

POTENTIAL ROLE AND MISSIONS OF SLOVAK HE WITHIN REGIONAL DEVELOPMENT AGENDA

- lessons learnt from the project “Higher Education as a
Driver of the Knowledge Society Development”

Peter Obdržálek

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CENTER *of*
EDUCATIONAL MANAGEMENT
Comenius University in Bratislava, Faculty of Management



CEM objectives

Ambition:

- to fill the existing gap in academic contribution in the field of tertiary education management

Main path of activities:

- inputs for fact based decision making - data aggregation, analysis and comparative studies

Outputs can be used for:

- improvements in HE governance, in quality indicators, enhanced employability of graduates, innovations in teaching, improvements in collaboration with external partners (public, private – regional, national international)



HE context in Slovakia

Some of the key characteristics:

- High speed of massification as a development trait has impacted the HE environment heavily - compared to 1995 the number of HE enrollments increased in its peak (2009) by more than 400% and the ratio of enrollments in recent years equals to more than 50% of the age cohort (with a dropping tendency)
- The absolute number of enrollments decreased in 2015 annually by almost 10% (mainly due to demographics and students leaving for abroad study)



HE context in Slovakia

- The structure of graduate qualifications compared to labor market requirements indicates a growing disharmony (lack of technical and science majors compared to oversaturated social sciences and humanities)

In 2014 there were about 67 000 more active people on the labor market than was the number of tertiary education requiring positions

The projection for 2023 expects an increase of the number of graduates in social sciences by 53 000, which is a double of potentially available appropriate positions.

At the same time about 20 000 technical engineers should be missing if compared to labour market expected development

HE context in Slovakia

Slovakia 2013 to 2023	Development of the number of qualified (university) work positions by field of study in 2013 - 2023 (in thous. and in %)					
	2013		2023		changes 2013-2023	
Field of study (ISCED 1D)	493,4	100%	576,1	100%	82,8	16,8%
1 Teaching	78,8	16,0%	85,6	14,9%	6,8	8,6%
2 Humanities and Arts	24,2	4,0%	29,9	5,2%	5,7	23,5%
3 Social sciences, business and law	118,3	24,0%	138,1	24,0%	19,7	16,7%
4 Science, Mathematics and Programming	31,9	6,5%	38,2	6,6%	6,3	19,8%
5 Engineering, Manufacturing and Civil engineering	118,4	24,0%	139,8	24,3%	21,4	18,1%
6 Agriculture and Veterinary	22,4	4,5%	24,8	4,3%	2,4	10,7%
7 Health and Social security	64,4	13,1%	75,9	13,2%	11,5	17,9%
8 Services	23,6	4,8%	29,1	5,1%	5,5	23,5%

Projection included in the Project: Higher Education as a Driver of the Knowledge Society Development, CVTI SR, 2014

HE context in Slovakia

Slovakia 2013 to 2023	Development of the number of economically active university graduates in the labor market by field of study in 2013 - 2023 (in thous. and in %)					
	2013		2023		changes 2013-2023	
Field of study (ISCED 1D)	560,4	100,0%	687,9	100,0%	127,5	22,8%
1 Teaching	95,9	17,1%	108,8	15,8%	12,8	13,4%
2 Humanities and Arts	33,9	6,0%	43,7	6,4%	9,8	29,1%
3 Social sciences, business and law	150,3	26,8%	203,3	29,6%	53,0	35,3%
4 Science, Mathematics and Programming	43,8	7,8%	57,3	8,3%	13,4	30,6%
5 Engineering, Manufacturing and Civil engineering	111,8	20,0%	119,9	17,4%	8,0	7,2%
6 Agriculture and Veterinary	26,7	4,8%	28,3	4,1%	1,6	6,0%
7 Health and Social security	71,9	12,8%	92,0	13,4%	20,1	28,0%
8 Services	25,3	4,5%	34,0	4,9%	8,7	34,2%

POSITIONS

19,7
16,7%

21,4
18,1%

Projection included in the Project: Higher Education as a Driver of the Knowledge Society Development, CVTI SR, 2014

