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Gateway 5: Innovation, Clusters and Regional Competitiveness

Clusters as an approach for knowledge-management in regions.

From location marketing to the learning region

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Introduction

It is a frequently asked question these days, what, considering the increasing internationalisation and globalisation tendencies, is and will be the role of the region in the economic process. There is no doubt that the conditions for the regional development in terms of competitiveness and innovation have changed because of internationalisation of markets and changes in production regimes. But, although traditional market conditions and infrastructure components have lost much of their significance there is still evidence that specific assets and competencies necessary for the economic process under changed conditions have their roots only in the region¹. In particular human capital and grown social conditions give regions their unique profile and enables them to create an “innovative milieu“². But also the changes in the demand structure like specialisation, increasing customer orientation, system solutions (which can not to be delivered by a single firm) and growing service content of products require more and more cooperation with partners for which spatial proximity offers the proper basis. To be successful under these conditions depends on learning and innovation processes which can only be efficiently organised on a regional level where networks can unfold and cooperation can take place.³ Thus, locational advantages can be exploited and if a regions gains a certain profile, large enterprises, looking for new markets and investment opportunities, will be attracted.

There is, in fact, convincing evidence from a number of case studies (e.g. research on industrial districts⁴) that certain regions form a powerful basis for successful and innovative industries. In most cases, however, such studies have told us little beyond “best practice“, i.e. it proved very difficult, if not impossi-

¹ “the enduring competitive advantages in global economy lie increasingly in local things – knowledge, relationships, motivation. (Porter, 1998 78)

² see e.g. Camangi, 1996

³ see Rehfeld/Wompel, 1997

⁴ see the discussion of Potratz, 1999

ble, to develop concepts that are applicable for a number of other (particularly lagging) regions in order to improve their situation. “The problem is that we know a lot about structure and processes in successful regions but that they can always be traced back to very particular factor constellations which have grown historically over a long time, but that we know very little about how such structures and processes can be influenced by regional policy“ (Rehfeld/Wompel, 1999 p. 4 ;translated by authors).

Researchers and practitioners in everyday life, however, face the problem, that different types of regions are more or less successful and they are confronted with the question, what could be done to develop and apply political concepts. This is the question, underlying the research project we are discussing in this paper.

The intention of the paper is to outline some of the conceptual framework of a research project to be carried out during the next two years⁵. After shortly introducing different concepts for regional development, in particular the cluster approach, we ask, what the challenges for regional economic development are and how they may be handled in the framework of German business support agencies (BSA). After a short description of the German situation in regional business support shortcomings are named and a notion of a cluster-based strategy for knowledge based services is developed. The third part refers to knowledge and innovation in the regional context. Starting with a discussion about the context of innovation and learning we refer to different kinds of knowledge necessary for innovation (Lundvall, 1996). Based on the theses of Porter about the functions of clusters for enterprises we try to develop a catalogue of knowledge, enterprises need in order to be competitive. The final part of the paper will dis-

⁵ Due to administrative reasons of the grant-givers, the project has not been started yet. Therefore we do not have results. The authors of the paper have developed this project together with Ileana Hamburg and Dieter Rehfeld, both fellow scientists at the Institute for Work and Technology, Gelsenkirchen

cuss the role of BSAs as mediators of such knowledge and present the main questions of the of the research design.

2 Concepts for regional development

The new challenges for regional development and the search for solutions have occupied economics and social science alike, e.g. regional science, organisation theory and business administration. They are described in terms of “cluster building“, “learning region“ or “knowledge-management“ and all of them aim towards a better understanding and practical solutions for increasing the innovative capacities of enterprises and regions. For our project we mainly refer to the cluster approach and results from innovation research as well as its inherent concept of knowledge and learning. In the following chapters we ask how these concepts contribute to an integrated approach to business support in regions and what we infer from that for our project.

