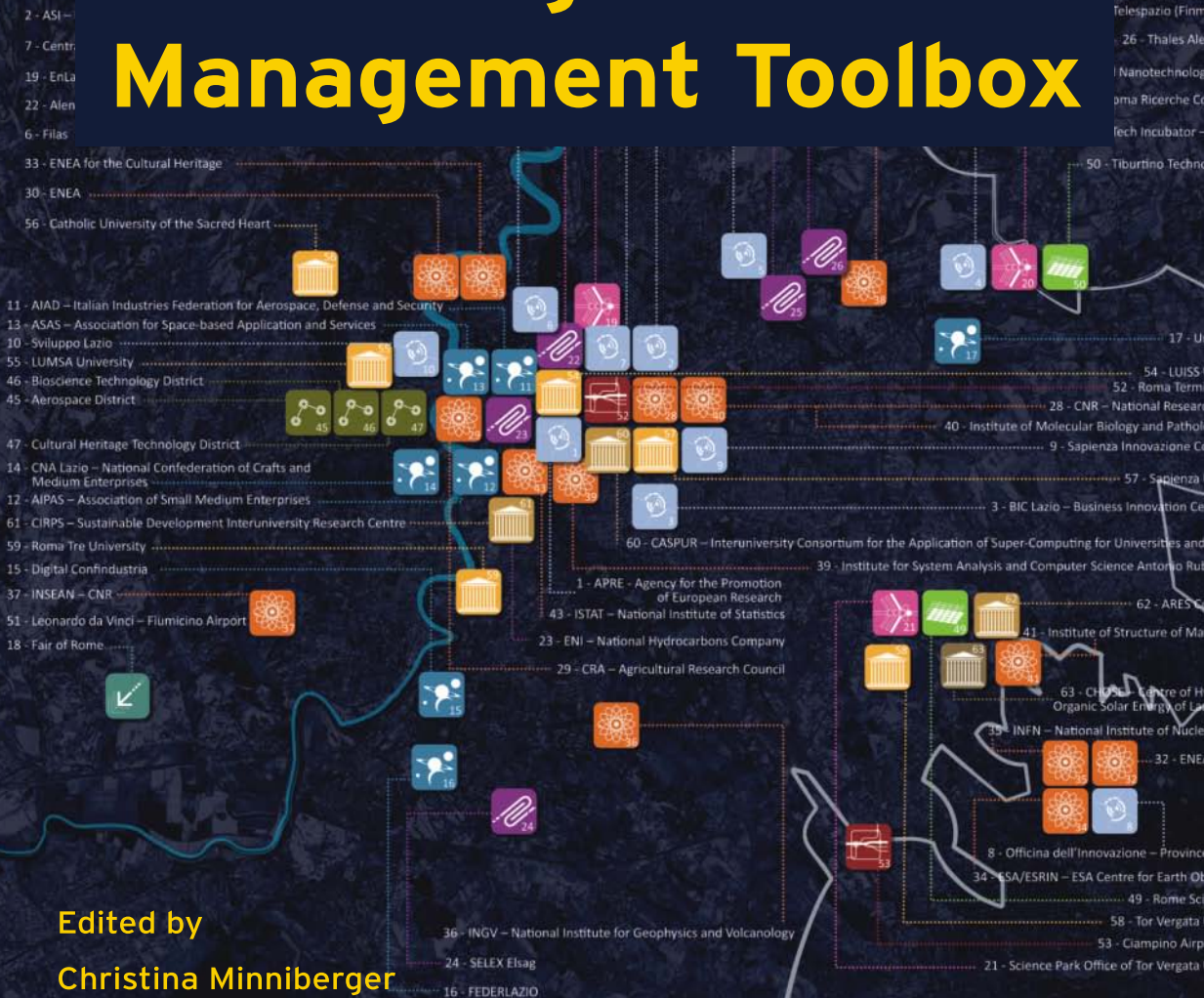


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# Knowledge Network Management Toolbox



Edited by

Christina Minniberger  
 Agnieszka Olechnicka  
 Adam Płoszaj  
 Suntje Schmidt



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[www.know-man.eu](http://www.know-man.eu)

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**European Union**  
European Regional Development Fund

This project is co-financed by ERDF and made possible by INTERREG IVC Programme

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ISBN 978-83-7383-619-8

Prepress preparation:  
Wydawnictwo Naukowe Scholar Sp. z o.o.  
ul. Krakowskie Przedmieście 62  
00-322 Warszawa  
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## INTRODUCTION

*Agnieszka Olechnicka, Suntje Schmidt, Barbara Staib*

### From Good Practices to Interregional Learning

Innovative companies, academic institutions and public authorities are key players in international, national, and regional innovation systems. Nevertheless, one of the obstacles to successful cooperation e.g. between academic and economic entities is the lack of a “common language”.

The INTERREG IVC project “**Know-Man** – Knowledge Network Management in Technology Parks” works on these problems right at the interface between business, academic, and public institutions: The **Know-Man** project unites 15 partners from 5 different European countries representing public authorities, scientific institutions, and management units of technology parks and incubators.<sup>1</sup> Technology Parks are ideal testing sites for practices aiming at improving the linkages between economic and academic spheres because companies and academic institutions co-exist next door to each other. Nevertheless, this does not guarantee an active culture of interaction and cooperation. Therefore, **Know-Man** identified and developed different instruments and tools for analysing existing knowledge potentials within regions as well as for optimising the interaction and cooperation culture in the future.

As an INTERREG IVC project **Know-Man** evolves around interregional learning, because the participating entities from 5 European countries develop and share solutions for joint problems. Nevertheless, INTERREG IVC project do not just lead to interregional learning effects, but also to regional ones: Practices and knowledge in interregional projects are not just shared between project partners. Instead, partners further distribute such practices and knowledge within their region and hence function as multipliers.

The Knowledge Network Management tools that are described in this brochure – Knowledge Atlases, Demand Analysis, and Benchmarking – function as examples for the multiple dimensions of learning within **Know-Man**. Those three are learning tools: The **Know-Man** team learned how to adapt and adjust them, the project partners learned from working with the instruments, and regional stakeholders hopefully learn from our recommendations and compiled lessons learned. In this brochure we would like to share our learning process with you!

The **Know-Man** initiative started with identifying Good Practices regarding methods and processes for improving the business-science interaction. With this measure the

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<sup>1</sup> For more information about the project, please visit: [www.know-man.eu](http://www.know-man.eu)

project aimed at learning about initiatives that have already proven to be successful and about the reasons for the success. The collected Good Practices are published in the **Know-Man** Good Practices Guide that is available in printed form and well as online.<sup>2</sup> The Good Practice Guide offers not only a broad collection of experiences, methodologies and approaches that focus on the transfer of knowledge, know-how and technology between enterprises, research institutes, public administrations, and intermediaries but also summarises some lessons learned regarding transfer of good practices.

In addition to collecting and publishing the identified Good Practices, **Know-Man** also set up arrangements to interregionally transfer some of these practices. In tandems that unite two regions (the one that hosts a specific Good Practice and the one that would like to set up the practices as well) partner organisations and additional regional stakeholders work on setting up a new practice in a new region. This is the case e.g. for the Wiwex course developed at the Humboldt Universität zu Berlin (that is being transferred to Koroška, Slovenia) or the Working Breakfasts developed in Seville (planned to be transferred in form of a “recipe book” that unites and compares several different regional approaches).

Identifying and sharing practices in regional development is one way to share ideas interregionally. Another way to do so is by working together, because shared practices and shared processes allow stakeholders to combine each other’s specialised knowledge in order to solve a problem or to deal with a task. To identify further need for action regarding the link between academic, economic, and public entities, to identify regional potentials and to highlight existing strengths and identify weaknesses, **Know-Man** worked with the following tools:

- **a Demand Analysis** in Science and Technology Parks helps to cover questions on supply and demand for Knowledge Network Tools.
- **a Benchmarking** questionnaire implemented in Science and Technology Parks helps in analysing the current status quo of parks and identifying weaknesses that have to be solved.
- **a Knowledge Atlas** helps to visualise existing regional “knowledge carriers” and cooperation services.

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<sup>2</sup> The brochure can be downloaded at [http://www.know-man.eu/files/1111/file/knowman\\_good\\_practices\\_fin.pdf](http://www.know-man.eu/files/1111/file/knowman_good_practices_fin.pdf)



## INTERREG as Laboratory and Tool-Kit for Regional Innovation Policy

*Comment by Barbara Staib, Senate Department of Economics, Technology and Research*

Berlin has been transforming drastically since the reunification 20 years ago, and this has not been a smooth process. Today, Berlin is back on the path to growth and has become one of the leading locations in Europe for science, innovation, and creativity. International cooperation plays an important role in supporting enterprises and industries in becoming more crisis-resistant and fit for transformations. Consequently, the Senate Department for Economics, Technology and Research uses several programs and projects to test new ideas in regional-economic development. The INTERREG programmes within the Structural Funds are among them, and include JOSEFIN (Joint SME Finance for Innovation, INTERREG IVB project) and **Know-Man** (Knowledge Network Management in Technology Parks, INTERREG IVC).

INTERREG offers not only a frame to learn about innovative approaches in regional economic development; the program also supports transfer of new ideas among regions. The projects allow for testing in protected environment new ideas, practices, instruments, and tools. Those considered important for the capital region will be further developed. In that way, the EU Structural Funds offer something similar to a laboratory, as through the INTERREG IVC program regional stakeholders get the chance to share, transform, and transfer innovative ideas.

## Introduction to Subchapters

This brochure aims at sharing not primarily the results of using selected Knowledge Network Management instruments. Instead, we would like to emphasize on the methodologies for the three instruments used in **Know-Man** in order to enable interested readers to use these instruments too. The description of each tool – Knowledge Atlas, Benchmarking, and Demand Analysis – is based on a common outline in order to support comparable descriptions.

Each of the three chapters describing the instrument consists of eight parts. The first part regards the tool's objective. The authors provide basic information on each instrument, namely: its aims, context in the project, and context in regional development. The second paragraph describes benefits one may gain from the implementation of the respective instrument as well as potential obstacles. The third section is devoted to the methodology; it contains information regarding the bodies capable and responsible of implementing the practices and highlights the knowledge, skills, staff as well as financial and time resources needed for the tool's implementation. The result of the instrument's implementation and its regional

specificities are described in the fourth section – typically the most comprehensive one. The fifth paragraph is the continuation of the preceding one as it characterises and evaluates the ways of communication of the tool's results to the wider public. The last three parts, containing self-analysis, are of high value for the project. Firstly, the authors were asked to assess the tool's potential impact on regional development by comparing the results with the objectives of the tool and its described benefits. Secondly, the possibilities of interregional transferability of each tool are discussed. Finally, the last part of each subchapter indicates the lessons learned and good practices related to the implementation of each practice.

## KNOWLEDGE NETWORK MANAGEMENT TOOLS

Each of the three sections in this chapter describes instruments for a regional knowledge network management and consists of eight parts. The first part regards the tool's objective. The authors provide the basic information on the instrument, namely: its aim, context in the project, and context in regional development. The second paragraph describes the potential benefits from and obstacles in the implementation of the respective instrument. The third section is devoted to the methodology; it contains the information regarding the bodies capable of and responsible for implementing the practices and highlights the knowledge, skills, financial and time resources needed for the tool's implementation. This part also undertakes the issue of cooperation links. The result of the instrument's implementation and its regional specificities are described in the fourth section – typically the most comprehensive one. The fifth paragraph is the continuation of the preceding one as it characterises and evaluates the ways of communication of the tool's results to the wider public. The three last parts, containing self-analysis, are of high value for the project. Firstly, the authors were asked to assess the tool's potential impact on regional development by comparing the results with the objectives of the tool and its described benefits. Secondly, the possibilities of interregional transfer of each tool are discussed. Finally, the last part of each subchapter indicates the lessons learned and good practices related to the implementation of each practice.



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## **Demand Analysis – Identification of Strategies and Approaches to Linking Companies and Academic Institutions**

Authors: Prof. Dr. *Elmar Kulke, Sascha Brinkhoff*

### **Objectives**

The Demand Analysis is a Good Practice developed and implemented in the **Know-Man** project. The exchange of experiences and good practices in knowledge network management (KNM) in science and technology parks is the central theme of the project. Thus, in order to develop new approaches to KNM and to formulate policy recommendations, the actual demand and needs of companies have to be examined. The overall objectives of the Demand Analysis can be summarised as follows:

- Assessment of the current situation of business-to-science cooperation in science and technology parks and additional innovation hubs in the partner regions,
- Assessment of the utility and effectiveness of existing knowledge network management (KNM) instruments and channels,
- Assessment of related regional framework conditions,
- Identification of businesses' demand and expectations regarding business-to-science cooperation in innovation hubs and in the region in general,
- Identification of businesses' needs for knowledge network management (KNM) instruments and institutions,
- Identification of specific needs for KNM tools by different types of businesses (e.g. start-ups and SMEs).

The target group in the Demand Analysis have been innovative, high-technology SMEs located in science and technology parks as well as incubators. The analysis' main focus was the quality of linkages to co-located and regional scientific institutions, respectively. In some partner regions university and non-university research institutions are located at the innovation sites (e.g. science parks). It has to be taken into consideration, however, that in some other regions academic institutions are located outside the specific innovation site.

In addition, general aspects of business-to-science interaction have been examined as well, to contribute to the identification of needs and expectations for KNM policies.

The results of the Demand Analysis in each partner region were compiled and a comparative analysis was carried out to discuss similar approaches. Finally, policy recommendations concerning the development of KNM policies and instruments were formulated.

### **Benefits**

The Demand Analysis has got many functions in innovation management in regional development. First of all, it contributes to the analysis of the current inter-linkages

of companies with research centres and universities in innovation hubs such as science parks, in the region generally and beyond. In the analysis, the form and content of the connections as well as the origin and geographical scope of the inter-organisational relationships are examined. This contributes to a better understanding of the companies' internal innovation management – also differentiated by specific company types.

Secondly, the Demand Analysis focuses on existing knowledge network management systems at the innovation hubs and in the regions. It evaluates their visibility and effectiveness, i.e. the companies explicitly assess how they use and perceive certain KNM instruments and related institutions that are aimed at fostering interaction with scientific institutions.

Thirdly, the Demand Analysis enables for identifying companies' needs and demands in two aspects: the future demand for business-to-science cooperation in terms of its scope and content, as well as specific support schemes and tools that facilitate the interaction with researchers and research institutions.

Based on all three elements of the companies' inputs, related conclusions can be drawn and policy implications can be elaborated. Thus, high-technology businesses may contribute directly to the development or re-adjustment of new and/or existing innovation management strategies, instruments and institutions on different levels in regional development.

Beneficiaries of the Demand Analysis' results comprise various institutions that are involved in the triple helix of the regional innovation landscape. Public administration, for example, shapes innovation policies on the regional level. Additionally, public intermediaries (e.g. innovation agencies, regional development agencies and technology transfer offices) predominantly implement specific KNM tools.

The management bodies of innovation hubs such as science parks, technology parks and incubators are additional major addressees of the Demand Analysis' results. They especially represent the companies that are located in innovation hubs in the triple helix structure.