HE context in Slovakia

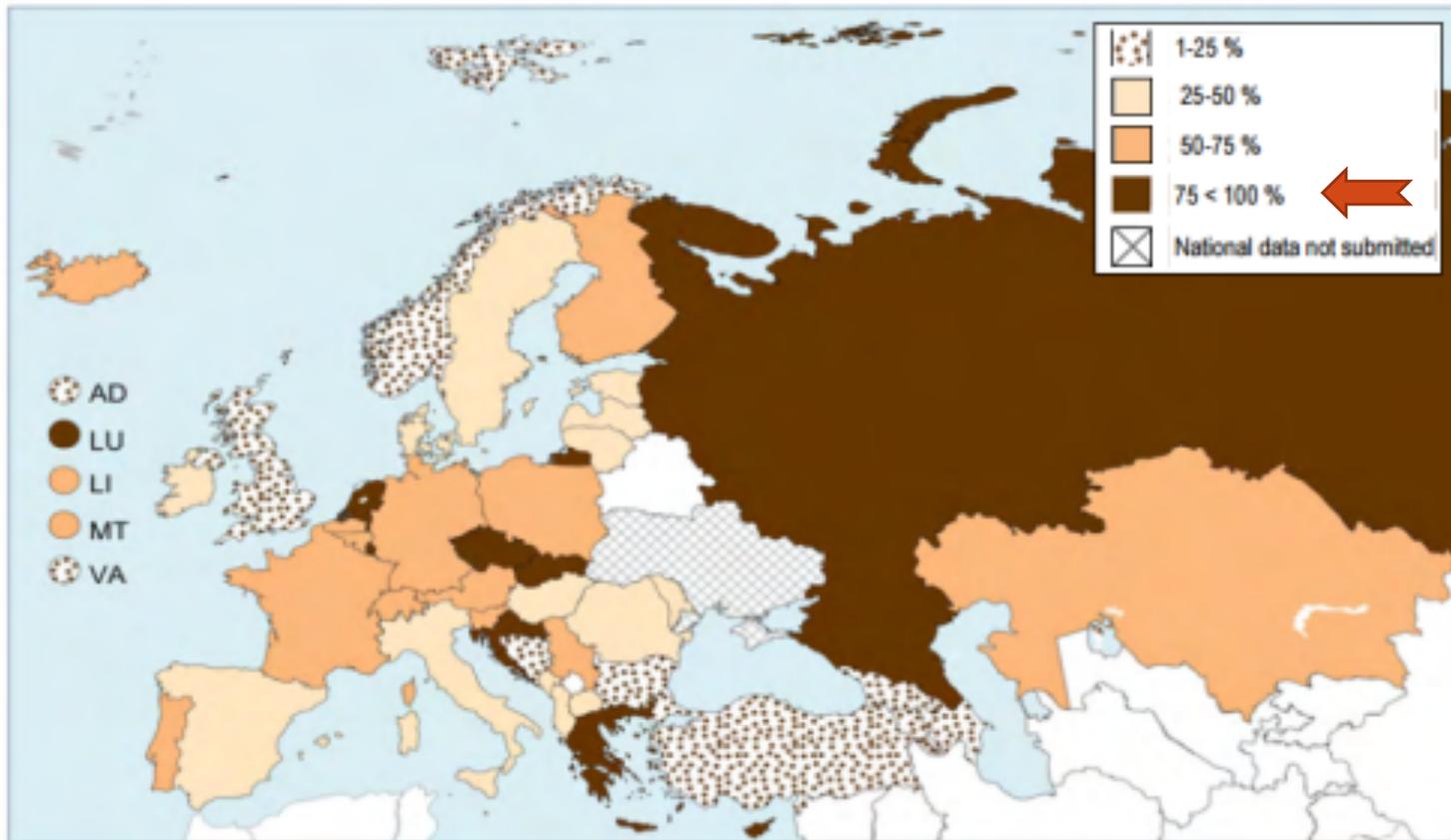
- A gap is also indicated as far as competencies acquired during HE studies are compared to labour market requirements

A survey with 15,5 thousand of respondents (graduates from 2008 – 2014 cohort) shows:

- up to 19% of employed graduates (2008 – 2014 cohort) hold positions where the university education is not required;
- on a list of key competencies (28) acquired due to university studies the graduates indicate that (in average) none of them achieves the level required at their present working position
- the level of competency development due to study at the university is **closest to the level required** at their present working position in the areas: numeracy, specific theoretical and methodological knowledge and skill to learn and organize own learning
- the level of competency development due to study at the university **differs most from the level required** at their present working position in the areas: communication with people and negotiation, knowledge of foreign language and the ability to identify and solve problems
- according to respondents (in average) the **most demanded competencies at work** are: the ability to bear responsibility, the ability to identify and solve problems and the ability to manage difficult situations and overcome obstacles.

