

Cross Border Cooperation for Knowledge Based Development

Towards a roadmap

DRAFT CONCEPTUAL FRAMEWORK

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1 Introduction

1.1 Background of the research project

The transition towards a “knowledge based economy” has a strong impact on Europe’s cities, and asks for new policy responses. Europe’s leaders have stressed the need to strengthen the knowledge-intensity of the economy (“the Lisbon Agenda”) even further, and it is increasingly recognized that cities play a major role in the achievement of these goals (see a recent study on cities in the knowledge economy by Euricur¹).

Local and regional policymakers face the massive challenge to promote economic and social well-being for their citizens in a fast changing economic reality characterized by an ongoing integration of international markets, fast economic restructuring, and an increasing weight of knowledge intensive economic activity. On the one hand, this new reality is a very competitive one. Cities and regions compete with each other to attract knowledge-intensive companies, high-skilled people and other resources that are important for the knowledge economy. On the other hand, it is becoming more clear that competitive strategies may also include more co-operation with other cities, for instance to attract companies. When choosing a location, companies are not interested in municipal or provincial boundaries but in the availability of strategic resources (skilled people, business locations, technological expertise, laboratories, suppliers, clients, etc.) at a reasonable distance. Also in many other respects, inter-urban co-operation can improve the attractiveness of a larger region as a whole, to the benefit of all.

The key aim of this research project is to assist cities to set up/promote cross-border co-operation with other cities, in order to strengthen their knowledge-based economy.

It is easy to state that co-operation can bring benefits, but it is less easy to make it happen in practice. Many cities work together, but on closer inspection these co-operations tend to be mainly political and government oriented and do not lead to real significant co-operation of the actors “on the ground”, i.e. companies, universities and other institutions. And this is even more the case when cross-border co-operation is concerned: a number of additional cultural regulatory and other barriers make such co-operation difficult to achieve.

¹ Van den Berg, Van Winden, Pol and Woets (2005), European cities in the Knowledge Economy, Ashgate, Aldershot.

Nevertheless, in Europe, there is a growing number of examples of cross-border co-operation efforts for knowledge-based development. Probably the best known example is Oresund region, in which Copenhagen and Malmo have joined up to develop knowledge-based clusters (such as the health cluster in “Medicon Valley”). In The Netherlands, Eindhoven has recently taken serious steps to develop an “international knowledge region” together with Aachen (Germany) and Leuven (Belgium). National governments seem increasingly supportive of such regional initiatives.

Many other cities are also actively looking for new strategic partnerships. Typically, however, cities struggle with the questions how to make partnerships really work: how to co-operate, with whom, in what form, and with which stakeholders. This research project wants to give more clarity on these issues, and help cities to define their new role in such a “multi-level governance” setting.

1.2 Scope and objectives of the research

This project wants to make a systematic study of cross-border partnerships between cities, which are aimed to promote knowledge-based development. Also, it wants to generate ideas to improve such co-operations.

The key question is how to create/promote cross-border partnerships in a successful way, in order to improve knowledge based-development.

Some relevant questions to answer are:

- 1) What forms of cross-border partnerships (aimed at promoting knowledge-based economic development) can be found, and what partnerships have potential?
- 2) What is/has been/should be the role of the different actors (companies, universities, local/regional governments etc.) in such partnerships
- 3) What are motives/drivers for establishing such partnerships?
- 4) What factors contribute to or obstruct such cooperation?
- 5) How to measure the performance of partnership models?;
- 6) How to explain success and failure?

In our study, we will not only focus on existing partnerships but also explore new opportunities for co-operation. It will lead to practical recommendations on how to set up cross-border partnerships for knowledge-based development.

The project is to result in a practical “Roadmap” for cross-border co-operation for knowledge-based development.

1.3 Approach and methodology

To answer the research questions formulated above, we will adopt a case-study approach, carrying out a number of in-depth case studies of existing cross-border co-operations that aim to promote knowledge-based development. All the case studies will be structured in a similar way, in order to make them comparable. To do so, a common “framework of analysis” will be drawn up, including elements of a framework we used for our study into the knowledge economy.

