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Cross-border relationships of Central-European higher education institutions

Andrea USZKAI¹ – Zsolt DÁNOS²

Keywords: university, Central-Europe, relationships, co-operation, project

JEL codes: I23, R11

Abstract: This paper focuses on the Central-European (so called „Centrope”) region. This region was created by a co-operation project 10 years ago, and also functions today including Vienna and other Austrian provinces such as Lower Austria and Burgenland, the region of South-Moravia in the Czech Republic, the region of Bratislava and Trnava in Slovakia, Győr-Moson-Sopron and Vas counties in Hungary, and cities of Eisenstadt, St. Pölten, Brno, Bratislava and Trnava. The main objective of this study is to examine the implementing sectoral co-operation projects of R&D and tertiary education activities between the higher education institutions of the region and the intensity of these relations. Furthermore, we also concentrate on the depth of regional integration and networking from the point of view of the relationships in higher education, particularly the strength and the weaknesses of bilateral and multilateral relations, and also the absence of co-operation in different areas. Recent mobility surveys found that the rate of student mobility is low between the institutions in the region and there are no mutual exchange programs. The language barriers and the deficiency of the institutions' attractiveness were defined as the main reasons of the low mobility besides the lack of frequent relations. Although sectoral clusters were established inside the region with the membership of higher education institutions, the demand of regional co-operation in the institutions' strategies is unknown, and there are no available pieces of information about data sharing and long-term co-operation between the institutions in the functioning clusters (i.e. automotive industry). It must be examined what the main criteria are in the election of partners for current projects and how extended is the mutual partnership in the projects of the regional institutions. It is an essential analysis viewpoint whether there is a difference between higher education institutions with regard to the above depending on the location of the institution (including the relationships between the HEI's in own countries) and how this affects cross-border regional relationships. To sum up, the study is intended to provide answers to how and in what areas sectoral co-operation exists in the region between the higher education institutions and what the rate of these projects is comparing all projects of the institution, as well as to define the leading sectors of the co-operations.

Introduction

Around 80% of the European population lives in urban areas and cross-border urban areas represent a large part of this category.³ The importance of cross-border urban areas have increased in the last decades among policy makers and researchers as well. In the scientific literature, there are two main definitions for the functional urban areas.

First of all, the OECD with the EU has developed a harmonised definition of urban areas “as functional economic units, consisting of highly densely populated municipalities (urban cores) as well as any adjacent municipalities with high degree of economic integration with the urban cores, measured by travel-to-work flows.”⁴ This definition overcomes previous

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³ <http://urbact.eu/en/projects/metropolitan-governance/egtc/our-project/>

⁴ OECD (2013), “Defining regions and functional urban areas”, in OECD Regions at a Glance 2013, OECD Publishing. p. 155. http://dx.doi.org/10.1787/reg_glance-2013-47-en retrieved 17/06/2014.

limitations for international comparability linked to administrative boundaries. The definition is applied to 29 OECD countries. It identifies 1 179 urban areas of different size.⁵ According to the OECD “each functional urban area is an economic unit characterised by densely inhabited “urban cores” and “hinterlands” whose labour market is highly integrated with the cores.”⁶ In the classification of the OECD the functional urban areas do not cross the border; they are located within the country in all cases.

The other meaning of the functional urban areas can be identified by the ESPON Metroborder project (2010). The Final Report of this project (2010) defines the concept of cross-border polycentric metropolitan regions (CBPMR) “*as political constructions based on cross-border agreements which consider the existence of national borders as a resource for increasing interactions at the local level and based on the embeddedness of the metropolitan centre(s) in global networks. Because CBPMRs are composed of several urban centres located on either side of a border, these regional political initiatives can mobilise different geographical scales in order to utilise the assets and complementarities of the morphological and functional polycentricity.*”⁷ Each CBPMR has a cross-border core area, which are defined on the scale of „Functional Urban Areas” (FUAs), and thus on a local scale. “*Functional urban areas are defined primarily by commuter flow data at the local level. The precise delimitation of the FUA is associated with the threshold of 10% of the occupied of the active population commuting to the central Morphological Urban Area (MUA). These MUAs are defined as densely built and inhabited urban areas.*”⁸ Centrope region can be considered as one of the European functional urban areas. In our paper, we are going to investigate this region closer. The following map represents the location and number inhabitants of this region. (Fig. 1.)

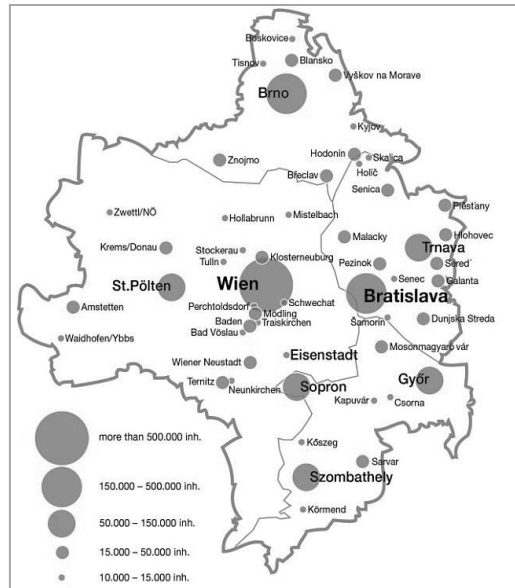
⁵ OECD (2013), “Defining regions and functional urban areas”, in OECD Regions at a Glance 2013, OECD Publishing. http://dx.doi.org/10.1787/reg_glance-2013-47-en retrieved 17/06/2014.