HE context in Slovakia

- The Bologna framework of three cycles of higher education was adopted in full extent, but about 80% of first cycle graduates continue in 2nd cycle (94% of applications accepted)



HE context in Slovakia

- Out of the 36 HE institutions 20 are public, 3 are state run and 13 are private
- There is very little diversification as far the type of HE is concerned, most schools are defined as science Universities
- The governance of academic institutions is characterized by a high level of autonomy (self-governance – includes also student participation but very little impact from external partners like employers)
- The quality assessment is split between the institution itself and the government linked accreditation body – which is responsible for the accreditation of institutions as well as study programs
- HE is financed mainly through government subsidies, calculated on yearly basis (number of students and scientific outputs play a key role)
- Many HE institutions are often regarded as rather closed systems with lack of intensive knowledge exchange and cooperation with employers and non-university research subjects as well as with international partners
- Recent government initiative opens discussion on future (semi to long term) development of HE in the larger context of the educational system in Slovakia

“LEARNING SLOVAKIA” – a major educational reform policy initiative was initiated by the Ministry of Education, Science, Research and Sports, including consideration of regulatory changes for HE institutions

Major challenge – diversification

Diversification of missions, roles and outcomes - path with many obstacles

Motivators:

- In a massified HE system the **level of general dispositions of students** to meet high talent and performance requirements of science universities and of specific demanding study programs is not given for a large number of them
- The **number of high potential teachers** with scientific as well as educational potential is also limited – a threat increased by high salary gap of university teachers if compared to other tertiary educated staff in non-educational sectors and by **lack of programs preparing lecturers** in HE in modern teaching and learning facilitation methods
- There is **increased demand for occupation driven programs** mainly from industry employers and the structure of graduates according to field of study does not match the offer on the labor market
- **Opportunities for applied research** are much more intensive and feasible than opportunities for internationally competitive basic research – even more at regional level
- **Limited financial resources** will require more and more concentration around few high potential outputs (some basic strategic guidelines at national level are provided)
- The **impact of an open HE market at international level** creates a necessity for many institutions to identify an own niche with highly original and attractive study programs, reacting to fast changes on the new knowledge, skill, technology driven labor and career market

Major challenge – diversification

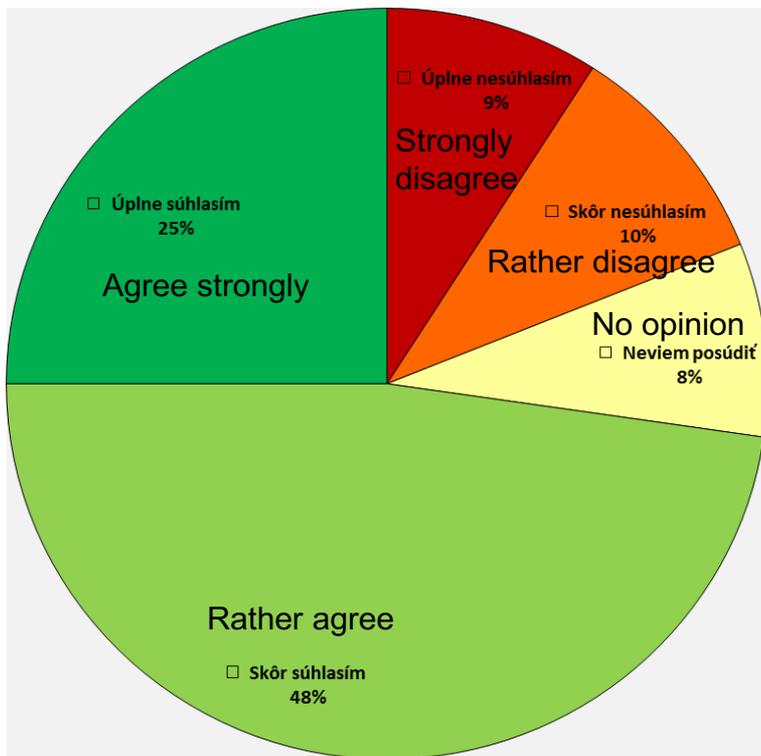
Diversification of missions, roles and outcomes - path with many obstacles

De-motivators:

