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INTER UNIVERSITIES COOPERATIONS IN THE AUSTRIAN-HUNGARIAN BORDER REGION

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Abstract. Economic growth and development theories have neglected the role of knowledge and space for a long time. However, it is widely accepted that knowledge has played a more and more important role in economic development, and—due to its spatial characteristics—also in regional development. The aim of this paper is to explore some spatial characteristics of knowledge and their impact on regional development, especially in case of border regions. After some theoretical considerations, the paper investigates the features of universities' cross-border cooperations in the Austrian-Hungarian border region.
Key words: knowledge, universities, cross-border cooperation, Austrian-Hungarian border region

INTRODUCTION

Since Hungary's European Union accession, Hungarian students have more and more opportunity to study at different European universities and colleges. This process is strengthened further by the Bologna-process and the introduction of the credit sytem. It follows that the interest is growing up for the Austrian institutions, mainly for those located in the Austrian-Hungarian border region. West-Transdanubian higher education institutions are put out for a more and more stronger competition that make necessary for them to build up institutional cross-border cooperations. Based on some recent theoretical conceptions about spatial characteristics of knowledge and its role in regional development, the paper investigates the features of university cooperations in the Austrian-Hungarian border region.

LOCALIZED KNOWLEDGE

Originally all knowledge has a local character, namely in double meaning. On the one hand, knowledge is geographically and historically determined, which means that it comes into existence in a given (historical) time period, and between different conditions, e.g. in diverse geographical location, by several people, facilities and institutions. In this context, generating knowledge means not only a traditional invention, but it covers an active and creative constitution process, which takes place in a given geographical area, according to the local rules, habits and conditions. On the other hand, local character of knowledge means that the nature and features of knowledge are considerably influenced by the conditions (e.g. material and histirocal conditions as well as related social interests) of its generation. The reason is that knowledge creation is a social process, thus, knowledge comes into existence from the geographically and historically changing social habits. Consequently, knowledge is deeply embedded in the society of several areas, and its local character doesn't mean only the knowledge which is characteristic or concerning in a given geographical area, but it always refers to the context of its generation (Johnston et al. 2000).

However, all knowledge is local at the time of its generation, one part of it will separate from the knowledge creator person during the so called knowledge codification process. As a result, one part of knowledge becomes explicit, while the other part remains tacit knowledge. While explicit knowledge can easily be formalized and transmitted by words and formal language (e.g. by reading books or listening lectures), the verbalization and transmission of tacit knowledge is very difficult, due to its personal and informal character. Acquiring tacit knowledge usually takes plenty of time, and happens often unperceived (e.g. by observing and following the maestro) (Karlsson and Johansson 2006; OECD 1996; Polanyi 1997 [1966]). Obtaining tacit knowledge requires mutual trust and understanding, a common language and frequent personal interactions i.e. the physical presence of both deliverer and recipient of knowledge. However, a growing geographical distance between the actors raises the cost and diminishes the frequency of personal interactions. It means that the dispersion of tacit knowledge has geographical boundaries (Audretsch 1998; Cooke et al. 2007), and therefore it is called sticky (von Hippel 1994).

Knowledge, especially spatially bounded tacit knowledge plays a more and more important role in the explanation of economic growth and development, while the process of knowledge creation has also changed. These tendencies can be recognized in the economic theories as well, even if in a weakener extent than necessary (Kocsis and Szabó 2000). While some endogenous growth models originated knowledge from traditional research and development activity (R&D), recent economic directions (evolutionary and new institutional economics) as well as management theories consider knowledge creation as a social or interactive process (Leydesdorff and Scharnhorst 2003; Romer 1990). According to the Nonaka-Takeuchi model, new knowledge is generated through a conversion between different types of knowledge.

The first step of the process is sharing tacit knowledge (socialization), which is followed by externalization, i.e. knowledge will be codificated (explicit knowledge). Then, different explicit knowledge elements will be combined, recontextualized and synthetized, which process also generate new knowledge. Finally, explicit knowledge will be converted into tacit knowledge through understanding, traditional learning as well as learning-by-doing (internalization). Thus, generation of new knowledge is a continuously growing spiral process, which starts from the level of the individual and go on toward community as well as organization level. Finally, it crosses the border of the organization and overreach to inter-organization level (Nonaka 1994; Nonaka and Takeuchi 1995; Sándori 2001) (Figure 1).