⁶ OECD (2012) List of urban areas by country. p.1. <http://www.oecd.org/gov/regional-policy/all.pdf> retrieved 15/06/2014.

⁷ ESPON (2010) Metroborder. Cross-border Polycentric Metropolitan Regions. Targeted Analysis 2013/2/3 Final Report (31/12/2010) ESPON & University of Luxembourg, 2010. <http://www.espon.eu/export/sites/default/Documents/Projects/TargetedAnalyses/METROBORDER/METROBORDER - Final Report - 29 DEC 2010.pdf> retrieved 13/06/2014.

⁸ ESPON (2010) Metroborder. Cross-border Polycentric Metropolitan Regions. Targeted Analysis 2013/2/3 Final Report (31/12/2010) ESPON & University of Luxembourg, 2010. <http://www.espon.eu/export/sites/default/Documents/Projects/TargetedAnalyses/METROBORDER/METROBORDER - Final Report - 29 DEC 2010.pdf> retrieved 13/06/2014.

Figure 1. Location and number of inhabitants of the Centrope partner regions and cities



Source: www.centrope.com, 2014

1. Historical background, economic features and operation of the Centrope region

The different parts of the Central-European region have a long common history; it was only the political events of the 20th century that split socially, economically and culturally integrated region into a space divided by borders. Open borders and the enlargement process - marked by the EU accession of Austria in 1995 and of the Czech Republic, Slovakia and Hungary in 2004 – have led to monumental changes and the creation of a Central European space. Today, all partner regions and cities are part of the European Union.⁹ The region of Centrope was established and defined through the Declaration of Kittsee in September 2003. This declaration was signed by governors and comitatus presidents of the above mentioned countries, provinces, regions and cities.¹⁰ The work of Centrope partnership draws on political declarations adopted at the “Summit Meetings”. These conferences enable the political leaders to agree on the shape and content of their future co-operation. On the top of the organization is the Steering Committee which is responsible for the performance of the project. The Advisory Board is a forum for discussions among official representatives of the partners, and the Centrope Consortium organizes all activities, guides the process and

⁹ Vision Centrope 2015 (2013) Published by the Federal Provinces of Burgenland, Lower Austria and Vienna http://www.centrope.com/repository/centrope/downloads/Publication_CENTROPE_Vision_2015_English.pdf retrieved 14/06/2014.

¹⁰ Schwiezer-Koch, Maïke (2013) Cross-border co-operation on regional innovation. http://essay.utwente.nl/64241/1/Bachelor%20Thesis_Maïke%20Schwiezer-Koch_s1003399.pdf retrieved 13/06/2014.

prepares implementations. The Austrian side is the initiator, leader organizer and (co)financier of cross-border projects. The Eastern regions have no position in the Steering Committee and in the Centrope Consortium.¹¹

It may be called one of Europe's most dynamic and interesting economic areas: almost all partner regions are among the economic driving forces of their respective countries and boast above-average performance indicators. Growth, employment figures as well as income and productivity gains mostly exceed the long-term European average. Roughly six and a half million people live in the eight federal provinces, regions and countries that make up the Central-European region. The two capitals Bratislava and Vienna are situated at a distance of around 60 kilometres from each other, Brno and Győr as additional cities of supra-regional importance as well as numerous other towns are the driving forces of an economically and culturally expanding European region.¹²

Looking at sectoral specialization patterns we can find considerable differences between the partner regions. Vienna and Bratislava have a stronger service sector than the other regions. Czech South East, Western Transdanubia and Western Slovakia exhibit a strong manufacturing base; these regions host high and medium high-tech manufacturing industries such as the automotive and electronics sector. In Vienna and Bratislava, in contrast, a significant share of knowledge intensive services can be found. Lower Austria and Burgenland show a tendency towards increasing tertiarization. So, the Centrope is characterized by sectoral heterogeneity and diversity. (Lundquist-Trippel, 2009)

Knowledge and skills as well as cultural richness are a peerless treasure for competitiveness of the Centrope co-operation area. Consequently, we focus on the disparities with respect to the science and higher education, knowledge infrastructure and linkages, in addition to different types and intensity of co-operation between universities inside the Centrope region.

2. Human capital, knowledge infrastructure, linkages and participation in life-long learning

Within the Centrope region there are 25 public universities and art academies as well as numerous research facilities, universities of applied science, R&D-oriented enterprises and innovation centres (Vision Centrope 2015). However, according to the OECD Territorial Review (2003), these educational institutes are not yet integrated with each other. "In the case

¹¹ Alexander Otgaar, Leo Van Den Berg, Jan Van Den Meer, Carolien Speller (2007) Empowering metropolitan regions through new forms of co-operation. (European Institute for Comparative Urban Research) Aldershot: Ashgate. England. pp. 39-63.

¹² www.centrope.com

of Vienna and Bratislava, there is strong potential for integration: a solid knowledge infrastructure, good availability of expertise provided through numerous universities and advanced technic colleges"¹³ Taking it into consideration, that the OECD published this report more than 10 years ago, we may pose a question: are these data still relevant for the present situation? Is this statement true even today? Our paper is looking for the answer for this question as well. One of the main focuses of our paper is to respond to this question.