2.1 Regional development as political task and research question

Ever since after WWII political forces have been active to develop concepts for creating equal conditions on national territories by influencing the economic development. The underlying strategies and philosophies have varied over time. Jacobs (1997) describes this political impact on regional development in “phases“⁶ where each one had a particular concept like e.g. managing the decline of old industries or supporting new technologies, which from the perspective of that time seemed most promising to influence future economic success. Such forms of policy usually aimed towards particular components of the economy and the underlying idea was that by influencing a certain sector or area

⁶ He names five different approaches in a historical perspective: 1. post-war reconstruction; 2. keynesian growth policy; 3. managing the decline of industries in crisis; 4. aggressive technology policy, and finally 5. cluster approach (Jacobs, 1997, internet version)

(technology) the impact on the economy as a whole would also have balancing effects for the spatial distribution of economic success across the nation.

When looking at data and facts about regional development in Europe today we can still find a wide range of different stages of development in regions and just as many efforts to adapt to the conditions of markets and technological and organisational changes. Together with the examples of the “old industrialized“ regions⁷ we find declining regions in many countries..⁸ There are regions, on the other hand, which are successful and some are even joining the club of the few extraordinarily advanced regions, with the world’s top of high-tech industries and services. Such “best“ or “worst“ cases which are documented in many empirical studies reflect a different ability to react to the underlying ruptures and changes in the world-wide economy. Though many of these studies have not come to generalizable inferences and concepts by which the success or failure of a region might be influenced, they all show, that the basis of the success stories is an existing strength in the economic structure which at the same time shows differentiation and specialisation.

In contrast to earlier concepts more recently the idea of “equalizing“ regions in the sense of evenly distributing the benefits of new technology, branches and a mixed industrial structure has given way to the idea, that the every region has its own potentials which are worthwhile to be developed. Strengths are seen in the fact, that there exist “geographical concentrations of interconnected companies and institutions in a particular field“ (Porter, 1998)

Based on this thesis a number of analytical concepts have been developed which are based on the competitive situation of enterprises (Porter 1990) or regions combined with models, emphasising social processes in a regional context (Rehfeld, 1999, Camagni, 1996). Parallel to this a strand of policy-oriented de-

⁷ e.g. Rehfeld (1993), Charles(2000)

⁸ In recent times, the development in Central and Eastern Europe lets expect an even increasing differentiation between the regions in a enlarged Europe.

ployment of the cluster ideas has come to the fore which considers clusters as targets⁹ and as a method¹⁰ to support regional development (Lagendijk, 1999, DETR 2000,).

The idea underlying all these considerations is that today no region is (and maybe never has been) able to develop competences for a larger number of fields in production and services. Specialisation in certain fields is a necessary condition for the links to global networks. Functional differentiation within clusters is necessary in order to endow them with the necessary institutions and mechanisms to be innovative: Producers have to have access to specialised suppliers and services, lead customers and corresponding research and education institutions¹¹.

In so far the cluster approach has added some new dimensions to the ideas and strategies underlying regional development and at the same time serves as a guideline to become aware of the potentials and support innovative development of individual locations. “The novel contribution of cluster approaches is that they facilitate better interaction between firms (and regional support agencies) while at the same time (re)shaping the regional economic structure“. (Lagendijk, 1999 p.4)

For the purposes of our project the identification of existing clusters in our pilot regions is a prerequisite for developing of what we call a “knowledge-based product“ offered by business support agencies. In the sense of Lagendijk, therefore, we employ the cluster approach as a “method“ to ... inter-firm learning and targeting specific knowledge for the support of innovation processes in local business.

⁹ = *shaping* related business activities in certain sectors

¹⁰ = *facilitate* inter-firm learning and tailoring of support

¹¹ see: Rehfeld/WompeI 1999

2.2 New challenges for German business support agencies

In the previous section we have discussed the problem that, supporting enterprises in coping with the requirements of globalisation, requires production clusters to be identified and supported in a regional /local context. This is one of the central questions BSA have to deal with today:

“Today it can be considered one of the central challenge for regional or local economic policy to recognize the potentials for new production clusters as soon as possible and to support their further development by measures of economic policy. (Rehfeld/Wompel, 1999-2, 14)

In Germany where business support is usually offered as a public service we can observe in the recent years a re-orientation from a relatively narrow definition of tasks to a broader understanding of regional development as well as an organisational differentiation of the institutional context. Though both elements of business support are constantly adapted to the increasing challenges, there is still a lack of integrated approaches and adequate knowledge management.