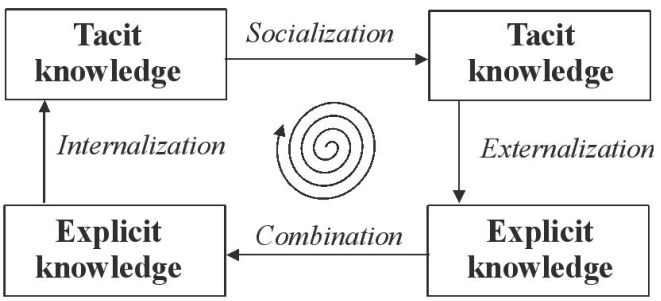

Figure 1. Types of knowledge conversion
Source: Nonaka and Takeuchi (1995), 71.p.; Mészáros (2001).

Knowledge also has a central role in the evolutionary and new institutional economics. However, these directions of economics are not uniform, they have some common characteristics. They broke with the typical—homogenous, perfectly informed and totally rational—economic man of the neoclassical economics, and assume economic actors to be heterogenous and only bounded rational, while information is assumed to be asymmetric (Hanusch and Pyka 2005; North 2005). Individuals don't interpret the world and don't take their decisions according to perfect information, but much more according to their so called shared mental models (North 1993; North 2005). "Mental models are the internal representations that individual cognitive systems create to interpret the environment" (Denzau and North 1993, 2.p.). Mental models are based on individuals' cultural heritage, which is composed of norms, values and knowledge accumulated and transferred over generations. Then they are shaped further by experience individuals obtain in the local environment, as well as by knowledge they get through formal learning[1]. Consequently, mental models have a plenty of variations changing continuously over time. (North 1993; Denzau and North 1993, p. 2).

Common cultural heritage as well as similar experience likely result in the evolution of convergent—dominant—mental models. The communication between indi-

[1] Formal learning usually takes place in educational institutions, and it is honoured by a certificate (in case of finishing successfully), (*Memorandum*… 2000, p 7).

viduals with similar mental models is usually easier and more effective, these people usually have similar opinions. Over time, formal (written and unwritten law, rules, prescriptions) and non-formal (traditions, behavioural norms) institutions as well as ideologies emerge from dominant mental models. "Institutions are the rules of the game of a society" (North 1993, p. 5), their most important function is to reduce uncertainty. Therefore, institutions with their rigid and slowly-changing nature can be regarded as fundamental building blocks of societies. At the same time, institutions contribute considerably to economical, social and technological changes: in form of positive as well as negative incentives they ensure the stability that is necessary to manage changes (Johnston 1992; North 2005).

THE ROLE OF KNOWLEDGE IN BORDER REGIONS

The development of border regions—which are in a very special situation—can also be explained on the basis of these theories. Border regions with at least two different knowledge cultures can develop into a common knowledge space through the co-evolution process of space, milieu and knowledge. The starting point of the process is that border as a social space structure influences the actions and interactions taking place in the border region. The continouos repetition of these actions and interactions leads to the development of common routines and habits, actors obtain more and more knowledge about each other knowledge culture. These knowledge