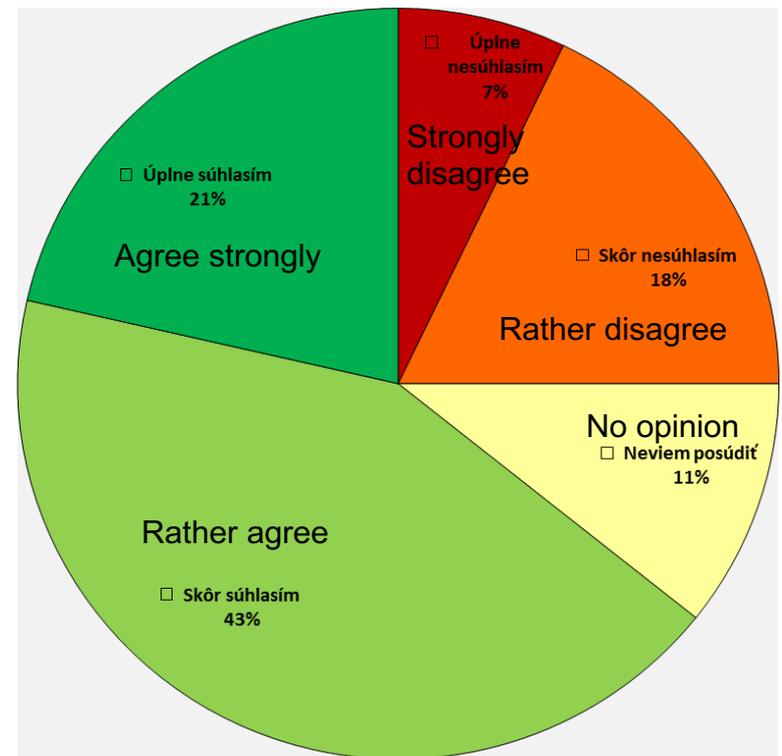
- The **financing structure and regulatory framework** for HE does not provide sufficient incentives for diversified missions, roles and outcomes, nor for internal differentiation inside of HE institutions
- The inevitable factor of **student numbers** for sufficient financing of HE institution in contrast to highly important and generally applied evaluation criteria focused at **scientific outputs** creates often a **dissonance of motives** with little contribution to internationally comparable quality
- The **benefits of a closed system outweigh** for a majority of HE staff and management the opportunities which would result from opening up to competition and major reforms (high risks perceived)
- The **total sum of financial inputs into the HE system** (including a very low percentage of private resources) **prevents acquisition of excellence** from outside (mainly as far HR are concerned)
- Prevailing trend of **secondary level graduates exodus for university study to other countries** (mainly but not only Czech Republic) becomes an additional burden when considering raising performance demands and creating innovations in HE institutions

Is a differentiation in profiles of HE institutions in Slovakia necessary?