In general, business support (Wirtschaftsförderung) is a task rooted in the jurisdiction of cities and communities. Therefore, almost all local (cities) or regional (Landkreis) administrations have a department for business support. These units are expected to facilitate administrative procedures which are necessary for economic activities. Facilitating access to construction permissions, providing premises for new businesses in the area or giving advice about public subsidies are traditional tasks of the support agencies. More or less these tasks could be paraphrased as “location marketing“.

The growing competition on the German national markets (starting in the 1960ies) means also an increase of competition between regions and locations for new investment. BSAs try to attract investors by an intensified location marketing. This in turn leads to a differentiation of services, e.g. providing special

information, mediating functions for loans or subsidies, or the allocation of specialised infrastructure for new business units. Three new factors make a differentiation of activities in business development agencies necessary. Firstly, enterprises widen their production and marketing activities because of globalisation processes. Secondly, structural changes in the production and organisation regimes of enterprises often overstrain the capabilities of a single community to plan and implement support policies. Thirdly, national and European programmes (e.g. structural funds) to support economy and labour markets often require the formulation of regional strategies and profiles. The main way to support structural change on this level are projects, which have the function to develop new and sustainable economic solutions for the local economy, for example supporting the foundation of new small and medium sized companies.

As a consequence, co-ordination of business support activities on regional level had to intensify. New agencies which are responsible for larger areas or regions emerge or local BSA co-operate with their neighbouring counterparts. BSA differentiate with respect to organisational structure, available resources and fields of competence. They have to deal with a rising number of actors, which are competent or responsible in relevant economic fields. Services like the collection of data, formulation of strategies, co-ordination of regional branch meetings are sometimes externalised to specialised institutions. Experimental projects are often managed by external actors, which gain a lot of relevant knowledge within the area of their activities. Increasingly a scattered landscape of knowledge about the economic potentials, the needs of regional actors to develop the potentials, and the possibilities for action in the region and beyond emerges. Frequently, valuable knowledge is lost when projects are finished or persons change positions. That implies a strategic management of this scattered knowledge in order to make it available and ready for use over a longer period.

It seems, that nowadays regional economic development has become a complex “product”, which can be provided only in co-operation with a range of

actors and in close exchange/feedback with the “clients” of business support, the single enterprises. The main challenge for BSA is to integrate the body of available knowledge, originating from past and present work and to make it available for learning processes.

Before we turn to the question, how we propose in our project to develop a “knowledge based product” for the support of regional development we discuss which kind of knowledge is necessary for innovation and how this can be combined with a cluster approach.

3 The concept of knowledge

The significance of knowledge and innovation for sustainable growth and competitiveness of enterprises and regions has increasingly come to the attention of scientific and political discussions in the last decade. Terms like “knowledge based economy“(central to the work of OECD), “information society“(a paradigmatic expression of the EU) or “science based development“ are on the fore and stand for the growing concern about the factor “knowledge“ in economy and society.

A number of reasons support the hypothesis that knowledge and its use in the economic process has gained in significance. One of the reasons is that the competitive situation has aggravated by liberalisation of trade which made innovation in products, processes and organisations more salient as product cycles have accelerated. Another reason lies in the character of knowledge itself: The overall body of knowledge¹², has enlarged and specialized in terms of topics and topography and led to a “division of knowledge“¹³ which brings along the need for organisation and co-ordination. In the last decades many agents and organi-

¹² in our notion this includes not only scientific and technological, but also organisational and social knowledge

¹³ see Helmstädter 2000 and 2001

sations on local and regional level have been established to manage different kinds of knowledge¹⁴

Recent innovation research and the concepts for the production, diffusion and application of knowledge give us useful hints that, in order to make firms and regions more innovative and competitive, needs more than just introducing knowledge as factor of information in the economic process but that rather knowledge has to be handled in a way that it leads to competence in a given context.¹⁵

