to promote youngsters' entrepreneurial activity and innovation activity:

- Social activities outside of the formal study process (NGOs, etc.), but at the same time students need to monitor their activity in order to lead to a certain target. In this way, the student can get a practical experience and record it also in the resume (CV) as work experience, which could be subsequently assessed by the employer;
- Best- practice example: Latvian university debate club (e.g. participation in the TV program "Sastregumstunda");
- Training firms (as in high schools) –at universities as well;
- About 50% of speakers - professionals, and 50%'s academics
- Courses such as E-Commerce, Patenting, Innovation Management should be included in study curriculum to prepare business professionals;
- Exchange of experience between educational institutions, educational tours to promote young people's curiosity about the business environment;
- Educational institutions should be equipped with modern facilities, the latest literature;
- Professional competitions;
- Student Business Support Centre which arranges the co-operation between students and entrepreneurs.

Researchers' opinions of the **strengths** of young professionals are: young professionals immediately after graduating from higher education institutions are ambitious, more open to everything new, "absorb" new ideas, and follow more up on everything new in

the world. They have a good theoretical background, the use of professional, specialized computer programs. Entrepreneurs are also of the similar opinions.

The researchers' views on graduates' **weaknesses** are: little or no practical experience, lack of knowledge in psychology and poor communication skills. They lack initiative and motivation, lack of discipline. They do not know how to organize their time. Lack of motivation for young professionals, which is the most common cause for is - the effect of parents' choice on their profession, educational establishment.

All represented professionals in the higher educational institutions approved the observation of 50% to 50% of practical sessions and theory ratio in the study process.

Responding to a question, who should maintain a common platform for the researchers - business collaboration, researchers' opinion can be divided into three groups:

- State
- universities,
- business centers, business incubators.

The most popular opinion among the Latvian researchers is - university, but among the Lithuanian respondents - business incubators. In the Lithuanian researchers' responses an opinion that nothing is needed to be created artificially a new prevails, information should be monitored by somebody and a very good example of effective functioning is Utena Business Information Centre.

The researchers have identified the strengths and the positive benefits on a number of academic and business sector collaboration now: educational institutions organize seminars, conferences, when students are introduced to the practical research, the competitions of Ideas are being organized, where the evaluation is done by entrepreneurs in the business community. In some places the practical exchange of information takes place. The researchers recommend the following forms of support (tangible and intangible) to promote the development of innovative companies:

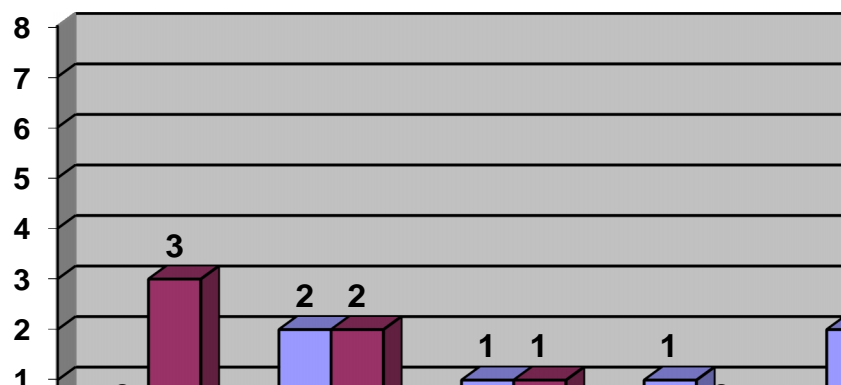
- Knowledge transfer activities
- Participation in research projects
- Employees' further education
- Staff attraction from universities
- Scholarships, patronage in small amounts
- Provision practice placements
- Participation in the study process
- Participation in higher educational establishment's accreditation process
- Organization of educational seminars, discussions and conferences
- Consultancy, for example, for technology adaptation
- New product development, product improvement (e.g. in manufacturing sector)
- Practical demonstration (better to see once than to hear 100 times).

## RESULTS OF FOCUS GROUP DISCUSSIONS

In focus group discussions, besides the 14 surveyed researchers, 6 more participants took part. The focus group discussions were led by a qualified discussion moderator: Mag.Biol. Ingrid Veipa.

Figure 56

*The residence and gender distribution of 20 members in the focus group discussions*



### Focus group discussion participants

(including 14 researchers who completed the questionnaire):

Focus group discussion participants in LATVIA		Focus group discussion participants in LITHUANIA	
1. Ingrida Marane ( <i>Business University „Turība”, Jekabpils branch</i> )	<b>Focus group discussion nr.1</b> (in Jekabpils)	1. Vitalija Bartuseviciene ( <i>UK</i> )	<b>Focus group discussion nr.4</b> (in Utena)
2. Aivars Jermuss ( <i>Agriculture Research Institute</i> )		2. Ruth Jurgelioniene ( <i>UK</i> )	
3. Roberts Glaudins ( <i>Jekabpils Agribusiness College</i> )		3. Gintautas Buzinskas ( <i>UK</i> )	
4. Maris Igavens ( <i>LATC</i> )	<b>Focus group discussion nr.2</b> (in Rezekne)	4. Raimundas Cepukas ( <i>UK</i> )	
5. Einars Ulnicans ( <i>RA, Research Institute of Regionalistics, REGI</i> )		5. Gitana Valukoniene ( <i>UK</i> )	
6. Iveta Mietule ( <i>RA</i> )		6. Jurate Aksomitiene ( <i>UK</i> )	
7. Erika Teirumnieka ( <i>RA, Environmental Technology Transfer Contact-point</i> )		7. Vaida Bartkute-Norkuniene ( <i>UK</i> )	
8. Alina Ostrovska ( <i>TSI, Latgale branch</i> )	<b>Focus group discussion nr.3</b> (in Daugavpils)	8. Rima Zarskute ( <i>UK</i> )	
9. Viktorija Sipilova ( <i>DU</i> )		9. Inga Kavaliauskiene ( <i>UK</i> )	
10. Vera Boronenko ( <i>DU</i> )		10. Irina Sersniova ( <i>Utena BIC</i> )	

Summarizing the views expressed by 20 researchers during the discussions in the focus groups, a number of **challenges** for cross-sector collaboration improvement were identified.

**Recommendations by Latvian researchers** are related mainly to the following aspects:

- Co-operation - as a complementary activity of each company facilitating the development when one company makes up its product or service (in the respective niche) and other related businesses complement, promote and support the "principal end product or service", i.e. cluster-type forms of support (for example, if any of LATC's services require metal cutting by a laser, LATC orders it to Ltd. "NOOK service" and does not plan to buy their own equipment because of a good co-operation;
- Practical information sharing, practical demonstration ("better to see once than to hear 100 times;
- International exhibitions, showing new ideas, other scales;  
Teaching through playing (like children) at the very time when students are interested, and in the areas where students are more interested in - because then they will be happy to participate and learn things of substantial interest;
- A separate "Project Unit " in a higher educational establishment which deals with the development of practical experience for students - practical activities, training firms, learning additional technical terminology and acquisition of foreign experience;
- The internal control and analysis of curriculum should be done regularly. Students, practice supervisors' survey must be carried out, as well as graduates - the 1st and 2nd year after graduation, must be interviewed to find out how successfully they have integrated into the labor market or if they continue with further study.

The **Lithuanian researchers** have additionally emphasized such solutions as:

- Entrepreneurship education at all levels (including in high schools);
- Young workers entering the job market into a new company, have to undergo an adaptation period up to 6 months. This period may be reduced if the entrepreneur who has decided to employ the new specialist, already during the qualification practice prepares the trainee as a potential employee for his /her company. Consequently, both parts benefit – an entrepreneur obtains a successfully adapted qualified staff, but a student passes a qualifying practice and gets ready for employment and recreation opportunities;
- Educational institutions, business information centers regularly, but not in an intrusive manner, has to remind businesses of the offered cooperation opportunities. It could be a kind of register, the so-called "information separator", and depending on the available information - it would be redirected to the right target group;
- The practitioners' attraction to teaching process - lectures (e.g., Utena University of Applied Science has a positive experience in Tourism program when the manager of Utena Tourist Information Centre is being attracted as a lecturer);
- The Role of authorities and personalities in learning process, teaching information to audiences successfully (such as Prof.Rimvydas Jasinavicius, who runs classes for students, teachers and trainers on how to present business education; with his personality (charisma) he can change the audience's view on the issues from business environment) Such personalities should be attracted to the study process more;

- Informational sessions, motivational and inspirational trainings (e.g. led by Prof. Rimvydas Jasinavicius) jointly organized by universities and BIs or BICs are needed; creation of open environment where any entrepreneur feels welcomed, valued and feels that a university or BIC is truly interested in helping his/her company; creation of joint “Bank of Business Ideas”; practitioners’ attraction to lecturing, support for a joint research project application (documentation presentation), project implementation (incl. so-called paper work), for which all are usually short of time.

Evaluating the results of researchers’ survey and focus group discussions, other important aspects were revealed, including:

- There are difficulties associated with a higher education accordingly to a particular region’s or county’s economic sectors, because a university / higher educational establishment does not prepare professionals for a specific county or region, but prepares them according to standard professions (Classification of Professions). Additional measures should be implemented to explore the regional demand for specialists and the adequacy of already prepared graduates for the companies that need qualified employees;
- Lack of human resources’ work skills, initiative, lack of motivation (the so-called "structural unemployment", unemployment by occupation, the need for restructure) - aspects that need a complex influence (programs) with involvement of multiple parties (not only business and universities);
- Motivated teachers have a vital influence in the training of qualified employees; it should be taken into account when planning the teachers’ salary system in the future.