HE representatives



Representatives of employers



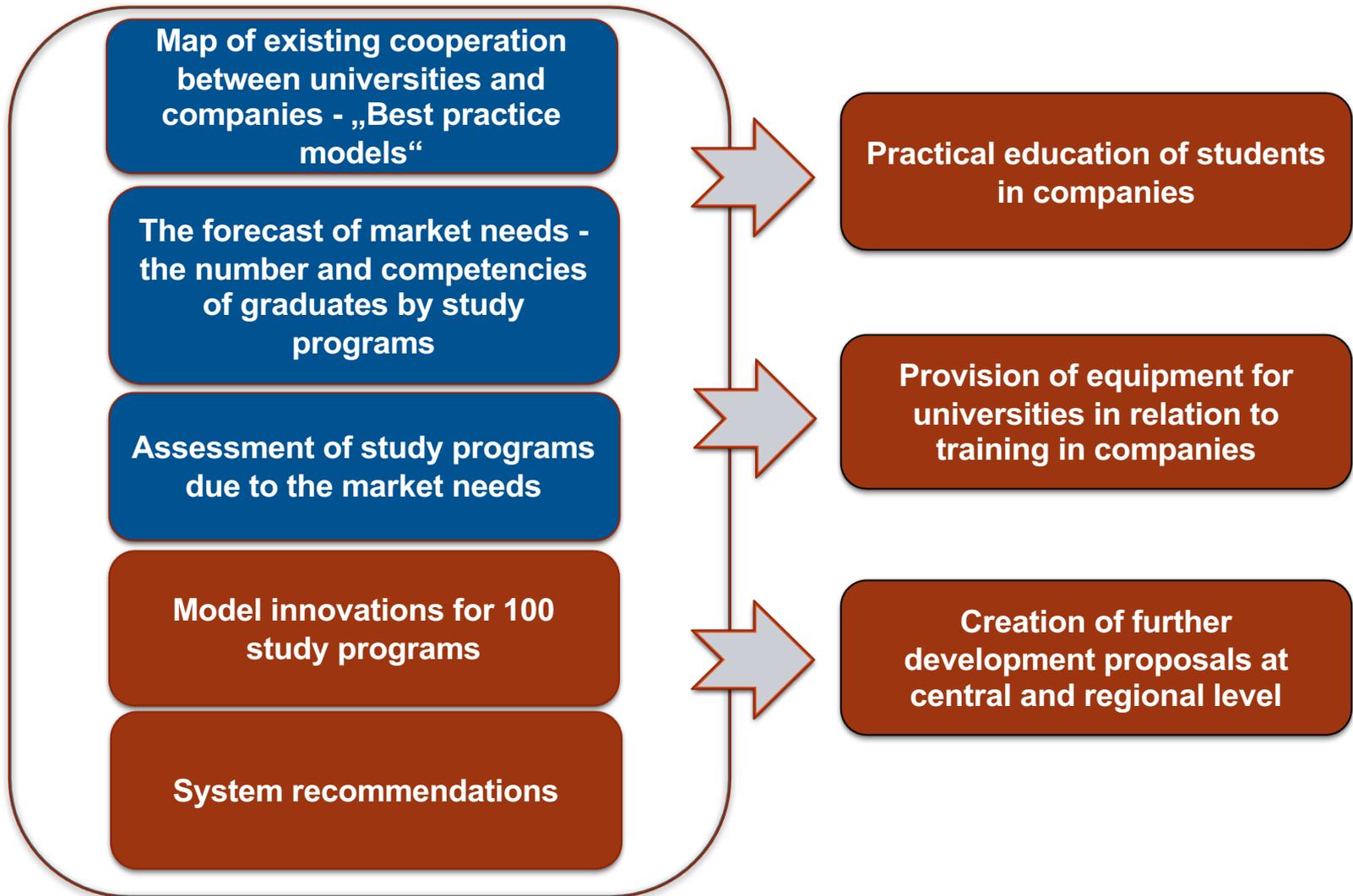
Connecting universities and the world of labor

The National Project conducted at the Slovak Centre of Scientific and Technical Information: Higher Education as a Driver of the Knowledge Society Development, became a valuable source of inspirations, on the job experience and know-how

Main outputs:

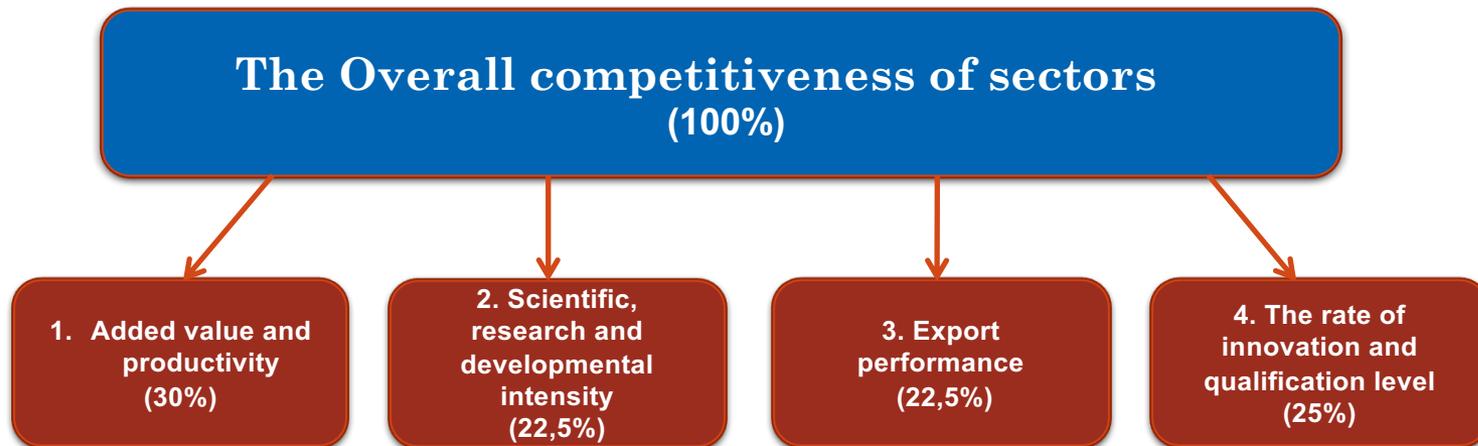
- Job market projection for HE graduates in 5 and 10 year prospective
- Model for assessment of employability potential of HE graduates in driving segments of Slovak economy
- Map of cooperation between employers and HE institutions
- Support in innovations of respective HE study programs which typically prepare graduates for these segments
- Support of practical education (placements, apprenticeships, excursions) for students of the above mentioned study programs
- Complex comparative study for Slovak HE developments