First of all, we have to summarize the main features and tendencies in the education sector of the region. As for number of the students at first and second stage of tertiary education level, we can say, that it is higher and higher from 2001 to 2011 in the Centrope region. In 2001, around 304 thousands students studied in the higher education institutes of the region, today; it is more than 456 thousands. Analysing the share among the partner regions, unsurprisingly the most students study in the Austrian capital, but the weight of this centre is reducing, and the periphery of the Centrope is stronger, than in 2001. It is very interesting the slope concerning the Hungarian partner region (West Transdanubia) from 2006 to 2011 (*Table 1*).

Table 1. Number of students in the Centrope region (NUTS 2 level)¹⁴ at first and second stage of tertiary education levels 5 and 6 (ISCED1997) (2001, 2006, 2011)

	2001		2006		2011	
	Number of students	Share in %	Number of students	Share in %	Number of students	Share in %
South Czech (CZ)	50 701	16,67	70 570	19,32	93 412	20,48
West Transdanubia (HU)	22 771	7,49	34 358	9,41	26 426	5,79
Burgenland (AT)	1 017	0,33	1 596	0,44	2 134	0,47
Lower Austria (AT)	5 180	1,70	7 495	2,05	17 001	3,73
Vienna (AT)	140 882	46,33	136 076	37,26	176 343	38,67
Bratislava (SK)	51 415	16,91	64 924	17,78	81 525	17,88
Western Slovakia (SK)	32 146	10,57	50 192	13,74	59 190	12,98
Total	304 112	100,00	365 211	100,00	456 031	100,00

Source: Eurostat

Table 2 shows the number of higher education institutions and universities R&D centres. It can be seen, that there are 60 higher education institutions and 867 university R&D centres in the Centrope region.

¹³ OECD (2013), "Defining regions and functional urban areas", in OECD Regions at a Glance 2013, OECD Publishing. http://dx.doi.org/10.1787/reg_glance-2013-47-en retrieved 17/06/2014.

¹⁴ The data is available only at NUTS 2 level, which includes a larger area, than the Centrope officially.

Table 2. Number of higher education institutions and universities R&D centres

Regions	The number of institutions (public, private and church universities, colleges, art academies)	The number of university R&D centres (departments and other centres) ¹⁵
South Moravia (CZ)	10	243
West Transdanubia (HU)	3	52
Burgenland (AT)	4	2
Lower Austria (AT)	7	11
Vienna (AT)	21	412
Bratislava (SK)	11	138
Western Slovakia (SK)	4	9
Total	60	867

Source: <http://www.centrope-tt.info/>

There is also a strong uneven distribution of research capacity within the Centrope region. The total number of R&D personnel and researchers amount to more than 87 thousands in this cross-border area. Almost half of them worked in Vienna, South Czech and Bratislava stand on the second and third place in this point of view, in 2011. Respect to the higher education sector, the share is similar. This sector is only in Lower Austria really underrepresented. (Table 3.)

Table 3. R&D personnel and researchers in the Centrope in all sectors and in higher education (NUTS 2 level), 2011

	All sectors	Share in %	Higher education sector	Share in %
South Czech (CZ)	15 409	17,64	6 787	16,00
West Transdanubia (HU)	3 304	3,78	1 700	4,01
Burgenland (AT)	1 003	1,15	93	0,22
Lower Austria (AT)	8 130	9,31	625	1,47
Vienna (AT)	40 398	46,26	21 244	50,09
Bratislava (SK)	14 494	16,60	9 472	22,33
Western Slovakia (SK)	4 595	5,26	2 493	5,88
Total	87 333	100,00	42 414	100,00

Source: Eurostat

More studies have pointed that the cross-border linkages have grown significantly within the Centrope region. According to the empirical work done by Trippl (2008) the most important ties are market links, supplier relations and the employment of migrants and commuters.¹⁶

¹⁵ <http://www.centrope-tt.info/rd-database-hu>

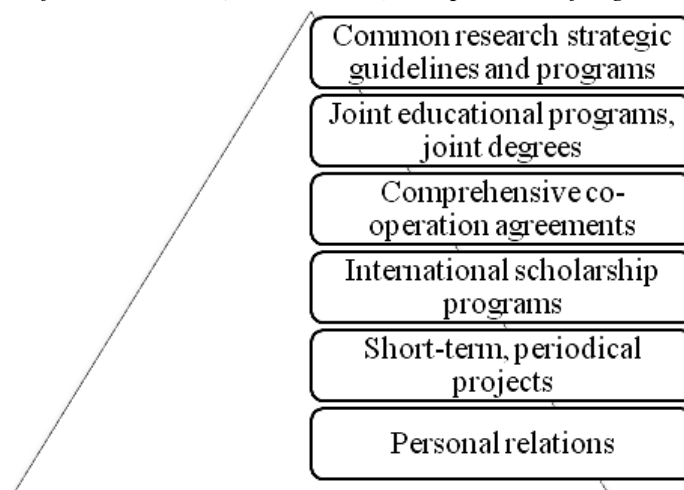
¹⁶ Karl-Johan Lundquist, Michaela Trippl (2009) Towards Cross-Border Innovation Spaces: A theoretical analysis and empirical comparison of the Öresund and the Centrope area. Institute for the Environment and Regional Development. 2009/05. pp.18-23.