Comparing the answers given by respondents in the context of Latvia and Lithuania, the authors conclude that there are similar views on the reasons that hinder business development. There are several threats to the business environment and obstacles for the development that are outside the business sector’s and academic institutions’ control:

- The problems of getting loans for development projects (in Latgale felt more than in Utena region);
- There is a lack of so-called quick selling-chains for local products (e.g. LR law "On Local Governments" lists local government’s functions in connection with the organization of local market, but the local government is unable / unwilling to fulfill that - all possible ways to support local food producers and traders should be sought instead of RIMI / MAXIMA);
- The government should clearly define the industry sectors to be developed and subsidized (attitudes, indication of priorities).

## STUDY PROGRAMME ANALYSIS

### TECHNICAL INFORMATION OF STUDY PROGRAMME ANALYSIS

Research done by	„ArGaumi” Ltd.
Research object	17 study programmes in universities of Latgale 3 study programmes in the Utena University of Applied Sciences (UUAS)
Methods of analysis	Analysis of statistical data and documents Direct interviews, telephone interviews with the programme directors, graduates, employers
Thematic groups of the analyzed programmes' education	Humanities and Arts: 1 Social sciences, commerce and law: 14 Engineering, manufacturing and construction: 1 Health care and social welfare: 4
Levels of the analyzed programmes	1 <sup>st</sup> level professional study programmes: 6 (in Latvia), 3 (in Lithuania) Academic bachelor study programmes: 2 Professional bachelor (2 <sup>nd</sup> level professional) study programmes: 4 Master study programmes: 5
Types of the analyzed programmes	Academic programmes: 3 Professional programmes: 17
Period of analysis of study programmes	May 1, 2012 – June 15, 2012

Below, assessment of each programme is presented, by structuring it into three main parts:

<b>Brief description of the study programme</b>
<b>Content analysis of the study programme</b>
<b>Main conclusions and recommendations</b>

*Figure 57: Summary structure of educational programmes evaluation*

The following educational programmes have been included in the selection:

1. The Daugavpils University Academic Bachelor's study programme "Eastern European Culture and Business Relations"
2. The Daugavpils University Academic Bachelor's study programme "Economics"
3. The Daugavpils University Academic Master's study programme "Economics"
4. The Daugavpils University Professional Master's study programme "Intercultural Relations"
5. The Daugavpils University Professional Master's study programme "Business Management"
6. The Daugavpils University Professional Master's study programme "Community and Establishment Administration"

7. The Jekabpils Agribusiness College 1st level professional study programme "Business (Entrepreneurship)"
8. The Jekabpils Agribusiness College 1<sup>st</sup> level professional study programme "Housing Management and Administration"
9. The Jekabpils Agribusiness College 1<sup>st</sup> level professional study programme "Accounting and Finance"
10. The Rezekne Higher Education Institution Professional Master's study programme "Finance Management"
11. The Rezekne Higher Education Institution Professional Bachelor's study programme "Entrepreneurship"
12. The Riga Technical University's Daugavpils branch Professional Bachelor's study programme "Machinery and Device Building"
13. The Transport and Telecommunication Institute's Latgale branch Professional Bachelor's study programme "Transport and Business Logistics"
14. The Riga International School's of Economics and Business Administration Daugavpils branch Professional Bachelor's study programme "Public Relations and Advertising Management"
15. The Baltic International Academy's Daugavpils branch 1<sup>st</sup> level professional study programme "Small and Medium Business Management"
16. The Daugavpils Medicine College 1<sup>st</sup> level professional study programme "Social Rehabilitation"
17. The P.Stradins Medical College's of the University of Latvia Rezekne branch 1<sup>st</sup> level professional study programme "Nursing Studies"
18. The Utena University of Applied Sciences 1st level professional study programme "Law"
19. The Utena University of Applied Sciences 1<sup>st</sup> level professional study programme "Physical Therapy"
20. The Utena University of Applied Sciences 1<sup>st</sup> level professional study programme "Nursing Studies"



## Key findings and recommendations of educational programmes analysis

### ***The Daugavpils University Academic Bachelor's study programme "Eastern European Culture and Business Relations"***

#### **Key findings and recommendations:**

- Academic Bachelor's study programme "Eastern European Business and Cultural Relations" is a rather unique programme that offers to acquire interdisciplinary knowledge, skills and competencies in culturology, sociology and economics for work in development of cultural and business relations in Eastern Europe.

As the first students of this programme will graduate only in the 2011-2012 academic year, it is yet impossible to assess the programme's contribution to Latgale region's labour market, as well as to the socio-economic development and international relations. However, the potential employers approve the programme and its necessity.

- It is advisable to strengthen the programme's "business" part, by both providing a greater economics and entrepreneurship content and creating stronger links with entrepreneurs as the potential employers and academic research customers.

Consequently, the research done by the students (study works, bachelor papers) should be more focused on practical usability that helps to solve specific issues of cooperation, development of new products etc.

- At the moment, the most important part of international cooperation is based on tourism promotion and related product development and popularization. Therefore, it would be useful to include such educational courses as "Tourism basics" and "Cultural tourism" in the programme's content.

- Likewise, taking into account the recent trends in business development and relations development, attention should be paid to the acquisition of the latest IT, e-commerce, innovation process management, acquisition of creative industries and creative business basics.

- A higher proportion of guest lecturers, as well as international practice for students and a greater mobility within the framework of the educational programme would help to keep track of cultural and business topicalities in Eastern Europe, as well as give practical usability of the acquired knowledge.

### ***The Daugavpils University Professional Master's study programme "Intercultural Relations"***

#### **Key findings and recommendations:**

- Although the study programme is well structured in compliance with of profession's "Public Relations Manager" standard, the offered scope for intercultural relations is unclear (regional, interregional, international, and global).

- If the programme mainly focuses on training of intercultural relations managers for education and social sphere organizations (respectively, for state and municipal budget institutions) and media, the major emphasis should be put on solving intercultural relations within the region, including implementation of integration policy, which has a greater role at the national level. It could be done, by including the intercultural interaction issues into the National Development Plan for 2014-2020, thus providing resources to solve these issues. In this case, the programme's content should be supplemented with study courses that promote the use of IT in work with various population groups and also help to develop adequate communication skills in organization and provision of remote services.

- While considering possibilities to offer the profession "Intercultural Relations Manager" to commercial structures, one has to reckon with the economic structure of Latgale

region, namely, the large number of self-employed and individual entrepreneurs, who are currently not working towards international markets, as well as rarely attract other people to their business. So this profession could not be in a broad demand in Latgale region and the programme could focus on intercultural relations development as outsourcing or develop cooperation with small, medium and large entrepreneurs, which plan to work towards foreign markets. In this case, in addition to the proposed business-oriented courses of study, courses that extend students' understanding of export industries important to the region, namely, forestry, food production and processing industry should be included in the programme.

- A possibility to offer the study programme to the Utena region population could be considered, though economic estimates have to be done on whether investments in adjustment study of the programme would justify the income gained from implementation of such programme.
- When looking at the long-term business trends, as well as creating the link between culture and entrepreneurship, in the context of the study programme one has to take into account the need to pay attention to the creative industries and creative entrepreneurship issues that have their multicultural potential in Latgale region, while this business niche is still unfilled. Therefore, training of experts in this area could positively contribute to the long-term development of the region.
- Considering the international nature of the programme, it would be necessary to attract more guest lecturers, as well as to provide opportunities for practice in different cultural environments in order to diversify the programme's content and to broaden students' range of vision.

***The Daugavpils University Professional Master's study programme  
"Community and Establishment Administration"***

**Key findings and recommendations:**

- The number of state and municipal institutions in the region is comparatively smaller than the number of companies, agricultural and fish farms, as well as optimization of state and municipal services by implementing remote services, one-stop agencies etc. is expected. Therefore, there is a possibility that the study programme may lose its topicality and necessity in the context of the current offer of study courses. Reduction of the number of students during recent years also may be regarded as an objective signal for that.
- It is recommended to include such study courses in the study programme which can help the students – managers of institutions and enterprises to acquire knowledge for development of new products with higher added value, by both using innovative products and approaches and using various information technologies, also by offering study courses that will be necessary for the organization of remote work and provision of e-services to people.
- The majority of Latgale's economically active population is self-employed or individual entrepreneurs, while the entrepreneurs' survey show that the most topical necessities are to increase sales amount, enter new foreign markets, improve product/service quality etc. Herewith, addressing the entrepreneurs' collaboration or cooperation issues by creation of regional clusters (i.e. entrepreneurs provide each other with raw materials, merging of which results in new products and services with high added value) is expected to play an important role. Such aspects should be included in the study programme's content.
- During the planning period of 2014-2020, a great attention is paid to a more active cooperation between public and private sectors, including providing potential and existing entrepreneurs a variety of support tools at the municipal level. Then, the study programme could offer study courses, which would help the state and municipal institution experts to

better acquire business environment, thus being able to better identify and develop cooperation of public and private sectors.

- Considering that Utena region's population is not offered an opportunity to obtain higher education within the region, an option of the Daugavpils University offering studying opportunities for this region's population can be considered. But in order to develop such an offer, economic estimates related to the courses adjustment to the needs of Utena region's population, incl. solving teaching language issues (for example, studies with simultaneous translation), have to be done.
- The study programme providing professional master's degree training has to be closely linked to the existing practical experience in the public and municipal administration and enterprise management. Therefore, a greater number of guest lecturers, who are successful business and institutions managers and can hand over their practical experience to the students, should be involved in the study programme.