The third pillar of the triple helix is composed of higher education institutions (HEI) and research centres located at the innovation sites and in the region. As major knowledge carriers (in addition to companies) in the innovation process and partner in business-to-science cooperation, they need to respond to existing obstacles and certain needs of the private sector. In this respect, the scientific institutions' management and integrated business-to-science interfaces (e.g. university technology transfer offices) are the main target groups in this pillar of the triple helix.

For utilizing the Demand Analysis a few aspects have to be considered. The implementation of the Demand Analysis requires an extensive preparation (see also methodology). In order to examine the current effectiveness of KNM policies and

instruments, the entire KNM infrastructure including specific tools, instruments, institutions and strategies has to be collected, illustrated and analysed. Additional resources are also needed in the implementation and evaluation stages. An efficient use of resources in all stages ensures the generation of profound and sustainable results. Furthermore, active participation of companies in this process has to be fostered, and entrepreneurs need to be motivated to get involved. Therefore, it is crucial to clearly define and communicate the Demand Analysis' added value to the target groups.

The Demand Analysis' results only shed light on the companies' perspective. In return, the 'other side', i.e. universities and non-university research institutions, also has to be considered. Therefore, an additional 'supply analysis' is also needed, although this term rather reflects the different roles of the private sector as the knowledge receiver and the scientific sphere as knowledge supplier in a linear innovation process. Nevertheless, the perception of scientific institutions in the non-linear, dynamic innovation system has to be observed as well.

## Methodology

As stated before, the use of the Demand Analysis tool is related to specific requirements regarding preparation, implementation and evaluation stages. In the **Know-Man** project several project partners were involved in the realisation process and were responsible for specific tasks.

The Department of Geography at the Humboldt-Universität zu Berlin was the responsible project partner for this work package due to its experience in empirical social research on regional clusters and networks (also in case of science and technology parks). The university was in charge of preparing the Demand Analysis – of course in strong cooperation with the other project partners and the project management.

In order to describe the skills and resources needed, the organisation process of the Demand Analysis in the **Know-Man** project is illustrated. The overall objective of this working step was to examine the characteristics and the needs of different types of companies. Within the project partnership, three distinct target groups were defined: **Start-up companies** (up to three years of operation; possibly located in an incubator at the science / technology park), **'Young' SMEs** (four to five years of operation; possibly located in a technology centre at the science / technology park), and **'Well-established' SMEs** (more than five years of operation; possibly located in their own facilities at the science / technology park).

The Demand Analysis' survey was designed by the Humboldt-Universität zu Berlin. A pre-test was carried out at the science park Adlershof in Berlin to ensure the survey's feasibility and quality. Later on, the survey and preliminary experiences were presented at a **Know-Man** project meeting. In order to ensure the Demand Analysis' interregional feasibility and comparability, the partner regions' specifics

had to be taken into account, especially different *sizes* of the involved science and technology parks and incubators, the *availability of data* as well as the *diverging accessibility of companies* in the regions.<sup>1</sup>

As a result of the internal discussion, a combined quantitative-qualitative approach to the implementation of the Demand Analysis' survey was selected.<sup>2</sup> For example, based on the experiences of various science and technology park management bodies, the businesses response rate was expected to be very low in case of using a standardised written questionnaire in the survey. Thus, the more qualitative approach including a personal meeting and interview with the entrepreneurs was chosen for the Demand Analysis. The qualitative approach also enabled the collection of more in-depth knowledge and information about the scope of existing business-to-science relationships in form, content and geographical dimension as well as the companies' needs and demand for prospective cooperation and the development of a supporting infrastructure. For this purpose, a standardised questionnaire and an interview guideline was developed.

In the next step, the survey (including the questionnaire and the interview guideline) was translated into each partner region's national language as well as adjusted to the respective regional situation. The distinct knowledge network management services, the respective institutions and intermediaries involved in the regional innovation management as well as the specific key industries that differed by each innovation hub and partner region were important aspects to be adapted to each region's specific survey.

Along with the survey, a manual was developed to ensure a comparable working procedure for each regional survey, in order to ensure interregional comparability of the results. It contained detailed information about the exact survey working procedure, e.g. time plan, pre-selection criteria, interview preparation, interview implementation's methodology and evaluation of the interview results on the regional level. However, the partner regions implemented the survey using different approaches based on their resources, experiences and the regional framework conditions.

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<sup>1</sup> For examples, the technology parks in three partner regions were concerned about the disclosure of company-specific data (e.g. annual turnover, R&D expenditures). These kinds of data are considered more confidential in some regions than others. In addition, some science parks and their tenant companies have already been subject of various research projects. Thus, many companies are not motivated anymore to participate in surveys, especially implemented in form of questionnaires. These kinds of aspects had to be considered in the development of the survey's final design.

<sup>2</sup> In order to obtain a certain representativeness and minimum comparability of the Demand Analyses carried out in each partner region, it was agreed by the partnership to survey ca. 10–15 % of the total number of high-technology companies or at least 15–20 high-technology companies in each innovation hub. The goal was to survey all three different company categories with equal shares in each science park, technology park or incubator. The target group were responsible persons in the companies' management – preferably the company's managing director or the R&D department's director.

For example, the partner regions Koroška, Rome metropolitan region and Veneto selected an 'in-house solution' approach, in which the incubator's management TRC Koroška and the innovation agencies BIC Lazio and Veneto Innovazione, respectively, were solely responsible for the implementation of the survey. Each region, however, developed an individual approach to conduct the survey.<sup>3</sup>

In the other three partner regions in Berlin, Wroclaw and Seville, the science and technology park management companies joined forces with the scientific project partners Department of Geography at the Humboldt-Universität zu Berlin (HUB) and the Centre for European Regional and Local Studies (EUROREG) at the University of Warsaw. In all three partnerships, the respective managing body identified suitable companies and contacted the selected companies to introduce the **Know-Man** project's objectives and the Demand Analysis' aims. Subsequently, HUB and EUROREG organised bilateral meetings to complete the survey.

Finally, the relevant information and survey data in the six case studies were collected, translated into English, if necessary, and submitted to the Department of Geography at the Humboldt-Universität zu Berlin for a comparative analysis. The work package leader, in cooperation with responsible partner institutions in each region, was responsible for conducting the overall analysis emphasising the regional demand for KNM policies.

The implementation of the Demand Analysis required a strong cooperation between the innovations hubs' management and the surveying institution. In most cases, several persons of staff on both sides were involved in preparing the survey, adjusting it to the regional contexts, in implementing, collecting and evaluating the surveyed data. The work package leader was mainly responsible for preparation and evaluation of the Demand Analysis.

In the interview preparation with the companies, the responsible staff had to examine the region's innovation landscape and supporting infrastructure to be able to discuss the effectiveness of the existing regional KNM system. In addition, the interviewers had to be trained in the interview methodology. Therefore, a detailed survey manual was developed.

Due to the qualitative approach, more manpower was needed, which affects the cost calculation for such tool.

The entire process of the Demand Analysis started in July 2010 with the preparation of the survey. After the regional adjustment in the six regions in September 2010, the survey's implementation was realised between October 2010 and April 2011.

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<sup>3</sup> In the cases of TRC Koroška and three different innovation sites in the Veneto region, the TRC Koroška's management and Veneto Innovazione identified companies suitable for inclusion in the survey. Subsequently, bi-lateral meetings were organised to complete the questionnaire and to conduct the interviews. At the Technology Park Tiburtino in the Lazio region, two different methods were used: bi-lateral meetings (like discussed before) and a business-to-business event that was organised by BIC Lazio. This event was utilized as a platform to implement the survey in a concentrated effort.



Preliminary results were presented in July 2011, while the final reports were issued in December 2011.

The specific focus on selected innovation hubs and distinct companies as well as the representativeness of the small (in relation to the total number of high-technology companies at the science and technology parks and incubators) number of surveyed businesses are the limitations of the Demand Analysis in **Know-Man**.

## Results

A total of 127 companies were surveyed in the six different partner regions and related science parks, technology parks and technology incubators.<sup>4</sup> Companies in the following innovation hubs were considered in the Demand Analysis:

- Science and Technology Park Adlershof in Berlin (Capital Region Berlin-Brandenburg): 26 companies
- Wroclaw Technology Park (Lower Silesia Voivodship): 24 companies
- TRC Koroška (Koroška): 7 companies
- Science and Technology Park Cartuja in Seville (Andalusia): 28 companies
- Technology Park Tiburtino (Lazio): 16 companies
- Science Park Vega in Venice, the University of Padua's incubator Start Cube and the incubator La Fornace in Asolo (Veneto): 26 companies.

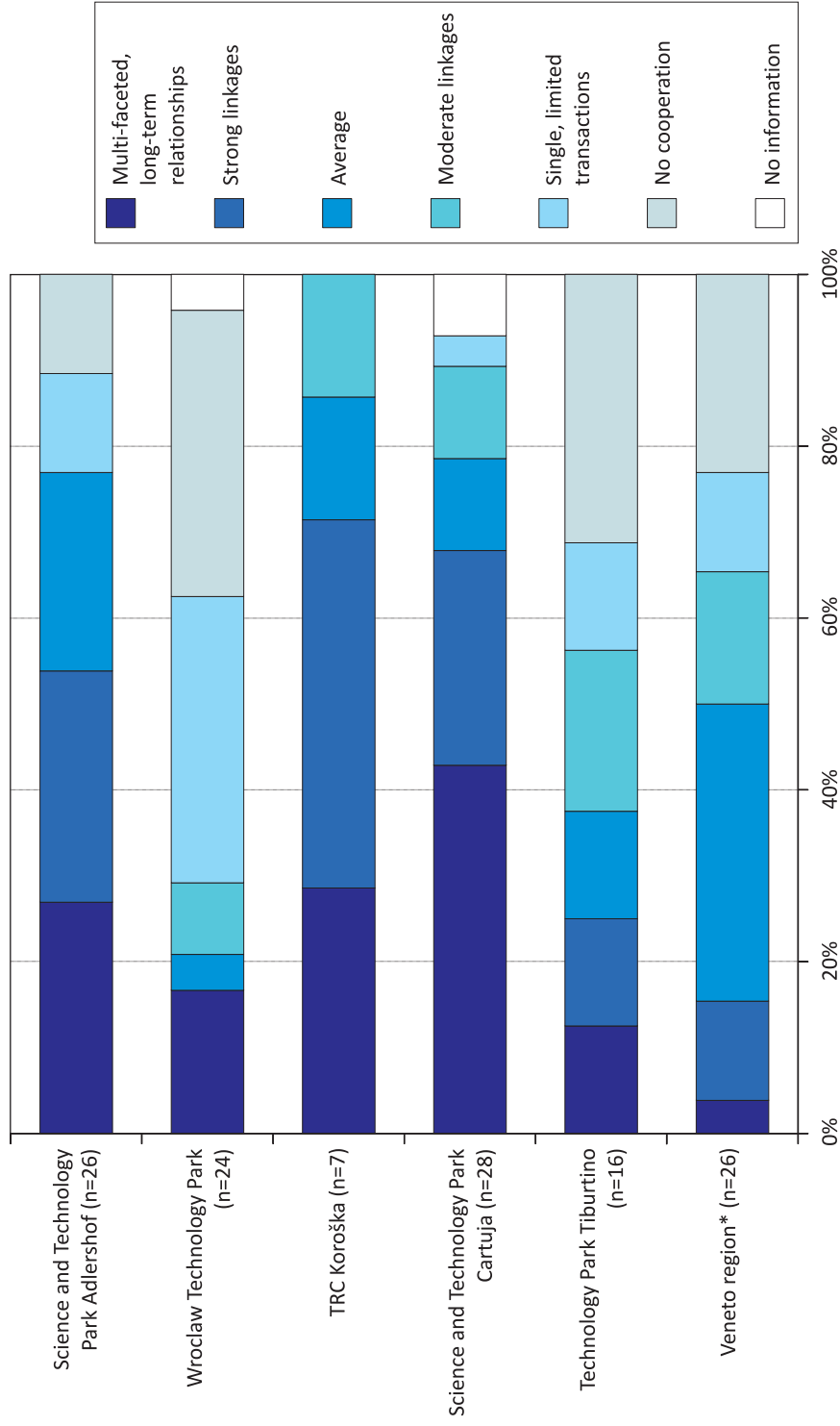
The overall results show a diverse quality of business-to-science cooperation in the recent past in the different case studies. While businesses in the science parks Adlershof and Cartuja as well as in the incubator TRC Koroška have constantly and strongly collaborated with research centres and universities, the companies surveyed at the innovation sites in Wroclaw, Lazio and Veneto show rather weaker inter-organisational interaction (see Fig. 1).

Also, the tools and communication / intermediary channels that support business-to-science interaction are perceived differently in the partner regions.<sup>5</sup> It has to be remembered, though, that the specific institutions and instruments of knowledge network management are not directly comparable. However, in all case studies personal contacts to researchers and scientific institutions are the most important channel and source for promotion of collaborative activities. In some region, the managing body of the science and technology parks as well as incubators play a significant role, too. The same applies to regional and industry-related networks. In general, public intermediaries such as technology transfer offices, patent commercialization agencies, regional development agencies etc. are of rather minor importance (see Fig. 2).

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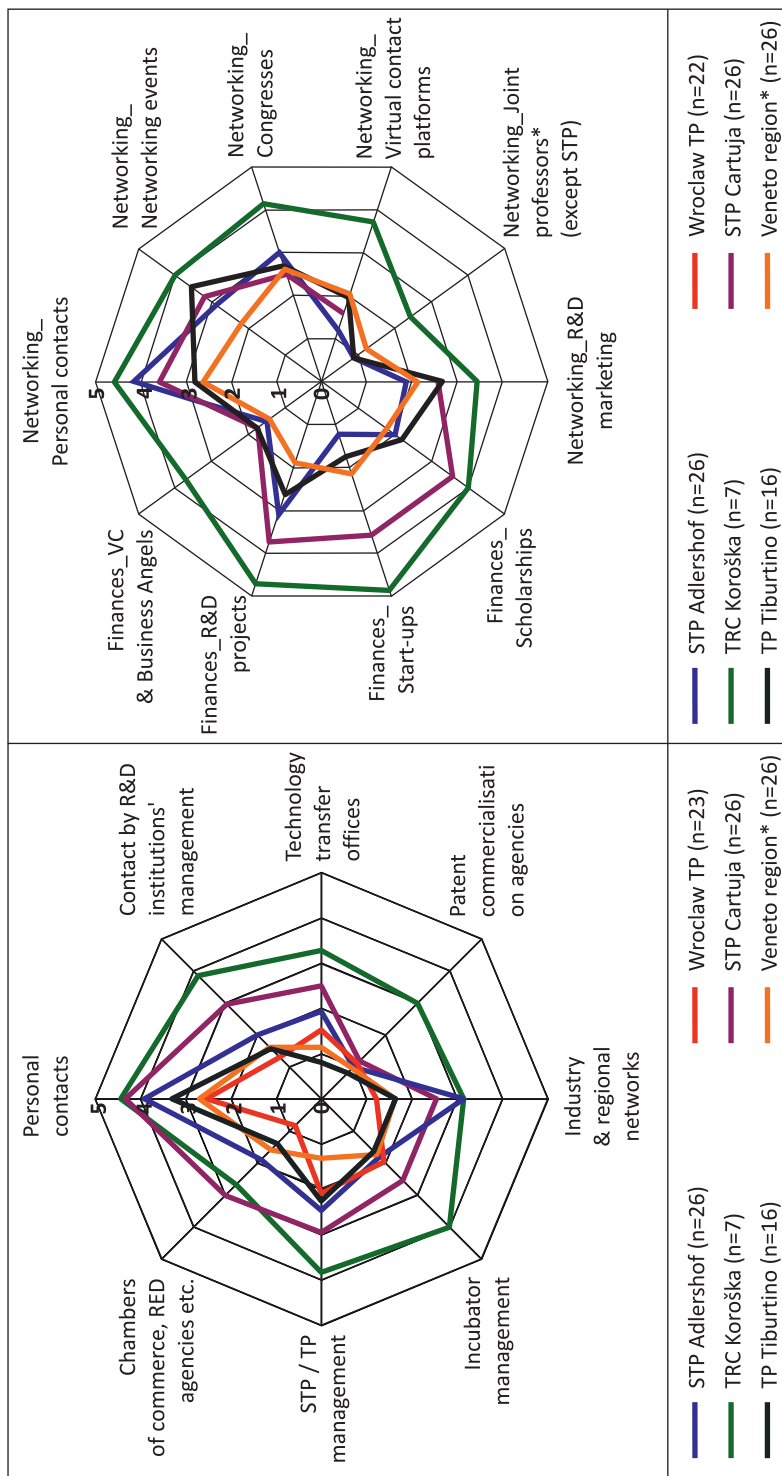
<sup>4</sup> In some cases, the companies only completed either the questionnaire or the interview part. As a result, each 124 questionnaires and interviews could be analysed.