Spatial and topical expansion of knowledge is increasingly countered with enlarged and accelerated mechanisms for its diffusion through information and communication technologies. The technical prerequisites are, in fact, necessary and useful tools if the ability of enterprises to react adequately to shorter product cycles and harder competition is challenged. Efficient innovation requires the co-ordination of knowledge from different sources, and its management, be it on enterprise, on regional, national and supranational level. Adequate infrastructure as well as interactive mechanisms are vital, for the learning processes for which the tools, offered by I&C technologies, have to be employed in an intelligent and efficient way.

3.1 Knowledge and Innovation

In the following we want to point to some of the problems which the mentioned “division of knowledge“ brings along. Results of the “systems of innovation“ research¹⁶ which has opened up new perspectives for the understanding and support of institutional and organisational dynamics of the innovation proc-

¹⁴ e.g. technology centres for technological knowledge

¹⁵ see Brödner et al., 1999

¹⁶ we mainly refer here to the work of the OECD (1995), Lundvall (1996) and the DRUID group, Edquist (1998), Smith (1996), The STEP group.

ess are shortly sketched. The characteristics of the production factor “knowledge“ are scrutinized in the light of the complex approach to innovation and learning. This will be summarized in a taxonomy of knowledge.

For a long time in economic theory, knowledge was considered an exogenous factor and consequently innovation was modelled as a continuous process which automatically leads from technical invention to a new product. This view neglected not only every complex interactive aspects but was also technology centred. This, in turn, had its consequences for the technology policy at that time. The simple model was, that economic success on the market will occur automatically if the adequate research input from “future-oriented“ technologies is provided, which then will be turned into innovations by enterprises. The limited success emerging from this simple input-output (or: “technology-push/market-pull”) model becomes obvious in series of obsolete institutions founded under these premises on regional and local level. (e.g. the mentioned technology-transfer institutions, which never worked in the expected way)

The fact was neglected that in order to be innovative, enterprises need different kinds of knowledge, i.e. tacit and codified, technological and organisational, and that knowledge and learning have a social character which requires complex mechanisms of interaction to work.¹⁷

Consequently, new approaches in innovation research go beyond this simple and unidimensional view and assume instead that innovation is based upon a variety of organisational and institutional factors and can only come about by interaction and mutual reinforcement.

Under the traditional paradigm of economics, knowledge is considered universally available and a free good, and enterprises have it at their disposal and always use it optimally in the economic process. In practice, however, these assumptions hardly mirror reality. On the one hand, it is not a given fact that

¹⁷ see e.g. the work of Lundvall (1996) about the “learning economy“

each enterprise looks for new knowledge and turns it into innovations automatically, on the other hand, there exist different kinds of knowledge, which underlie restrictions with respect to their accessibility and use.

Empirical research indicates that the existing knowledge stocks of enterprises are extremely specific and therefore, new knowledge is perceived and incorporated very selectively.¹⁸ Above that, research in industry demonstrates that in small and medium sized enterprises in particular, the capacities to react to new research results are usually limited. This, however, does not necessarily mean that they are less innovative; rather their stock of knowledge is fed by other sources, i.e. the customer and used in a market-oriented way. Instead of doing own research or using research results, which would go beyond their limited resources, their innovative behaviour is largely determined by demand and interaction with the customers.

The assumption that knowledge in principle is transferable and freely accessible not only finds its limits on the enterprise level. The expectation that technology gaps between countries on different levels could be closed without problems, because knowledge which exists in advanced industrialized countries could easily be transferred, has proved wrong for developing countries. It is also problematic in the case of East and West Germany or Central and Eastern Europe. Research results and practical experience (e.g. from technology transfer policy measures) indicate that the transfer of technology does not work as long as the conditions for reception (or in other words: other kinds of abilities and capacities, competences) are lacking. For this, “innovation systems“ are necessary which provide a framework for collective learning and innovation.

