

The importance and aspects of training in EU cluster development

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Clusters are organization formations based on mutual cooperation, which advance the development of knowledge and innovation. In this study we concentrate on the inner functionality of the clusters and the cluster-management organizations and we analyze the training processes. In the first part of the study we perform the conceptual definition of clusters from many points of view, based on the features of participants, development and structure. In the following part we introduce the role of the clusters in the EU, besides we detail the goals and tasks of the cluster-organization, management-organization, and cluster-managers according to training.

Keywords: cluster, cluster management, training, European Union, development

JEL classification: P13, O31, O33

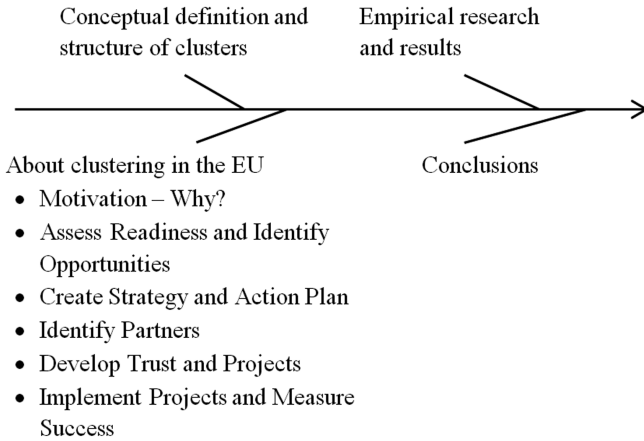
Introduction

In this paper we focus on clustering and training according to clusters. Clusters are organization formations based on mutual cooperation, which advance the development of knowledge and innovation. In this study we concentrate on the inner functionality of the clusters and the cluster-management organizations. The clusters play an active role in reinforcing the competitiveness of the regions by contributing to the creation of an attractive regional profile and encouraging application-oriented research and supporting SMEs (Feser 1998). The training and naturally the education plays an important role in success of clusters life. Figure 1 show the structure of this paper.

The main objectives of this paper are to describe and analyze the fields, topic and background of trainings in clusters. To achieve these objectives we use descriptive tools with wide spectrum focus.

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Figure 1. Paper structure

Conceptual definition and structure of clusters

The importance of knowledge and innovation and their relevance in current economics and everyday life is obvious, since numerous scientists and publications (e.g. Porter 1990, 1998, 2000/a, 2000/b; Snowden 1998; Sveiby 2001) deal with these questions. In the scientific documentations there are several explanations, different authors emphasize different elements. In the following we will summarize these approaches.

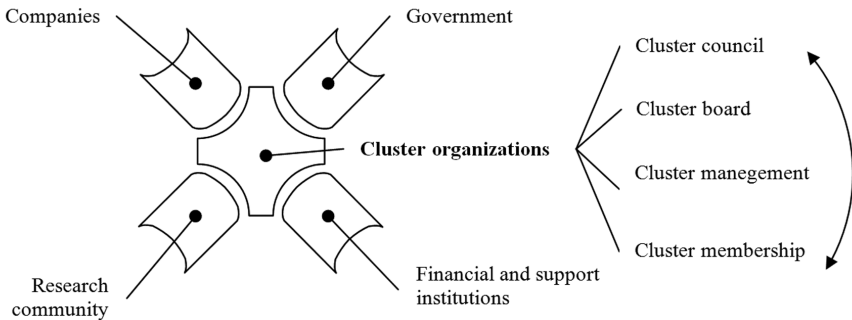
The word cluster got its economic meaning about the form of special corporate relationships. To understand the meaning of cluster, we should handle some definitions emphasized:

- According to Porter (1998, 2000/a, 2000/b) the cluster is a group of corporations, which are in the same industry, are geographically close to each other and have similar and complementary features. Related institutes (e.g. local governments, chambers, economy-improving institutes, universities and research facilities) are also included in the cluster.

- According to Rosenfeld (2000) and Török (2002) clusters could be interpreted as special networks, which are based on cooperation and rivalisation along social values and collective vision of corporations, institutes and professional organizations.

- Finally, according to EU (European Commission 2003:15) clusters are groups of corporations and related institutes, which are:
 - cooperating and competing
 - located in one or several geographically concentrated regions
 - specialized on fields, which are connected with common technologies and expertise's
 - based on science or tradition
 - institutional and non-institutional
 - based on innovation, expertise, information flow and knowledge generation, which can increase competitiveness
 - based on growth and long term business dynamic.