<sup>5</sup> In each case study, the KNM institutions and instruments were illustrated using specific examples from the respective region.

**FIGURE 1:** General evaluation of business-to-science cooperation in the last three years (n=127)

Source: Know-Man

**FIGURE 2:** Effectiveness of KNM channels and instruments (n=124; N=123)<sup>6</sup>



Source: Know-Man

<sup>6</sup> In this graph, the arithmetical mean of all the companies' replies is illustrated. In order to realise this kind of illustration, the scale used in the questionnaire had to be reversed (e.g. 1=not important, 5=very important).

In terms of particular knowledge network management instruments, specific sub-categories were identified. As an illustration, the results for tools in networking and financial support are shown in Fig. 2. In addition to personal networks, specific networking and matchmaking events as well as conferences are predominantly perceived as valuable platforms for fostering relationships between business and research. Virtual contact platforms are used less extensively. Thus, personal meetings and face-to-face contacts still are considered as fundamentally important in initiating first contacts. Information is exchanged in a later stage. R&D marketing, i.e. the presentation and dissemination of R&D activities in innovations hubs and regions, is relatively significant, too.

The survey's results also show a relatively high value of financial support schemes, e.g. in terms of joint R&D projects, start-up / spin-off support and support of skilled talent. In particular, joint research programmes on the national and European level contribute to the generation of new inter-organisational contacts that are often maintained beyond the initial project duration.

In the interviews, specific information could be gathered about region-specific obstacles and needs in regard to business-to-science cooperation and supporting KNM instruments. In summary, the following needs were identified in five key areas:

- Information and communication: Improvement of accessibility and inter-activity; dissemination of up-to-date information that enhances the visibility of cooperation opportunities
- Business-to-science networking: Creation of opportunities to meet in person as personal contacts are key, e.g. events, trade shows and demo spaces; promotion of technology or industry-based networks; pro-active match-making institution
- Cultural change: Promotion of higher visibility and transparency of potentials of cooperation from the science sector; promotion of entrepreneurship in university education and research
- Financial support: Supply and communication of available funding schemes
- Recruitment of skilled talent: Adjustment of university training to market needs; business-to-science partnering in university education (e.g. internships, master theses, course syllabus)

As an illustration, specific findings were revealed in each case study (Table 1 provides an overview of the specific findings in each case study). At the science park Adlershof the lacking integration and openness of the six departments of natural sciences of the Humboldt-Universität zu Berlin (HUB) was stressed:

“The last thing that I saw was a clean room where two people work (...). It was completely empty. Now the question is what are the opportunities for others? Who will organise it, and does the HUB actually wants it? (...) It's not clear to me,

how the HUB wants to integrate into this SME landscape here.” (Company 17, STP Adlershof)

In contrast, the primarily technically oriented School of Engineering at the STP Cartuja in Seville is integrated quite well. However, the interviews revealed a lacking supply and dissemination of distinctive information about on-going research activities in companies and research groups as well as potential opportunities for collaboration. New platforms were suggested to overcome the information deficit responding to the entrepreneurs’ habitus at the same time:

“I would like them to meet me. To host a conference and a forum, and the research centres tell us about what they focus on, what they can offer, what they dedicate to, where do they want to be, how do they think they could support the companies. (...) Me, the Executive of this company, I don’t know what the research centres are doing. (...) Sometimes, these public institutions use great expressions on their website etc. about what they do. I think it could be done more quickly...to sit down together at a conference, a forum for one day, and to tell us.” (Company 25, STP Cartuja)

At the Wroclaw Technology Park and in the Wroclaw region, many interviewees expressed the need for more entrepreneurial universities in particular. Thus, more structural changes are needed:

“Changes in the very functioning of the university. (...) There is still the view that it is wrong for a university employee to work additionally outside the university. It should be just the other way round: the University of Technology should be interested in improving their staff also outside the university.” (Company 12, Wroclaw TP)

As a conclusion, several policy implications can be formulated. First of all, there is a strong necessity to provide a transparent overview of how and in what way regional scientific institutions want to contribute to the regional economy and its innovativeness. There is a high demand from SMEs, and this kind of ‘supply’ and opportunities (e.g. know-how, infrastructure, talent) for collaborative efforts with companies has to be communicated openly and actively. In addition, respective framework conditions, for example regarding the ownership of mutually created intellectual property, have to be defined. The openness may also contribute to a better reciprocal understanding and an approximation in terms of work culture and mentality.

TABLE 1: Region-Specific Demand and Needs for Business-to-science interaction and supporting KNM services

Business-to-Science Interaction					
Berlin-Brandenburg (STP Adlershof)	Lower Silesia (Wrocław Technology Park)	Koroška (TRC Koroška)	Andalusia (STP Cartuja)	Lazio (Technology Park Tiburtino)	Veneto (Science Park Vega, Start Cube and La Fornace)
<b>Obstacles:</b> <ul style="list-style-type: none"> <li>• Visibility of 'supply' of university</li> <li>• Lack of opportunities (applied vs. basic research)</li> <li>• Framework conditions (IP regulations, bureaucracy)</li> </ul> <b>Future expectations:</b> <ul style="list-style-type: none"> <li>• Access to technical expertise, e.g. in joint R&amp;D projects</li> <li>• Better access to academic talent and scientific equipment</li> </ul>	<b>Obstacles:</b> <ul style="list-style-type: none"> <li>• Bureaucracy and slow decision-making processes</li> <li>• Ownership of intellectual property generated in joint projects</li> <li>• Lack of interest in cooperation with private sector / SMEs</li> </ul> <b>Future expectations:</b> <ul style="list-style-type: none"> <li>• Access to technical expertise, e.g. in product development, joint R&amp;D projects</li> <li>• Better access to academic talent</li> </ul>	<b>Obstacles:</b> <ul style="list-style-type: none"> <li>• Scarce SMEs' resources</li> <li>• Lack of interest in cooperation with private sector / SMEs</li> <li>• Applied vs. basic research</li> </ul>	<b>Obstacles:</b> <ul style="list-style-type: none"> <li>• Lack of information and communication</li> <li>• Lack of network platforms</li> <li>• Framework conditions (IP regulations, bureaucracy)</li> <li>• Applied vs. basic research</li> </ul> <b>Future expectations:</b> <ul style="list-style-type: none"> <li>• Access to technical expertise, e.g. in product development and in joint national &amp; international R&amp;D projects</li> <li>• Better access to academic talent and equipment</li> </ul>	<b>Obstacles:</b> <ul style="list-style-type: none"> <li>• Lack of interest in and awareness of inter-organisational interaction at SMEs</li> <li>• Cognitive barriers; applied vs. basic research</li> </ul> <b>Future expectations:</b> <ul style="list-style-type: none"> <li>• Access to technical expertise, e.g. in services, product development and in joint R&amp;D projects</li> <li>• Better access to academic and scientific talent equipment</li> </ul>	<b>Obstacles:</b> <ul style="list-style-type: none"> <li>• Lack of information and communication</li> <li>• Scarcity of SMEs' resources and lack of personal contacts to researchers</li> <li>• Cognitive barriers; applied vs. basic research</li> </ul> <b>Future expectations:</b> <ul style="list-style-type: none"> <li>• Access to technical expertise, e.g. in services, product development and in joint R&amp;D projects</li> <li>• Better access to academic and scientific talent equipment</li> </ul>

Knowledge Network Management Services					
	<b>Berlin-Brandenburg (STP Adlershof)</b>	<b>Lower Silesia (Wrocław Technology Park)</b>	<b>Koroška (TRC Koroška)</b>	<b>Andalusia (STP Cartuja)</b>	<b>Lazio (Technology Park Tiburtino)</b>
	<ul style="list-style-type: none"> <li>Enhanced information / communication (e.g. database; platform for detecting opportunities, bulletin board)</li> <li>Transparency of R&amp;D related opportunities / services</li> <li>Networking events and platforms (e.g. 'four fixes', networks, matchmaker)</li> </ul>	<ul style="list-style-type: none"> <li>Promotion of entrepreneurship and business-to-science cooperation at HEIs</li> <li>Enhanced information instruments (e.g. inventory of high-tech businesses, opportunities for cooperation support (e.g. business plan development)</li> </ul>	<ul style="list-style-type: none"> <li>Enhanced informal networking opportunities (e.g. study visits)</li> <li>Businesses' integration in university training</li> <li>Funding for joint R&amp;D projects</li> <li>MBA training for start-ups &amp; spin-offs</li> </ul>	<ul style="list-style-type: none"> <li>Enhanced information / communication (e.g. database, platform detecting opportunities, best-practice examples)</li> <li>Enhanced networking opportunities (e.g. events, demo spaces)</li> <li>Matchmaker</li> <li>Structural changes at HEIs, i.e. entrepreneurial university; promotion of entrepreneurship culture</li> </ul>	<ul style="list-style-type: none"> <li>Enhanced information / opportunities (e.g. technology park management, TTO, technology promoter)</li> <li>Businesses' integration in university training</li> </ul>
					<b>Veneto (Science Park Vega, Start Cube and La Fornace)</b> <ul style="list-style-type: none"> <li>Direct business-to-science interface (e.g. technology park management, technology promoter)</li> <li>Enhanced information / communication of opportunities</li> <li>Business-to-science networking (e.g. atchmaking, networking events)</li> <li>Business-to-science partnering, e.g. internships, 'research master'</li> <li>Development of regional funds; tax deduction schemes</li> </ul>

Source: Know-Man

Several KNM tools and structures may support the enhanced interaction between SMEs and scientific institutions at innovation hubs and in the regions in general:

1. **Certain KNM tools may establish strong personal relationships and a social experience process, respectively.** Innovative ideas are co-working spaces for mixed teams, student and Ph.D. student placements in companies and a stronger integration of entrepreneurs in higher education institutions' education (e.g. 'research master' programme, endowed professorships).
2. **Current research activities and opportunities for cooperation and potential synergies have to be communicated to close the information gap.** Possible tools are interactive information forums and platforms, also using social media networks.
3. **Business-to-science cooperation may take different forms.** Student placements (internships and master theses), use of equipment and localised innovation vouchers may be good starting points ('ice-breakers') to foster strong inter-organisational relationships.
4. **Matchmaking is important in establishing relationships between SMEs and science on any geographical scale.** Thus, matchmaking institutions become more important. The managing bodies of science and technology parks and incubators may take over a more prominent role as direct interface, as they operate in both spheres and understand them.

## Products

The Demand Analysis' results were reported for each case study. The comparative analysis describes distinct successful and innovative KNM solutions that have been designed throughout the considered innovation hubs to overcome obstacles of business-to-science interaction. These reports were submitted to the relevant partner regions. Additionally, the reports could be delivered to relevant regional stakeholders.

Furthermore, the most important findings could be summarised in brochures that could be distributed on the regional level. The brochures may serve as a 'teaser' to inform numerous regional entities about the Demand Analysis' results. For more detailed information the reports could be distributed additionally.

For further in-depth communication and interactive discussion of the results among regional stakeholders and relevant institutions within the triple helix possible products and outputs could be meetings and workshops, in which distinct results are presented. Possible target groups include the companies that are located in the science and technology parks and incubators. In a 'feedback workshop' the final results of the Demand Analysis and related policy implications regarding the improvement of the KNM strategies may be reflected with the companies that participated in the survey as well as additional businesses.



Additional meetings could be organised to communicate the results to the universities and research institutions located in the science parks in particular and in the region in general, because many findings directly affect either the university management, specific departments and research groups and / or internal business-to-science interface organisations.

The results have to be communicated to the public administration and innovation-related intermediaries in the region, e.g. technology transfer offices, innovation and regional development agencies. Specific events could contribute to establishing an intense dialogue between the **Know-Man** project and the public sector, which is also important for enhancing the sustainable translation of the Demand Analysis' results to regional knowledge network management approaches.

Finally, the results could be communicated using a general workshop or events involving all three different stakeholder groups of the triple helix. In Berlin, for example, the Transfer Alliance encompasses all three pillars.

**TABLE 2 :** Products characteristics

<b>Name of Product / Channel</b>	<b>Issues to focus on in the Communication by the Product / Channel</b>	<b>Boundaries and Limitations of the Product / Channel</b>
<b>Demand Analysis – Final Report</b>	Communication of results of the Demand Analysis in the specific case study Additional findings in similar case studies identified within the comparative analysis	Lack of interactive discussion of results No specification of results for distinct target groups within triple helix
<b>Demand Analysis – Brochure</b>	Summary of highlighted results of the Demand Analysis in the specific case study and additional findings in similar case studies identified within the comparative analysis	Only summarised illustration of results (in particular the qualitative approach enabled the collection of very profound and detailed findings) Lack of interactive discussion of results No specification of results for distinct target groups within triple helix
<b>Demand Analysis – Workshops</b>	Communication of results of the Demand Analysis in the specific case study Additional findings in similar case studies identified within the comparative analysis Discussion of target group-specific aspects and findings within specific entities of triple helix Reflection of ongoing developments regarding the implementation of KNM instruments as well as concerning the quality of business-to-science interaction	

Source: Know-Man

## Potential Impact on Regional Development

The Demand Analysis has revealed important findings regarding the companies' demand and needs in respect of business-to-science cooperation and associated KNM policies. In addition, the current scope and quality of inter-organisational interaction was investigated. The analysis of the current situation also encompasses the obstacles that companies face in interacting and collaborating with researchers and research institutions.

The findings regarding the current state and needs in future activities give important insights to the future development of KNM strategies and specifically implemented instruments. They affect all different spheres of the regional triple helix: public sector including intermediaries, management of science parks, technology parks and incubators, as well as research and higher education institutions.

As a kind of unexpected effect, it has been revealed that in particular the scientific institutions' demand for business-to-science cooperation should be examined and defined in an additional Demand Analysis (or 'supply analysis').