### ***The Daugavpils University Academic Bachelor's study programme "Economics"***

#### **Key findings and recommendations:**

- Study program is specifically developed with the objective to train experts for the region. A separate study subject "Regional economy" is distinguished during the study process.
- Although the program is academic by its nature, it would be necessary to increase the proportion of apprenticeships. Thus, experts, who are more appropriate for the labour market, would be trained and they would have connection to the changing requirements of the market. Academic knowledge has to certainly be merged with the practical usability within the framework of the study process.
- It is desirable to supplement the study subjects with econometrics and labour economics, including the latest data on trends in Latvia.
- In order to promote industrial field development in Latgale, it is advisable to supplement the study programme content with subjects related to production aspects, such as product idea development for manufacturing, provision of the new technologies for manufacturing engineers (virtual reality, rapid prototyping), manufacturing process, provision of product design and manufacturing sustainability.
- It is recommended to include issues that stimulate innovation and are topical in context of the modern production (especially in technical sectors) in the programme, including a strategic approach to modern technology application, this technology's influence on development of enterprises and economy as a whole. It would be valuable to provide the students with the basic information and examples of creative application of the newest technology, software and tools in project planning, product improvement, by evaluating the price and production costs, improvement of manufacturing process' organisational and management methods.

### ***The Daugavpils University Academic Master's study programme "Economics"***

#### **Key findings and recommendations:**

- It is recommended to include a study course, within which students would be encouraged to offer innovative business ideas. Latgale region is the one where there especially is a need to consider implementation of new and innovative business ideas in entrepreneurship in order to reduce unemployment, which is relatively larger in the Latgale region than in other regions. Entrepreneurship development and jobs will attract young

professionals to stay in Latgale and promote the region's economy, thus contributing to the common growth of the Latvian economy.

- Master's study process is not conceivable without scientific research. It would be advisable to organize calculation, which would show how often and to what extent students and teachers use the library and reading room. In the reading room, there could be a larger range of periodicals accordant to the master level, incl. scientific articles of foreign universities. Improvement possibilities of the material and technical base could also be connected to an extended use of the Intranet during the learning process.
- The survey data shows that employers (70%) would like the masters to more acquire the necessary practical knowledge for the profession.
- To increase the number of guest lecturers, as well as to pay more attention to connection of theoretical material with practical research.
- More purposeful inclusion of sustainable development aspects into the programme is needed – on how the economic, social and natural environments mutually affect each other, the influence of modern manufacturing technologies on the environment, risk assessment.
- Considering that the economic structure of Latgale region is mainly represented by small and micro enterprises, it is recommended to consider a wider review of cooperation, networking and outsourcing possibilities.

### ***The Daugavpils University Professional Master's study programme "Business Management"***

#### **Key findings and recommendations:**

- The economic situation of Latgale region can be significantly improved by improving human resource management system, which, in turn, can be achieved by increasing the competence of personnel managers. The professional master's study programme "Business administration", developed by the Daugavpils University Department of Economics of Faculty of Social Sciences, intends to provide the knowledge necessary for entrepreneurial and institutional management and development. Acquisition of the programme facilitates development of human resources for small and medium enterprises, which, in its turn, will affect the competitiveness of enterprises in Latvia and in the world. Acquisition of the programme also facilitates foundation of new enterprises.
- Study subjects promoting innovation implementation in entrepreneurship, i.e. the study subject "Innovative methods in business", are assessed positively.
- Necessity for the specific study programme is approved by employers' responses given in surveys. They believe that their employees would need to raise the professional qualification by acquiring the offered Daugavpils University master's programme, but they also indicate the need for broader practical knowledge and skills, more realistic view.
- 26% of the total training in the study programme is targeted at qualification practice, which has to be assessed approvingly, because the professional master's studies have to be acquired through practical observation of business processes and business analysis.

### ***The Rezekne Higher Education Institution 2<sup>nd</sup> level higher education Professional Master's study programme "Finance Management"***

#### **Key findings and recommendations:**

- The surveys, carried out among graduates, show a high degree of respondents' satisfaction. Respondents note that they would recommend this study programme also to others. This suggests that graduates successfully join the labour market and are competitive particularly because of the knowledge acquired.

- It is recommended to attract speakers-practitioners in order not to lose the link with the labour market. With reference to the information from the study programme implementers, we conclude that practitioners are attracted to this study programme and they have status of elected lecturers.
- It is recommended to include practical training, allowing students to apply theoretical knowledge in modelling various business situations.

***The Rezekne Higher Education Institution 2<sup>nd</sup> level higher education Professional Bachelor's study programme "Entrepreneurship"***

**Key findings and recommendations:**

- A positive indicator is that the graduates (70%) remain to work in their profession just in Latgale region.
- The survey, carried out among graduates, shows that the acquired diploma helped to find a job for 45.54% of the graduates, while for 54.46% it did not help to find a job. Only 25.74% work in the profession they acquired during the studies (74.26% do not work in their profession). It is recommended to organise a research to find out the causes of such a situation.
- It is recommended to involve more lecturers-practitioners.
- It is recommended to plan improvement of material and technical supply, as 36.27% of the surveyed students indicated that the supply is partly adequate, and one respondent provided an answer – the supply is not adequate at all.
- In order for cooperation of universities and enterprises to become a mutual support of two different "cultures" in order to achieve common objectives, it is recommended to popularize the successful cooperation examples of both parties both in Latvia and in Europe. It is recommended to popularize and use the EU programmes, which are aimed at cooperation in specific areas, such as mobility of researchers or students.
- It would be necessary to expand the existing and potential forms of cooperation with enterprises, such as conferences, internships, individual and multidisciplinary group projects. Business incubators provide a fitted support for university students and teaching staff, which formulate specific ideas for new business projects (start-up, spin-off for enterprises). All these activities should be available to students already when commencing the studies and they should be carefully integrated into the study programme.

***The Riga International School's of Economics and Business Administration Daugavpils branch Professional Bachelor's study programme "Public Relations and Advertising Management"***

**Key findings and recommendations:**

- The particular study programme is currently not being implemented due to the insufficient number of students. In recent years, the potential students were directed to other related study programmes.
- The low number of students in the programme could be linked to the current economic situation and application of "survival" strategy of Latgale region's enterprises in most cases. It is difficult to combine it with the allocation of funding to marketing activities, advertising and purposeful development of corporate image. While there is no access to additional external funding, advertising and public relations activities are partly disregarded.
- It is recommended to carry out a Latgale region entrepreneurs' survey with the aim to find out how Public Relations and Advertising Management can help to develop their business. The survey results would indicate on whether such specialists will be needed in the future, or the study subjects' offer has to be changed.



***The Riga Technical University's Daugavpils branch Professional Bachelor's study programme "Machinery and Device Building"***

**Key findings and recommendations:**

- Students study in the Daugavpils branch during the first two years and the third year is spent and the diploma is obtained in Riga. On average, 5 students move on to the third course studies in Riga. It is difficult to track graduate employment rates, as well as one cannot reason whether the labour relations were started in Latgale region.
- After getting acquainted with the economic structure, it can be concluded that mechanical engineers are necessary for Latgale region. The realized market researches, justifying market demand for the specific specialists in the near future, are to be assessed approvingly.
- Only one obligatory study subject, which integrates with the business ("Economy"), is represented. It is recommended to supplement the number of study subjects teaching the importance of innovation in entrepreneurship.
- Economic development trends of mechanical engineering and metal working fields are perspective and promising both in Latgale region and in Latvia. There are many enterprises operating in these fields, including several "big players" (i.e. JSC "*Daugavpils lokomotīvu remonta rūpnīca*"), but also many small enterprises. In order to successfully use the field potential, cluster-kind of cooperation at regional (and also national) level is needed. It is recommended to include general cluster development and operating principles in the study programme.
- In general, the expected future development trends in the sector indicate that, in the future, the determinant will no longer be just the product (machine or device), but hardware and services additionally integrated into the product – solutions adjusted to customer needs. The enterprises will become increasingly integrated with their clients in order to provide the best overall solutions to their needs. Also palpable are customer demands for shorter order response time (faster delivery), which can be ensured with the help of automated flexible manufacturing systems. It is recommended to include these aspects in the study programme.
- In addition, enterprise competencies, skills of current and future employees have to fully comply with the new quality demands in the sector, including both companies and universities have to reckon with greater investments in research and development. Digital manufacturing will develop, thus increasing the use of ICT and robotics development. It is recommended to more integrate the use of modern technologies (both provision of theoretical knowledge and its practical application, as far as possible) into acquisition of the study programme.
- Considering that mechanical engineering, device manufacturing and metal working is also one of Utena region's economic sectors, it is recommended to develop and implement cross-border cooperation and mobility projects.

***The Transport and Telecommunication Institute's Latgale branch Professional Bachelor's study programme "Transport and Business Logistics"***

**Key findings and recommendations:**

- In the nearest future, the need for logistics experts will not diminish in the Latgale region, therefore topicality of the programme is not in doubt.
- The program has a very high proportion of guest lecturers (92%), which provides full coverage of the practical aspects in the programme, but it may pose a risk not to provide the overall study process quality. It is recommended to reconsider increase of basic lecturers (within limits, by 10-20%).