Each case study is based on extensive desk research and about 10 to 12 face-to-face interviews with key informants/stakeholders (representatives of local and regional governments, the private sector, public-private partnerships, educational institutions, etc.), enabling us to gain more insight in the co-operation. For each cross border region, the list of meeting partners has been assembled in consultation with the participating cities/regions. During the interviews, we not only discussed existing co-operation projects but we also explored further opportunities and possible barriers for co-operation.

1.4 Structure of this report

The structure of this report is as follows. After this introduction (Chapter 1), Chapter 2 presents a theoretical research framework for our study. This framework identifies the foundations and activities of a knowledge-based cross-border region, as well as the conditions that should be met in the coalition-forming process. The five subsequent Chapters (3,4,5,6,7) analyse cross-sector cooperation for knowledge-based development in five European cross-border regions, around the cities of Aachen (Germany), Arnhem (Netherlands), Dos Hermanas (Spain), Duisburg (Germany), and Nijmegen (Netherlands). The final Chapter (8) summarizes, concludes and present a Roadmap, with practical guidelines on how to set up cross-border co-operations for a stronger knowledge economy.

2 Research framework

2.1 Introduction

This study intends to analyse how cities that are located at national borders can co-operate in order to improve their performance in the knowledge-based economy. Before anything meaningful can be said on the topic, we need some clarity on the nature of the knowledge based economy -what is it-, and the impact of the knowledge economy on cities in general. This is the subject of section 2.2. Next, in section 2.3, we present a framework of analysis to analyse cross-border co-operations.

2.2 Cities in the knowledge economy

There is not a single and widely accepted definition on what a knowledge economy is. At least two perspectives co-exist. In one, the knowledge economy is equaled with technology and innovation. Central actors are universities and research establishments that conduct fundamental or applied research. They produce the knowledge that, in the end, leads to new products, production methods and productivity growth. The performance of nations and regions can be measured in terms of patents, R&D spending and innovations. Some cities -in particular those with good universities and research institutions- may benefit from their particular ability to produce new knowledge. Many other cities however lack such endowments and will face the negative side: they will lose manufacturing and lower level services to other countries and have few opportunities to compensate for this loss. In policy circles, this 'champion's league' perspective is still dominant.

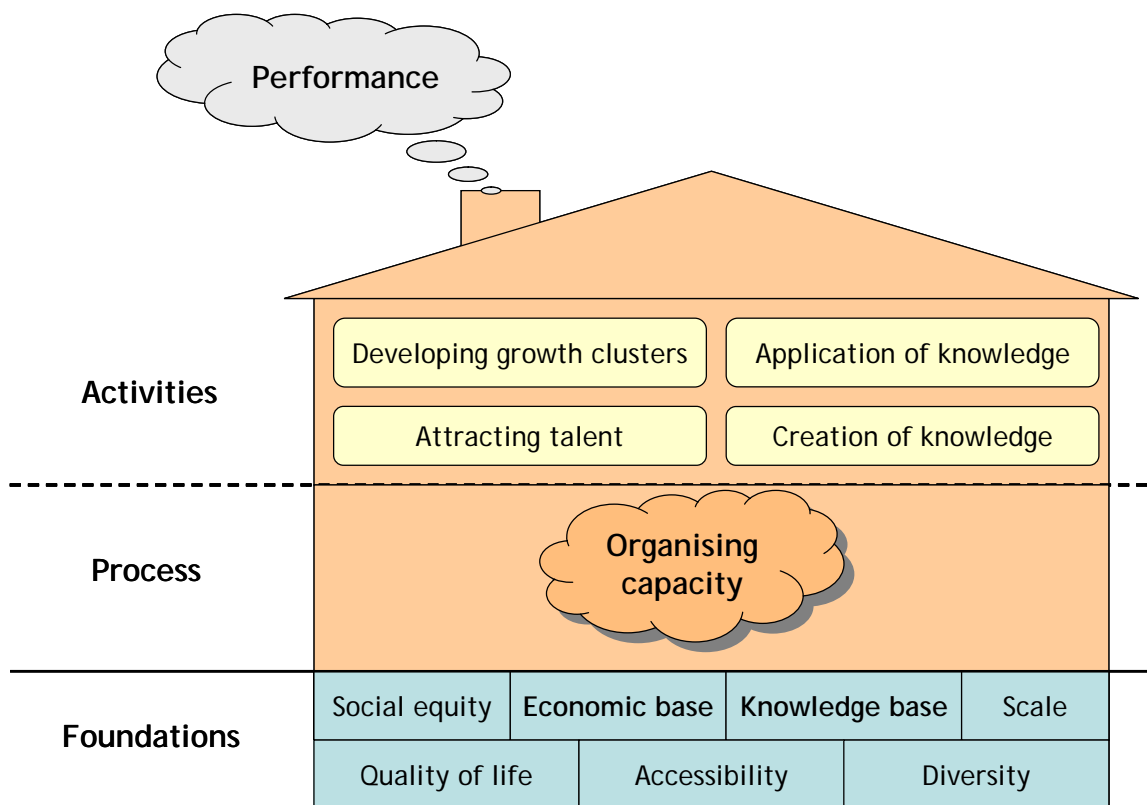
A second perspective on the knowledge-based economy is more inclusive. Dahlman and Andersson (2000) define the knowledge economy as "one that encourages its organizations and people to acquire, create, disseminate and use (codified and tacit) knowledge more effectively for greater economic and social development". An essential difference with the first perspective is that not only the production of new knowledge is regarded as a driver of growth, but also the use and valorization of knowledge in economic processes and the acquisition of skills.