## Transferability

The tool of the Demand Analysis is easily transferable to other regions. The success factors are strong cooperation of the triple helix. First of all, it ensures sound preparation of the survey in cooperation with scientific experts and practically oriented science and technology park management, which cooperates closely with the companies (on a daily basis). Secondly, the participation of the public administration enables a better communication of the Demand Analysis' results to specific stakeholders responsible for the regional innovation policy-making.

The value added of the Demand Analysis implemented in a more qualitative approach can be briefly summarised in three key advantages:

1. Increased motivation of businesses' participation in the Demand Analysis' survey. The personal interviews have enhanced the companies' willingness to share their experiences and needs in order to contribute to an improved regional innovation policy.
2. The qualitative approach enabled a very detailed elaboration of the currently realised cooperation with scientific institutions and, in particular, the discussion of their needs for improved knowledge network management in the region.
3. Mostly, the interviews within the Demand Analysis also touched other complementary and related issues that were not part of the agenda before. Thus, the partnership was sensibilised for additional key topics (e.g. transparency of scientific institutions, internationalization and public transportation) that also may affect the companies' activities in cooperation with scientific institutions, among others.

However, to ensure the transferability of the Demand Analysis, the manpower and also the related financial resources have to be maintained for the entire implementation process.

## Next Steps

The Demand Analysis was carried out with the objective of gaining insight into the companies' needs and demands regarding prospective business-to-science cooperation and associated support mechanisms. In **Know-Man**, these objectives have been fulfilled. Furthermore, additional knowledge was generated about the current scope of these kinds of relationships and existing obstacles that need to be overcome. Other measures of the project, such as the development of Knowledge Atlases and Benchmarking, contributed to the Demand Analysis work process (e.g. mapping of the regional KNM infrastructure).

The broad dissemination of the results is the key factor in ensuring the Demand Analysis' sustainability. The results have to be addressed to the relevant regional entities that are part of the dynamic innovation process by a diverse set of measures, i.e. case study reports including comparative results from similar case studies, brochures and, most importantly, workshops discussing particularly the results and policy implication.

In addition, the companies also have noticed that their effort pays off at some point. This will be the case when the Demand Analysis' results are quickly integrated into the existing regional innovation management system. These tasks can be realised successfully when the triple helix partnership cooperates strongly. All partner institutions in the triple helix partnership are asked to promote the sustainable transfer of the distinct results and policy implications in their field of expertise.

The lessons learned of the instrument's implementation certainly include the interregional learning within the partnership. Different approaches based on the distinct regional context were defined to guarantee the successful realisation in each partner region. In addition, strong partnerships were built across the partner regions throughout the entire Demand Analysis' process. Finally, the predominantly qualitative approach has generated profound in-depth knowledge, even exceeding the previously defined objectives. This information forms a strong basis for formulating policy implications on the regional level.

## Benchmarking – Improving Services in Incubators, Science and Technology Parks

Authors: *Daniela Lange, Helge Neumann, Yvonne Plaschnick*

### Objectives

The activities of a contemporary enterprise today allow it to be successful on the market and to gain advantage over the competitors only if it improves its products and optimizes its processes. Basically the same applies to Science and Technology Parks (STP) and business incubators. An approved method for initiating necessary changes is Benchmarking as it is a tool to learn from comparing good practices implemented successfully by other parks or incubators.

Benchmarks are reference or comparison values of rated performances. These values are described in the form of key performance indicators or state-of-the-art descriptions. Consequently, Benchmarking is a methodical comparison of strategies, organisational structures, performance indicators, procedures, products and services, methods, and instruments and systems that are applied in Science and Technology Parks as well as Business Incubators. In the framework of an external Benchmarking process different partners (i.e.: companies, organisations or locations) are compared. The main objective of this process is to crucially enhance the efficiency of a park or an incubator.<sup>1</sup>

The Benchmark tool provides a suitable supplement for the **Know-Man** tool “Good Practices – Knowledge Network Management in Technology Parks (STP)”.<sup>2</sup> The Good Practice guide offers detailed descriptions of various strategies and services for improving the linkages among economic, academic, and public stakeholders. The Benchmark practice helps to identify and analyse deficits in Science and Technology Parks as well as incubators for supporting such linkages. The Good Practice guide then offers possible solutions to deal with the identified deficits. Thus, Benchmarking provides two major advantages:

### 1. Benchmarking supports comparing the performance of different Science Parks as it ...

- ... supports the identification of different types of parks,
- ... helps to better identify and understand the functionalities of parks,
- ... finds threats and weaknesses, strengths and opportunities of the park’s management,
- ... helps to measure a park’s potential and profile, benchmarked against best practices.

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<sup>1</sup> cf. definition by Deutsche Benchmarking Zentrum (DBZ); <http://www.benchmarkingforum.de/index.php?id=benchmarking-definition>

<sup>2</sup> The brochure can be downloaded at [http://www.know-man.eu/files/1111/file/knowman\\_good\\_practices\\_fin.pdf](http://www.know-man.eu/files/1111/file/knowman_good_practices_fin.pdf)

## 2. Benchmarking is an instrument to identify best services and structures between STP and thus supports ...:

- ... optimizing processes and structures,
- ... improving services offered within the park,
- ... optimizing customer satisfaction,
- ... developing targeted partnership ("learning tandems"),
- ... sharpening profile and setting priorities,
- ... accelerating strategy implementation.
- 

### Benefits

Benchmarking the management structure of Science and Technology Parks as well as incubators allows for diversifying and differentiating processes and services offered in them. In **Know-Mans'** case the method initially paid particular attention to knowledge management indicators (such as: internal and external networking; transfer or marketing). During the process of adjusting the questionnaire for the **Know-Man** Benchmarking exercise, it became clear that implementing a comprehensive analysis would offer the additional benefit to execute a more extended and in-depth analysis of the participating institution. That means that apart from analysing knowledge network management measures, the **Know-Man** Benchmarking also includes indicators to assess essential business institutions, important external conditions (e.g.: the management strategy, the technology profile, and the infrastructure) and regional framework conditions. The Benchmarking questionnaire implemented within the **Know-Man** project finally used a set of 13 indicator groups in three categories: 1) objectives and general parameters, 2) profile and structure, and 3) activities.

**TABLE 1:** Direct and Indirect Advantages of the Benchmarking Exercise

Direct Advantages	Indirect Advantages
<ul style="list-style-type: none"> <li>▪ Evaluating strengths and performance deficits</li> <li>▪ Identifying potential solutions for deficits</li> <li>▪ Improving the park's management performance</li> <li>▪ Rating of possible alternatives (in combination with <b>Know-Man</b> Good Practice)</li> <li>▪ Defining Good Practices</li> <li>▪ Reducing uncertainties for decision making processes</li> <li>▪ Analysing institutions systematically and independently (peer review)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Monitoring Parks development</li> <li>▪ Creating a better understanding for ones own business courses</li> <li>▪ Supporting the identification and understanding of Science and Technology Park's and incubator's functions</li> <li>▪ Reviewing existing strategies and accelerating strategy building</li> <li>▪ Improving processes constantly, if used regularly</li> <li>▪ Improving international visibility</li> <li>▪ Identifying and differentiating park and incubator types</li> </ul>

Source: Know-Man

With this approach, the **Know-Man** Benchmarking supported following direct and indirect advantages.<sup>3</sup>

The **Know-Man** Benchmarking hence pursues the initiation of a detailed analysis that helps improving the economic development of investigated Science and Technology Parks as well as incubators.

## Methodology

The Benchmarking tool can already be considered a good practice transfer within the **Know-Man** partnership. The first draft templates and methodological approaches were developed within the framework of the BaltMet Inno project.<sup>4</sup> Within the scope of this project's expertise, success criteria for science and technology parks were identified and defined to be included in a Benchmarking exercise.

Benchmarking relies on a quantitative methodological approach. Benchmarking indicators are empirically surveyed based on a standardised evaluation questionnaire. Even though the Benchmarking survey used in **Know-Man** was already tested within the scope of above mentioned project, it is important to note that the questionnaire had to be revised and adjusted according to the **Know-Man** specific objectives. Therefore, one important milestone within the Benchmarking process was adjusting the questionnaire contentwise as well as adjusting the process to the working logics and routines of the **Know-Man** partners.

## The Benchmarking Questionnaire

A standardised questionnaire is the central tool for the Benchmarking exercise. Well-developed it has the potential for being the base element for a regional comparison of different Science and Technology Parks as well as for an annual self-analysis of such parks and incubators.

The **Know-Man** questionnaire is based on pre-defined success criteria. Each criterion is evaluated with a set of questions regarding different services, management strategies or activities. Table 2 offers an example of the questionnaire's structure. Most of the questions are *closed questions* offering a quarterly assessment scale for answers. The scale differentiates between following four assessment categories: basic, standard, excellent, and professional. For operational purposes, each qualitative assessment category is transferred to a numerical scale:

**TABLE 2:** Quantitative Evaluation of Success Criteria

Basic	Standard	Excellent	Professional
1 point	2 points	3 points	4 points

Source: Know-Man

<sup>3</sup> cf. <http://www.benchmarkingforum.de/index.php?id=benchmarking-definition>

<sup>4</sup> See also <http://www.inno.baltmet.org>. BaltMet Inno was an INTERREG IIIB initiative aiming at strengthening the role of cities as developers of innovation environments at local, regional, national, and international levels.

**FIGURE 1: Structure of Know Man's Benchmark questionnaire**

4. Technology Profile (Profile)					Remarks	Additional information / explanation / data
	Basic 1	Standard 2	Professional 3	Excellent 4		
4.1 Innovation Potential	The technology fields / areas of application / branches represent the prevalent state of the technology <div></div>	The control of these technology fields / areas of application / branches represent a decisive competitive advantage in the current market <div></div>	The technology fields / areas of application / branches are considered forward-looking due to their innovation potential <div></div>	The technology fields / areas of application / branches could be the base for a technological revolution / a new technology era <div></div>	Please name the branches, etc.	
4.2 Control of the Profile	The technology fields / areas of application / branches are not determined, they exist through the growth of the science park <div></div>	The technology fields / areas of application / branches are determined in a concept <div></div>	The aims of the technology / areas of application / branches are communicated, however they do not constitute an exclusion criterion for a company's settlement <div></div>	The companies and scientific institutes are chosen according to the determined and communicated technology fields / areas of application / branches <div></div>	Which instruments are used? Please name it.	
4.3 Technological Solitaires / Clusters	There is no significant solitaire / technology cluster in the park which can be labelled as unique <div></div>	At least one solitaire / technology cluster is represented in the park is regionally considered unique <div></div>	At least one solitaire / technology cluster is represented in the park is nationally recognized <div></div>	At least one internationally recognized solitaire / technology cluster <div></div>	Short description of the cluster	

Rating

Criterion

Determined references

Questions of Criterion

Value of STP or incubator

Field for additional information

Questions of Criterion

Value of STP or incubator

Field for additional information

Source: Know-Man

## Know-Man Benchmarking Success Criteria

The **Know-Man** Benchmarking questionnaire covers 13 success criteria that are divided into three categories: *objectives*, *general indicators*, *profile*, and *activities* (see Table 3). Additional information is provided on the organisation (e.g. founding year, turnover, number of employees, technological profile). The following list gives an overview of the 13 criteria.

**TABLE 3:** Benchmarking Criteria

<b>Objectives:</b> <ol style="list-style-type: none"> <li><b>Image / Visibility:</b> Information about awareness of the science park, renowned companies/ science institutes, corporate identity, etc.</li> <li><b>Growth / Development:</b> Information on the number of acquisition, Increase in turnover and employment, etc.</li> <li><b>General performance (Relevance, Efficiency, Effectiveness):</b> Comparison between investment and turnover, insolvency rate of companies in incubator, etc.</li> </ol>	
<b>Profile</b> <ol style="list-style-type: none"> <li><b>Technology profile:</b> Innovation potential, individual technological solitaires / clusters, etc.</li> <li><b>Park infrastructure:</b> Flexibility of the infrastructure's environment, conference facilities, general services and amenities, etc.</li> <li><b>Quality of the region:</b> Ambiance of the park and the region, possible leisure activities, traffic infrastructure, etc.</li> <li><b>Regional environment:</b> Regional structure of science, regional industry structure, lighthouse companies, etc.</li> <li><b>External networking/cooperation:</b> Cooperation in technology field, connections and support by the government, connections and support by scientific community, etc.</li> <li><b>Park management/intern:</b> Budget/ financing, structural tasks of the park management, customer satisfaction, etc.</li> </ol>	<b>Activities</b> <ol style="list-style-type: none"> <li><b>Involvement of Park management (activities):</b> Active acquisition strategy, initiation of cooperation, networking between parks and park management, creation of visions, etc.</li> <li><b>Marketing:</b> Marketing activity (quantity), media relations (quantity), marketing budget in relation to general budget, internet presence, etc.</li> <li><b>Internal networking/cooperation:</b> Modes of cooperation, execution of the 3 most important instruments for the support of networking, cooperation science-industry, strategic programs science – industry, etc.</li> <li><b>Founder climate:</b> Access to seed money and business angels, spin-offs out of research or institutions in the park, pre-incubation support. etc.</li> </ol>

Source: Know-Man

In order to optimise the Benchmarking survey and the Benchmarking implementation, the Benchmarking exercise was divided into five stages:

### Phase 1: Defining and Structuring the Benchmarking Process

Even though the partnership unites partners already experienced in different Benchmarking approaches, the successful implementation of the Benchmarking relies on a clear structure of responsibilities and tasks among the partners. In the **Know-Man** case, the WISTA MG took over the role of the component leader and



hence was primarily responsible for this phase as well as the coordination and management of the following stages.

To refine the existing indicators for the **Know-Man** objectives, a special workshop had to be set up. The workshop enabled the utilization of the partnership's expertise for adjusting and improving existing Benchmarking indicators. With support of TRC Koroška<sup>5</sup> the workshop's results were integrated in the adjusted questionnaire. The adjustments primarily led to including indicators to better understand region specific framework conditions for a successful knowledge network management, such as management strategies, technology profiles of parks / incubators, infrastructures, and quality of the region. Furthermore, some indicators were adjusted to survey more qualitative information instead of quantitative ones. Since the **Know-Man** Benchmarking primarily aims at identifying deficits in knowledge network management as well as defining potential practices to be added to the portfolio of Science and Technology Parks / incubators, the Benchmarking tool itself had to include indicators that allow for these aims.

The first stage was closed with the distribution of the questionnaire among the partners.

- Define the main objectives of the Benchmarking exercise (e.g. **Know-Man** project objectives)
- Define the process, responsibilities, tasks and timeline for each participating entity (e.g. develop a manual for the Benchmarking Process)
- Develop a questionnaire that includes success criteria to be benchmarked

### ***Phase 2: Collection of Data with the Benchmarking Questionnaire***

Collecting of the data takes approximately four weeks. In some cases, the partners had to identify resources within their organisation to provide all necessary information for the questionnaire. This goes especially for financial and managerial information as well as those questions formulated as open questions, allowing for adding qualitative information as well.

The questionnaire was distributed and re-collected by the responsible partner who then started analysing the data.

- Completion of questionnaire by the management of each Science and Technology Park or incubator

### ***Phase 3: Analysis of Data***

Besides describing and comparing the received data, it needs to be pointed out that it is important to discuss the interim results with partners. Even though the

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<sup>5</sup> One of the Know-Man partners

questionnaire was carefully prepared, some information necessary in order to fully understand and contextualise the findings might still be missing. In case of **Know-Man**, a second workshop was set up gather the information.