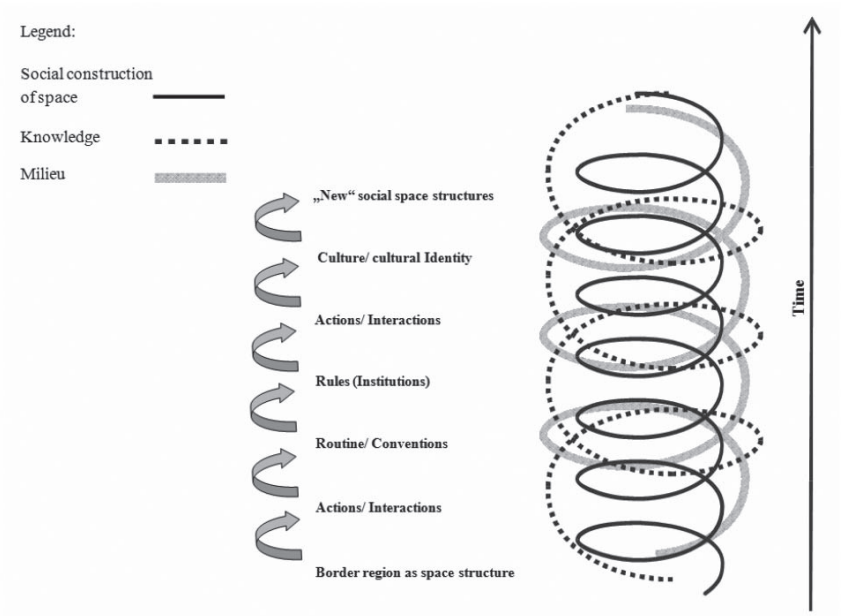

Figure 2. Coevolution of space, milieu and knowledge
Source: Fichter-Wolf, (2008, p. 43).

elements slowly infiltrate into the informal rules and institutions of the area, and later they reflect in the formal institutions as well. The increasingly proceeding of common formal and informal institutions in the cross-border cooperation results in the evolvement of a new common knowledge culture which makes possible the social reconstruction of the areas divided by the border (Fichter-Wolf 2008) (Figure 2).

Universities are usually considerable regional actors, additionally, in more point of view. Universities are deeply embedded in the local environment, and have remarcable effects on the regional economy (Rechnitzer and Hardi 2003; Hamm and Wenke 2002; Mezei 2007). Furthermore, as a part of the regional innovation system they have a key role in knowledge creation and mediation (Cooke et al. 2007). Nowadays, interaction and communication play a more and more important role in the knowledge generation process, also in the traditional knowledge creation process. Therefore, cross-border relations can remarkably enhance the knowledge creation capacity of universities, and—through this process—they also can contribute to the development of the whole border region.

CROSS BORDER COOPERATIONS OF WEST-TRANSDANUBIAN HIGHER EDUCATIONAL INSTITUTIONS

There are ca. 26 thousand students and ca. 1200 teachers in West-Transdanubia (Table 1). In 2008, the seats of two universities and one college can be found within the region (Figure 3). The biggest university of the region is the West-Hungarian University, with its seat in Sopron. Four of its actually ten faculties, namely the Faculty of Forestry, the Faculty of Wood Sciences, the Faculty of Economics and the Faculty of Benedek Elek College of Pedagogy are located in Sopron. It has further faculties in Mosonmagyaróvár (Faculty of Agricultural and Food Science), in Győr (Faculty of Apáczai Csere János Teacher Training College), and in Székesfehérvár (Faculty of Geoinformatics), the last one is located out of the region. Actually, it has further three faculties in Szombathely, because on 1st January 2008 Berzsenyi Dániel College, consisted of three faculties, became a part of the West-Hungarian University, and functions at present as Savaria University Centre (its faculties are currently called Faculty of Humanities, Faculty of Sciences, Faculty of Physical Education, Visual Arts and Music).

Table 1. Number of students and academic staff teachers in the West-Transdanubian higher educational institutions, 2008

	Number of students	Academic staff teachers
West-Hungarian University	15458	828
Széchenyi István University	10732	394
Theological College of Győr	292	35
Total	26482	1257

Source: Statistical Yearbook of Education, 2008/2009.