- In recent years, while planning Latgale region's potential in the transportation and logistics services sector, strategic options of several logistics centers have been updated. For instance, development of small logistics centers in districts located near the Russian border, and in which there are strategic motorways and railways (such centers would serve the Russian enterprises aspiring to be in the EU, while at the same time having close ties with suppliers and customers located in Russia, as well as they would serve the local industry) or development of medium/large logistics centers in high-speed corridors near the TEN-T (significant investment in the TEN-T system will provide the region a relatively close access to high speed motorways and railways with a high permeability via the initial transport networks in regions). It is recommended to lay great emphasis on this type of regional aspects and strategic plans analysis in the study programme, thus encouraging and motivating students to stay in the region and to start their own business.
- It is recommended to put a separate emphasis on the Daugavpils airport project and its impact on wider transportation choices in Latgale region and border territories of neighbouring countries (including Utena), which will accordingly lead to formation of companies of various profiles. It is possible to include practical business development scenario games in the study process, where students creatively visualize the new situation, formation of new transport and logistics enterprises.

***The Daugavpils Medicine College 1st level professional study programme  
"Social Rehabilitation"***

**Key findings and recommendations:**

- By assessing the study programme's "Social Rehabilitation" topicality in the Latgale region and the programme's implementation and effectiveness in the Daugavpils Medical College and by following the increase of employees' competence level, we consider that the programme "Social Rehabilitation" is being implemented in a qualitative manner and that its implementation provides an opportunity for students to acquire sound knowledge and to learn the skills necessary for work in the social sphere.
- Because of the rapid development of social services in our country and the large number of employees at pre-retirement age, qualified experts in social care and rehabilitation sector will be required for work in Latgale region's social institutions during the next few years.
- In order to ensure the successful integration of young experts into the dynamic labour market, cooperation between educators and labour market representatives is essential.
- While assessing students' skills and abilities, employers point to the need to develop the initiative and decision-making in critical situations. Currently, the social rehabilitators are needed in the labour market, so the employers are very satisfied with the fact that the college prepares qualified specialists in this industry. Employers appreciated the overall study process and the students' knowledge, skills and abilities.
- Comparing the university's study programme "Social Rehabilitation" with foreign study programmes in Europe, it shows that the Latvian study programme lays stress on balance between practice, general and field studies as a precondition for a successful career.
- Students have indicated that, in addition, as optional subjects during the studies they would like to acquire English language and Latvian language. This is an important recommendation, because social rehabilitation may become a part of new competitive enterprises' business ideas (also in combination with health tourism, active tourism, cultural tourism, non-formal education services etc.), where the target market would not only be Latvian population, but also foreign tourists.
- It is recommended to increase the use of different teaching methods, use of ICT in the study process, as well as to supplement the programme's content with information and examples of successful application of modern technologies in the very rehabilitation process.



- In order to prevent fragmentation of separate study courses and to increase the overall competitiveness of graduates in the labour market, it is recommended to combine them in larger blocks (modules), additionally integrating aspects of Latgale region, cross-border areas and international character in these blocks.

***The Baltic International Academy's Daugavpils branch 1st level professional study programme "Small and Medium Business Management"***

**Key findings and recommendations:**

- The study programme has been implemented only for 2 years in the Daugavpils branch, which makes it hard to assess how easily young professionals will join the labour market.
- The study subjects are integrated in the tourism business sector.
- Considering the region's natural resource potential, including the intact natural landscape, qualified business experts in the tourism field are necessary in order to skilfully use that potential in Latgale region. The study programme is topical not only at the regional but also at the cross-border level.
- It is recommended to attract lecturers-practitioners, in order to better prepare professionals specifically for the region.

***The P.Stradins Medical College's of the University of Latvia Rezekne branch 1st level professional study programme "Nursing Studies"***

**Key findings and recommendations:**

- As the PSMC is a LU structural unit, henceforth a future cooperation strategy in cooperation with the Faculty of Medicine has to be developed, both by planning joint research projects and conferences and merging more closely the first level professional higher education programme "Nursing Studies " with further bachelor's courses.
- Comparing the LU P.Stradins Medical College study programme "Nursing Studies" with foreign study programmes within the most important part of the programme – general treatment and care – more than 90% compliance with a study programme developed in international EU environment was identified, which ensures competitiveness of the graduates in the EU labour market. In the compared study programmes, the fundamental science study courses emerge almost uniformly. But there are differences in special treatment and care courses, which are based on each state's law and market economy development trends. By accomplishing the study programme with acquisition of study learning modules in one of the primary specialties, college graduates include themselves in a unified education system in Europe.
- The college has a long-term cooperation experience with various medical education institutions in the EU (Denmark, Estonia, Sweden, Spain, Bulgaria etc.). It allows to analyze different approaches to nursing specialization, which, on the basis of legislation, is slightly differentiated in each country, which, in turn, affects the study process organization and duration of the studies.
- While, in perspective, anticipating E-health (health sector effectiveness program, using tools of information and communication technology) development in Latvia and the whole EU, it is recommended to include e-document circulation and similar issues in the programme's content. In the European Union, E-health is put forward as one of the main instruments for health care quality, access and safety promotion. Implementation of E-health programme will improve the efficiency of medical personnel's work, reduce patient non-attendance cases, reduce waiting time for out-patient care, optimize laboratory tests, and reduce lost radiology test results. Nurses have an important role in the programme

implementation process and E-health is crucial to the improvement of cross-country health care, as it offers fast delivery of patient information from one public health institution to another country's public health institution.

- Considering the national health care reforms of Latvia, including the shutdown of "small hospitals", the issue of connections (roads, transport links) to "large hospitals" is topical. There is a clear lack of medical care and medical rehabilitation services in small towns and rural areas, including insufficient home care. It is recommended to supplement the programme's content with topics related to the increase of nurses' mobility and mobile service provision development, which could be one of the so-called social business types. It also means development of a greater proportion of business courses in the programme.

***The Jekabpils Agribusiness College 1st level professional study programme  
"Accounting and Finance"***

**Key findings and recommendations:**

- The particular study programme is in demand in the job market. Graduates and entrepreneurs surveys indicate to the competitiveness of the programme.
- Study subjects, providing the necessary integration with business in compliance with the profession's standard, have been included.
- While analysing the data, it can be concluded that cooperation with representatives of various organizations has formed and it strengthens the link between students and employers and provides the actual market situation.
- Reduction in the number of graduates is related to a lower demand for part-time studies. This is related to demographic processes in the region – young people look for work in Riga or leave the country. Representatives of various organizations have already obtained the 1<sup>st</sup> level higher professional education in the JAC. As there are no new work places being created in the city and region, the employees can continue with further studying in the study programmes developed by other higher education institutions.
- Recommendation to start to implement the 2<sup>nd</sup> level higher professional study programmes.
- It is recommended to additionally include the training of various accounting software, the latest information on accounting solutions, as well as business innovations in the accounting outsourcing field, which has proven to be in demand by the employers and the young experts themselves.
- To facilitate the experience and information exchange between accountants (as, in practice, there is often a need to call someone and assure oneself about particular issues), it is recommended to organize non-formal informative educational collaborative events with the already experienced accountants.

***The Jekabpils Agribusiness College 1st level professional study programme  
"Business (Entrepreneurship)"***

**Key findings and recommendations:**

- The study programme is designed so that the new expert would learn all the necessary basic skills and knowledge needed for starting own business independently. The study subjects, included in the study programme, give an idea of the Latvian business environment.
- Qualification practice gives an idea of functioning of an enterprise and the connection of theory and practice.

- The study programme includes two practical trainings, where students can already modulate a variety of problem situations and prepare better for the qualification practice and work in an enterprise.
- Entrepreneurs (qualification practice mentors) surveys indicate a quite good level of students' knowledge, resulting in offers for graduates to stay in the enterprise for permanent work.
- In order to facilitate development of manufacturing field in Latgale, it is recommended to supplement the study programme's content with study objects related to manufacturing aspects, such as product idea development for manufacturing, provision of the new technologies for manufacturing engineers (virtual reality, rapid prototyping), manufacturing process, provision of product design and manufacturing sustainability.
- Considering that the economic structure of Latgale region is mainly represented by small and micro enterprises, it is recommended to consider a possibility of cooperation between entrepreneurs, small and micro enterprises, a possibility of development of cooperation networks, as well as a possibility for wider review of cooperation with outsourcing providers, which is especially important to the economic structure of Latgale region.

***The Jekabpils Agribusiness College 1st level professional study programme  
"Housing Management and Administration"***

**Key findings and recommendations:**

- As the labour market demand for housing manager profession exceeds the supply, necessity of this study programme is undoubted neither at regional nor national level.
- The competitiveness of the study programme is strengthened by the fact that the programme was developed in close cooperation with entrepreneurs and employers. During development process of the study programme and since the beginning of programme's implementation, bilateral cooperation with employers takes place, resulting in modelling the study programme according to the housing manager companies' requirements and recommendations. This cooperation continues during the programme implementation process, taking into account the employers' opinion. When analyzing work places where the study programme students work, it has to be concluded that quite a large proportion of part-time students are already working in housing management companies.
- Proportion of guest lecturers is 38%, which is also a positive sign, because there is cooperation with practitioners.
- It is recommended to link the programme's content and study process to the construction industry, its development trends, innovations of building materials and construction processes, as much as possible, because the house manager's functions and responsibilities is essentially the final phase of construction process (Construction idea – Sketch project – Technical project – (Energy audit) – Construction – Exploitation (incl. the housing administration and management)); likewise, for any building renovation projects. If a specialist is not aware of the WHOLE process, he is unable to perform his professional duties at the maximum quality.