- Graphical description of data
- Presentation and discussion of results with all project partners
- Partial revision of data description
- Summary of results

#### ***Phase 4: Peer Review (optional)***

The objectivity of the provided Benchmarking information might be challenged since the questionnaire is completed by the same actors who also are involved in the benchmarked activities (self-evaluation). Therefore, a peer reviewing is strongly recommended. The peer review aims at a more independent analysis of the provided information. The peer review is also a supporting tool for successful transfer of the benchmark questionnaire – and the benchmark tool – to other parties. The pilot peer review was finalised with a blueprint for further peer reviews obligatory to the other partners. The peer review blueprint aims at simplifying and accelerating the peer reviewing process for interested parties.

- Peer review of the information provided in the questionnaire

#### ***Phase 5: Evaluation and Continuation***

Based on the analysis and the peer reviewing the partner responsible for the Benchmarking work package offered some recommendations for further actions. Besides that, the partners also used the Benchmarking results to identify good practices that they are interested in transferring to their park / incubator for dealing with identified deficits.<sup>6</sup> Last but not least, the Benchmarking questionnaire might also be used as a monitoring tool. If implemented on a regular basis, the questionnaire also provides data allowing to check on the development of the park / incubator.

- Evaluation of **Know-Man** Benchmark
- Recommendations for Proceedings
- Repeated Benchmarking to monitor the progress

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<sup>6</sup> In the case of Know-Man, expert tandems and expert groups were initiated among the partnership to do so. These tandems / groups provide learning settings supporting the interregional transfer not only by providing a description of a specific practice, but also human resources and personal knowledge and competencies related to the implementation of the respective practice.

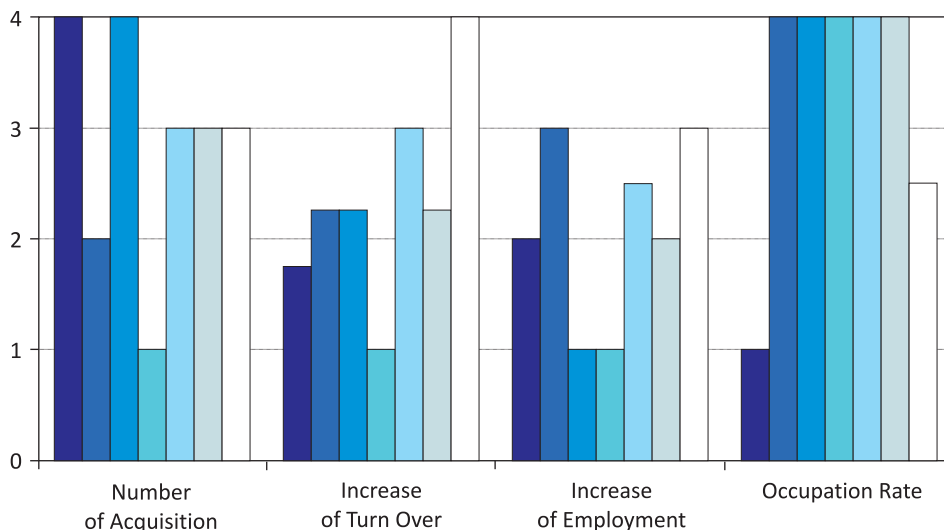
## Results

At this stage it will not be feasible to provide a full overview of the achieved Benchmarking results in **Know-Man**. Instead, we will focus on presenting selected results to illustrate the variety of possible analytical results. Despite this selection it will be possible to see how Benchmarking might provide a tool for strategic planning in Science and Technology Parks as well as incubators.

The detailed description of the results of the Benchmarking is provided in charts for each criterion rather than extensive texts. This was a conscious decision as graphic illustrations are better and more easily shared and transferred among regions. Furthermore it also allows each entity to evaluate its own position related to the other entities assessed. Each graphical figure includes numerous data. It's not suitable for presentations but it gives detailed information in which areas of certain criteria there are still potentials or in which areas the Science and Technology Park / incubator has already reached good results. The information could be used within the framework of possible annual evaluation.

Additionally the results of the participating Science and Technology Parks and incubators become more visible in mutual comparison. However, one needs to be aware of the different conditions in each Science and Technology Park or incubator of **Know-Man** project partners (e.g.: the categories "year of founding" or "different

**FIGURE 2:** Example Criterion: "Growth / Development"<sup>7</sup>



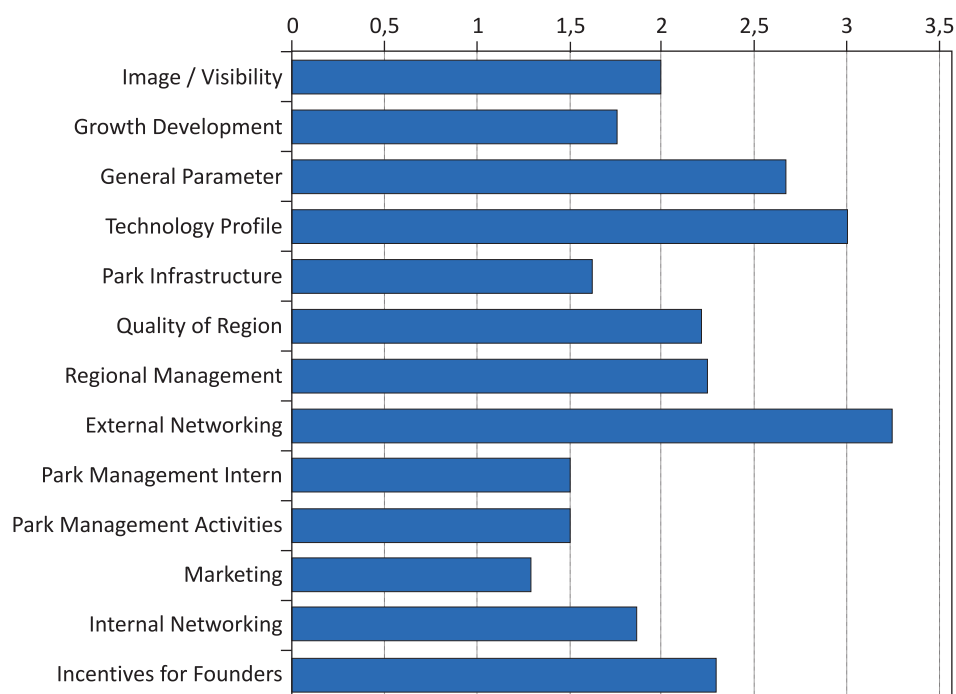
Source: Know-Man

<sup>7</sup> We consciously left out the name of the assessed park / incubator in each of the following graphical examples. At this stage, we do not aim at providing a detailed comparison of the entities participating in the Benchmarking analysis, but rather want to focus on the scope of a Benchmarking exercise.

profiles” are not comparable). However, each chart provides the information on which partners have successful strategies and good practices regarding the different fields of the management and services. In this way the Benchmarking analysis is a useful supplement to the good practice tools of [Know-Man](#).

**Example Growth / Development:** This graph, for instance shows that the black partner obviously achieves excellent results in the number of acquisitions, but at the same time still has a lot of potential for further development as the occupation rate needs to be assessed as “basic”.

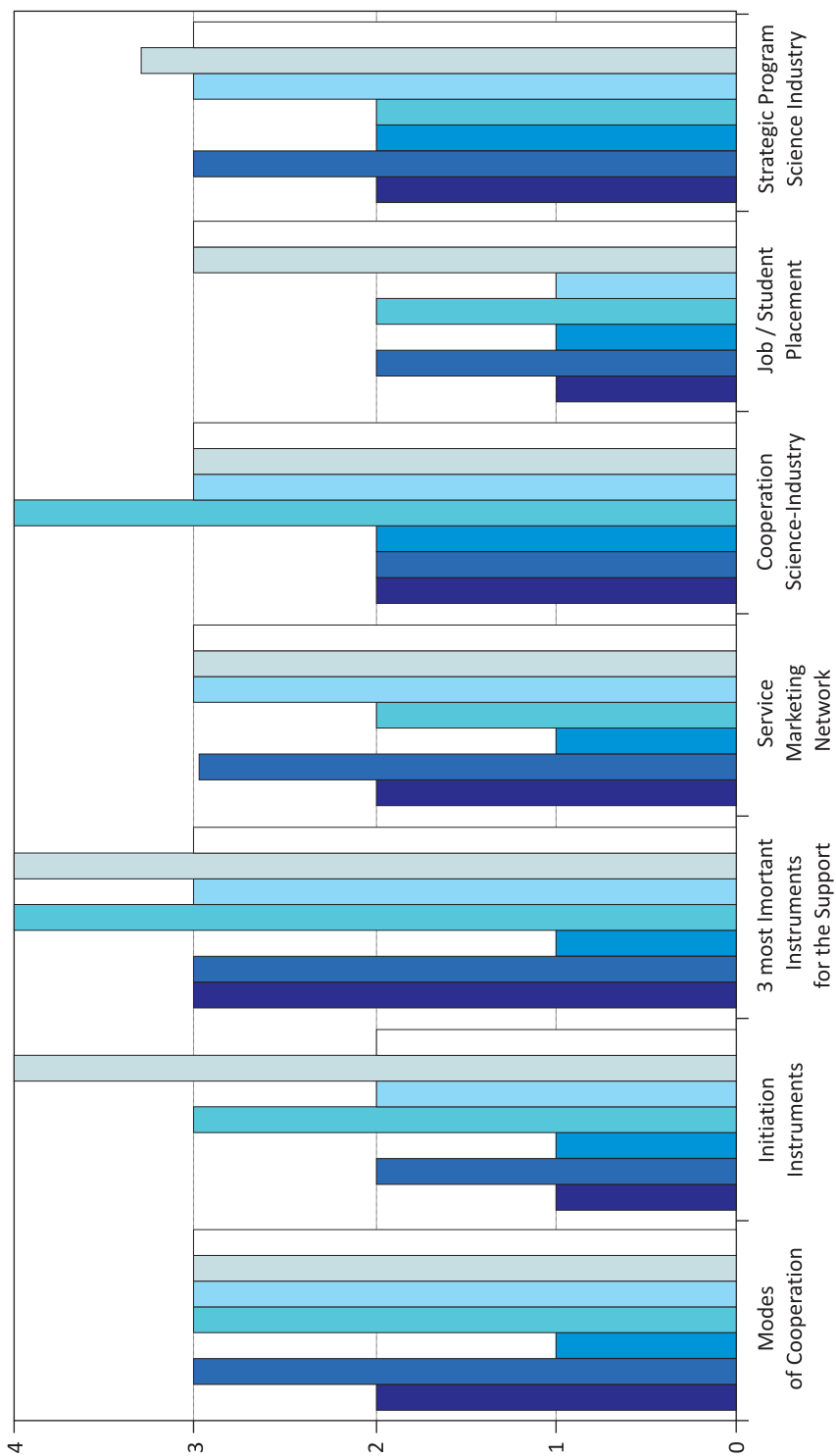
**FIGURE 3:** Example “Shape of the Region”



Source: Know-Man

**Example „Shape of the Region”:** Using the average values of the entire graphical presentation, the “shape of region” shows the individual results of one Science and Technology Park or Incubator regarding **all** implemented benchmark criteria. With the “shape of the region” a summary of all company divisions for each Science and Technology Park or Incubator is given. For the future development this individual overview helps to identify necessary conditions and potential actions. In this example case, the park assesses quite positive result for the indicators “external networking” and “technology profile”. However, the park infrastructure and marketing measures might be improved in the future.

**FIGURE 4:** Example "Internal Networking / Cooperation"



Source: Know-Man

**Example "Internal Networking / Cooperation":** Besides assessing framework information on each park, the Benchmarking also directly addressed indicators related to regional knowledge network management. In this example indicators for internal networking and cooperation structures are surveyed. Here, the black park, for instance, shows standard values for the science-industry cooperation. Obviously the park uses supporting instruments, but to deal with the identified deficit it seems that the park might have to work on "initiation instruments" or "student placement" measure. The chart also supports the black partner in identifying possible contacts for learning about potential practices for such instruments and measures. The grey partner, for instance, uses "excellent" measures for placing students in jobs within the park. Additionally, the partner with the oblique hatching assesses the professional initiation instruments. Therefore, the black partner might cooperate with these two partners and learn about their practices.

### Products / Outputs

Science and Technology Parks have recently been very active regarding Benchmarking. The International Association of Science Parks (IASP), for example, is discussing and developing the topic of Benchmarking in a more general way. For the association, Benchmarking is a tool for comparing profiles, performance, and success indicators of the more than 700 IASP members. Like in **Know-Man**, Benchmarking in the ISAP context also aims at identifying available best practices for the parks management as well as for twinning among parks to achieve growth synergies.

The **Know-Man** Benchmarking approach was therefore introduced at a meeting of the IASP European Division to actively promote the continuation of this process. The European Business Incubator Network (EBN) is interested in receiving Benchmarking results with the aim of transferring and adopting good practices in business company acquisition, networking of companies and research, and improving the climate for founders.

Communicating Benchmarking tools also supports the Science and Technology Park's management, innovation hubs and incubators measuring trends in their client's business development, business forecast, and the degree of customers satisfaction and success of the management methods of the park's administration.

The advantages of Benchmarking processes should also be communicated to city administrations and business development agencies in order to deliver an instrument for measuring the contribution of science parks, incubators or innovation hubs to the development of the regional economy (e.g. contribution to economic growth, to structural and technological change, to implementing innovation policy etc.).

It needs to be pointed out, however, that Benchmarking is a complex process and in order to fully benefit from Benchmarking results one needs methodological guides and manuals – this one being an attempt to share the methodology as well as experiences with it.

## Potential Impact on Regional Development

Measuring the development and performance of Science and Technology Parks allows for estimating of growth in different technology branches and sectors (e.g. turnover and employment) and even drawing conclusions regarding future taxes.<sup>8</sup>

Benchmarking also delivers important information on the parks' internal profile developments as well as on trends in technology development. Benchmarking also supports drawing of conclusions on the quality of the park. For instance, based on Benchmarking criteria it is possible to monitor if the park meets e.g. the requirements of young start-up companies and innovative entrepreneurs.

Furthermore, Benchmarking elements might be used for an annual survey of the companies and research institutes within parks and incubators, because the questions incorporated in the Benchmarking questionnaire allow for monitoring development and growth or for tracking customers' satisfaction.

Benchmarking criteria may also be used for infrastructure development evaluations and developing improvement strategies derived from the evaluation. Finally, Benchmarking also monitors cost developments of services, operating and overhead costs. The client's feedback is of special importance to the role of Benchmarking as a monitoring system, because this feedback provides information on the quality of the park management and for medium-term planning. Therefore, Benchmarking is not just a monitoring and controlling tool, but also a tool for strategic planning.

### Benchmarking within the Framework of Know-Man – Some Lessons Learnt

Even though the Benchmarking questionnaire also unfolds the potential of an interregional comparison of the knowledge network management services supplied by different STP, a specific weakness becomes obvious too. Despite the measures implemented to secure a smooth transfer of the Benchmarking questionnaire among the **Know-Man** partners, partner still used the tool in different ways. There are several reasons for this: For most partners the tool was new and quite complex for first working with it. Additionally, the majority of the partners are not directly involved in the park management and daily routines. Therefore information had to be retrieved and compiled from many different sources.