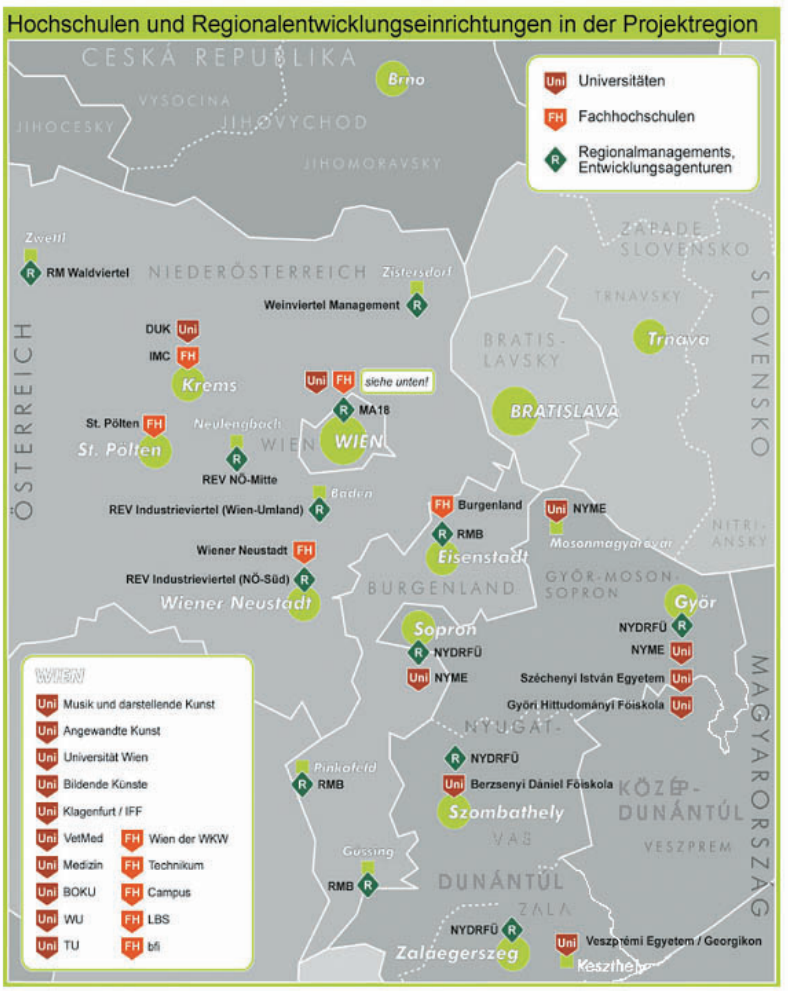

Figure 3. Seats of universities and Regional Development Agentures in the Austrian-Hungarian Border Region
Source: Strohmeier (2007, p. 262[2]).

Higher educational institutions may have diverse international contacts, which can be categorised by several aspects, e.g. content, time span, intensity and other characters of the cooperation. According to the interviews carried out in frame of an empirical research programme in the border region[3], the system of international relations of the West-Transdanubian higher educational institutions can be put into the following hierarchical system (Rechnitzer and Smahó 2007) (Figure 4).

[2] Berzsenyi Dániel Főiskola was integrated into the West-Hungarian University and nowadays operates as Savaria University Centre in Szombathely.

[3] Uniregio—Universities in Cross-border Cooperation. AT-HU-05-01-018 Interreg IIIA project, carried out by the Hungarian Academy of Sciences Centre for Regional Studies West-Hungarian Research Institute and its partner institutions, Fakultät für Interdisziplinäre Forschung und Fortbildung Wien and Danube University Krems.

Figure 4. Hierarchy of international relations
Source: Rechnitzer and Smahó (2007).

At the top of the pyramid stay strategically important cooperations of the institutions. Typical forms of these are trainings that give a common degree, and strategic research directions done together with foreign universities. These types of cooperations require very stable, intense, and well-established institutional relations, and in case of the West-Transdanubian universities and colleges there can be found only a few example of them. The overall contracts can be found on a lower level, which are contracts of long-term, general cooperation agreements, that are mainly of educational type but may expand on research cooperation. These framework agreements are generally indefinite, i.e.valid till resolution or withdrawal (Rechnitzer and Smahó 2007).

The great majority of higher educational institutions engages in international scholarship programs (Erasmus, CEEPUS) through which they are members of an international institutional network. Regarding their content, these contacts cover students' and teachers' exchanges between institutions, both sending and reception. Universities and colleges—with a foreign partner's approval—may take part in dif ferent EU programs, for example in Phare CBC, Interreg, CADSES, as well as in EU5, EU6 and from 2007 EU7 research framework programs. However, project cooperations have often an ad-hoc character. It means, that these relations are generally not durable, and after finishing the project their intensity is often declining. Without conscious intensification, these relations do not lead to the evolution of strategic cooperations. The lowest level of the international contact hierarchy stay the non-formalised cooperations, personal vocational contacts, individual actions. Generally, these are the most extensive contacts, since a lot of foreign country relations are on the institutions' teacher's, who attend different international

conferences (committee membership, review, guest instructor, stb.) and international scientific community (foreign country publications, international acknowledged) (Rechnitzer and Smahó 2007).