Besides the conceptual definition mentioned above we should emphasize those companies which play central role in the operation of cluster organizations, the business services providers and finally the government, which organically surround and strongly influence the development of cluster organizations. One of the possible internal structures of cluster organizations is visible on the right side of the Figure 2.



Source: the authors own edition based on Sölvell-Lindquist-Ketels (2003:18)

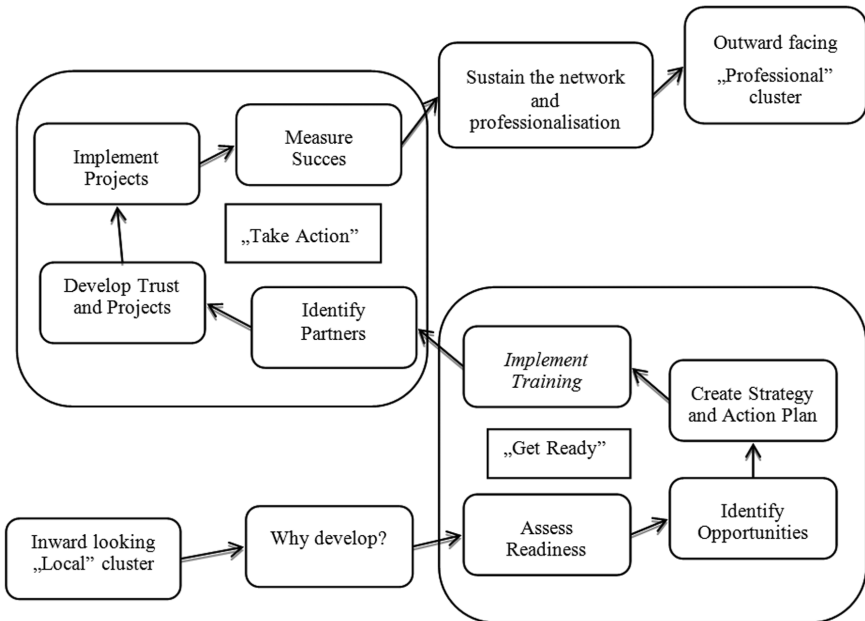
Figure 2. Five sets of actors composing a cluster

Clusters are very difficult and complex players in economic development because they have heterogenic members, objectives, skills, focus and processes (Jarjabka-Weiner 2011, 2012).

In the next parts we focus on EU clustering practice and we introduce the European cluster landscape.

About clustering in the EU

Globalization has, somewhat paradoxically, strengthened the role of clusters and furthered their development. Companies face increasing choices for locating their activities in places that provide the best business environment for their specific needs. The more markets globalise, the more likely it is that resources will flow to more attractive regions, reinforcing the role of clusters and driving regional specialization. In this process, clusters tend to become increasingly specialised and increasingly connected with other clusters providing complementary activities (Weiner 2011). On the other side, the regional, national and



Source: the authors own edition based on TACTICS Internationalisation Handbook Guidelines 2012

Figure 3. Cluster development

European focus on clusters should be even more strengthened considering the fact that roughly 38% of all European employees work in enterprises that are part of the cluster sector. In some regions, this share goes up to over 50% (Innovation Clusters in Europe – DG Enterprise and Industry Report 2012).

The relation between clusters and innovation is clearly complex. A comparison between the regions having the most stars with the best performing innovation regions in Europe, as measured by the Regional Innovation Scoreboard 12 (RIS 2006) shows that 7 out of 19 regions having a strong cluster are among the top third most innovative regions. This result suggests that a positive correlation may exist between the strength of regional cluster portfolios and regional innovation performance. Thus, the EU member states have become more and more committed to the encouragement and furtherance of cluster initiatives.

Figure 3 describes the process to become a success cluster in the EU under the influence of training, optimization and fit to export.

Motivation – Why?

There are a lot of advantages and also many challenges to become a professional cluster. Table 1 (see next page) shows some advantages of well managed clusters, which require that cluster managers are highly educated people.

Assess readiness and identify opportunities

A diagnostic tool will be developed for cluster organisations, based on the *UKTI Passport to Export 2012* assessment tool for SMEs. The diagnostic tool will first of all enable cluster organisations to understand why their main drivers are leading to a new focus on internationalization and training. The cluster organisation needs to determine the level of priority and commitment that it has to internationalization and training. The diagnostic tool will add to the evidence that the cluster initiative needs to present to stakeholders and partners to achieve the level of commitment needed for a training programme.