From this perspective, not necessarily only cities with a strong "formal" knowledge base but also those specialized in advanced services, creative industries or innovative manufacturing sectors may emerge as successful "knowledge cities". In our study, we adhere to this more inclusive perspective on the knowledge economy.

In an earlier study, Euricur (2004) developed a framework of analysis that helps to analyze and judge the position of urban regions in the knowledge economy. For this study on cross-border co-operation, we apply this framework in a slightly modified form: see figure 1.

The framework represents the urban knowledge economy as a house, with three basic building blocks: Foundations, activities, and process. Below, each element is explained. In the end, all the conditions taken together produce something that can be called "performance". Our hypothesis is that cities that score high on all "chambers of the house" will show a relatively strong economic performance -in terms of GDP growth, and employment and productivity growth.

Figure 1: Cities in the knowledge economy: foundations, process and activities



2.2.1 Foundations

The knowledge house has seven foundations (see figure 1). Together, they constitute the overall *point of departure* for a city in the knowledge economy. The foundations are hard to change over time and set the margin for policy intervention.

1. The first foundation is the knowledge base. Elements of a city's knowledge base are the educational level of the population, the quality of the universities and education institutes, and R&D activities. But the knowledge base not only comprises scientific knowledge but also managerial knowledge, financial knowledge, and creativity. Florida (2002) refers in this respect to the presence of a class of creative people who write software, songs and stories, create designs and discover new ways to combine elements.

2. The economic base. Urban regions with an economy dominated by service activities often have a better starting position in the knowledge economy than those specialized in traditional manufacturing and port industries. Moreover, cities with a diversified economy are less vulnerable in rapidly changing economic circumstances. Cities depending on one economic sector can be confronted with huge socio-economic problems when its competitive position is weakening.

3. Quality of life. This is a key to attract and retain knowledge workers. It comprises the built environment, the housing stock, attractive city parks, natural surroundings, cultural institutions, the quality of health care facilities, international schools, but also environmental quality. As we will see later, different types of cities offer different aspects of quality of life, which has an impact on their development potential.

4. Accessibility. The knowledge economy is a networked economy. A high level of accessibility is therefore crucial for successful knowledge cities. Aspects of accessibility are access to international airports and High-Speed-Train connections but also efficient local transportation networks.

5. Diversity. This refers to the presence of different cultures and also different types of economic functions. Diversity promotes creativity. Several studies found that urban diversity fosters growth and innovation in cities. It increases the openness of the city for foreigners and helps to attract talented people from abroad: Creative workers prefer inspiring cities with a thriving cultural life, an international orientation and high levels of diversity.

6. Scale. For several reasons, larger urban regions enjoy scale economies: there is a larger market for specialised services, a larger common pool of knowledge workers, and they have sufficient scale to support very specialised amenities, such as international schools which help to attract people from abroad.

7. Social equity. High levels of poverty and inequality are not only undesirable from a societal perspective, but they can also be a barrier for cities to develop in the knowledge economy. High levels of exclusion may bring more crime and higher levels of insecurity, with many negative economic implications; also, if large parts of the population are excluded from economic life, a lot of human capital is wasted.