***The Utena University of Applied Sciences 1st level professional study programme  
"Physical Therapy"***

**Key findings and recommendations:**

- Demographical changes, increase in the number of vehicles and population's immobility and morbidity structure annually determines the increasing demand for medical rehabilitation services in Lithuania. The demand for medical rehabilitation services

determines the need for physical therapy specialists; therefore this study programme's topicality is undoubted.

- Not only inclusion of general education subjects, fundamental science and professional qualification subjects is to be assessed positively, but also inclusion of personality development subjects (i.e. ability to work in a team) in the study program. Development of ICT and language skills is assessed as an essential strength of the programme, which offers graduates much greater employment opportunities in the region and outside it, as well as opportunities for cooperation with foreign enterprises in Lithuania.
- Since the improvement of the overall economic situation is not expected so soon (incl. there will not appear enough new jobs for young professionals in the existing industry enterprises and institutions because of financial considerations), it is recommended to change or supplement the study programme focus with additional courses related to the promotion of entrepreneurship, self-employment development, as well as innovation elements creating a link between physical therapy and other sectors, such as health tourism, recreation services, health promotion education services. Thus, graduates will have new opportunities for their business development in the private sector.
- In order to encourage the graduates to stay in the Utena region (instead of going to the cities or abroad), it is recommended to additionally include studies content of regional character in the programme's content. For instance, a greater involvement of region's entrepreneurs and institutions (potential employers) is recommended while developing the list of optional research subjects (research topics), available to students, and involvement in proposal submission.
- Although, students and teachers already participate in mobility programmes and projects, it is recommended to do it more actively, also by integrating it into the study process as a compulsory component, as far as possible. That means that qualitative language learning courses have to be provided.

### ***The Utena University of Applied Sciences 1st level professional study programme "Nursing Studies"***

#### **Key findings and recommendations:**

- Overall, the programme complies with the region's specific characteristics and meets the requirements of employers.
- In the study programme's self-assessment reports, a number of expected options of studies quality improvement are mentioned, incl. purposeful teacher training (masters, doctor's degree), participation in international programmes and projects, development of an international faculty and application of student exchange programme. It is also planned to systemize and improve cooperation with employers in different directions. Health care and rehabilitation department would regularly keep in touch with various health care institutions, whose activities are related to health care at various levels (Utena County Hospital, Utena Primary Health Care Center, Vilnius University Hospital, Special Boarding-school of Utena, palliative care institutions etc.). This will enable the preparation and implementation of joint projects, students practice according to the profession, submission of proposals regarding study programme analysis, participation of nurses in quality job commissions, carrying out volunteer work, thus significantly improving the programme's attractiveness from students' perspective as well as the compliance of the trained experts.
- Relations with employers are based on apprenticeship in their organizations. The results of surveys show that employers usually respond approvingly to the college trained care specialists, particularly putting emphasis on the good and satisfactory practical skills and communicability.
- In the Utena region (as in the Latgale region), insufficiency of medical care and medical rehabilitation services, including insufficient home care, in rural areas is observed.

Therefore, it is recommended to supplement the programme's contents with topics related to increase of nurses' mobility and mobile service provision within their competence. The college in collaboration with social partners could implement pilot projects in provision of mobile response teams' services, which could be one of the so-called social entrepreneurship examples.

***The Utena University of Applied Sciences 1st level professional study programme "Law"***

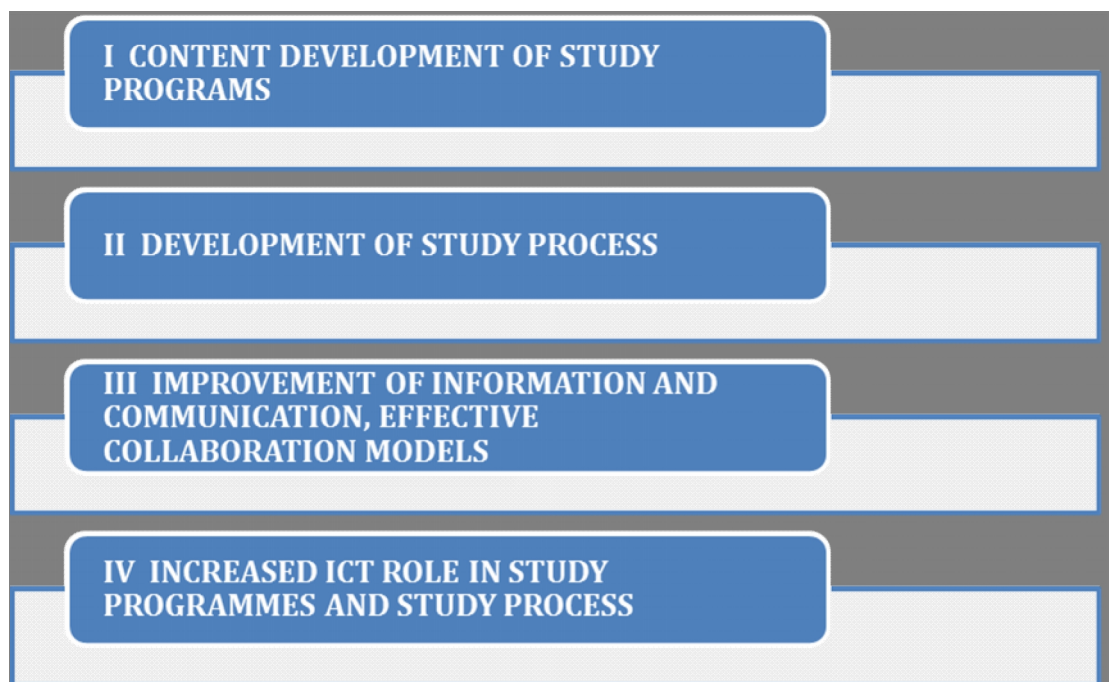
**Key findings and recommendations:**

- Comparing the content quality and level, the study programme "Law" in the Utena University of Applied Sciences (UUAS) is equivalent to the jurisprudence study programmes in the Mykolas Romeris University and the Vilnius University. In the third academic year, the UUAS graduates are admitted to study law at the Law Faculty of Vilnius University and the Law study programme at the Mykolas Romeris University.
- The study programme course analysis indicates that the study content creates preconditions to achieve all the expected results set out in lawyer training standard. Expected results are related to a person's ability to operate in the areas described in the standard.
- The college provides favourable conditions for academic staff to update their qualification. Teachers have opportunities to participate in various further education courses, seminars, conferences, projects and events organized in collaboration with various associations. Favourable conditions for scientific activities are created. Professional qualification of teachers is high.
- The college library offers information services, provides access to information resources and helps to carry out researches. The library stock is constantly updated and supplemented with the latest publications and various periodicals are subscribed. Since 2005, the program Aleph-500 has been integrated in the library.
- In order to increase integration of the profession into the modern business environment, it is recommended to increase the amount of entrepreneurial economic and juridical topics, incl. acquisition of topical issues in the current situation about public-private partnership contracts, their execution process, and about the social business types and their legal aspects.

## FINDINGS AND RECOMMENDATIONS

This section provides the authors' recommendations for the increase of collaboration between business and science sectors. The proposals are based on the results of previous studies, statistical data analysis, the entrepreneurs and researchers' opinions received within the survey carried out in frames of this study, as well as the results of 20 study programs' analysis.

The recommendations for better cooperation between the business and science sectors in Latgale (LV) and Utena (LT) regional context are structured in **4 thematic blocks**:



### I CONTENT DEVELOPMENT OF STUDY PROGRAMS

As a result of the study programs' evaluation, the lead authors of the study believe that to achieve the study programs' better compliance with the region's economic development needs, a change of study programs' common focus is necessary as described below (incl. the preparation of the graduates primarily for becoming employers, entrepreneurs (self-employed persons) rather than workers/employees).

When analyzing the economic structure of the Latgale region, we see that a very large proportion of economically active population in Latgale are self-employed persons, sole traders or micro-businesses, including small farms, which are flexible and trying to "survive" under unstable economy.

Also in Utena region, most companies are small or micro companies (including farms and self-employed individuals) that operate not in one narrow specialization, but rather in several (sometimes disconnected) sectors, seeking for the best solutions for business development.

To promote and Utena and Latgale regions' economic activity, the study programs' content should focus not only on the needs by relatively large businesses for STAFF, but it is equally important - both in academic and professional programs - to encourage the evolving



of new EMPLOYERS (ENTREPRENEURS), including individual entrepreneurs, self-employed persons, who are not looking for a job elsewhere or expect to be hired by anyone, but are able to successfully employ themselves. Study programs must not only prepare employees for companies, but prepare business-oriented professionals who offer their individual competitive products and services.

This means that each program should be **multidisciplinary**, and besides the courses developing qualifications directly needed for specialty, it must include the **business idea generation, business development and business co-operation issues**.

***Recommendation:***

*Promote a multidisciplinary content of study programs with compulsory course elements of entrepreneurship education integrated in ANY study program.*

Education and training are identified as significant factors for achieving the overall objectives of the Lisbon strategy. To ensure that Latgale and Utena community exists and competes in the global economy, citizens' entrepreneurial spirit should be strengthened. To achieve this goal, the education system requires modernization and universities and businesses should be recognized as an important driver of this process.

In order to prepare students potentially more ready to start their own businesses after graduation, during study years they need to comprehend the basic principles forming the competitiveness of companies and the factors affecting competitiveness. To better improve the study contents according to the new focus, it is advisable to take into account the determinants of competitiveness - markets, customers, communication networks, company development plans, product and service strategies, human and physical capital (its availability and efficiency), external environmental conditions, etc.