The system of international relations in case of a higher educational institution has been formed for decades. It follows that traditional universities have more extended and more stable contacts than the younger institutions. Both the age and the type of institutions have an impact on the system of intertanional contacts. Colleges provide mainly educational functions, in their case research cooperations and international contacts receive a much smaller emphasis, than at a traditional university (Rechnitzer and Smahó 2007).

Almost all West-Transdanubian universities and colleges have Austrian relations. The partner institutions are mostly located in Vienna, but a numerous number of contacts with other Austrian higher educational centres was explored, for example with Linz and Graz. There are traditional cooperations, which can be originated from the common history of the institutions (e.g. West-Hungarian University Faculty of Agricultural and Food Science in Mosonmagyaróvár and University of Natural Resources and Applied Life Sciences in Vienna), while other relations are based on similar institutional profiles, personal contacts (all institutions), common applications and research programs (e.g. Széchenyi István University–TU Wien), or common educational cooperations (e.g. Széchenyi István University–TU Wien–Technical University Bratislava). The actions are primarily teacher and student exchanges within the frame of the Tempus program, but there are also direct agreements at institutional level (Rechnitzer and Smahó 2007).

On the contrary of the exisiting and explored cross-border contacts, our research stated that the institutions don't take all advantages of their cross-border situation, for example geographical proximity, similar profiles, easy and quick accessibility or opportunities of common applications. More reasons were explored that hold up the cross-border cooperations of West-Transdanubian universities and colleges (Rechnitzer and Smahó 2007).

At first, the insufficient language skills of both teachers, researchers and students should be mentioned, because these actors are the participants of educational and research cooperations, teacher and student exchanges as well as different foreign language courses and lectures. In Gy r-Moson-Sopron county ca. 20–25 percent, while in Vas and Zala counties 15–20 percent of the population speaks at least one foregin language, according to the data of the last census in 2001. Although, these proportions around or over the national average of 19.2% are quite good in Hungarian relation, the language skills of the Hungarian students and population are lagging behind of those of the West-European inhabitants (Rechnitzer and Smahó 2006). Consequently, Hungarian students are not really interested in courses held in foreign languages, while the lack of these courses of the West-Transdanubian universities encumber the reception of students arriving from the foreign partner institutions (Rechnitzer and Smahó 2007). Fortunately, this situation has been started to

improve with the introduction of some courses held in foreign languages in the West-Transdanubian universities.

Furthermore, cross-border cooperations of West-Transdanubian higher education institutions are hindered by lack of administrative capacities and financial resources, wage-differentials, and in some cases by the different training structure of the institutions.

Interviews with West-Transdanubian higher educational institutions' leaders show that international research projects are going on departmental and faculty level. Consequently, international projects and cooperations are also handled at this levels, but not at university level. Therefore, the system of international cooperations within the West-Transdanubian universities and colleges are very fragmented and not embraceable at all, which slower and hinder both the building of strategic contacts and the developing its directions. Austrian and German higher educational institutions develop their international relations much more consciously, based on an internationalization strategy, which is not typical for the West-Transdanubian higher educational institutions at all. The fragmentation of international contacts make it difficult to develop an internationalization strategy at university level concerning future international cooperations (Rechnitzer and Smahó 2007).

The Vienna University of Economics and Business Administration (WU) defined more criterias in its internationalization strategy which have to be fulfilled by the potential partner institutions. Between the criterias are mentioned for example the membership in international networks (PIM, CEMS), the rank of the university or business college; accreditation (EQUIS, AACSB), excellence, elasticity, openness, compliance towards WU; the partner institution's accommodating ability to WU structures; foreign language courses, and German language skills of the partner institute (Sporn 2002). However, Central and Eastern European countries appear as potential cooperation target area of the WU, but the university don't strive to take advantage of geographical proximity. Instead of this, it builds up cooperations with the leading business universities of the neighbouring countries (e.g. Corvinus University, Budapest). It indicates on the one hand that the quality of the partner institution is much more important for the Austrian universities than geographical proximity. On the other hand it proves that advantages of geographical proximity aren't utilized adequately by the higher education institutions in the Austrian-Hungarian border region.