The seven foundations do not all have the same weight. The knowledge base and economic base can be considered as fundamentals: Cities without sound scores in these fields will find it very difficult to thrive in the knowledge economy. The other five factors can be characterized as supportive: they add extra strength to the fundamentals.

2.2.2 Activities

The foundations discussed above are very important and not easy to change in the short run. What can policy makers in cities do in the shorter run to become stronger in the knowledge economy? We discern four types of “knowledge activities”. These activities are aimed to strengthen the two most important foundations of the knowledge house: the knowledge base and the economic base. Evidently, if a city wants to improve its position in the knowledge-based economy, it could (and should) also work on the other five foundations, through more generic policies (i.e. infrastructure investments, social policy, improving amenities etc). However, as we are primarily concerned with specific policy for knowledge based development, we do not take these more generic policies into consideration.

The four types of activities are the following:

1. Promote the creation of new knowledge in the city (this can be pure scientific knowledge, but also other types of knowledge), for instance by attracting knowledge institutes.
2. Promote the application of knowledge. This refers to the intensity and quality of co-operation between the knowledge infrastructure and the business sector, which is a problem in many cities, and also to the degree to which companies in the city manage to apply new knowledge and concepts to improve their competitiveness. City policy can contribute to both.
3. Try to attract skilled people. Some cities attract talent, whereas others face a “brain drain”.
4. Try to create new growth clusters and industries. This reflects the ability to broaden the urban economic base or to increase the knowledge-intensity of the existing base. Also here, various policy instruments are available to promote this process.

2.2.3 Process factors: organising capacity

The final element of the framework is “organizing capacity”. This refers to the ability of urban policymakers, together with relevant stakeholders (firms, universities etc.) to optimize conditions of the “knowledge house” and to make the appropriate investments (Van den Berg et al, 1997). It is not really a theory, but rather a practical tool to analyse and assess the effectiveness of urban governance. Organising capacity is about how to actually make things happen, turning visions and strategies into actions and results. The framework of organising capacity consists of three interrelated groups of factors that are considered to affect coalition-forming processes: context, process, and performance.

Context factors

The framework of organising capacity assumes that coalition-forming processes, also in cross-border regions, are influenced by regional circumstances. These regional context factors determine, so to say, the playing field in which public and private actors (co)operate.

One of the most relevant context factors concerns the spatial-economic conditions. Many studies have shown that the presence of 'clear' problems can create a sense of urgency that is needed to bring actors together. Not only governments, but also companies and knowledge institutions should recognize the need for cooperation and coordination, in view of the increasing competition between regions. For instance it is relevant to see if cities actually complement one another, and to identify possible opportunities to capitalize on synergies. Another relevant context factor to take into account is internal accessibility (that is, within the cross border region). We assume that distance, or to be more precise the time that is needed to travel from one place to another, has a considerable influence on the development of cross-border relations between firms and/or knowledge institutions. Investments in transport infrastructure can reduce the distance, making this context factor partly contingent (although State support is often needed). Nevertheless, we think that distance could be seen as a very relevant context factor that might explain why partnerships do develop in one region, and don't develop in another region.

Another group of context factors to be addressed comprehends the administrative-political circumstances. These circumstances include the legal and fiscal barriers that exist because of differences between the institutional environments of the regions (and nations) involved. In many cross-border regions, these barriers often explain low levels of cross border commuting. It is up to the EU and the national governments to reduce these barriers; local governments can convince these higher-level governments of the need to do so, but they have limited power, as other (non cross-border) regions need to agree with changes in the administrative context as well. One of the complicating factors in the administrative context concerns the complexity of the administrative system in many EU countries, tasks and responsibilities being distributed among many levels of government (and in different ways). Again, these factors can hardly be changed by local and regional actors, requiring involvement of higher-level governments. In addition, also political circumstances, like the political colour of the city councils and the mayors involved, might play a relevant role in the coalition-forming process.

The third group of context factors includes socio-cultural circumstances. Presumably, one of the most important variables in partnership development is the tradition to cooperate (not only public-public, but also public-private), which is generally rooted in a region's history. Moreover, when we talk about the development of cross-border partnerships, it is important to consider the cultural differences and similarities that might obstruct or stimulate integration.