Undoubtedly, it is difficult for each individual small business to compete in market conditions. One possibility to increase the joint competitiveness is that self-employed individuals (craftsmen, workers-from-home, farmers, small farms, micro-enterprises from different sectors etc.) form **co-operation networks**. As a result of good co-ordination of such networks, it can lead to multiple products and successfully develop the economic sector in the region.

*I am convinced that there must be small farmers support program to be launched after 2014. In my opinion, it should include support for co-operation, education and niche products. Part of the small farms perhaps should think of non-agricultural business activities.*

*Minister of Agriculture Laimdota Straujuma, 2012*

The craft area can serve as an example where the craftsmen interaction from different branches plays a huge role in sector development, thus solving several problems, e.g.:

- joint purchase of raw material, which makes it possible to save money and increases utilization rates, for example, when separating materials according to their size and quality;
- ensuring timely supply of raw material;
- delivery of crafts items to the markets without the mediation of commercial agents;
- merger (union) of craftsmen from different sectors for delivery of certain tasks;
- opportunity to receive loans on more favorable terms, as giving loan to a craftsmen group or association will reduce lending risk.



It is essential that universities in the study content focus on issues that help students to become aware of the importance of cooperation at regional level. Students should not only learn the specialty itself, but also acquire the **social and business skills** that will enable their collaboration with industry partners to better sell their knowledge, skills and products.

***Recommendation:***

*In the content of programs, to underline the huge importance of the economically active market sector units' cooperation, collaboration and cluster-type activities for the region's competitiveness*

The region-specific business structure calls for a "matchmakers", "collaborators", "coordinators", "brokers" who know the situation in the regional, help to build effective partnerships, are able to find the necessary support tools, and look for new markets (including export). This process has already been started in Latvia through the creation of regional clusters (e.g. food cluster in Vidzeme, metal cluster in Latgale etc.); specialists with management skills are also being prepared in the region, but the programs need to highlight specific regional features more.

Thus, the academic sector can make its contribution to the development of local products' sales chains. Higher and professional (vocational) educational institutions would prepare specialists for the development and implementation of the **region's marketing program**.

In addition, study programs must sufficiently promote students' **creative thinking** to help them be able to see their specialty in a broader context, be able to hybridize it with other sectors and the search for innovative products and services.

Creative business, creative industries, innovative products with high added value are also among the main priorities for the next EU funds programming period 2014-2020. Universities must be ready to make use of the available external financing, positioning them as an **integral part** of the **regional innovation support system**.

***Recommendation:***

*In any study program, to include courses which contribute to the development of students' creative thinking, awareness and understanding of the role of innovation.*

Due to the adverse economic situation in the country, a process of emigration is obvious in recent years in the study area - people are leaving for other regions, going abroad in search of more and / or better paid job opportunities. The majority successfully settles in new homes and do not return to the region any more.

Given the instability of the economic situation and the changing requirements of the business environment it is necessary to strengthen the **aspects of regional and local patriotism** in the curricula (incl. both the theoretical part and practical hours) to encourage young professionals to stay in the region,

To increase the quality of life and job opportunities for the population of any age living and working in the region, it is recommended to expand the availability of lifelong learning programs, incl. not binding them with the previous academic achievements or special qualification requirements. Lifelong learning should be based on workers' practical needs at the workplace. All training must be aimed at results necessary at the work place. Achieving the qualification should not be the main goal of lifelong learning.

**Recommendation:**

*Add regional and local patriotism aspects into the curricula thus potentially increasing the number of specialists staying in the region*

**II DEVELOPMENT OF STUDY PROCESS**

In graduates' surveys on their satisfaction with the quality of the studies, as well as employers' surveys of graduates' compliance with the requirements of employers, the majority of both surveyed groups emphasizes that the learning process requires a **higher proportion of hours of practice**, including visits and “sensing” of real working environment of companies, authorities and institutions.

Employers mention that new employees, entering a new company, need to undergo an adaptation period of 5-6 months. This period could be reduced if an entrepreneur, who has made a decision to employ the new specialist, would be able to train the potential employee for own company already during qualification practice period. Consequently, that might be a win-win situation where the entrepreneur gains a qualified employee who has already gone the adaptation period in the company, but the student performs the qualifications practice and at the same time gets prepared for the employment. This means that the last semester of studies should all be spent in the new workplace, when the new specialist could show his/her self-activity, entrepreneurship, job skills, responsibility, and the practical desire to fulfill the obligations.

**Recommendation:**

*In most of the study programs, significantly increase the proportion of hours of practice, and to plan the period of practice placement at least 4-6 months long in the final stage of studies*

Most of the social partners, in assessing the quality and practical applicability of students' research work, admit that the **quality of students' research work** in many cases is not sufficient. In order to improve the compliance of students' research work with business needs, with business support in the region, a summary of proposed solutions is done and the roles of the key players identified (including the accordance to the needs of businesses and local authorities).

**Recommendation:**

*The role of university:*

- *Stricter requirements, the methodological framework for the links between research topics and local real problems, especially in obtaining a county-level data (lack of which is an urgent problem of all municipalities);*
- *The requirement for students to obtain an opinion /evaluation from the institution or company being the focus of the study conducted (then the authorities would actually read the research papers and take over the practical solutions for use);*
- *A list of research topics (as well as data base of previously conducted studies) freely available on university's website, incl. structured by the areas of interest to the public, including local governments and businesses;*
- *Scientific supervisors, teachers' greater emphasis put on the practical application, the topicality on the research topic, not so much on the students' theoretical*

*knowledge, ability to argue, to work with information, synthesize, analyze, conclude etc.;*

- *Beside the scientific advisor on the university's side, a requirement for a research supervisor on the side of local government or a concrete enterprise;*
- *The requirement to use the "expert method" - to interview experts at different levels of a particular area, gather expert judgments and opinions, harmonize the draft of research paper with the involved stakeholders, ensure the feedback, not only describe problems and opportunities, but also recommend a concrete action plan*

It is important to realize that higher educational institutions will not be able to improve the quality of research work on their own practice, unless other involved parties provide their support.

### **Students' role**

- Decisiveness on the area for research (a personal interest, desire and motivation) - purposefully selected research topic might build more confidence from the side of businesses or local government;
- Regular interest in the research area (media, other studies in the area, living examples, own experience) that encourages awareness of the basic issues and events;
- Personal initiative for direct and close communication with local government and / or enterprise involved, desire to see the opportunities, to hear the needs and readiness to act;
- Before visiting the local government or company selected for praxis and elaboration of the research paper students need to: create an attractive and compelling image the research theme, i.e. that the respective research subject is topical and actually useful for the municipality or the company. It is connected to the preliminary research of the selected local government and / or the company, clarification of the real needs, and mutual communication;
- Scrupulosity, commitment (do the study individually and do not write off from existing studies), including research undertaken is potentially a part of "own business plan."

### **Local government's role**

- Provision of information and data for students' needs, collection of the information on current research topics interesting for businesses, incl. organization of annual informational seminars, during which the local government and entrepreneurs present topical research themes;
- A detailed description the research topics interesting for a local municipality and local businesses, its publication on municipality's website and sending to universities (for the students to select the research work topics);
- Establishment of separate sections "Science" or "Research" on a municipal website, where the local government uploads its actual needs, specific terms of reference, studies done earlier, thus creating a link between research work and its subsequent follow-up;
- Inclusion of a research component (a section describing the research needed for the municipality) into the local development program documents;
- Planning the personnel (at least part-time) in the municipality for communication with students and universities;
- Support for platforms for informal exchange of views on the announced research topic (meetings, blogs, discussion forums, which help to raise the question, discuss and monitor public opinion);
- Invite the students studying the local problems for a common research work presentations in the municipality – thus publicly getting acquainted with the research

papers (regardless of universities and programs), as well as helping students to acquire potential mutually interesting interactive aspects;

- Annual research contests with prizes (possibly including cash prizes), launching beforehand a number of topics suggested for the research;
- Activation of research activities already in high school / secondary school, when the local authority could present their work to pupils and to identify current issues, which would require additional information and studies;
- Signing cooperation agreements with universities and research institutes, where the local government updates its range of interests annually;
- Local government as an information exchange center, where students communicate information about what they study, what kind of research work are performing and that would be willing to do after graduation. The local government gives this information to its local businesses, which – if interested - may get in touch with young professionals.

### Entrepreneurs' role

- To be active and present research topics of interest to the local authority (e.g. development planners) and / or university;
- Be ready to provide practice placements for students let them actually work in their specialty (not just do technical work, like copying, etc.). If a student is really interested and motivated, be ready to spend quite a considerable amount of time, counting for a real benefit to the company;
- Be aware that companies have an important role in the “upbringing” of the future employees.

Students themselves have admitted that the most effective acquisition of knowledge and skills takes place during practical individual or group work, as a result of joint activity, joint implementation of projects. In order to maximize the integration of the business aspects into the practical part of studies, one of the options is **creation of training firms**, and not only in frames of commerce courses.

There are many best practice examples both in Latvia and in Lithuania, where such training firms can lead to successful service providers or product manufacturers. For example, LLU non-governmental organization "Technical Faculty Student Government", joining together students and teachers' efforts, opened the service "Mehu Serviss" in the middle of 2012, which will work in a niche vacant in Jelgava so far – repair of cars with the weight up to 4 tons. Initially, "Mehu serviss" will provide "full service" for cars to be prepared for technical inspection, will offer the repairs of car suspension and engine, tire change and wheel alignment, but in the future the range of services will be expanded which could include also a car wash.