As for life-long learning, in 2010, only 8, 3% of the population (25-65 years old) took part in some form of formal training in the Centrope region. This rate in the EU 27 was 9, 1%, and in some European economies (e.g. Finland and Sweden) more than 20% of the population were involved in such activities. But this below average in the Centrope due to a low participation in the Czech Republic and Bratislava (6%), moreover in the rest of Slovak and in the Hungarian parts (below 3%). The situation is favourable in Austria, where this percentage is between 9% (in Burgenland) and 17, 4% (in Vienna).¹⁷

3. Co-operations between HEI's within Centrope Region

As a guideline firstly we define the priorities of international (cross-border) co-operation of HEI's (Fig. 2.).

Figure 2. Priorities of international (cross-border) co-operation of higher education institutions



Source: Rechnitzer – Smahó, 2007

3.1. Common research strategic guidelines and programs

The top of hierarchy is the common research strategy of the partner universities. This type of co-operation is not characteristic in Centrope region in the case of independent universities but we have to mention two similar forms: *clusters of the region* and *network projects*.

The example for the first form is Automotive Cluster Centrope which is a co-operation platform supported by Automotive Cluster Vienna Region (ACVR), Automotive Cluster Western Slovakia and Automotive Consulting Cluster (ACC). This cluster involves several universities from the region as University of Natural Resources and Applied Life Sciences,

¹⁷ Zoltan Csizmadia, Philipp Hergovich, Peter Huber (2011) CENTROPE Regional Development Report. Focus Report on Technology Policy, Research, Development and Innovation in CENTROPE. http://www.centrope.com/repository/centrope/downloads/RDR_Focus_Report_Innovation_Full_Report_EN.pdf retrieved 06/07/2014.

Vienna University of Technology or Slovak University of Technology. Czech and Hungarian universities are not members of cluster but Széchenyi István University is a partner organization of the cluster and the member of Pannon Automotive Cluster (PANAC), which also uses the service of the platform. Other fields of clusters are ICT and Energy in Centrope.

One example for network project is a cross-border project, centrope_tt, an international expert network in Centrope concerned with innovation and technology transfer in this border region. The project is implemented in the framework of the CENTRAL EUROPE Programme¹⁸ and 15 project partners (within Brno University of Technology and Slovak University of Technology) are developing measures to improve cross-border technology transfer between universities and enterprises in the four countries.

We can verify that Centrope initiative incites bilateral and multilateral agreements and this support is favourable for the higher educational institutions to the binding of strategic co-operations and higher educational institution can be integrated into strategic programs between innovative frameworks. Despite the supporting environment, the significant growth of strategic agreements between HEI's of the region has several barriers. One of the most considerable problems is the crucial differences between a region's higher educational institutions. The research universities constituted an independent group with the considerable international view competing in the international environment (e.g. University of Vienna). In the forefront of their strategy lies the international viewpoint dominating without regional aims. Most of the co-operations with a regional player are casual and based on personal relationships. These co-operations do not attain the level of the strategic co-operation and stuck on the level of comprehensive co-operations mostly.

3.2. Joint educational programs, joint degrees

The main obstacle to research of this co-operation is the lack of information. On the one hand, most of institutions do not display related pieces of information (especially the partnerships and the roles in the partnerships) on their website, on the other hand several training co-operations are probable. The potential joint educational programs can be *bilateral* or *multilateral*.

The bilateral programs are mainly based on personal relationships, partnerships between departments and cannot be leaded back onto previous co-operations on the level of entire organization. As a result, the majority of educational bilateral co-operations are mainly casual

¹⁸ CENTRAL EUROPE is a European Union programme that encourages cooperation among regions of nine central European countries.

and temporary. One of the exceptions might be institutions with comprehensive co-operation agreements but the lack of information hinders currently the mapping of bilateral educational co-operations. Clusters may also incite this kind of co-operation. One result of „Automotive Cluster Cross-border Co-operation Training“ (AC³ Training) project, which ran from February 2003 to April 2004 and was initiated by the Automotive Cluster Vienna Region (ACVR) together with PANAC was a survey of demand for Automotive MBA. Following the results of the survey of demand for an Automotive MBA and in co-operation with ACVR Vienna University of Technology and Slovak University of Technology in Bratislava, they have set up a Professional MBA Programme in another project for the Automotive Industry aimed at training managers for the automotive and components supply industries. The English language Professional MBA Programme (4 semesters) takes place at the Vienna University of Technology and at the Slovak University of Technology in Bratislava.¹⁹

The most typical multilateral joint educational programs could be implemented in programs supported by EU as Erasmus Mundus²⁰, LLP²¹ and Tempus.²² Due to the hardly available pieces of information we know only a few other joint degree projects mainly in Art and Social Sciences (E.g. joint Degree of 'Dutch Language, Literature and Culture in a Central European ' or a joint master program in cognitive sciences) but some degree programs are in progress (e.g. a joint PhD Program of Design and a joint master degree of Social Sciences in CEEPUS). Visegrad University Studies Grant—Joint Degree Programme (VUSG—JDP)²³ is also recognized to promote and support the mobility within and running of outstanding Joint-/Multiple-/Double-Degree Programs. All V4 countries must be involved (as partner organizations within the consortium of universities).