The diagnostic tool will challenge the cluster organisation to provide evidence to answer the following questions:

1. Does the cluster organisation have the necessary building blocks in place (cluster mapping, cluster strategy & action plan, governance structure in place, core funding identified, dynamic clustermanager(s) appointed, core team in place)?
2. Has the cluster reached the necessary critical mass to go interna-

Table 1. The advantages of operating in cluster environment

Categories	Advantages
Benefits to the businesses in the cluster	<ul style="list-style-type: none"> • Access to knowledge, to use in new products and services • Access to new markets • Access to key infrastructure, eg. pilot plants, living labs, etc • Access to new partners for collaboration • Raised profile
Benefits to other organisations in the cluster	<ul style="list-style-type: none"> • Access to knowledge • Access to new markets • Access to a wider customer base • Access to new partners for collaboration • Raised profile
Benefits to the cluster organisation	<ul style="list-style-type: none"> • Raised profile • Access to new international partners for collaboration • Access to new partners for staff exchanges • Improved ability to benchmark performance
Benefits that the cluster organisation can deliver to the region/member state	<ul style="list-style-type: none"> • Increased competitiveness and export performance by key businesses • Increased access to potential inward investors • Increased level of external funding utilised by the region/member state

tional (number of businesses actively participating, number of supporting businesses, number of training providers)? The precise numbers will vary according to the industry that the cluster is part of and the point on the cluster lifecycle that has been reached. It will also depend on the degree of specialisation of the cluster.

Benefits to policy makers	<ul style="list-style-type: none"> • Improved ability to benchmark performance within the cluster development programme • Improved return in investment in cluster development programmes • Better understanding of the framework conditions needed by cluster organisations to operate more effectively internationally
Commercial and productive benefits	<ul style="list-style-type: none"> • Creation of jobs • Economic development • Improving competitiveness • International expansion • Rapid development and adaptability • Stabilization • Expand services • Expansion of trade relations • Improve accessibility and information retrieval • Presence of the European Cluster Observatory database • International expansion, higher mass production • Revenue-stabilization • Product innovations, innovation • Rapid development and adaptability • Contact expansion

Source: the authors own edition by TACTICS Internationalisation Handbook Guidelines 2012

3. Is the cluster sufficiently dynamic (effective networking, level and depth of collaborations between members)? The cluster organisation has to have achieved some success in encouraging collaborations amongst the cluster members before attempting to set up collaborations with another cluster organisation. However, one of the benefits of training and internationalisation could be obtaining knowledge (Fodor – Weiner 2010) and accessing best practice on encouraging collaborations.

4. Does the cluster organisation have the necessary capacity and capability (people with appropriate skills and availability, leadership, language skills, cultural awareness of target countries, knowledge of economic systems and funding initiatives, existing links)?

5. Do the cluster organisation and its members have the necessary medium term commitment to internationalisation and the means to follow up opportunities? Internationalisation and training is a medium term process requiring an investment of staff time and money plus the management of expectations. The cluster organisation, the cluster members and the funding bodies need to recognise this and should not expect results too quickly. However, it is also the case that once a cluster organisation starts to achieve international successes then further opportunities can arise quite quickly. These opportunities need to be managed effectively.

6. What infrastructure is linked to the cluster and could it be used for international collaborations? The following types of infrastructure could be used: pilot plant, demonstrator, incubator, grow-on facility, science park, living lab. The list is indicative only and some clusters may benefit for collaborations around very specialist infrastructure.

Create strategy and action plan

The challenges are to find adequate partners (time & money for research), to find the time to coordinate appointments with relevant people and to minimize the costs for travelling around.

The purpose is to create a template that any cluster organisation in any European region can use as a basis for a customised cluster internationalisation and training strategy. All clusters are different so the temp-

late will at best apply to most clusters most of the time (TACTICS 2012 Internationalization Handbook Guidelines 2012). Some customisation will be needed. The cluster training and internationalisation strategy has to be evidence based and the cluster organisation will have to carry out, or commission, a survey of the organisations in the cluster. An action plan will then be developed by the cluster organisation to show how the cluster training and internationalisation strategy will be delivered.