The main objective of the „Mehu serviss” is to direct students into a serious work, to unite them in close collaboration with faculty teachers, as well as to create opportunities for additional income beside the practice.

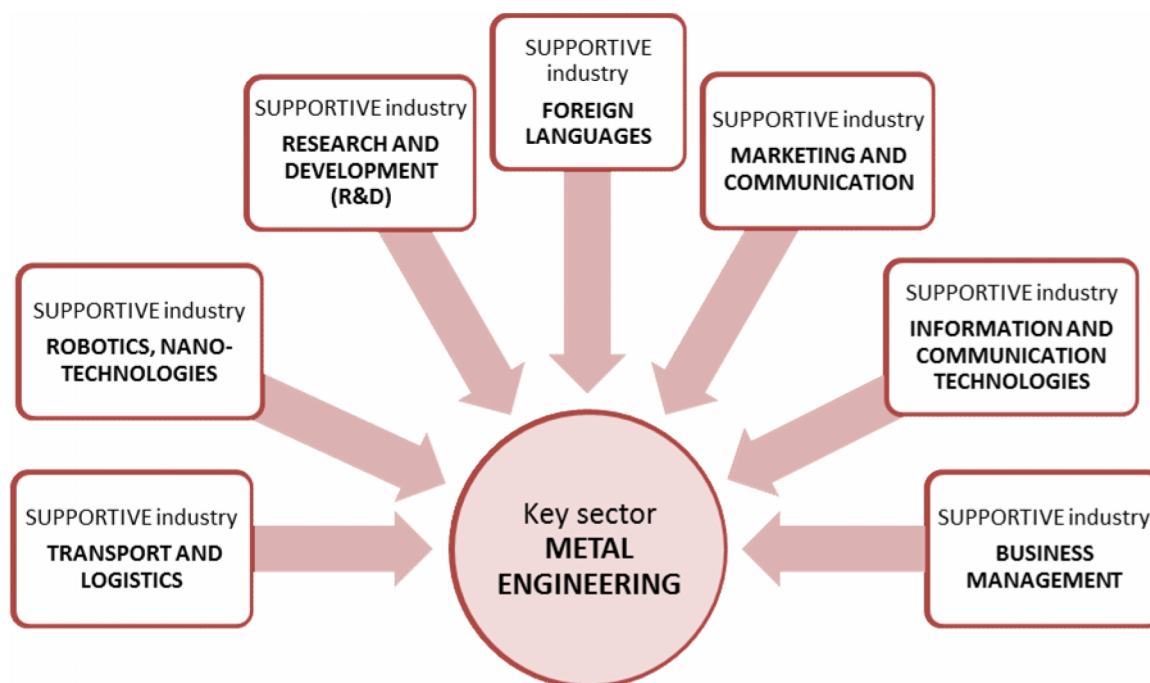
### **Recommendation:**

*Try to organize the student praxis in a form of training firms as much as possible, including coordinated plan for simultaneous conduct of practices in different study programs, which are thematically connected and are essentially complementary*

**Students from different faculties** of one university, **or from different universities** and study programs could join together in one training firm during the praxis based on the specifics of the industry and the respective training firm. As shown in the example of a training firm in Figure 58 in metal engineering industry, which is one of the Latgale region's

key economic sectors, the company needs specialists from at least 7 supportive fields. In one training firm in metal engineering industry, there should be students from different universities and faculties working together (and with the professional support of university staff).

Figure 58



*An example of sectoral linkages in a potential training company in metal engineering  
(Author: M.Rudzite-Grike, based on the research results)*

Such an integration of different study fields (and business fields) is determined by the foreseen economic development trends (especially in production areas), e.g.:

- In the future, the key importance will no longer be given to a product (an instrument or device), but to an integrated hardware and services - solutions tailored to customer needs
- A new energy-efficiency (such as new power and energy sources) and eco-friendliness (e.g. manufacturing technology) requirements will emerge, which often means higher raw material prices, demand for environmentally friendly production processes (e.g. in connection to waste management, recyclable products), eco-friendly packaging, the maximum efficiency of logistics and transport networks;
- Development of customer service as an integral part of the product / end product, including transition from the status of "supplier" to the status of "partner";
- Creation of an international, multi-local production sites will emerge and a flexible, customer-tailored production will be developed;
- Development of digital production, increasing use of ICT, the development of robotics;
- To be able to compete in the global market, a cluster formation, global networking, and partnership projects are needed.

This means that the development of very extensive business expertise is required in order to effectively manage all processes - financial, manufacturing technologies, partners and networks, legal, administrative, logistics, procurement, R & D, etc. - and to increase the

efficiency of all these processes, including promotion of personnel's (management, sales, planning, production, project staff) quality and work organization.

As one of the first phases for the introduction of training firms, which may be the first step made by universities in this direction, is a **business idea competitions** in universities.

***Recommendation:***

*Organization of business idea competitions, business plan or a new product prototype competitions with joint participation by a company, a university (college), and students, and joint developing of new innovative products or services.*

It is clear that the organization of such training firms requires a huge amount of work and motivation on both sides - students and the university staff. However, as business and scientific cooperation is and in the coming years will still be one of the European Union's joint economic development priorities, it will be possible to attract external funding for such activities. Please see some of the sources for external funding below.

External funding can be attracted also for another opportunity of the improvement of the studying process and, consequently, the overall educational quality, i.e. **international cooperation**. All the universities analyzed during this study, have a number of cooperation agreements with other institutions providing for the **student exchange** in the Erasmus program, **exchange of teachers** and **mutual networking and integration of universities** on international level, which is an essential precondition for ensuring professional competencies and skills, as well as the effective competitiveness.

***Recommendation:***

*Expand and continue to offer students study and practice opportunities at cooperation partners' universities and companies abroad, as far as possible to ensure the representation of foreign guest lecturers in all study programs*

**Guest lectures** are not only a factor contributing to international cooperation. It is a great opportunity for students to gain new knowledge and information about the current issues and developments of their industry sector and business field in foreign countries as well as get acquainted with the foreign country-specific cultural and business differences. In addition, the effect of psychological phenomenon should be mentioned when students listen to the guest lecturers with a greater interest than to a local teacher.

Students and teacher's **participation in international projects** (Erasmus, Grundtvig, Leonardo da Vinci and other programs) may significantly improve the effectiveness of the study process and make learning outcomes more correspondent to labor market requirements. This gives students wide opportunities to further careers, as well as allows for targeted labor market research, joint development of new systems or upgrade of existing systems. As a very successful example, an EU project "Development and Implementation of the System for Tailored Applied Research - TARSI" at Utena University of Applied Sciences (LT) can be mentioned with the aim to develop an individually and highly **customizable system for applied research** to strengthen the cooperation between the university and the business sector in applied research and innovation.

TARSI system helps to strengthen links with the social partners - businesses, mainly to improve the practical part of the study process. The system allows you to restore and enrich the contents of learning process by the latest research data relating to the region, at

the same time increasing research competences for students and teachers, as well as company representatives.

According to specific business needs, specific issues are studied and case studies, comparative analysis of finance development and human resource development are being performed. The studies include a detailed analysis of the problem and a recommendation package. In order to achieve the best possible result, the team of students and teachers is formed for each research project separately.

*TARSI system is not only a part of study process, but also an innovative form of cooperation. Many social partners took part in its development and it is fully integrated into Utena College's study process, particularly in the development of final thesis. The system is active, it gives enterprises the ability to order applied research easier, to apply the latest research methods and techniques together with the academic sector, enhances communication during the ordering and implementation of research, students' involvement in the research process, and the integration of theory and practice.*

*Principal of Utena University of Applied Science,  
Assoc.Prof.Dr. Gintautas Buzinskas*

### III IMPROVEMENT OF INFORMATION AND COMMUNICATION, EFFECTIVE COLLABORATION MODELS

In order to implement a successful business strategy and, wherewith, increase competitiveness, besides enterprise's internal resources, very important is to what extent the enterprise is able to attract various resources from outside. Often, these resources can be obtained free of charge or with relatively small financial or time investment. Several examples of such competitiveness increasing resources the following can be mentioned: information that companies can get from suppliers, customers and competitors, cooperation with organizations promoting business, such as creation of new contacts or production sale markets, collaboration with universities and research institutes to develop new, innovative products and services etc. But often enterprises do not use these resources actively enough, thus missing opportunities for their own development. / *Nordea vitameter "Competitiveness of Latvian enterprises, June, 2011" /*

During the dialogue between universities and higher education institutions the focus has to be on targeted cooperation and action. Evaluating the entrepreneurs' opinions about the efficiency of communication with higher education institution and the overall information exchange and management of cooperation opportunities, it is concluded that communication and information exchange has almost never been sufficient. Enterprises are not familiar with possibilities and offers of the research centers, higher education institutions and centers, in turn, are not familiar with the factual entrepreneurs' needs. Recognizing that such situation has lasted for years, a need for **support of a coordinating "intermediate organization"** is clearly seen in order to improve the communication process.