Process factors

While context factors determine the playing field, the process factors concern the interaction between stakeholders (the match itself, using the same terminology). The process of partnership development consists of several stages, such as taking the initiative, raising awareness and gaining support, getting actors together, and reaching agreement on some shared objectives.

It is often the public sector that takes the initiative to get actors together. However, it could also be a leading firm, a leading institute, or a group of non-public actors that initiates such a process. From an economic point of view, it is interesting to see why actors take the initiative. Presumably, they have a more than average interest in cross-sector cooperation (in

comparison with other actors). When leadership is lacking, we talk about deadlock situations in which none of the actors feels the urge to take the first step. Scholars use game theory to explain the existence of such situations. The concept of organising capacity assumes that leadership is needed to start the process, and to keep it going, also considering the other process factors (gaining support, creating awareness, getting actors together, developing a vision).

Awareness and support are essential elements of a well-functioning coalition-forming process. In cross-sector cooperation, public and private actors need to be made aware of the added value of partnerships, securing their sustained support for cross-border projects. Support is also needed to actually mobilize these actors, in order to make cross-border cooperation concrete (actions, results). In general, it is easier to gain support if the spatial-economic circumstances generate clear motives to cooperate. If motives are less clear and a sense of urgency is lacking initially, good communication can be helpful to raise awareness.

Another process factor in the development of partnerships considers the networks between public and/or private actors. In order to benefit from potential synergies, actors need to be brought together, meeting each other face-to-face and gaining insight into the added value of cross-border cooperation. Presumably, networks are needed to build trust and commitment, and getting used to cross-border partnerships. From experiences in European cities we know that the existence of networks provides the conditions to create more networks, which is in line with the assumption that the tradition to cooperate is a crucial factor in partnership development.

The fourth process-related factor is the ability to reach agreement on shared objectives, enabling the development of a common vision on the cross-border region. Obviously, this factor is closely related to the ability to create awareness and to gain support. Preferably, a vision gives direction to policies and investments by public and private actors, taking into account the region's strengths and weaknesses and the opportunities and threats it is confronted with. Case studies (e.g. Birmingham, Barcelona, Eindhoven) have demonstrated that a shared vision (not only a document, but also values that are actually shared by stakeholders) facilitates investments in the region that are consistent and coherent. In a cross-border region, a vision could set priorities in (economic, social, and environmental) policies, and possibly also present an idea on the division of roles between the cities in a region. For instance, a vision could specify the knowledge-based sectors and clusters (or value chains) to be promoted, considering the presence of knowledge institutions and business firms in the cities on both sides of the border.

Performance

The development of networks, visions, awareness and support can be considered the first outputs of the coalition-forming process. When actors in a cross-border region agree on some common objectives and priorities, this is indeed a great achievement. However, to secure support on the long run, it is of great importance to turn this vision into concrete strategies and actions, producing more tangible and visible results. To that end, strategic networks should be accompanied by operational networks, that they care of implementing the strategies that result from the vision. Actions are the more concrete outputs of partnerships. Moreover, operational leadership (with a 'hands on mentality') is needed to actually develop

linkages between firms and/or knowledge institutions. Representatives from the private sector and the knowledge institutions themselves are expected to play a key role in this implementation stage, while governments are expected to optimize the conditions for developing cross-border linkages. To keep the coalition-forming process going, performance measurement is considered of great importance. Not only politicians, but particularly also representatives of companies and knowledge institutions want to see the results of their investments in cross-border cooperation. The question is if the cross-border initiatives have contributed (or are expected to contribute) to reaching their own specific goals (e.g. enhanced competitiveness, prosperity, knowledge development and application, etc.). We should remember that increasing interaction between both sides of the border is not an objective of its own, but rather an instrument to make cities and regions (and the companies and knowledge institutions that are located here) more competitive.

2.3 Applying the framework to analyse cross-border co-operation

2.3.1 Common actions

The 'knowledge house' is a useful instrument to analyse the potential of an urban region to thrive in the knowledge-based economy. It identifies a number of factors that play a role, and puts them in perspective. Originally, the framework was designed to analyse individual city regions. However, it can also be used to identify opportunities for cross-border co-operation as well: see Figure 2. It suggests that cross border cities can benefit from each others foundations and activities if they co-operate in an adequate manner. The results will be that the economic performance of both regions will improve.