When evaluating the impact of Benchmarking on regional development at this stage our comments mostly rely on the authors' experiences and expertise, stemming from former activities with other partners (in particular from the Baltic Sea area) and from Benchmarking self-assessment by the related park management. With this background, the authors strongly recommend to further develop the tool and to concentrate and focus on selecting the most relevant criteria. The authors

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<sup>8</sup> Cf.: "The Impact of the STP Berlin-Adlershof on the Regional Economy; Gross Value Added, Employment and Tax Revenues in Berlin"; Dr. Ferdinand Pavel, Berlin, 10th November 2011

therefore propose to discuss relevant performance criteria and success indicators internally with the stakeholders of the interested Science and Technology Parks (e.g. entrepreneurs, universities, investors, regional administration, etc.). On the other hand the authors suggest to continue discussion with relevant experts and professional organizations, such as the International Association of Science Parks (IASP), the European Business and Innovation Centre network (EBN), and others.

### Transferability

Benchmarking has a high potential as a transferable tool because it consists of easily understandable questions and indicators. Developing the tool from scratch initially is cost-intensive as it requires a lot of expertise and adjustments to create a Benchmarking questionnaire with a sound scientific and practical basis. However, using and completing the questionnaire is not very cost intensive and does not require significant manhours. To answer the questions, it requires a clear understanding of the management of science parks / innovation hubs.

It is also necessary to point out that just looking at the transferability is not sufficient. It is also necessary to focus on further developing and improving the tool with experts already experienced with Benchmarking exercises, such as the IASP – in particular the University and the Science Park of Manchester. Combining their activities with the **Know-Man** experiences allows for addressing a much broader clientele and for having much stronger sustainability of the Benchmarking tool. In order to achieve this, one has to focus the Benchmarking questionnaire on core parameters like performance criteria (knowledge transfer, networking, infrastructure, client oriented services, marketing, founders incentives).

The **Know-Man** experience has shown that the stakeholders involved in the Benchmarking practise strongly focused on adopting the methodology and practicability along with the other (project) partners. This led to a considerably revised Benchmarking questionnaire that was broadly accepted by the majority of the project partners. Thus revised questionnaire was improved regarding the question's understandability as well as the criteria's logic. In addition to the self-evaluation applied by the partners with the Benchmarking questionnaire, a peer review was implemented for Cartuja'93 in Seville. This peer review was executed by the WISTA MG with positive results. Such peer reviewing considerably improves the quality of answers in the Benchmarking questionnaire, but also adds to the manhours and costs related to the Benchmarking process.

### Next Steps

The **Know-Man** project started with a well-developed draft of a Benchmarking questionnaire that was adjusted based on the partners' expertise and needs. The questionnaires have been completed by now and a first comparative analysis has already been implemented. In order to further improve the questionnaire as well



as to prepare further dissemination of the Benchmarking practice, the following further steps are foreseen:

- focussing and sharpening the questionnaire based on the **Know-Man** partners' experiences,
- using the results of the Benchmarking exercise for identifying good practice in the **Know-Man** partnership,
- adding external expertise from IASP – partners,
- supporting the sustainability of the project results and the transfer of the tool by offering the questionnaire to the EBN networks for their use,
- using the Benchmarking tool for twinning purposes (e.g. with STP/innovation hubs in Warsaw as a sister City of Berlin).

## Knowledge Atlas – Visualising Innovation

Author: Christina Minniberger

### Objectives

Cooperation between academic institutions, knowledge-intensive SMEs and public authorities is seen as crucial for the innovative strength of regions and necessary for sustainable development in a knowledge-based society. Nevertheless, despite their co-location e.g. in Science and Technology Parks, the exchange and transfer of knowledge between these three types of entities is often suboptimal. Therefore, the visualisation of “knowledge sources” may assist in identifying and highlighting relevant expertise within a given region. A Knowledge Atlas is one possible instrument for visualising regional knowledge interfaces. Theoretically, such an atlas is a knowledge management tool that graphically presents knowledge locations. The guiding question for the **Know-Man** atlas was the following: **How can an atlas be used for visualising regional knowledge sources in order to make it more easily accessible for start-up companies?**

Each region within the **Know-Man** partnership developed a Knowledge Atlas – leading to six regional Knowledge Atlases within the project. Just like a geographical atlas provides orientation in a foreign country or city, the **Know-Man** Knowledge Atlas helps start-ups and small and medium-sized companies in exploring their business environment. For the project, the added-value of the atlas’s methodology is its high adaptability to each region’s specifics while still ensuring availability of comparable results.

### Benefits

**Strengthening Cooperation:** The different knowledge carriers – public, private, and academic institutions – form the knowledge base of a region. But why is interaction between these actors on a regional level crucial for innovative capacities of regions? Innovation depends on the flow and circulation of knowledge. An active interaction within and across regions is necessary for paving the way from an interesting idea to a market-ready innovation. By visualising knowledge, capacities, and expertise that are present in regions the **Knowledge Atlas enhances the visibility of regional cooperation options.**

**Facilitating Orientation:** The field of start-up support is highly diversified, fragmented, and characterised by a high number of different actors offering services to potential entrepreneurs. Especially in this field the interplay of regional actor groups is observable. Academic institutions – either universities or non-university institutions – provide services to their students. Those services concern mostly business training, establishment of relations with academic experts, or provision of infrastructure such as specific laboratories. Furthermore, public actors have their share in start-up support by providing consulting and/or financing services. But the

private actors are not to be left aside as especially technology-oriented networking initiatives also provide valuable services for young entrepreneurs. Therefore it is often not the lack of services in regions, but rather lack or overload of different information sources. Here the **Knowledge Atlas helps to see services from all actor groups at a single glance.**

**Marketing Regional Potentials:** Through visualising knowledge agents and their services in a map, regional authorities and political decision-makers get an overview on the spread and location of “knowledge sources”. Therefore the Knowledge Atlas highlights the knowledge landscape of a region and its characteristic features for a specific sectorial base (e.g. optic industries or information technologies). This is, on the one hand, useful for marketing purposes when presenting the region to someone who has little knowledge of the regional landscape. Therefore the atlases may be presented at fairs or conferences. Furthermore Knowledge Atlases **serve as welcome and orientation guides to entrepreneurs, researchers, and companies** locating in the region. On the other hand, it also serves actors within a given region who have to position themselves in their regional environment and who are looking for potential cooperation partners or expertise that might be linked to their own services and products.

## Methodology

One of the main advantages of the Knowledge Atlas lies in its comparably simple methodological approach so that it can be developed by various stakeholder groups and in completely different regional and institutional surroundings. For instance, the six regional Knowledge Atlas teams in the **Know-Man** project consist of regional authorities, academic institutions, and management authorities of technology parks – all working together very closely in the creation of the atlases. In the case of the Knowledge Atlas the heterogeneity of the project consortium was perceived as beneficial as it led to having several perspectives on possible start-up support. Furthermore, all regions have established further contacts to organisations focused on technology-oriented and innovative start-ups (e.g. Chamber of Commerce, Cluster Managers, and Universities) in their regions.

The working process has been divided into three steps: **Preparation, Implementation, and Visualisation**. These steps follow a chronological logic, even though some tasks may overlap.

### Preparation Phase

Within the preparation phase the guiding questions, target groups, and objectives of each atlas were defined. Furthermore the data to be collected were specified (e.g. actors, contact person, postal address, e-mail, telephone number), as well as the storage and organisation of the data (e.g. Excel file).

<b>Know-Man</b>	The guiding question for <b>Know-Man</b> was <i>Who provides what kind of support to Start-Ups and where is it located?</i> The target group of the Knowledge Atlas are innovative, technology-oriented start-ups that are about to locate themselves within their economic field of competence. The necessary data was defined as descriptions of actors (e.g. contact persons, contact details, location) and description of services. The regional scopes of the <b>Know-Man</b> Atlases are defined by the six participating regions.
Timeframe	2 months

### **Implementation Phase**

The implementation includes defining important cooperation partners, scanning for existing data sets as well as collecting the missing data and refining data. Sources for data collection can be various – besides analysis of websites, a personal check-up with the organisation or company can be helpful. This might also be organised in the form of round tables bringing together a group of important stakeholders. Last but not least, a steady communication is an important activity in this phase!

<b>Know-Man</b>	Besides establishing internal working groups, each regional Know-Man project team also established a network of regional stakeholders (e.g. universities). Those were important contacts for scanning existing instruments as well as for gathering the necessary information and for spreading the word on the Knowledge Atlas. Regional meetings were additionally organised for integrating stakeholders at a very early stage of the atlas development.
Timeframe	6 months

### **Visualisation Phase**

The implementation phase is interlinked with the visualisation phase. When planning to develop a Knowledge Atlas, one also has to decide upon a visualisation strategy for the collected data. Such a strategy should consider developing an atlas that is easily understandable and readable for the defined target group. The visualisation strategy includes the question of the visualisation media. There is a wide range of possible products – from brochures, web databases to posters.

<b>Know-Man</b>	The common denominator for the <b>Know-Man</b> project regions was the development of a poster. Regarding the sectorial base as well as categories and symbols to be used each region developed an individual approach based on the regional demand. This also goes for the media to be used for the atlases that range from printed brochures, a series of posters to online databases.
Timeframe	2 months

Summing up, following issues are important for ensuring a successful development of a Knowledge Atlas:

- Setting up clear and achievable objectives for the Knowledge Atlas!
- Communicating the Knowledge Atlas to regional stakeholders from the very beginning!
- Choosing visualisation media that are most suitable for the target group!

**TABLE 1:** Region Specifics

Region	Andalusia	Berlin	Koroška	Lower Silesia	Rome	Veneto
Focus	Not focused on specific economic sector but on knowledge agents in Andalusia in general. Those actors are mainly public companies.	The approach of Berlin was focused on Optical Technologies.	The Slovenian approach is focused on “knowledge providers” such as research and development groups in the companies, other innovative businesses, intermediate bodies, business associations for various fields and educational institutions.	The Polish partners focused their Knowledge Atlas on ICT technologies.	Not focused on specific economic sector but on knowledge agents in Rome such as agencies, entrepreneurial associations, fairs, incubators, research centres, technology parks.	Not focused on specific economic sector but on science parks and knowledge resources in the region.
Approach	Andalusia project partners could use a pre-existing database which had to be re-structured according to the guiding question	Berlin partners gathered information by conducting online research and by direct contacts with the identified knowledge agents	Slovenian project partners gathered information by sending out questionnaires to the companies. Furthermore, they included links to the websites of companies in order to provide most up-to-date information. For organising the online database, the Slovenian partners worked with Google fusion tables.	Polish partners gathered necessary data through already existing databases and additional individual research	Intensive cooperation with local universities on implementation of the Knowledge Atlas was established. The data was prepared in an Excel Database	For the data collection three main actor groups – business clusters, research centres (applied research), intermediaries – were identified
Products	Poster and electronic database	Poster and brochure	Poster and online database <a href="http://know-man.si">http://know-man.si</a>	Printed poster, brochures	3 posters were developed – 1 for map with actors, 2 for description of actors	Digital Knowledge Atlas and pull-down atlas used for marketing purposes

**TABLE 1 – continued**

Region	Andalusia	Berlin	Koroška	Lower Silesia	Rome	Veneto
Lessons Learned	For the Andalusia project team the Atlas provided interesting information on the location and spread of knowledge agents in Andalusia.	Berlin offers a wide range of services to start-ups. Often the problem is not so much that there is no product rather that there are too many offers and the identification of the right offers takes time.	Slovenian partners realised that online database approach is most suitable for administering the collected information and for adding new partners.	Polish partners realised that there is a need to provide information to start-ups in a concentrated, understandable way.	The Knowledge Atlas has led to an extension of the regional network of the project partners and to establishment of new contacts.	Partner from Veneto realised the marketing potential of the Knowledge Atlas and therefore produced a roll-up.
Sustainability	Andalusian partner sees potential for developing online database. Furthermore, the approach has been communicated in the region in order to find potential cooperation partners.	Partners from the Berlin region held meetings with actors that might be able to include the collected information in already existing instruments. Furthermore, digitalization of the data is foreseen.	Slovenian partners used the opportunity to present their website to various regional stakeholders.	Polish partners communicated the Knowledge Atlas in the participating technology parks and incubators	Partners from Rome built a strong regional network for implementing the atlas, which now fosters further talks on sustainability	Venetian partner had talks with regional stakeholders on how to better include regional authorities

FIGURE 1: Knowledge Atlas – Andalusia





FIGURE 2: Knowledge Atlas – Berlin



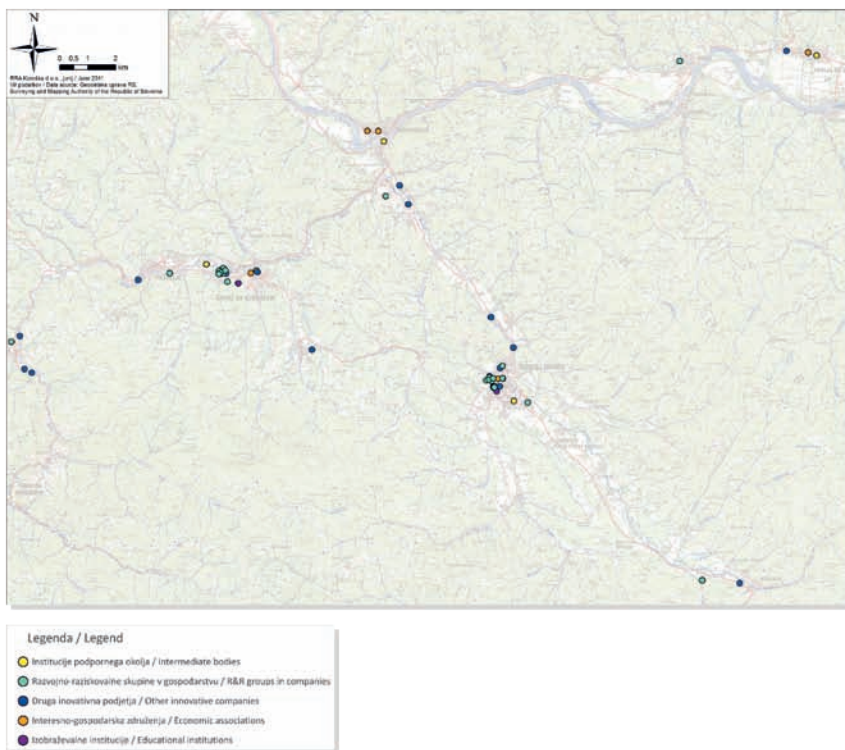
Source: Know-Man

**FIGURE 3: Knowledge Atlas – Koroška**



Atlas znanja, dostopen na spletnem naslovu [www.know-man.si](http://www.know-man.si), je orodje mreženja znanja, ki omogoča predstavitev znanja in inovacijski potencial Koroške regije na geografskem zemljevidu. Je spletna platforma, ki spodbuja pretok informacij med javnimi institucijami, raziskovalnimi ustanovami ter gospodarstvom. Za posamezne subjekte so navoljo podrobnejše informacije o razvojno-raziskovalni opremljenosti in kadrih, ki jih lahko ponudijo in hkrati o opremljenosti in storitvah, ki jih iščejo.