Such doubts about the transferability of knowledge are also underlined by examples from the regional level. Regions which, due to their industrial structure have to undergo strong structural changes, as well as branches whose pro-

¹⁸ Nordhause-Janzen 1991

duction is outdated due to technological reasons, can only succeed if they leave their traditional paths and absorb new knowledge which enables them to develop new products and markets by innovating. The capability to learn (or to forget, as Lundvall adds), i.e. to use new knowledge becomes the deciding factor for the success of firms, branches or regions.

To sum up, even if knowledge exists and even is offered in codified (accessible) form, its use depends on the capacities and the ability to absorb it and to apply it in the economic context appropriately. The reason why the diffusion of knowledge within regions and branches (but also between R&D institutions) and enterprises is often problematic and restricted, lies in the fact that the preconditions under which the new knowledge can be deployed are not sufficiently known or misinterpreted.

The fact that in the process of innovation different types of knowledge play a role which have certain peculiarities with respect to accessibility and transferability adds another aspect to the problem. To identify some of the critical points we use a taxonomy of knowledge which Lundvall (1996) employs in his considerations about the “Learning Economy“.

Know what: with this type a form of knowledge is described which essentially consists of codified knowledge (or “close to what normally is called “information“; Lundvall 1996: 5). It is available in media, e.g. written down or on electronic device and therefore universally accessible. Modern I&C technologies promote the diffusion of such knowledge. Sometimes it is even argued, that the development of these technologies has been favoured by the increasing necessity to process codified knowledge.

Know why: This type of knowledge is more or less congruent with what is also called basic knowledge. It is provided mainly by science institutions and refers to laws and principles e.g. in natural science. Its characteristics differ

slightly from type one. It is codifiable and as far as its generation is located in the public domain it is also accessible, because, as a rule, the results from public science institutions are published. In case it is generated in industry R&D, however, accessibility is strongly limited and its acquisition may be costly (e.g. because it is protected by patents).

In some cases “know why“ may be difficult to codify, namely if increases in knowledge are very fast and not incremental. Rapid developments and fundamental changes in principles might instead require social interaction among experts. For enterprises access to such knowledge is crucial because it can imply decisive technological advantages. Social patterns of diffusion are, e.g. research co-operation between enterprises and universities, but also personnel recruitment. Such patterns are prevailing in high-tech industries like biotechnology, electronics or pharmaceuticals. (De Bresson/Amesse 1991, Edquist 1998)

Know-how: Codified knowledge is only of value in the economic process if it is applied in a specific context. This is where know-how comes to bear. Opposed to the first two knowledge types this usually is called “tacit“, because it is tied to persons and is transferred by experience, training and learning. For many enterprises, especially SMEs, the know-how of its personnel is the central resource for their competitive position. It can not be secured through property rights (e.g. patents). Increasing complexity of technological innovations makes it the more significant and because of division of knowledge, exchange of know-how across enterprise borders gains in importance (e.g. in supplier-customer relations). Recent tendencies of enterprises to concentrate on core competencies can lead to considerable loss of know-how.

Know who: Increasing division of knowledge in disciplinary but also spatial respect has made knowledge about “who knows what“ a central variable in the innovation process. Usually know-who is person-related knowledge though parts of it are available as information which can be traded on the market. However, only more intensive social exchange (in networks, supplier-client relations,

etc.) delivers criteria about which knowledge is to be used in innovation. In networks between basic science and company researchers e.g. enterprises not only gain access to further networks but also gain insights about the relevance of specific knowledge and its significance for the own enterprise.

In view of the different types of knowledge and the various difficulties to access, acquire and transform knowledge in the process of innovation, the question how the “division of knowledge“ can be handled turns into a crucial matter. While accessibility and the possibilities to transfer it in the companies own context are important basic conditions within the firm, the embeddedness into social contexts or systems on national, regional or branch level makes the task of innovation more manageable. This is where BDAs come to bear: their main task is to increase innovative capacities in a region by organising communication and cooperation, manage knowledge¹⁹ and give incentives for learning processes inside a region.