Identify partners

Potential partners need to be complementary rather than identical. Cluster organisations should look for win-win partnerships where all the partners gain something. The networks will be mapped and their suitability assessed. The networks can be classified in several different ways:

- General networks, eg. European Cluster Managers Club, EEN, ERRIN, Eurada, Taftie;
- Industry specific networks, eg. European Aerospace Cluster Partnership;
- Geographically specific networks, eg. Baltic Sea Region, Heidelberg Innovation Forum;
- International and training networks, eg. TCI, EU-Japan, Euro-Med Innovation network.

Develop trust and projects

“Projects” cover all types of collaborations between clusters. It does not just apply to applications for European and other funding. Initial contact has to be face to face, visits are therefore essential and need to be funded. Attending networking events is vital. Mutual learning and peer coaching can be useful in developing contacts. Once contact has been made then electronic communication methods can be used, but regular contact by some means has to be maintained. Possible options include (RIS 2012):

- Cluster Collaboration Platform
 - Virtual events
 - Video interviews available via the internet
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- Social networking platforms such as LinkedIn, Facebook, Twitter, flickr.

A social network needs to have a critical mass of active members in order to be effective. It will be far better to focus on a few effective social networks than to try to use many. Success breeds success so that various means of disseminating information about successful projects, eg. case studies, partnering events, conferences, are all potentially useful and can also stimulate new ideas for collaborations. Be very clear on project objectives and outcomes which must be practical and well-defined. Projects need to address real needs of cluster initiatives and businesses. Involve the real decision makers and obtain their buy-in before making commitments. Only work with partners who share the same goals. Benchmarking potential partners can be useful in assessing the benefits from collaboration. Identify any cultural or language barriers and agree on how these will be addressed. Once a critical mass of cluster actors/partners is formed, it is easier to extend the cooperation to additional partners (i.e. international cooperation can be built more easily in step-wise fashion). Develop project ideas before applying for funding. Funding project officers in the EC in Brussels and national contact points can provide valuable information on the criteria for each funding initiative.

Implement projects and measure success

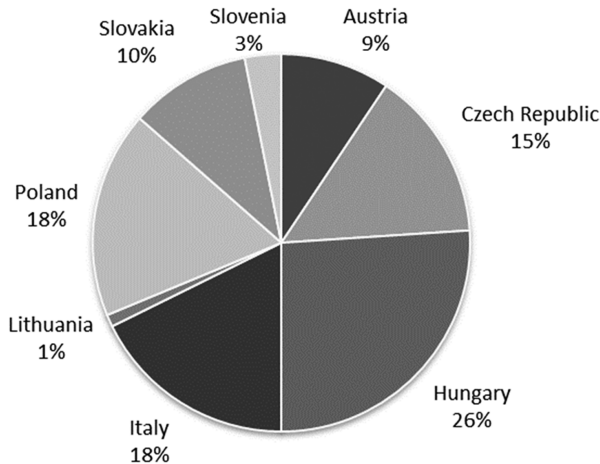
Take baseline measurements at the start of the project to make evaluation easier. Monitor progress and check against agreed project objectives and outcomes. Be flexible to changing circumstances. Contingency plans and budgets are essential. Ensure that sufficient human resources with the right skills are available throughout the lifetime of the project. Success needs to be measured at the overall level against the training and internationalisation strategy and action plan. Kompetenznetze Deutschland – European Clusters Go International survey (2012) provide useful indicators. Qualitative indicators are also needed in addition to quantitative measures. These can be obtained through surveys.

Empirical research and results

Empirical research was carried out within the project *Cluster and Network Cooperation for Business Success in Central Europe* (CNCB) focused on the development of cluster initiatives. The 10 partners involved in the project have broad knowledge both in the field of clustering and in EU-funded projects. More than 400 EU clusters were questioned in Austria, Czech Republic, Hungary, Italy, Lithuania, Poland, Slovakia and Slovenia. The questionnaire contained 30 questions: including open questions, Likert scale, multiple-choice and single-choice. In this paper we focus on the questions related to training, optimization and internationalisation. We have used IBM SPSS Statistics and MS Office Excel software to analyze the results of the questionnaire.

Basic Information

In the first part of the survey took part 96 clusters from the 275 addressed, which means nearly 35% rate of return (quite reasonable for an online survey). Most respondents were from Hungary (25), Italy (17) and Poland (17), followed by Czech Republic (14), Slovakia (10), Austria (9), Slovenia (3) and Lithuania (1).