Atlas znanja, dostopen na spletnem naslovu [www.know-man.si](http://www.know-man.si), je orodje mreženja znanja, ki omogoča predstavitev znanja in inovacijski potencial Koroške regije na geografskem zemljevidu. Je spletna platforma, ki spodbuja pretok informacij med javnimi institucijami, raziskovalnimi ustanovami ter gospodarstvom. Za posamezne subjekte so navoljo podrobnejše informacije o razvojno-raziskovalni opremljenosti in kadrih, ki jih lahko ponudijo in hkrati o opremljenosti in storitvah, ki jih iščejo.



Namen projekta 'Know-Man' je izboljšanje regionalnih inovacijskih in razvojnih politik z uporabo mrežnega pristopa pri upravljanju znanja. S tem namenom je 15 partnerjev iz petih evropskih držav ustvarilo povezavo med javnimi (upravnimi) institucijami, raziskovalnimi ustanovami in inovativnimi malimi in srednjimi podjetji. Več informacij najdete na spletni strani projekta [www.know-man.eu](http://www.know-man.eu).

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Operacija se sofinancira iz Evropskega sklada za regionalni razvoj v okviru programa INTERREG IVC. / This project is co-financed by ERDF and made possible by INTERREG IVC Programme.

Source: Know-Man

FIGURE 4: Knowledge Atlas – Lower Silesia

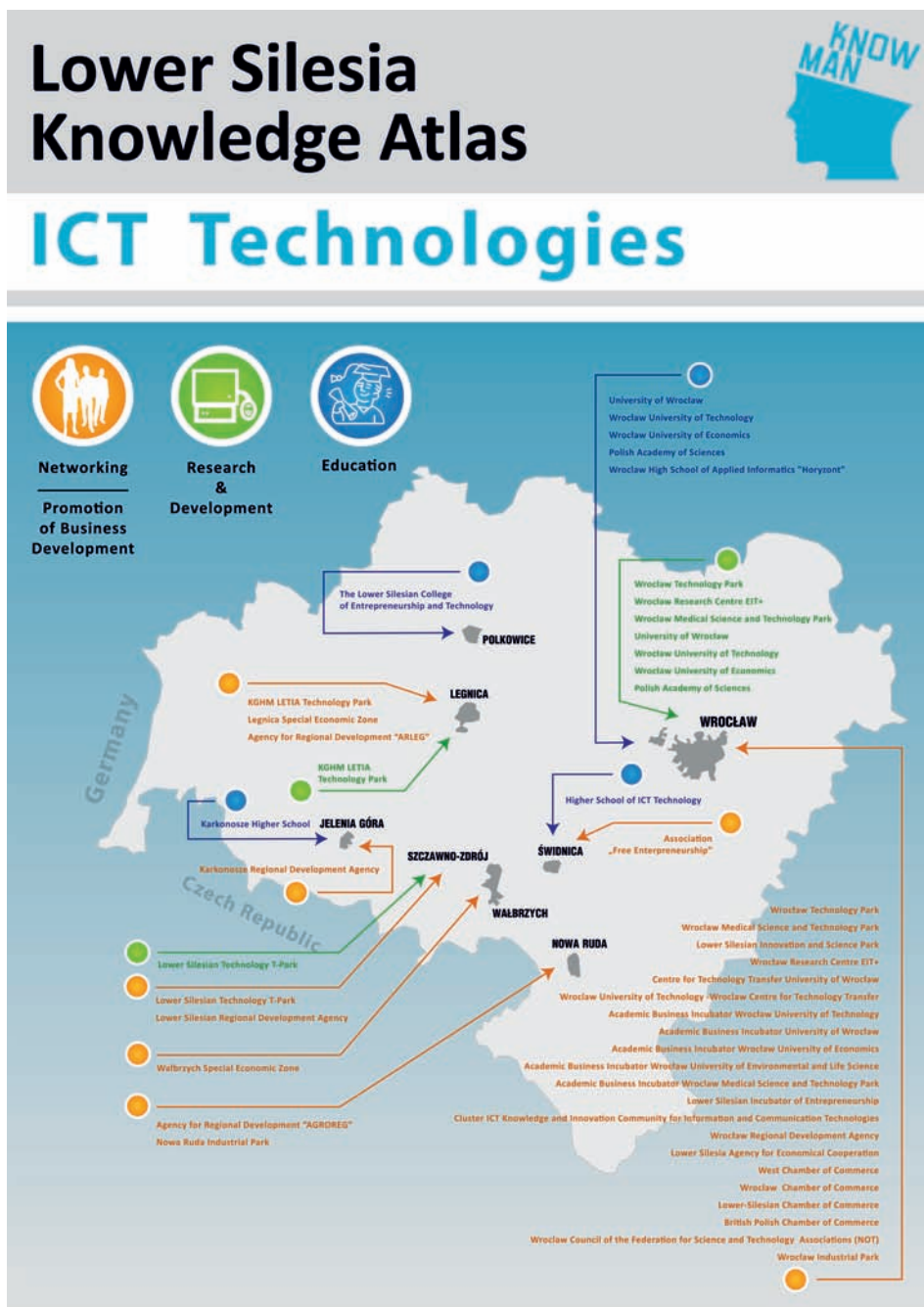
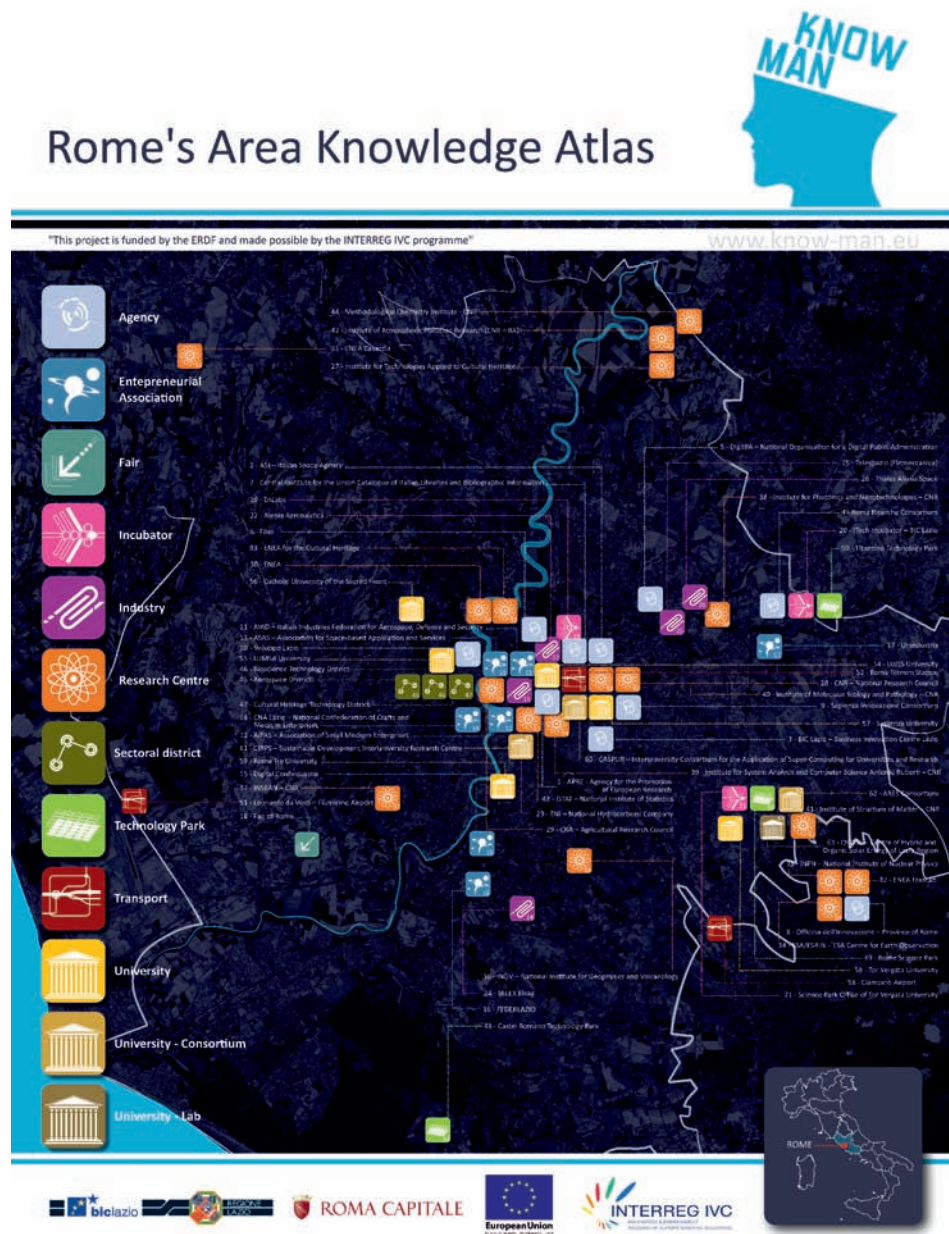




FIGURE 5: Knowledge Atlas – Rome



**KNOWLEDGE ATLAS**  
VENETO REGION

**VENETO**

**BELLUNO**

- 1. **TECNOLOGIE AVANZATE**
- 2. **INDUSTRIA E MANIFATTURA**
- 3. **INDUSTRIA E MANIFATTURA**
- 4. **INDUSTRIA E MANIFATTURA**
- 5. **INDUSTRIA E MANIFATTURA**

**UDINE**

- 1. **TECNOLOGIE AVANZATE**
- 2. **INDUSTRIA E MANIFATTURA**
- 3. **INDUSTRIA E MANIFATTURA**
- 4. **INDUSTRIA E MANIFATTURA**
- 5. **INDUSTRIA E MANIFATTURA**

**PORDENONE**

- 1. **TECNOLOGIE AVANZATE**
- 2. **INDUSTRIA E MANIFATTURA**
- 3. **INDUSTRIA E MANIFATTURA**
- 4. **INDUSTRIA E MANIFATTURA**
- 5. **INDUSTRIA E MANIFATTURA**

**GORIZIA**

- 1. **TECNOLOGIE AVANZATE**
- 2. **INDUSTRIA E MANIFATTURA**
- 3. **INDUSTRIA E MANIFATTURA**
- 4. **INDUSTRIA E MANIFATTURA**
- 5. **INDUSTRIA E MANIFATTURA**

**TRIESTE**

- 1. **TECNOLOGIE AVANZATE**
- 2. **INDUSTRIA E MANIFATTURA**
- 3. **INDUSTRIA E MANIFATTURA**
- 4. **INDUSTRIA E MANIFATTURA**
- 5. **INDUSTRIA E MANIFATTURA**

**TREVISO**

- 1. **TECNOLOGIE AVANZATE**
- 2. **INDUSTRIA E MANIFATTURA**
- 3. **INDUSTRIA E MANIFATTURA**
- 4. **INDUSTRIA E MANIFATTURA**
- 5. **INDUSTRIA E MANIFATTURA**

**VICENZA**

- 1. **TECNOLOGIE AVANZATE**
- 2. **INDUSTRIA E MANIFATTURA**
- 3. **INDUSTRIA E MANIFATTURA**
- 4. **INDUSTRIA E MANIFATTURA**
- 5. **INDUSTRIA E MANIFATTURA**

**PADOVA**

- 1. **TECNOLOGIE AVANZATE**
- 2. **INDUSTRIA E MANIFATTURA**
- 3. **INDUSTRIA E MANIFATTURA**
- 4. **INDUSTRIA E MANIFATTURA**
- 5. **INDUSTRIA E MANIFATTURA**

**VENEZIA**

- 1. **TECNOLOGIE AVANZATE**
- 2. **INDUSTRIA E MANIFATTURA**
- 3. **INDUSTRIA E MANIFATTURA**
- 4. **INDUSTRIA E MANIFATTURA**
- 5. **INDUSTRIA E MANIFATTURA**

**ROVIGO**

- 1. **TECNOLOGIE AVANZATE**
- 2. **INDUSTRIA E MANIFATTURA**
- 3. **INDUSTRIA E MANIFATTURA**
- 4. **INDUSTRIA E MANIFATTURA**
- 5. **INDUSTRIA E MANIFATTURA**

**AGRICOLTURA**

**INDUSTRIA**

**SERVIZI**

**23.883**  
NUMERO DI RICERCHE E SVILUPPO

**6.366**  
BREVETTI E PATENTI  
DEPOSITATE

**8264**  
IMPRESSE RACCOLTE IN  
30 CLUSTERS

**1:11**  
1 IMPRESA  
PER OGNI  
11 INNOVATORI

**32,5%**  
RICERCA E SVILUPPO  
IN RELAZIONE AL  
PRODOTTO

**493**  
MILIONI DI EURO  
IN USCITE

**60**  
MILIONI DI EURO  
IN ENTRATE

**55**  
MILIONI DI EURO  
IN RICERCA E SVILUPPO

**Partners:**

53

## Knowledge Atlas Media

As mentioned above, a Knowledge Atlas might be communicated with different media. Addressees, objectives, as well as future plans with the atlas influence the decision upon the media. The table below summarises the scope of the media used in the **Know-Man** context for visualising the regions' atlases.

**TABLE 2:** Products Characteristics

Dissemination Tool	Characteristics of Dissemination Tool	Boundaries and Limitations of Dissemination Tool
<b>Posters</b>	Each region illustrated its Knowledge Atlas with a region-specific poster containing a map of the covered area as well as locations and descriptions of "knowledge actors" located in this area. Posters are tools easy to be used e.g. at fairs and conferences. Basically they can be used whenever there is a kind of "market place" to promote regional knowledge potentials.	Posters may illustrate a limited amount of information only. They focus on graphical elements, but can provide just little qualitative information. Therefore, additional communication media might be useful.
<b>Brochures</b>	For the Berlin region a brochure was developed in addition to the poster. This brochure contains more detailed information on the actors presented in the Knowledge Atlas and functions as a guidebook to the atlas. The brochures were distributed to the target group – innovative start-ups – through contact points such as universities, chambers of commerce and networking organisations. Furthermore brochures were handed out at conferences and regional events. Also, for the Lower Silesian atlas a brochure was developed in English and Polish.	Poster and brochure illustrate information relevant for a limited timeframe only. Since the atlas provides contact information subject to changes, posters and brochures offer no option for updating or including new actors.
<b>Websites</b>	The Veneto region (Italy) and Koroška (Slovenia) opted for an online solution where interactive search options are available. All presented actor profiles are furthermore linked to the organisations' websites.	Despite the possibly easy-access and content management solution, online-solutions need a reliable administration. Consequently, ownership and responsibilities need to be clearly defined.

Source: Know-Man

## Potential Impact on Regional Development

On regional level the Knowledge Atlas provides various advantages. It helps to illustrate the regional state-of-the-art in the knowledge economy by identifying key actors and stakeholders. Additionally, an atlas might facilitate future regional

development, because stakeholders are not just identified, but also located. Furthermore it gives policy-makers the opportunity to take a kind of 'neutral' view on the knowledge landscape, as the atlas is not focused on an actors group – such as public authorities or research institute – and on one kind of service. Rather the approach is to take the target group – innovative technology-oriented start-ups and SMEs – and to provide them with all the information needed. This can range from programmes financing start-ups offered by a local bank to networking events hosted by a technology network

The first aspect has already been highlighted – as by visualising regional knowledge agents cooperation possibilities become visible and the flow of knowledge within the region is triggered. This is an important aspect for fostering cooperation within the region as well as for providing orientation to new players within the regional landscape.