4 A firm-based concept of regional competitiveness

The existence of different types of knowledge as described above makes it evident that it is not only information that enterprises need to be successful, but that social processes are necessary to make knowledge “work”. As we have discussed in chapter 2, the notion of clusters as “geographic concentrations of interconnected companies and institutions in a particular field” gives indications of how the diffusion and application of knowledge can work. In the following we resume the cluster idea, in particular the concept of Porter (1990) and, for heuristic purposes try to connect the taxonomy of knowledge with a scheme that lists the requirements of enterprises in a regional economy in terms of knowledge input.

¹⁹ the concept of knowledge management will not be discussed in this paper. For a general notion of knowledge management we refer to Wilke (1996)

For our project, ways to provide the appropriate knowledge in the regional context is one important part of supporting regional development. The other part consists in the processes which refer to coordination and networking as conditions for learning. We will come back to this in the final chapter.

In the work of Porter (1990, 1998, 1999) innovation is at the core of future market development and competitiveness. His basic assumption is that operating within a cluster increases the chances for higher productivity, introduction of new products and services (i.e. innovation) and the creation of new firms. (Porter 1999, p, 225 ff.). The three factors – productivity, innovation and new business formation - together constitute competitiveness of a region.

In terms of *productivity* the advantages for members of a cluster root in a better access to specialised information about markets, technology and the competitive situation. They have lower search and transaction costs when they look for qualified personnel and they profit from various complementarities within the cluster.

Concerning *innovation* enterprises have better chances to get profound and detailed information about the actual and future need of their customers, because informal communication is dense. Particularly unsolved problems of the customers stimulate the search for a technological or organisational solutions in a supplier firm, which may result in a new product or service. Furthermore, customers within clusters have higher expectations towards the quality of products and services of their suppliers than “outside customers”. Constant comparison increases the competitive pressure and the peer pressure. Finally, enterprises within a cluster have better opportunities to observe the performance of their competitors with respect to marketing strategy, technology use or work processes. New and efficient solutions in one enterprise diffuse more quickly into the practice of other firms.

Public knowledge infrastructure, like universities, research institutes or branch organisations are often part of a regional cluster. Together with theoretical knowledge about new technologies and processes, they are a source for cooperation but also a pool for qualified labour.

To conclude, the advantages of a clusters for the competitive situation of enterprises in a region can be resumed to the fact, that in a cluster they have a better chance to be provided with knowledge concerning markets, technology, innovation and infrastructure. This represents the knowledge base BSAs have to provide and to mediate. The following table sums up these variables specified with respect to the different knowledge-types presented in the previous chapter.

Table: Clusters and the supply of knowledge²⁰

	Know-What	Know How	Know Why	Know Who
Clusters and productivity	clusters contribute to the accumulation of market, technical and competitive information	personal relationships and trust facilitate exchange of tacit knowledge, experience of cluster members can be deployed	clusters provide access to institutions and public goods: educational programs, information and technology pools. quality centres, testing laboratories.	coordination of activities across companies, increases quality and efficiency of complementary businesses; knowledge about competitors
Clusters and innovation	clusters increase knowledge about evolving technology;	cooperation with customers, suppliers and	access to scientific/ technological	knowledge about required experts,

²⁰ the table refers to the discussion of the three cluster relationships in Porter, 1998, p. 81-84

	availability of machinery, service and marketing,	competitors provides know-how for new products and new processes, makes opportunities for innovation visible	knowledge	interaction among scientific experts and firms
Clusters and new business formation	clusters make it easier to spot market opportunities	facilitates perception of gaps in products and services, to apply knowledge in new, but familiar contexts	knowledge about market principles	new entrepreneurs can benefit from established relationships.

5 Handling knowledge within the cluster: The role of BSAs

In this last chapter we will sketch out our research design which aims towards developing practical concepts of how scattered knowledge can be developed into regional competence by mutual and common learning processes.

Our considerations are based on the supposition that approaches and tools for supporting firms and industries on a local and regional level, have to take better account of the recent developments on global markets and offer services which are not only directed towards the single enterprise but, in supporting firms, also contribute to increase the attractiveness of the location as a whole. We shall call this an integrated approach.