Enterprises of various fields have access to a number of professional and continuing (further) education courses both in Latvian and Lithuania (in addition, they often take place within the framework of projects, which means that a large part of courses is paid by the EU or other foreign aid funds). However, enterprises in the regions are often unaware of availability of such training. Even if the information reaches them, it is presented in difficult language – enterprises do not fully understand the real benefit of the training or other



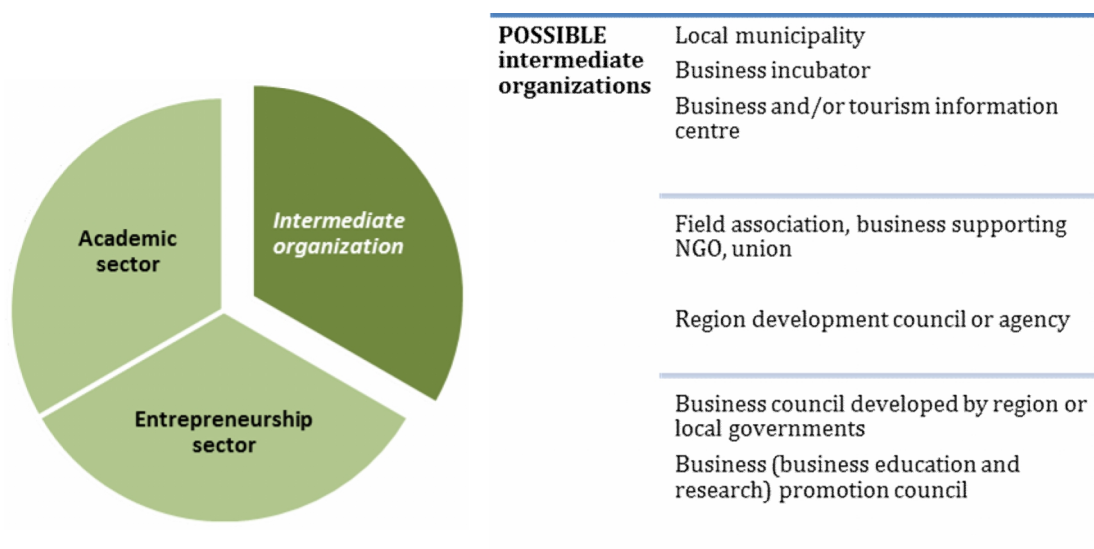
support measures. The same applies to the language of EU funds and project open calls documentation, which is not understandable to an entrepreneur.

To eliminate these shortages and to promote use of the available options (often free of charge or at a reduced cost), the region's enterprises need a coordinating support (intermediate organization), incl. dissemination and clarification of information, arrangements of common travels to the training or clustering and involvement of teachers in the region.

**Recommendation:**

*While evaluating previous experience of cooperation between the university and "intermediate organizations", choose one "intermediate organization" (with a reliable image from entrepreneurs' perspective) for purposeful cooperation and regularly provide it information important and useful to entrepreneurs.*

Figure 59



*Universities and entrepreneurs cooperation improvement model*

*(Author: M.Rudzite-Grike, based on the research results)*

Every university may have a different intermediate organization, but its task is the same – to build stronger links with educational institutions, enterprises and public institutions, as well as with the leading scientists and experts of the main manufacturing sectors.

*Functions of the intermediate organization:*

- Provision of information circulation
- Performing practical tasks
- Organization of research support
- Organization of knowledge and technologies transfer

*Examples of intermediate organization practical tasks:*

- Development of project open call application for business associations in the Latgale region, Utena region and border area
- Organization of common transport for enterprise representatives' (or just documentation's etc.) transportation to Riga or Vilnius

**Recommendation:**

*To create a "live" communication network in the university in order to provide the enterprises with the current information on opportunities and offers of business laboratories, universities, research institutes, technology transfer centers, research centers, which could potentially be used as a resource for implementation of innovative, competitive products and services.*

A big part of today's students are very talented, creative and able to create products and services necessary and marketable in the market, while still studying. But often business environment does not get to know about these potential market products and services, because a sufficient **marketing of students' work** is not done.

One of the solutions is regular students' work exhibitions and presentations. A good practice example is the recently opened young designers' diploma work exhibition "Radars 2012" (the title indicates at student work's further perspective, trajectory of creative ideas) organized by the Art Academy of Latvia. Artists offer to get acquainted with various design inventions, such as a musical board game "Stīdzis" and a bucket for aquarium water change (which facilitates pouring water into aquarium), as well as a self-heating can for Vienna sausages with three packaging options. A number of the young design students have already established cooperation with employers (incl. outside Latvia, for example, in Germany). Also solutions to social problems and design-related solutions for city's image improvement are provided.

**Recommendation:**

*To organize regular exhibitions of students' work, presentations of research results, as well as carry out targeted marketing of study programmes, by participation of students or teachers in national and regional exhibitions or competitions.*

Considering that 54.6% of the respondents (entrepreneurs) have pointed out that they use new technologies, i.e. the Internet, in their work. 67.7% of respondents use or largely use the Internet to get information and advice. Many respondents mention the awareness and availability and exchange of information as an important prerequisite for promotion of universities and entrepreneurs cooperation. One must not underestimate the importance of social networks in today's society.

Thought-out and **purposeful use of social networks** can be an effective information and communication tool with enterprises and other social partners. For example, the Latvian Student portal "StudentNet" ([www.Studentnet.lv](http://www.Studentnet.lv)) regularly collects and disseminates useful information for students. It also has a profile in the social network "Draugiem.Lv" ([www.draugiem.lv/studentnet](http://www.draugiem.lv/studentnet)), as well as a "Twitter" account ([www.twitter.com/StudNetLv](http://www.twitter.com/StudNetLv)).

**Recommendation:**

*To provide university's representation in all influential social networks, incl. by realizing marketing of students' work, study programmes and staff qualification.*

**IV INCREASED ICT ROLE IN STUDY PROGRAMMES AND STUDY PROCESS**

In assessing the strengths of the personally known graduates, a large proportion of respondents (entrepreneurs) have mentioned ICT skills of new employees as an important advantage. E-skills are not only essential for personal growth and jobs, it allows significant improving company's competitiveness and productivity, helps to protect a company in a

digital age, to use public e-services, and small businesses can even make use of free accounting opportunities.

In response to rapid changes in various economic sectors, the ICT role in saving resources, and changes in increase of work efficiency, is recommended to pay more attention to higher and professional educational institutions' closer cooperation with the ICT industry professionals and associations in order to complement any study program by modern technology-based training materials, making them also available on the Internet. It is important that graduates have enough knowledge and information about ICT opportunities in their industry sector, as well as practical ICT skills.

In order to meet the businessmen's need for current information, higher educational institutions should ensure that educational institutions host an active **current information platform** that provides the information necessary for the work of "Intermediate organization", as well as serve the region's attractiveness and attraction of foreign investors.

An "ICT-based competitive business environment" is one of the priorities in the newly developed Information and Communication Technology Sector Charter of Priorities, elaborated by LIKTA (signed on 13.06.2012.). Orderly and efficient ICTs form such an infrastructure where businesses are released from a waste of resources, thus enhancing their productivity, competitiveness, export growth and contribution to the state budget. This will to a great extent be boosted not only by the appropriate education, knowledge and skills of ICT industry professionals, but the level of **ICT skills of any study program graduate**, incl. knowledge and application of specific software in tourism, medicine, agriculture, machine building, metalworking, etc. The use of ICT in enterprises of various sectors in addition will promote companies' export capacity and overall competitiveness.

An increased integration of ICT aspect in the study process will facilitate the creation of innovative and ICT-driven new companies (start-ups). This will be supported by other measures introduced in the countries, such as a currently implemented project "Training of Information Technologies for Small and Micro Enterprises to Promote Their Competitiveness and Productivity."

#### **Recommendation:**

*In any study program, to integrate mandatory course for ICT knowledge and practical skills' development, including the latest information on the available software and other ICT solutions in the respective industry sector.*

The analysis of study programs and study process showed that one of the reasons why the students of Utena University of Applied Science (LT) interrupt their studies is the lack of financial resources - many deal with this by going abroad. Other students are unable to combine work and studies because of a tight schedule. A similar situation was observed in Latvia, too. If students are motivated to study and do not want to lose their job, it is recommended to provide students with **distance learning opportunities**.

#### **Recommendation:**

*To increase the attractiveness of the study process, it is recommended to consider the possibility of offering students partial or full courses in a distance learning format.*

As mentioned above, it is possible to attract external financing for the implementation of many recommended proposals. Some of the available sources of potential business and science cooperation projects and activities in Latvia and Lithuania are as follows:

- The European Commission's Mobility programs

- Leonardo da Vinci
  - Erasmus
  - Comenius
  - Grundtvig
  - Study visits
  - Youth for Europe
  - Youth for Understanding
  - European Voluntary Service
  - EU program “Youth”
- Nordic and Baltic Mobility Program "Business and Industry"
- Nordic and Baltic Mobility Program "Culture" (for development of long-term and short-term networking)
- Nordic and Baltic NGO program
- NGO program for the Baltic Sea Region
- State Culture Capital Foundation (Latvia)  
EU programs "7th Framework Program", "Eureka", "Intelligent Energy for Europe", "Eco-innovation", "Culture," "Progress," "Media", "Marco Polo"
- EU program "Europe for Citizens" - Measure „Town twinning citizens' meetings” and Measure „Thematic Networks of twinned towns"
- Latvian - Lithuanian cross-border cooperation program in frames of the European Neighborhood and Partnership Instrument
- Latvian - Lithuanian - Belarusian cross-border cooperation program in frames of the European Neighborhood and Partnership Instrument
- The Baltic Sea Region Program
- Specific grant programs, such as ABLV Charitable Foundation Grants Program "Contemporary Art Exhibitions", mobility program of Robert Cimet’s Fund in the field of culture, etc.
- Foreign embassies’ support

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