Speaking about regional development the atlas also provides potential for a “self-evaluation” of the region. Especially for regional authorities the Knowledge Atlas is an interesting opportunity for visualising the status quo in a specified field of interest (e.g. bio-technology, optics). Such an instrument might be very valuable when designing regional innovation strategies and especially when defining fields of competences or thematic clusters for regions.

### *Transferability*

The main challenge of working with Knowledge Atlases in a project team was to find common denominators. Not only are the participating regions heterogeneous, but also the partners coming from science, economy, or the public sphere, have diverging perceptions of the objective of the atlas. Therefore it is crucial to accept extensive discussions in the preparation phase in order to agree on a common definition of the actors to be identified and the selection of services they provide. Nevertheless the atlas is an adequate instrument for overcoming these heterogeneities through its flexibility. Regions were able to independently choose economic sectors, categories of services, and the details of the visualisation. Despite allowing for adaptations to regional specifics, it still offers the possibility to compare regional results and approaches with each other.

Nevertheless, it is helpful to clarify a few issues before preparing the transfer of the Knowledge Atlas:

- Are there already similar instruments in a region?
- Which regional stakeholders should be involved from the beginning to ensure regional acceptance?
- How should the atlas be designed (e.g. website, brochure) to best reach my target group?
- How can the financing of the Knowledge Atlas be ensured and what happens after the termination of financial support?

## *Next Steps*

Sustainability is one of the key challenges for the six regional Knowledge Atlases. In all regions there are ongoing efforts to make the results of the Knowledge Atlases more sustainable. This means that the regional partnerships have developed ideas for sustaining the atlas either by taking care of the database themselves, or by establishing contacts with other regional stakeholders who are capable of taking over the data gathered during the work on the atlas.

One of the main lessons learned was to communicate activities as early as possible. This means that the earlier the important actors are involved, the easier it becomes involving them in the process of the atlas development. Furthermore, good co-operation facilitates the distribution of information on the Knowledge Atlas in the regions.

One of the central results so far is that all six regional Knowledge Atlases have gained considerable regional interest. That opens doors for more cooperation on regional level. To exemplify the project's efforts: In Berlin there are ongoing negotiations with the regional location marketing agency, while the partners from Rome have signed a cooperation agreement with the local universities.

Besides efforts to ensure the sustainability of the six project atlases the project team also spreads the word on the methodology of the atlas. The experience has shown that the methodology itself is simple – visualising regional knowledge – yet this concept seems to be highly innovative for the regional level. Therefore the adaptability of this methodology to other economic sectors or geographical areas is the key issue in communication.



## CONCLUSION

Authors: *Christina Minniberger, Agnieszka Olechnicka, Adam Płoszaj, Suntje Schmidt*

### Regional Networks and Networked Regions

This is the “world of connections”<sup>1</sup> and we live in the “network society”<sup>2</sup> where anyone can be connected to another person by “six degrees of separation”<sup>3</sup> – it is truly a “small world”.<sup>4</sup> The phenomenon is manifested not only in everyday life but also in the objectives of the European Union policies. The growing importance of collaboration becomes particularly clear in the European Territorial Cooperation programmes that finance cooperation projects such as the INTERREG IVC **Know-Man** project. Thousands of interregional, transnational, and cross-border projects are spanning their networks throughout the European Union. Those projects rely on strong regional anchors, because without well-functioning regional partnerships the benefits of interregional exchange cannot be sufficiently exploited for gaining new competences and experiences. European projects should therefore be perceived as an opportunity for networking between and within regions.

Even though interregional project networks are established for just a limited time-frame, successful cooperation projects continue to unfold regional effects through strong regional partnerships and interregional linkages. Partnering in European projects also supports establishing wide-ranging and diverse contact networks that support regions in becoming hubs for other European regions. Learning effects of such cooperations should not be underestimated both on thematic as well as on personal level. Especially intercultural learning seems to be an important side effect of European cooperation.

Within the **Know-Man** team we constantly observe diverse and valuable learning effects. The three instruments presented in this brochure serve as illustrations for the multiple ways of learning from one another and profiting from one another’s experiences and perspectives.

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<sup>1</sup> The Economist (2010), A world of connections. A special report on social networking. 30 January 2010.

<sup>2</sup> Castells, Manuel (1996), The Rise of the Network Society, The Information Age: Economy, Society and Culture Vol. I. Cambridge, MA; Oxford, UK: Blackwell.

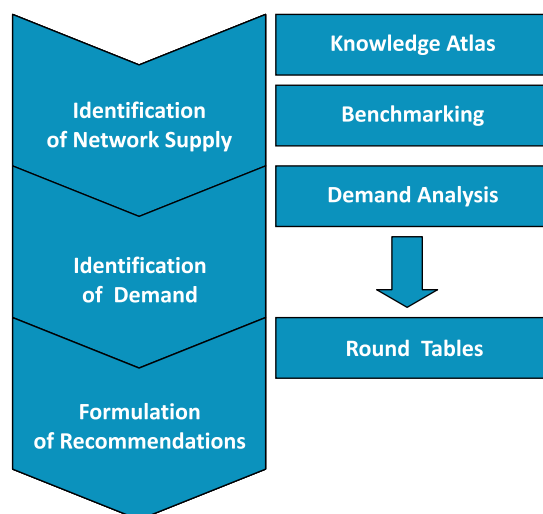
<sup>3</sup> Watts, Duncan (2003), Six Degrees: The Science of a Connected Age. W.W. Norton & Company.

<sup>4</sup> Milgram, Stanley (1967), „The Small World Problem”. Psychology Today, 1(1), May 1967.

## Various Needs – Diverse Instruments – Strategic Decisions

Approaching the objective of fostering knowledge network management in six European regions requires an extended perspective that includes many aspects determining the regional networks. But before any influence can be made it is necessary to identify the *status quo* in each region. Consequently, our portfolio of instruments aims at identifying the existing situation, then the demands, and providing recommendations for the future.

**FIGURE 1:** Know-Man Phases and Instruments



Source: Know-Man

The mix of instruments introduced in this brochure provides a combination of multiple methods – from visualisation of regional knowledge to interviews and questionnaires for identifying future actions. The combination of tools offered by the **Know-Man** project includes not only monitoring and evaluation, but also important strategic instruments for improving regional innovation policies as well as medium-term planning in technology parks. For example, a **Knowledge Atlas** provides the opportunity for visualising existing regional knowledge potentials in a specified economically and academically relevant sector, e.g. bio-technology or optics. Such an instrument might be very valuable for regional authorities in designing regional innovation strategies and particularly in defining fields of competences for smart regional specialisation. **Benchmarking criteria** may be used for evaluating infrastructure developments, creating improved evidence-based strategies, and for planning future technology park developments. Similarly, the **Demand Analyses'** findings reflect the current state of affairs and needs of firms, and therefore give important insights into the future development of knowledge network management strategies and specific instruments to be implemented. Thus identified measures

affect different spheres of the regional triple helix: public authorities, economic actors represented by technology parks and incubators, as well as research and higher education institutions. Based on results from the Knowledge Atlases, Benchmarking, and Demand Analyses the **Know-Man** project consortium formulated some policy recommendation. This communication process included key actors forming the regional triple helix. Effective discussion among the regional actors could take form of e.g. round tables which are designed to facilitate the elaboration of common policy goals.

## Transferability Requires Adaptation

The knowledge network management instruments described in this brochure confirm this statement. They are quite easily transferable to other regions, but in order to assure their successful application in different regional settings they first need to be adapted to specific regional needs. Knowledge Atlases, Demand Analysis, and Benchmarking were created from the scratch: the literature was analysed and comparable examples were taken into consideration. Nevertheless, when presenting the tools to the **Know-Man** partnership the need for making adaptations and ensuring flexibility became obvious.

The journey of the **Knowledge Atlas** started with the academic literature on the visualisation of knowledge. Nevertheless, feedback talks within the partnership showed there were as many understandings of the term “Knowledge Atlas” as there were partners in the project. The need for flexibility became pressing! The methodology behind the atlases – aimed at visualising knowledge in regions – was laid out for all project regions, nevertheless flexibility was allowed regarding the choice of economic sectors, the covered scope, as well as visualisation forms (ranging from posters and brochures to roll-ups and websites).

The same is true for the **Demand Analysis**. Initially, a quantitative analysis was planned for the participating science and technology parks. This approach, however, proved not suitable for all regions. The arguments ranged from companies’ hesitation to provide quantitative financial data to a certain exhaustion regarding answering yet another questionnaire. Therefore the partner in charge<sup>5</sup> developed a compromise that included a methodological mix of a quantitative and a qualitative approach that allowed for both a standardised questionnaire and/or a personal interview with selected companies. Based on regional experiences the partners were able to choose the method mix most promising for them.

Similar adjustments were necessary for **Benchmarking**. Starting with collecting previous experiences of the project partners and their expectations, the Benchmarking coordinator<sup>6</sup> compiled all inputs and adapted them to the central theme of **Know-Man**. The implementation of Benchmarking in six structurally very different

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parks required further learning – questions had to be adjusted to ensure a common understanding in all regions.

### **Mutual Learning as a Necessity and Added-Value of Interregional Cooperation**

The core advantage of interregional cooperation is the possibility to learn from experiences and learning processes of partners from other regions. The following examples from the **Know-Man** project should highlight this seemingly simple, but nevertheless important message.

To follow and organise the learning process within the **Knowledge Atlases** the preliminary results and working steps were constantly presented during the internal project workshops. This enabled all partners to stay up-to-date on the progress in other regions and to discuss open questions with the team. Furthermore, the changes and adjustments of the initial instrument were made explicit in order to understand the necessity for regional modifications. When working on the final results, the project involved a poster session at an international conference for all six atlases which highlighted 6 different ways of implementing the same core methodology.

A similar procedure was used for the **Demand Analysis**. The *status-quo* of the data collection was subject to discussions with the project team permanently and on a regular basis. Furthermore, the partners were able to provide constant feedback and recommendations on the upcoming steps of the procedure. Each partner could include specific needs and ideas for getting the most out of the collected data.

The **Benchmarking** instrument is perfect for mutual learning as it enables to benchmark and compare similarities and differences between the organisations under examination. Our Benchmarking exercise also started with a workshop that presented existing Benchmarking approaches and discussed them with the project partners. The discussion itself was quite lively and intense, because the Benchmarking questionnaire was quite complex and already underlined the regional specificity of potentially examined questions. Furthermore, partners had varying expectations from the Benchmarking questionnaire, e.g. some were interested in comparing existing services and performance indicators, others wanted to use the results to learn about new services and their effects in parks. As a result of the intense discussion the **Know-Man** Benchmarking questionnaire got considerably adjusted.

A mid-term project conference offered the opportunity to deepen the effects of mutual learning. During the event invited international guests discussed **Know-Man's** ideas and results with the project members. Using the methodology of a World Café (thematic tables for intensive discussion on the internal and external **Know-Man** work) the important conditions for interregional learning and transfer of experiences were determined. Publications and distribution of products (Benchmarking tools, good practices) represent the tangible results of the project's works. Indirect effects

of the project, however, were intensively discussed as well. Besides appreciating the content-related exchange, the discussion showed the high relevance of “soft”-skills exchange. Aspects of such exchange include:

- improving language skills,
- building up “European competencies” (e.g. recognizing benefits from inter-regional projects that have not been clear at the beginning),
- transferring practices (knowledge about methodologies and ways of applying them), and
- greater sensibility to intercultural specifics.

Additionally, establishing new personal contacts during projects often provide a crucial starting point for new initiatives in the future. Consequently, even though interregional projects terminate after a few years, they continue to provide sustainable effects as partners continue to cooperate in new projects, and also, frequently at their own expense.

### **Strong Cooperation within Triple Helix as a Success Factor**

Knowledge Atlases, Demand Analysis, and Benchmarking could not be developed without cooperation among economic, academic, and public policy actors. Commitment, mutual understanding, and close cooperation within the regional Triple Helix are crucial for implementation of tools in question.

The **Knowledge Atlas**, for instance, relied on involving all actor groups from the very beginning, because partners from academic, entrepreneurial, and public spheres have diverging perceptions of the atlases’ objective. Furthermore, the atlas’ results should focus on all involved regional groups of stakeholders and knowledge providers. Therefore it was crucial to assure important stakeholders’ involvement during the planning and implementation phase by means of e.g. round table debates.

In the **Demand Analysis** active support of the technology parks’ management, of academic institutions, and of public administration was of importance during various stages of the tool’s implementation. The technology parks’ role became obvious at the survey preparation stage. The practice-oriented experiences of science and technology parks’ management and its proximity to companies located in the parks could not be overestimated. The parks’ management thus not only supported the preparation of the questionnaire, but also functioned as a door opener to the companies under investigation. Academic institutions were needed to ensure a sound preparation and implementation of the survey by providing their methodological know-how. Last but not least, active involvement of public administration throughout the survey processes ensured a smoother communication of the Demand Analysis’ results to specific stakeholders responsible for regional innovation policy-making. In fact, it turned out that implementation of a methodological mix in the demand analysis supported the involvement of regional stakeholders. Using a qualitative module in the form of interviews allowed for having

a communication tool already integrated in the survey. This not only increased the interviewee's motivation to participate in the survey, but also allowed for a detailed elaboration of the current state of cooperation of the interviewed firms with other regional triple helix partners.

The same applies to **Benchmarking**: All partners were involved in drafting the Benchmarking questionnaire as well as discussing the comparative analysis' results. Strong cooperation within the triple helix was especially needed in developing the tool from the scratch as it required a lot of expertise and adjustments in order to create a Benchmarking questionnaire with a sound scientific and practical basis.

### **Sustainability of Project Results in Regions**

Considering the work invested in all **Know-Man** instruments, ensuring the sustainability of the common efforts is the main objective for the project team. When developing and implementing the instruments described above, interfaces with other regional activities and stakeholders were identified and – if possible – activated. For the Knowledge Atlases, for example, central stakeholders were identified and involved into the atlases' development processes. In that way, they could function as transmitters of the Knowledge Atlas methodology and further promote the final atlases within the regions. In contrast, the Demand Analysis not only identified possible future need for actions and related instruments, but involving academic, economic, and public policy stakeholders in communicating the analyses' results paved the way for assuring implementation of such identified instruments.

Additionally, the World Café organised during the project's midterm conference aimed at identifying measures to make the project results more sustainable. A consensus was reached on the importance of communication for interregional projects. If projects are not visible in their regions, their results cannot be sustained! Experience shows that relevant regional, national, and European stakeholders should be involved as early as possible. Therefore a targeted communication strategy is of tremendous importance from the very beginning of European interregional cooperation.

Furthermore, it became clear that the sustainability of projects cannot just be measured by the tangible transfer of some Good Practices or adjustments made to the regional policy. Instead, projects are also sustainable if relations between projects partners can be sustained. As mentioned above, interregional projects contribute to learning about competencies of partners, objectives of the partner's organisations, as well as problems faced by partner organisations but not directly linked to the project. If partners can identify common problems or common objectives, they tend to continue working together also in other settings. Sometimes projects have already contributed to setting up such arrangements, e.g. in the form of letters of interest in future cooperation agreements.

Last but not least, European cooperation projects support establishing European competencies. By working on a European project governed by overlaying European and national regulations, each partner learns how to manage the challenges related to such arrangements. Consequently, with these newly acquired competencies, partners will also feel more confident when participating in other European project constellations in the future.