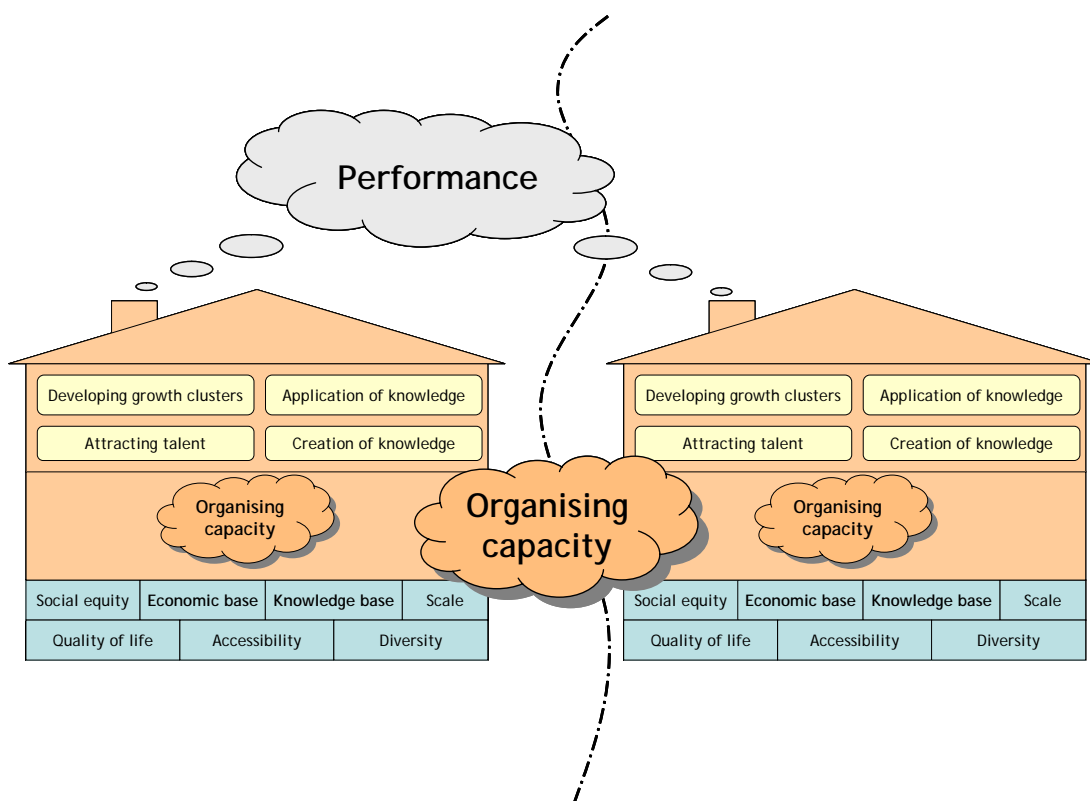
In the ultimate case, cities could work together to create one common 'knowledge region'. To use the metaphor of the house, the individual cities (the 'houses') together constitute a coherent 'knowledge village' in such a situation. In a less far-reaching way, cities can decide to co-operate in a more limited number of dimensions of the house. For example, they may co-operate to make their joint *knowledge base* stronger. This can be done by developing a common educational institute, or by enhancing the recognition of educational qualifications across the border. Concerning the *economic base*, cities can jointly develop, manage and market business locations, or set up a common start-up policy. To improve the *quality of life*, cities can co-operate to enhance landscape management, to align the supply of cultural and leisure facilities, or to market the region together. To improve *accessibility*, cross-border actions may include infrastructure investments (physical as well as electronic). To get *scale economies*, cities could jointly create facilities for which a large market is needed, or 'sell' the region as having a large labor pool with many employment opportunities across the border.

Also in the domain of *knowledge activities* (the upper part of the house), there are many examples of common action. To *create new knowledge*, joint efforts can be made (by universities or other research institutes) to acquire European research funds, to eliminate 'double work' and enhance specialization, or to set up joint research programmes of

universities, student exchanges etc. In the field of *knowledge application*, there are also many opportunities, such as the promotion of co-operation between business and academia across the border, the support of communities of practice that cross the border, the creation of a fund for innovative projects in which partners from both sides of the border are involved, etc. To *develop new growth clusters*, cross border co-operation may help to align the choice of spearhead sectors, or to find complementarities and specializations to build a cluster together.