To sum up, there are several opportunities of developing joint degree programs in Centroepe. However, without long-term strategy, programmes co-operations are casual and the impact of them is short-term. The most significant joint degree programme derives from Automobile

¹⁹ <http://www.accentrope.com/en/projects-in-centroepe/projects-in-the-region>

²⁰ Erasmus Mundus is a cooperation and mobility programme in the field of higher education that aims to enhance the quality of European higher education and to promote dialogue and understanding between people and cultures through cooperation with Third-Countries.

²¹ The Lifelong Learning Programme (LLP) was the European Union's programme which supports learning opportunities from childhood to old age in every single life situation (2000-2006).

²² Tempus is the European Union's programme which supports the modernisation of higher education in the Partner Countries of Eastern Europe, Central Asia, the Western Balkans and the Mediterranean region, mainly through university cooperation projects.

²³ The Visegrad University Studies Grant (VUSG) is a grant programme of International Visegrad Fund designed for universities with the aim to promote and support the development and launching of outstanding university courses or degree programmes that deal with specific phenomena explicitly related to the Visegrad Group (V4) countries (Czech Republic, Hungary, Poland and Slovakia).

Cluster Centropes that means clusters and networks can spur the joint educational programmes in the future as it was mentioned in Centropes Vision 2015 as well.

3.3. Comprehensive co-operation agreements

This type of contract regulates less formal but longer term co-operations between higher education institutions, which can cover a wide range of activities according to the following classification:

- research collaboration (joint research project, knowledge transfer);
- education and training cooperation (joint courses, summer schools, visitation);
- mobility exchange program (staff, students, and administration);
- territorial cooperation (for developing a region);
- sectoral cooperation (comprehensive discipline contract).

This is the closest type of cooperation in the region, which is frequent and many institutions have this type of cooperation agreement with another institution in the region. Origins of this type of cooperation are the following:

- cooperation based on traditions (e.g. dating back to institutional traditions);
- similar sectoral development objectives (e.g. automotive degrees);
- similar language program (e.g. Slavish studies);
- similar research programme (joint research);
- harmonizing the supply of tertiary education (exchange programmes);
- opportunities of regional development (rather in projects).

In this area there are more funds (e.g. International Visegrad Fund, INTERREG IV²⁴) to support of the similar co-operations and JORDES+²⁵ project was possible to establish institutional co-operation between Slovakia, Austria and Hungary but many opportunities for co-operation are not taken. The primary reason lies on the different strategies of the institutions. The strategies of partnership between Centropes institutions are affected by the following factors:

- the profile of the institution, supply of tertiary education;
- traditions, former relationships;
- international recognition;
- personal relationships;

²⁴ INTERREG IV provides funding for interregional cooperation across Europe. It is implemented under the European Community's territorial co-operation objective and financed through the European Regional Development Fund (ERDF).

²⁵ Project in the framework of PHARE and INTERREG III.

- geographical proximity;
- possibility of regional cooperation.

The factors of partner selection may vary from region to region and institution. In Vienna region, the recognition of the institutions is crucial while in the other two Austrian regions more aspects are added to decision making. In the case of each institution institutional profile is dominant, especially in the case of institutions with narrow field of tertiary education (e.g. polytechnic or economy). Despite traditionally good co-operation with the area of Czech-Austrian and the historically operating Czech Slovak area the connections of Hungarian institutions are less intensive with the region. The Slovak institutions in Bratislava region are open in all directions, but in the northern region the relationships of the institutions base on rather personal relationships than institutional strategy because of the educational profile. The Hungarian institutions were founded some years in their present form, so they need to develop a comprehensive partnership strategy, following the guidelines of similar Austrian institutions.

3.4. International scholarship programs

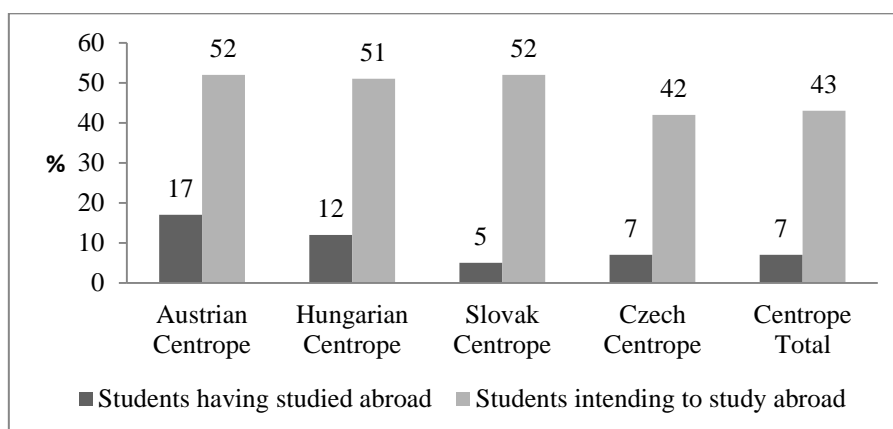
One of outstanding scholarships for international mobility is CEEPUS (Central European Exchange Program for University Studies) Programme; the other Programme is presently Erasmus+. ²⁶All institutions in the region are member of the Erasmus network institutions, most of them have partner relationship in the region, but the mapping of the whole Erasmus partnership network in the region has many difficulties. Many of the institution's website does not contain the Erasmus partners list, and if it does, they are not regularly updated. Several occasions other institutional documents (e.g. annual reports) indicate different data than the website. In addition, the European Commission does not have a public complete database of participating institutions, and related statistical programmes are not designed specifically for this kind of co-operation. There is a database for Erasmus network that shows the active mobility relationships in 2011/2012 but it seems to be incomplete. According to this database, the Centrope higher education institutions have 679 ERASMUS partners, but only 16 are located in Centrope. Only 12 institutions have at least one active partner but according to their websites almost all Centrope institutions have Erasmus partner agreement with different partners in Centrope (e.g. Széchenyi István has eleven regional partners but in the database it