Project outline



Indicators used to identify „high potential“ sectors

For segmentation of sectors in Slovakia, due to their added value for economic growth, the following four groups of indicators were used (we also indicate their importance/weight).



Data used for calculation of indicators

International competitiveness in production and added value

Sectoral structure of added value

Relative comparative advantage in the added value of sectors

Added value per employee in industry (labor productivity)

Sectoral structure of production

Relative comparative advantage in the production of sectors

International competitiveness in research and development

Sectoral structure of spending on research and development

Relative comparative advantage in the added value of sectors

Expenditure on research and development in the total output of the sectors

Expenditure on research and development per employee in the sector

Expenditure on research and development per graduate in the sector

Expenditure on research and development to industry researcher

The share of researchers in total employment in the sector

International competitiveness in export

Sectoral structure of export

Relative comparative advantage in the export sector

Export to total production of sectors

Export to the added value of sectors

Export per worker in the sector

International competitiveness in innovations

Sectoral structure of innovative organizations (businesses) by the proportion of the employed

Relative comparative advantage in innovative sectors

From all organizations the share of innovative organizations (businesses) by the number of employees

The average length of education of employed in the sector

The share of university graduates to employed in the sector

Employability - multifactorial model for the assessment of study programs

Multifactorial model for the assessment of study programs

- Evaluation by graduates - survey
- Evaluation rating agency – (ARRA)

- Quality of employment of graduates
- The value of a graduate in the labor market expressed by income
- The demand for graduates in the labor market

Assessment of quality of university/faculty

The job quality and value of graduates in the labor market

The prospectivity and relevance of study programs to the needs of labor market

Employability of graduates in the labor market

- The prospectivity resulting from the prognosis of working positions
- The prospectivity resulting from linking to business practice in the preparation of students

- Unemployment of graduates
- Failure in getting employed

Resulting „High potential“ fields of study in Slovakia

If high added value to economic development, innovation potential and employability of graduates were taken in account, following fields of study emerged among “high potentials”:

521 Mechanics and metal works
522 Electrical and Power Engineering
345 Management and administration
314 Economics
343 Finance, banking and insurance
621 Crop and livestock production
340 Business and administration
762 Social work and counseling
523 Electronics and automation
344 Accounting and Taxation
380 Law
481 Computer Science
520 Engineering and engineering trades
582 Construction

721 Medicine
144 Training for teachers at primary level

Project: Higher Education as a
Driver of the Knowledge Society
Development, CVTI SR, 2015

Findings from „Best practice“ survey among cooperating HE and businesses

- A map of more than **4000 cooperations** across the country was established and published through an online tool
- Some of the **findings about type and quality of cooperation**:
 - It is mainly industry who cooperates with universities and the cooperation involves mainly technical schools and fields of study
 - The business organizations see highest value in identification of potential employees, but the HE institutions do not recognize this as a priority in the relationships
 - The length of placements/apprenticeships in companies typically does not exceed one semester, but mostly is around 2 weeks only
 - Only in a marginal percentage of cases students in placements/apprenticeships are involved in assignments or research bound to actual company needs

Major drivers supporting HE-business linkage?