The list of common actions is long, and could be extended. Many options are open to co-operate across the border for a stronger knowledge-based economy. A key question that remains, however, is: how to make it happen? In the following, therefore, we will focus on the process aspects.

Figure 2 The knowledge house applied to cross-border co-operation



2.3.2 How to make it happen: the process factors

From the previous section, we argue that cross-border regions face several opportunities to improve their knowledge and economic base by developing joint cross-border policies and initiating concrete projects to benefit from cross-border synergies. However, in addition, we assume that these policies and projects need some degree of 'organising capacity' to come into existence. The elements of organising capacity (introduced in section 2.2.3) can be used to identify some (potential) conditions for the development of knowledge-based partnerships

in cross-border regions. We emphasize that the list of conditions is not by definition complete; other conditions might appear during our case study research.

Spatial-economic conditions

Spatial-economic conditions can hamper or stimulate the creation of cross-border partnerships. For one thing, we assume that some degree of complementarity between the cities in the cross-border region might be needed, in view of the knowledge house's foundations. Such complementarities present opportunities to strengthen the economic base and knowledge base. Furthermore, one should take into account the relevance of a shared sense of urgency, which requires (experienced) problems at both sides of the borderline (underperformance, non-optimal use of the region's potential), and recognition of the benefits of cooperation in both countries. A third example of a spatial-economic context factor has to do with accessibility: a priori we suppose that acceptable distances between the cities in the cross-border region are needed for the development of partnerships, thus suggesting a balance between the need for scale (large region) and internal accessibility (small region).

Administrative-political conditions

Another group of factors that needs to be taken into account comprehends the administrative-political conditions. In cross-border regions, this group of factors is by definition relevant because of institutional differences between the countries that are involved. So, for one thing, the development of cross-border alliances can be stimulated by the reduction of legal and fiscal barriers or the creation of opportunities to overcome these barriers. In general we assume that partnerships are easier to develop in a favourable political and administrative environment in which the complexity of the administrative system and differences in political colour do not obstruct partnership development.

Socio-cultural conditions

The next group of factors can be labelled as socio-cultural conditions. An example of a socio-cultural condition that might be relevant for cross-border partnership development is the presence of a tradition to cooperate in general, and cross-sector and cross-border in particular. In other words: we argue that the development of new partnerships might depend on experience with previous partnerships. Another very general condition can be described as 'a favourable match of cultures in which cultural differences do not act as barriers in partnership development'.

Process conditions

Besides the context-related conditions discussed above, we also need to consider the process conditions. For instance, in order to develop cross-border partnerships, sufficient incentives are needed to take the lead in the partnership development process (a bonus on leadership) both strategically and operationally. Translating this to a cross-border setting, one could raise the question on what side of the border the initiative has to be, or has been taken. Another

example of a process factor comprehends effective communication of the added value of cross-sector cooperation, securing broad support among stakeholders on both sides of the borderline. Furthermore, a sufficient degree of interaction between the stakeholders by means of formal and informal networks is probably needed, raising the question how to organise this (what kind of platform?). In general, we think it is important to see if the actors involved succeed to reach agreement on shared objectives enabling the development of a common vision on the cross-border region, for instance when it comes to the division of roles between the various cities.

Performance conditions

Finally, it is important to pay attention to performance conditions, arguing that success is needed to keep a partnership alive and kicking. Presumably, cross-border partnership development depends on the ability to translate shared objectives (a vision) into agreements on priorities (strategies) and actions (as described in section 2.3.1). Also the question who is in charge of what, has to be answered here. To secure support, actors should be able to show concrete, tangible, measurable and visible results, which is another important performance condition.

2.3.3 In sum: implications for the case studies

The research framework that we introduced above can be used to analyse the case studies in a systematic way. It can help us to: 1) identify the strengths and weaknesses of individual case cities (a 'quick scan' device); 2) identify potential complementarities across the border; 3) categorize and 'map' current cross border activities and initiatives in a systematic way; and 4) to identify 'white spots' in current cross-border co-operation initiatives and the barriers that need to be overcome in order to address these white spots.

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