²⁶ The Erasmus Programme is an EU student exchange programme established in 1987. Erasmus+ is the new programme combining all the EU's current schemes for education, training, youth and sport, due to begin in January 2014.

has only one). According to the database the rate of Erasmus partners in Centrope region is less than 2, 5% of the all Erasmus partners that means 8 partnerships in the region. This shows that mobility in Centrope region is less intensive than the general mobility of the institutions. The most intensive co-operation is between Vienna and Brno (4 partnerships), there is 2 partnerships between Vienna and Bratislava and 1-1 between Vienna and Trnava and Vienna and Győr. The directions of partnerships are suspected to be the axis of further institutional co-operations.

But not only has the above data proved the little interest between the Centrope institutions. Based on the results of the Mendelu Student Survey (2011) in the Centrope region, most of students participating in this survey did not have studies abroad yet. In total only 7% of the respondents stated that they had stayed abroad before. Austrian and Hungarian students have studied abroad more often than Czech and Slovak students²⁷ (Fig. 3.).

Figure 3. Past and intended student mobility in Centrope (%)²⁸



Source: Edited by authors based on Centrope Regional Development Report. (June 2012) Mendelu Student Survey, 2011

On the other hand, 43% of the respondents said that they had serious plans to study abroad in the future. This implies a high potential of mobility of the Centrope students. The most attractive countries for staying abroad are the UK, Germany, Finland, France and the US. Among Centrope students other Centrope countries are less popular. Only 16% of the respondents in the Austrian Centrope, 15, 8% in the Slovak Centrope, and 10, 5% in the Czech Centrope could imagine studying in another Centrope country. Only in the Hungarian Centrope was this percentage higher, where 38, 1% of the interviewed can imagine studying in Austria, 11, 9% in Slovakia, and 7, 1% in the Czech Republic. The respondents often stated

²⁷ Zoltan Csizmadia, Philipp Hergovich, Peter Huber (2011) CENTROPE Regional Development Report. Focus Report on Technology Policy, Research, Development and Innovation in CENTROPE.

http://www.centrope.com/repository/centrope/downloads/RDR_Focus_Report_Innovation_Full_Report_EN.pdf retrieved 06/07/2014.

²⁸ Total sample size: 3 775 students

the Centrope was not attractive for them, they preferred to study in an English speaking country (32-49% of the students)The students expected a low prestige or bad quality of the university (29-44%), or they preferred destinations further away (12-40%). Only a few students (2-7%) had problems with lacking exchange programmes or bilateral agreements on student exchange in the Centrope region.²⁹ (Table 4).

Table 4. Reasons for not choosing Centrope as a place of study (%)³⁰

	Austrian Centrope	Slovak Centrope	Czech Centrope	Hungarian Centrope
I prefer studying in English-speaking countries	31,6	47,4	48,5	42,9
I do not consider the regions' universities to be well known and prestigious enough	22,8	19,3	18,2	14,3
I do not consider the region's universities to be of the high enough quality	21,0	19,3	18,1	14,3
Non-existence of bilateral agreement between chosen university	7,0	1,8	5,0	4,8
I prefer studying in a location further away from home	14,0	33,3	40,0	11,9

Source: Centrope Regional Development Report. (June 2012) Mendelu Student Survey, 2011

Summarising, we can say, that choosing the Centrope region as a target destination for study abroad crucially depends on the prestige of the Centrope universities and the possibility to learn English there. Therefore, one important way which can increase the attractiveness of the Centrope universities, is to enhance English study programmes and courses at the universities.³¹

The CEEPUS scholarship is a multilateral grant for several other Central and Eastern European countries, in addition to the four Centrope countries that aims to promote teacher and student mobility. Students can spend a study period abroad or teachers can undertake a teaching period at a partner university. The CEEPUS partnerships have been formed in the following way in the past few years. (Table 5.).

²⁹ Zoltan Csizmadia, Philipp Hergovich, Peter Huber (2011) CENTROPE Regional Development Report. Focus Report on Technology Policy, Research, Development and Innovation in CENTROPE. http://www.centrope.com/repository/centrope/downloads/RDR_Focus_Report_Innovation_Full_Report_EN.pdf retrieved 06/07/2014.

³⁰ multiple answers possible

³¹ Zoltan Csizmadia, Philipp Hergovich, Peter Huber (2011) CENTROPE Regional Development Report. Focus Report on Technology Policy, Research, Development and Innovation in CENTROPE. http://www.centrope.com/repository/centrope/downloads/RDR_Focus_Report_Innovation_Full_Report_EN.pdf retrieved 06/07/2014.