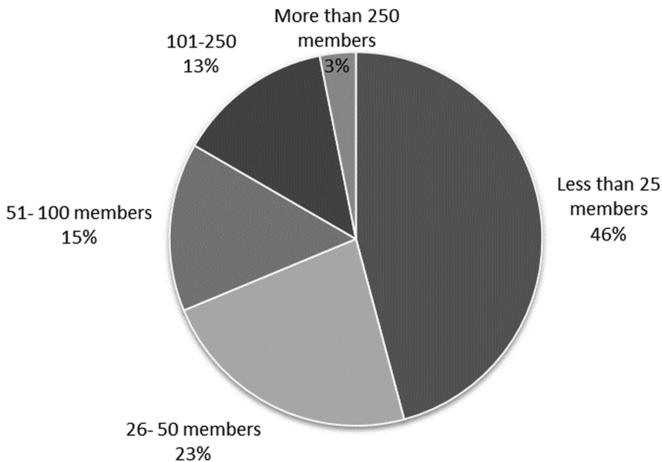


Source: the authors own edition based on CNCB 2012

Figure 4. Location of scanned clusters

The focus of these clusters was quite wide but the main areas were ICT Industries & services (17,7%), Biotech Pharma & Cosmetics (10%) and Tourism and Cultural Heritage (10%). Other areas like Automotive Transport Logistics, Food and Agro Industries, Environment, Intelligent Energy, Sustainable construction, Textile and many more had less than 4%.

The size of the clusters (according to cluster members) was also variable. Most of the clusters (44) were small with no more than 25 members, followed up by 26-50 members (22), 51-100 members (14), 101-250 members (13) and a few big clusters with more than 250 members (3).

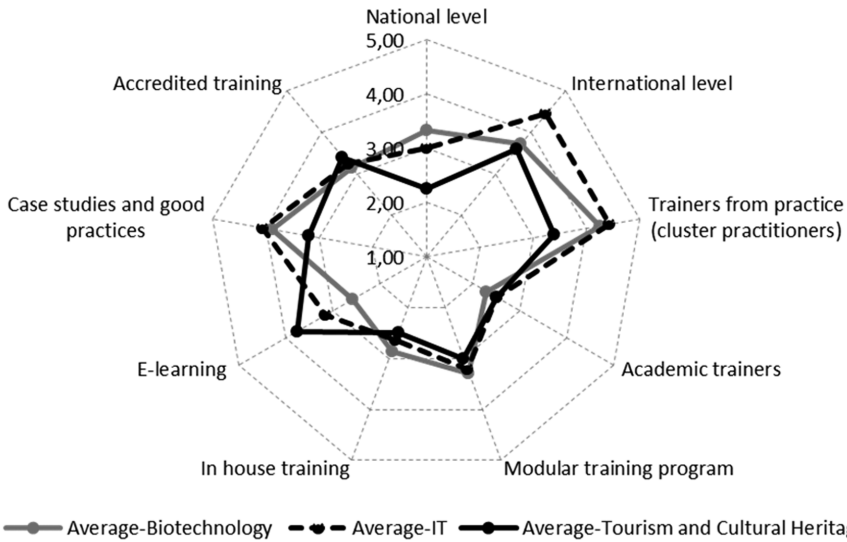


Source: the authors own edition based on CNCB 2012

Figure 5. Size of scanned cluster

Training aspects in clusters

In this chapter we analyze the answers related to training (field of training and type of training) from the CNCB survey. Three sectors are selected for test elements: biotechnology, info technology, tourism and cultural heritage. We chose these clusters because they operate in fundamentally different fields, therefore diversity training motivation appears and strong diversity training is expected in terms of attitude (Fodor-Weiner 2010).