SUGGESTIONS FOR ACCELERATING CROSS-BORDER COOPERATIONS

Most of the international cooperations of West-Transdanubian higher educational institutions evolved during the 1990s, after opening the borders. In the second half of the decade, opportunities as well as financial sources of the cross-border cooperation were expanded. The starting of Hungary's EU-accession process opened the pre-ac-

cession funds, out of which Phare CBC Program supported especially cross border cooperations. However, the role of international cooperations has significantly changed from the beginning of the nineties till our days: international relations become more increasingly a need instead of an opportunity. This tendency is expected to continue and get stronger in the future: international cooperations will influence and determine the competitiveness of higher educational institutions more increasingly, thus they will become one of the key of their future success. It follows that universities and colleges should focus on the development of new international contacts as well as on the extension and intensification of their existing international relations. Although the intention and the interest for international cooperations are existing in the majority of the West-Transdanubian higher educational institutions, universities and colleges do not consider international relations as strategically significant (Rechnitzer and Smahó 2007).

From the side of the West-Transdanubian universities, it would be necessary to lay the emphasis on the developing of its internationalization strategy and according to this, on a more conscious building of its international contacts. In order to realize this, they should have to review the already existing but not systematized departmental and personal contacts and research projects, and after that they sould have to define the possible and desired future directions of international contacts (Rechnitzer and Smahó 2007).

In order to develop foreign country contacts, it is important to improve the teachers' and students' language skills, and to introduce foreign language trainings and courses into the training supply of West-Transdanubian universities and colleges. Some of them already have started to realize the mentioned suggestions. They are planning to launch different training courses in German and/or English involving their Austrian partner institutes (Rechnitzer and Smahó 2007).

To sum up, it can be said that West-Transdanubian higher educational institutions should develop their internationalization strategy, define their own goals and opportunities and try to fulfil the requirements set up by the potential partner institutions in order to reach a long-term success. Finally, we have defined some possible developmental directions of cross border cooperations according to the following (Rechnitzer and Smahó 2007):

- Get to know each other properly, introduction, and launch of cross border communication programs in order to generate and motivate cooperations.
- To create organizational frameworks for the cooperations (e.g. Cross-border Rector's Council, institutional delegates on organizing the contacts, secretariat, etc.).
- To organize a common conference about the situation of our macro region in Europe, and to held a forum about the possible higher educational cooperations. The frameworks are given within Centrope and Jordes+ programs, but numerous additional programs motivate the actors to take advantage of its cross-border situation and accelerate multiregional cooperations.
- Get to know of each other's research capacities and research results in order to be

able to plan fruitful future cooperations based on regional capabilities and economic characteristics.
- To make out a survey on the training supply of different disciplines (at bachelor, master, postgraduate and doctoral level), and to make it available for the students of the cross border region.
- To ecourage student mobility through harmonization and mutual acknowledment of training programs.
- To publish the list of partner institutions on the universities' website, and in this way to increase the attractiveness of the institutions between the potential students.

CONCLUSIONS

Recent theories stress that personal interactions and communication play a more and more important role in the knowledge creation process. Based on these approaches, a border region could be dynamized and developed through the coevolution process of space, milieu and knowledge. Universities as knowledge creators and regionally embedded institutions may have key role in this process. In case of the Austrian--Hungarian border region it was stated that universities do not use enough the cooperation possibilities arising from their geographical proximity. West-Trandsanubian higher educational institutions should develop their own internationalization strategies and broaden their international relations in a more conscious way. Furthermore, a rise in the education quality including language skills would also considerably contribute to the development of the border region. To sum up, it can be stated that the development of the Austrian-Hungarian border region could be dynamized by bracing the mentioned knowledge flows, and by using the reserves of the border region.

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