Requirements of employers for innovations and development

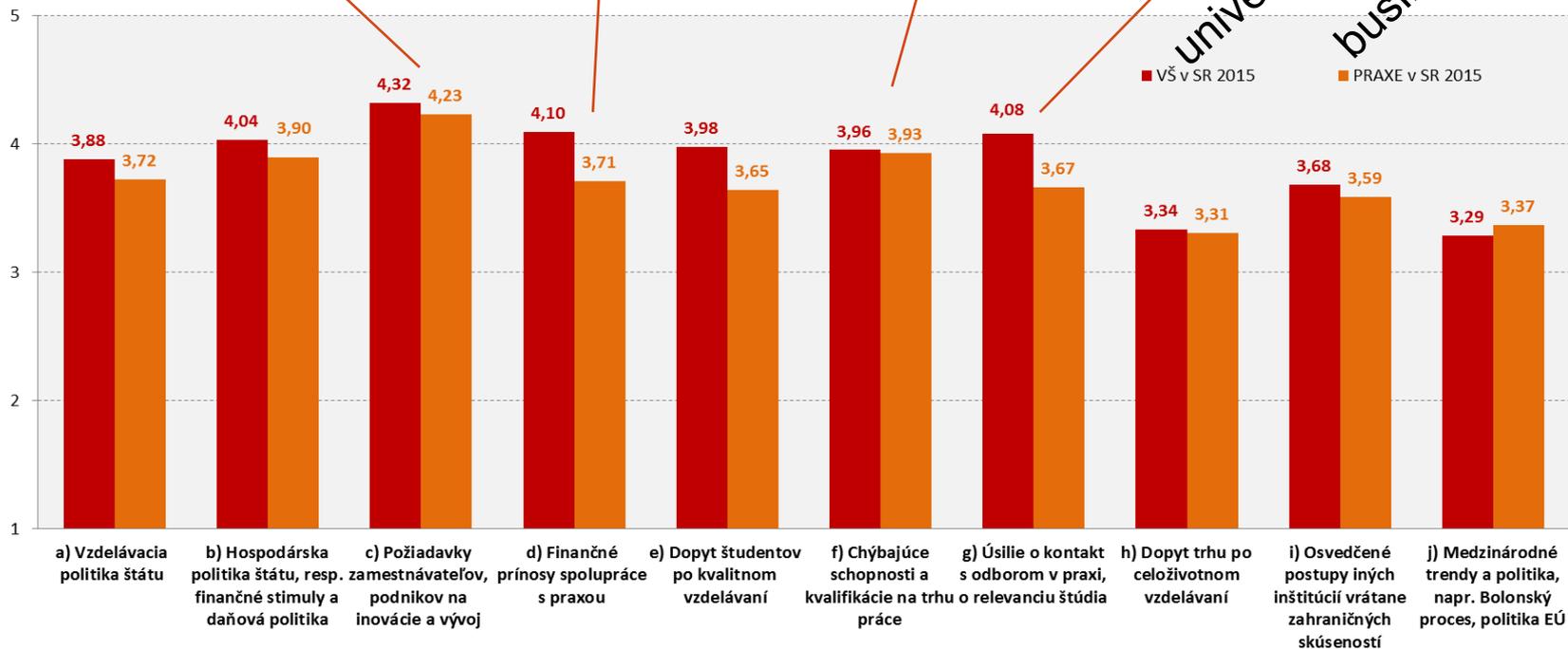
Financial benefits from cooperation

Missing skills and qualifications in labor market

Effort to stay in contact with field at practical level and relevance of teaching

universities
business

Aké sú hlavné hybné sily podporujúce prepojenie vysokých škôl a praxe?
 Výsledky prieskumu medzi vysokými školami a medzi podnikmi a organizáciami v SR (2015)



Major barriers preventing HE-business cooperation?