Another shortcoming in regional/local business support is that available and potentially valuable knowledge is not used in way that it guarantees best possible output. We have seen that there are different types of knowledge, that require different access in order to be used in innovative processes. Practice indicates that, on the one hand, BSA often offer redundant and unnecessary knowledge, on the other, implicit (or person-related) knowledge often is not incorporated into learning processes but rather is lost when projects are finished and/or persons leave.

It is our concern, therefore, to develop an approach which integrates not only different levels of regional development but which is based on the use of available knowledge and provides a better basis for processes of learning in the region. In times of e-media it nearly goes without saying that this undertaking will be supported by information technologies.

The above mentioned conceptual perspectives imply two basic assumptions:

- In order to increase the competitive position of a region or location the endogenous potentials and their development prospects have to be known and employed for strategic planning. (Are there promising agglomerations of production capacities, knowledge production and supporting material and social infrastructure?) This implies affinities to the cluster approach. As we have shown, we use clusters as a “method“ (Lagendijk 1999) that helps regional actors to identify existing strengths and competences and to incorporate them into their regional strategies.
- In order to offer adequate support for enterprises in a region and to initiate or facilitate learning processes, different kinds of knowledge have not only to be provided, but also offered in way that enterprises can incorporate them.

5.1 The project design

The overall goal of our project is to develop a service package which integrates the so far scattered tasks of business support by developing a strategy and apply it by supplying knowledge in the region a way so that it initiates learning processes. It will be designing strategic approaches for economic support together with the relevant actors and will integrate I&C technology as a systematic part of the service package..

In cooperation with pilot agencies the instalment and use of an I&C-based knowledge infrastructure for the cooperation between agencies and their clientele are tested. Contents (curricula) as well as instruments for the qualification of agency members will be designed in a second step.

An agency specific design of the project is necessary, firstly, because no uniform concepts can be developed, which are applicable for each and every type of region; secondly it is necessary, because business support agencies differ with respect to *organisational structures*, available *resources* and fields of *competence*. They also have different access and possibilities to develop their own information and *communication infrastructures*.

Considering these differences, the guiding questions for an integrated approach are with respect

to *Organisation*:

- How can the organisation of a BSA be arranged in a way that it is able to command the proper capacities to provide necessary information and build up the corresponding linkages to other actors?
- How can the cooperation between the agency and external partners be organised so that explicit and implicit knowledge is preserved after the end of a specific project?

to *Resources*:

- which knowledge bases are to be developed and how can they be incorporated into the existing I&C infrastructure of the agency?
- which knowledge sources and which tools have to be deployed in the context of the existing cluster(s)?

to *Competences*:

- Which competences are available in the agency, which tasks have to be externalized? Which competencies have to be developed?
- how can the systematic acquisition, sharing and use of external and internal knowledge contribute to the continuous development of competences?

to I&C infrastructure

- which I&C infrastructure and communication technologies are suited for the permanent support of knowledge-based services?
- how is the quality of communication to be achieved through electronic devices within the agency as well as with customers?
- how can new learning methods (like internet-based learning) be combined with conventional methods in order to develop competences for knowledge-based services?

6 Conclusions

The topic of business support with the aim to increase competitiveness and innovative capacities of regions is on the scientific and political agenda. In this paper we have tried to combine two strands of research – the one about innovation and learning and the cluster approaches in order to specify some conceptual

ground for a project which intends to do practical work with BSAs. We aim towards using this analytical framework in the work with our pilot agencies to develop organisational and technological competences to strengthen the potentials of the respective region. The experiences gained in this process will be used to develop knowledge-based services which integrate the so far more isolated tasks of BSAs by using available knowledge in learning processes. As Lorenzen (2001) says in his paper about localized learning: “What matters is to create an indigenous – those inspired by the resource-based perspective would even maintain ‘unique’ – mode of economic development in terms of both product specialisation, industrial structure, and institutional environment. In short, what provides regional competitiveness is a unique local stock of knowledge and way of employing it”.

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