Table 5. Participating institutions in CEEPUS scholarship since 2005

Institutions	Partners in Austria	Partners in Slovakia	Partners in Czech Republic	Partners in Hungary
University of West Hungary	3	2	2	1
Széchenyi István University	2	2	2	1
University of Applied Sciences Wien	0	1	0	0
Burgenland's FH Centres for Advanced Studies, Eisenstadt	0	1	1	1
FH Campus Wien	0	1	0	0
Medical University of Vienna	1	0	0	0
Vienna University of Technology	0	1	1	0
University of Natural Resources and Applied Life Sciences, Vienna	0	1	1	1
University of Vienna	0	1	1	1
University of Veterinary Medicine Vienna	0	0	1	0
Vienna University of Economics and Business	0	1	1	0
Trnava University in Trnava	1	0	0	0
Comenius University of Bratislava	1	2	1	0
University of SS Cyril and Methodius in Trnava	0	1	0	0
Academy of Performing Arts in Bratislava	0	0	1	0
Masaryk University in Brno	3	3	0	1
Mendel University in Brno	2	2	0	1
Brno University of Technology	1	2	0	1
University of Veterinary and Pharmaceutical Sciences in Brno	1	0	0	0
Total	15	21	11	8

Source: www.ceepus.info

Next table shows the Numbers of co-operating discipline between the universities of Centrope countries in CEEPUS scholarship.

Table 6. Numbers of co-operating discipline between the universities of Centrope countries

	Austria	Slovakia	Czech Republic	Hungary
Austria	1	18	11	4
Slovakia	18	1	13	2
Czech Republic	11	13	1	2
Hungary	4	2	2	1

Source: www.CEEPUS.info

In summary, it can be said that two Hungarian universities have the least cooperation with the other institutions, and they have the least number of their relationship with the rest of the region as well. Although we should note that the Hungarian part of Centrope region has only two institutions. In terms of the intensity of the cooperation the following less intensive areas are in Czech Republic, while Austria and Slovakia have the most intensive partnership and co-operation with other HEI's in the region and also in these two countries the co-operation affects on the most discipline of science.

3.5. Short-term, periodical projects

Comparing with the previous types of co-operation we can observe that short-term, periodical projects are the most frequent types of cooperation. Basically, these are based on collaboration between smaller organizational units or personal relations but the main difference is that these projects are generally supported within the framework of the external fund. These collaborations are implemented in a given period, within a determined organizational and financial framework, and in addition to intended results and output indicators. We can distinguish three types of project co-operations: R&D projects; education projects (e.g. curriculum development, joint educational program); cross-border, regional projects. In addition to the three main types the collaboration in the framework of other themed projects (e.g. infrastructure projects) are also possible, but these are not representative in international cooperation.

3.6. R&D projects of FP7 (2007-2013)³²

According to a study of CENTROPE_TT the majority of the Centrope organisations (not only HEI's) involved in FP7 projects are situated in the Austrian part of Centrope followed by Hungarian organisations, Czech organisations and organisations from Slovakia. This suggests that Austrian organisations are dominant in trans-national research activities in Centrope. With its 563 co-operations Technical University of Vienna has the third most partners in Centrope region. (*Table 7.*)

³² The Framework Programmes for Research and Technological Development, also called Framework Programmes or abbreviated FP1 through FP7 with "FP8" being named "Horizon 2020", are funding programmes created by the EU to support and foster research in the European Research Area (ERA).

Table 7. The connections of Centrope HEI's in FP7

University	Place of the university	Number of partners (Total)	Partner universities in Centrope region	Number of projects with Centrope university
University of West Hungary	Sopron	367	Széchenyi István University	6
			University of Natural Resources and Applied Life Sciences, Vienna	3
Széchenyi István University	Győr	194	University of West Hungary	6
			University of Natural Resources and Applied Life Sciences, Vienna	1
Danube University Krems	Krems	164	Medical University of Vienna	1
			Sigmund Freud Privat University Vienna	1
Medical University of Vienna	Vienna	1368	University of Vienna	6
Sigmund Freud Privat University Vienna	Vienna	14	Danube University Krems	1
University of Technology – TUVienna	Vienna	976	University of Economics in Bratislava	1
			Mendel University in Brno	1
University of Economics and Business Administration	Vienna	86	Masaryk University Brno	1
			Medical University of Vienna	1
			Széchenyi István University	1
			University of Economics in Bratislava	1
University of Vienna	Vienna	24	Medical University of Vienna	6
			Comenius University of Bratislava	6
University of Natural Resources and Applied Life Sciences, Vienna	Vienna	114	Széchenyi István University	1
			University of West Hungary	3
University of Economics in Bratislava	Bratislava	74	Vienna University of Economics and Business Administration	1
			Mendel University in Brno	1
			Vienna University of Economics and Business Administration	1
			Vienna University of Technology - TUVienna	1
Slovak University of Technology in Bratislava	Bratislava	7	Slovak Medical University, Bratislava	1
Slovak Medical University, Bratislava	Bratislava	112	Medical University of Vienna	1
			Slovak University of Technology in Bratislava	1
Comenius University of Bratislava	Bratislava	662	University of Vienna	6
			Masaryk University Brno	4
Masaryk University Brno	Brno	478	Comenius University of Bratislava	4
			Vienna University of Economics and Business Administration	1
Mendel University in Brno	Brno	115	University of Economics in Bratislava	1
			Vienna University of Technology - TUVienna	1

Source: www.researchranking.org

Many of the FP7 partnerships between the universities of the region concentrate only one co-operation and do not take longer than one project. The number of partnerships in the region is negligible comparing with the number of all partnerships. It is also descriptive data that the most of the larger number of joint cooperation with other institution in the sub-region is connected to the own sub region and the cross-border disposition is less extended.