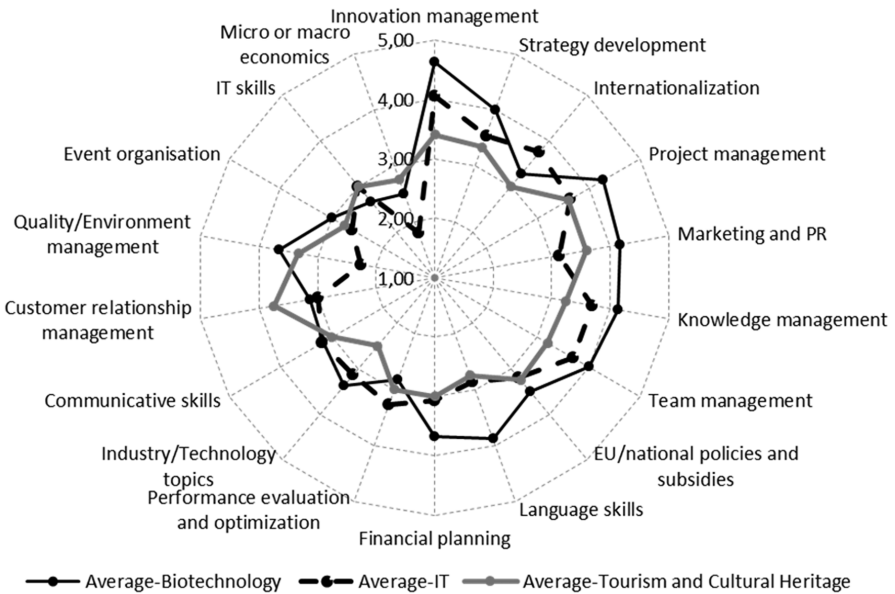


Source: the authors own edition based on CNCB 2012

Figure 6. What is important for you in the training?

Regarding the type of the training the international practices are important in all three sectors of the study. Trainers from practice are preferred to academic trainers. For the two technology-orientated sectors (Biotechnology and IT) knowledge-transfer through case studies and best practices is of high priority. The in-house training was rated below average in all three sectors, suggesting that the organizational knowledge-transfer tends to be informal, such as coaching or shadow programs. In the field of tourism it was an outstanding value for e-learning, which is likely correlated with the international level view.

Examining the Biotechnology sector, the highest value regarding the field of training was given for Innovation management. Knowledge management, Project management, Marketing and PR reached a value above 4. Quality/Environment management and Team management (more effective use of human resources) rated high scores as well, because of more effective use of intellectual assets. Language skills also rated high score, because of the importance of the international level.



Source: the authors own edition based on CNCB 2012

Figure 7. The fields of training

In the tourism sector Customer Relationship Management and Quality/Environmental management were rated the highest values, because of the specialness of the value chain management of the service sectors. In this sector the fields that can facilitate more effective management of the intellectual assets were rated over average.

In the IT sector Innovation management, Knowledge management and Team management were rated with the highest score. The industry/technology topics are also important, because of the rapid development of the ICT sector.

Micro- or macroeconomics were rated with low values in all three sectors, which suggests that practice has been perceived as a priority.

Conclusions

The results of our research show that knowledge and competence of business managers and the development of cluster-organisations will

be a decisive competitive advantage in the future. This is important because innovation in all areas (technology, design, marketing, organisation, management) requires creativity, knowledge and relationship skills of all employees involved. Managers who “only” procure and control are just as deficient as employees who “only” work well.

Knowledge maps provide an overview of the knowledge available in the partner businesses, together with the potentials and their distribution. In this situation, qualification as a process for upgrading human capital through consulting and education takes on high priority. Competitive qualities need high-level qualifications, which in turn require well-conceived qualification opportunities. The conditions for success in today’s turbulent markets – national and international – have changed considerably. In times where selective market development strategies and quality are demanded from many different directions, the needs of qualification have to be taken into consideration at all stages of the value chain (Innovation Clusters in Europe – DG Enterprise and Industry Report 2012).

These challenges mean that clusters need a qualification system with multiple components. First, it involves a qualitative technical lecture and discussion programme, based on an assessment by the leading businesses and research institutes of what will be needed in the next few years. A review of the needs of the cluster businesses for qualifications is another important input into this technical programme (Pam-minger 2010).

However, a cluster also needs a very open, interactive and relations-based network learning forum, which can be flexibly configured by the actors themselves. In such an open learning system there are no planned programs of events – every member can take the initiative and submit a personal learning module within the framework of the network forum. The initiator assumes the role of a broker here, putting a short description of the content, format and first date for the desired module on the cluster website (intranet). If more than a predetermined minimum number of people register for the event, the module is prepared and held with the help of the cluster management or cluster support. All the re-

sults are documented on the intranet using a uniform and simple system, and are accordingly available to all cluster partners.

Clusters formed through cooperation and development projects (eg. CNCB) realize economic benefits and synergies between the actors. The advantages and success factors of clustering could be the subject of further scientific research.

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