Set up of assessment for quality and performance of HE

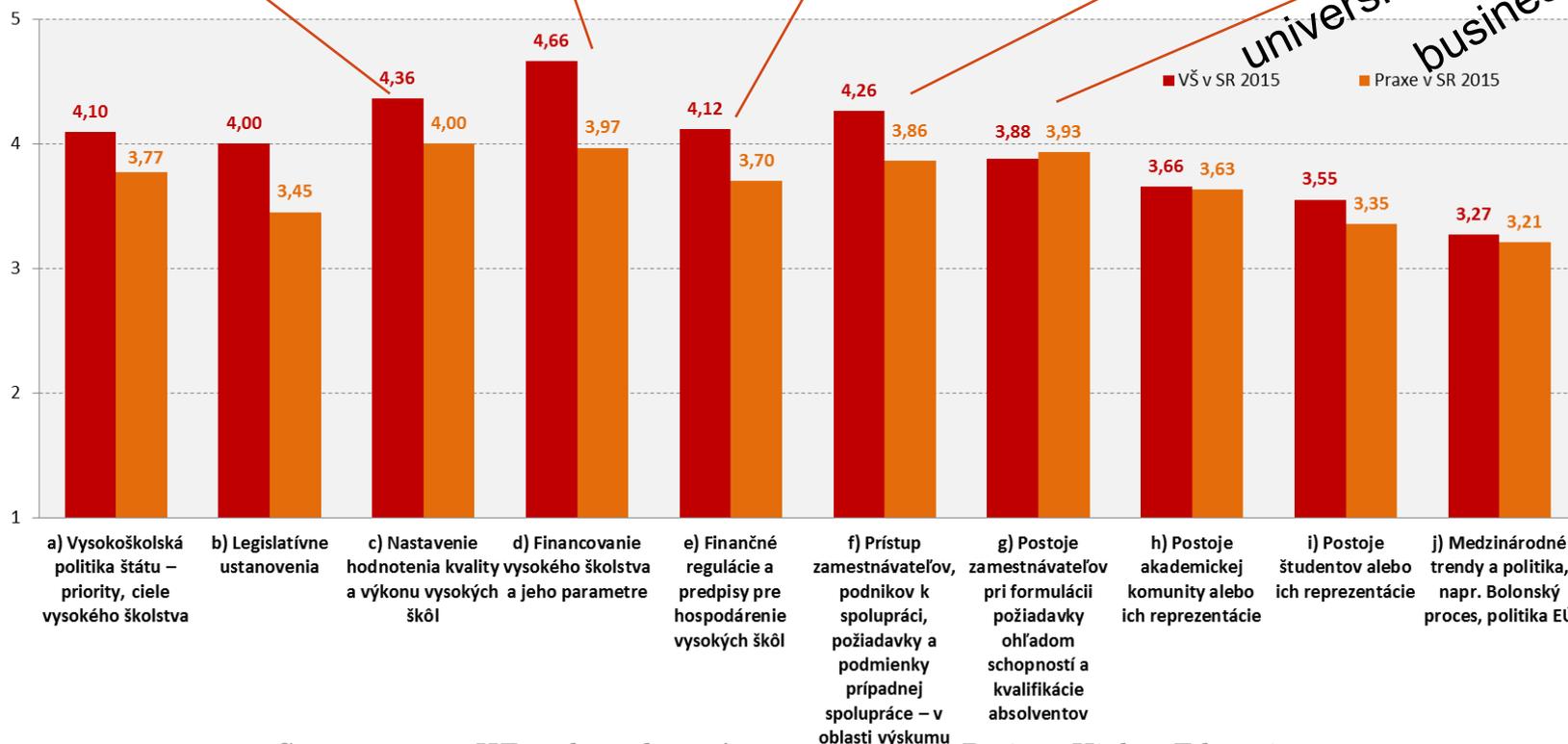
Financing of HE and used criteria

Financial regulations for HE governance

Approach of employers and businesses toward HE research cooperation

Attitude of employers when formulating requirements for skills and qualifications

Hlavné bariéry brániace lepšiemu prepojeniu VŠ a praxe (napr. čo bráni nadviazaniu a rozvoju spolupráce,...)?
Porovnanie výsledkov prieskumu medzi VŠ a medzi podnikmi a organizáciami v SR (2015)



Pilot intervention:

Subsidised scheme of support for
placements / apprenticeships / excursions

25 FACULTIES of 8 UNIVERSITIES

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graph TD; A[25 FACULTIES of 8 UNIVERSITIES] --> B[3250 STUDENTS (during 3 semesters)]; B --> C[115 BUSINESSES];
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**3250 STUDENTS
(during 3 semesters)**

115 BUSINESSES

Project: Higher Education as a
Driver of the Knowledge Society
Development, CVTI SR, 2015

Lessons learned

- **Existing barriers** for both sides -HE and businesses have to be removed before a shift to larger proportion of practical skill training directly with employers can be put in place (relates e.g. to financing of HE, accreditation of HE, capacity of employers to accept students...)
- **Motivators for students** for practical training have to be created (study requirements, recruitment requirements, competitively paid placements, orientation of students toward specific careers not only “any HE diploma”))
- The core change requirement is in **closer fit of study programs to business needs** – fields of study as well as competencies profiled
- **Sectoral and regional cooperation** works much more efficiently than national scale programs

Thank you

and

**wish you a highly inspiring
discussion**