3.7. Education projects

The educational projects aim to develop joint degree program, to produce teaching materials, to start student, researcher and teacher exchange programmes, to organize summer schools, short cycle trainings and study tours. The educational co-operation projects often take place along a deeper cooperation, although the casual co-operations are also characteristic. Funds and programmes for supporting education projects, such as Erasmus Mundus, Tempus, CEEPUS, Visegrad Fund, formerly LLP (within Leonardo or Socrates Programme) all aim at building deeper co-operation, and even if this is done within the framework of a project. Besides there are small scale educational programmes, such as Erasmus Intensive Programme, which supports development and implementation of joint short cycle tertiary programmes (in the system of ECTS), while Erasmus Mundus, Tempus, or Visegrad Fund support the development of joint degrees, which provides strategic level of co-operation (CEEPUS also has similar goals, although its primary objective is to support mobility). Joint education projects are developing in Centroe region but main source of this type of co-operation is CEEPUS and it is necessary that the higher education institutions will be discovered by each other for successful participation in other education projects supported by different funds because presently these opportunities are not exploited for co-operation between Centroe institutions.

3.8. Cross-border, regional projects

The outstanding support programmes of cross-border co-operation are INTERREG Program and ETC-Programme (European Territorial Cooperation). ETC is much essential for HEI's in their regional strategy and supports cross-border cooperation projects in Centroe in the framework of five cross border programmes. In order to introduce how to affect these programmes to connections of higher education institutions in Centroe region the European Territorial Co-operation Austria-Hungary 2007-2013 (is financed through the European Funds for Regional Development (ERDF)) will being shown in devices (*Table 8.*)

Table 8. Features of projects

Number of approved projects	86
Projects with participation of at least one Centropo HEI	21
Participating institutions (projects)	University of West Hungary (10) Széchenyi István University (3) Sigmund Freud Privat University (1) University of Vienna (4) University of Natural Resources and Applied Life Sciences Vienna (4) University of Veterinary Medicine Vienna (1) Burgenland's FH Centres for Advanced Studies Eisenstadt (1) University of Applied Sciences Wien (1) University of Education in Burgenland (1) Vienna University of Economics and Business (1) FH Wien University of Applied Sciences of WKW (1)
Projects and topics with partnership of Centropo HEI's	1. Forestry University of West Hungary- University of Natural Resources and Applied Life Sciences Vienna 2. Geodesy University of West Hungary- University of Natural Resources and Applied Life Sciences Vienna 3. Automobile Engineering Széchenyi István University- University of Applied Sciences Wien 4. Pedagogy of language teaching University of Education in Burgenland- University of West Hungary 5. Transport model Széchenyi István University-University of Vienna 6. Cross-border Eco-mobility Vienna University of Economics and Business- University of Vienna 7. Soil protection University of West Hungary- University of Natural Resources and Applied Life Sciences Vienna 8. Recycling University of West Hungary- FH Wien University of Applied Sciences of WKW

Source: <http://www.at-hu.net/at-hu/en/projects.php>

These projects offer an opportunity that those institutions which have co-operated formerly with limited intensity for different strategy or for any other reason, they will be able to launch joint projects in a narrower field. The joint projects are implemented by co-operation of departments and faculties, but the results of these come into view in their common region. These projects provide an opportunity for institutions to find joint field of research and coordinate regional objectives but in narrow framework of several organizational units, so more long-term and comprehensive co-operation projects are required.

3.9. Personal relationships in HEI's of Centrope Region

Personal relationships are the most frequent source of cooperation in higher education. Many of these relationships are not leveraging on the institutional level but these regulate the connections of higher education institutions intensively. Due to the geographical proximity between the institutions of the Centrope region numerous informal personal contacts are established which eventuate co-operation in tighter fields of science and between organizational units. These collaborations may promote deeper and higher-level co-operation but often retained at the original level. The personal collaborations take place in similar frameworks and targets such as projects, but the cooperation is more flexible and the possible joint activities are also more diverse. However, the degree of personal co-operation does not necessarily affect the co-operation of the two universities. Registering and structuring such connects is not general, so their research can be achieved by other methods but this study does not concentrate the analysis of this. The recognition of the institutions and their profile of tertiary education act a significant role in the development of personal relations as well but the potential differences are superable. The cultural, historical, traditional and ethnic background of the region is also a big boost for personal co-operations, which provides a specific supportive environment for mutual knowledge transfer.

Summary

However, the R&D and other economic relationships of the Centrope region develop continuously, the results of our research show, that besides geographical proximity many other factors influence the cooperation network of the higher education institutions. It is very interesting, that in the case of Hungary the relationship of Centrope institutions is less developed with particular prestigious institutions of the Centrope (University of Vienna), than the relationships of those institutions with other, outside Centrope institutions. Despite of the development of regional cooperation, only targeted developments (cross-border funds, regional education funds) result notable cooperation among the institutions. In the great EU programmes the role of regional cooperation is insignificant, but the other organizational co-operations are stronger and stronger. This phenomenon requires further examinations, but it seems that those visions, which would like to create the cooperation of higher education institutions based on the common cultural, historical roots and geographical proximity, will not be sufficient. In addition to appropriate strategic management the regional responsibility can be strengthened on these bases in the case of those institutions too, where it plays a minor role today as the global and continental scale is more typical.

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