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Executive Summary

The main objectives of Deliverable D5.4 are to identify the role of an information exchange process in selected case study regions as well as the importance of networks, partnerships and regional and thematic clusters for information transfer. More specifically, although rural areas' ability to innovate faces particular challenges – e.g. declining population, limited accessibility, lack of factor endowments as well as capital resources – the investigation clearly indicates:

- Firstly, there is a wide range of innovation potential in rural areas – but key factors for successful innovation differ in comparison to urban agglomerations.
- Secondly, rural areas are able to be competitive on a very high level in niche markets - in particular low tech industries open a broad perspective of opportunities.
- Thirdly, tacit or embedded knowledge is a key factor of successful innovation. All case study regions prove that the organisation and promotion of manufacturing traditions or traditional services on a very high level leads to spillover effects, hence to further innovation among firms and customers.
- Finally, innovation in rural areas is not a sector specific phenomenon, nor it is restricted to a certain size in population or area, as the selected case study regions clearly demonstrate.

Organisational proximity deepens the forms of organisational arrangements: learning is not learning simply because of a single firm, learning becomes a complex highly interactive process between

- (1) customers and producers (mostly leading to product innovation),
- (2) enterprises operating in the same industry (generating either product or process innovations),
- (3) between enterprises operating in different industries, but possessing complementary pieces of knowledge or
- (4) between enterprises and R&D institutions or universities (Hartmann and Steiner 2006).

Therefore, making use of endogenous tacit knowledge, hence making use of endogenous regional potentials, is the beginning of a social process of cumulative knowledge, based on a set of shared rules and procedures that allow individuals to coordinate their actions in search for problem solutions – which is, by definition, collective learning. Three case study regions were chosen, the *Lavanttal* in the Austrian province of Carinthia, the *Vulkanland* in Styria (Austria) and the *Lubelskie* Region in Poland. Findings show that agriculture is the driving force of innovation in the region of *Lubelskie*, strengthening the endogenous manufacturing potential in low tech industries; a particular focus on applied research was the key factor for success in the case of *Lavanttal*, while the third case study region *Vulkanland* is focused on services. Challenges and Success factors of these three case studies are summarised in Tables 1 below.

Region	Sectoral Perspective	Challenges	Success factors
Lavanttal	Industry, producing branches	Strengthening the endogenous manufacturing potential in low tech industries, by having a particular focus on applied research.	The deepening of the cooperation of firms and secondary educational institutes.
			A skilled and stable labour force within the region was established.
Vulkanlands	Services, handicraft and tourism	Additional to the concentration on the further development of regional strengths, the Vulkanland initiated a specific marketing strategy innovative to the region – the creation of the common brand “Vulkanland”	Continuous optimisations and innovative activities are seen as core competences.
			Concentration on the regional economy.
Lubelskie Region	Agriculture and farming	The development of organic farming, processing and marketing of agricultural products.	Creation of a sense of belonging as well as a regional identity.
			The deepening of inter firm co-operation and partnerships within the same industry or branch was deepened and opened the field of sector-specific collective learning.
			The promotion of ecological consciousness among potential customers of organic food.
			To support producers with ecological knowledge, as well as help them in developing contacts among themselves and with external partners.

Table 1: Challenges and Success factors

While the success of the Lavanttal case study in the Austrian province of Carinthia mainly relies on strengthening regional endogenous manufacturing potential which is nothing else than making use of given endowments in terms of land, labour capital and organisation. The Styrian Vulkanland case study was promoting regional identity by creating a common label. The regional brand “Vulkanland” combines regional manufacturing traditions, food production, tourism as well as food and wine culture. For ages, agriculture and food production dominated the regional economy in eastern Poland. The rise of organic farming, the production of eco-logical goods and services as well as their promotion among consumers transformed an inefficient agricultural sector to a key factor for successful regional development by creating jobs and income within the region.

Despite the different development strategies in the case study regions and regardless of restrictive structural, economic and socio-demographic conditions (which are explicitly analysed in the chapters on the case study regions), success factors in all regions have various aspects in common:

The most important factor for success is the creation of mutual trust, which is the basis for establishing co-operations among firms and results in firms’ ability to organize themselves. Once co-operation is arranged on low levels it is rapidly strengthened. Strong organisation usually leads to formal co-operation, hence to partnerships of firms and educational institutes or to co-operation among firms and customers, which results in long-lasting and stable relationships.

With improved organisation among firms, a stable labour force is created. The establishment of a labour market providing specific skills demanded by firms within a certain organisation often allows a common training, further education and employment of regional workers. Competition in the context of a high degree of co-operation and organisation is usually conducted via quality and not via price. Firms therefore try to provide high quality products and services in order to stay competitive.

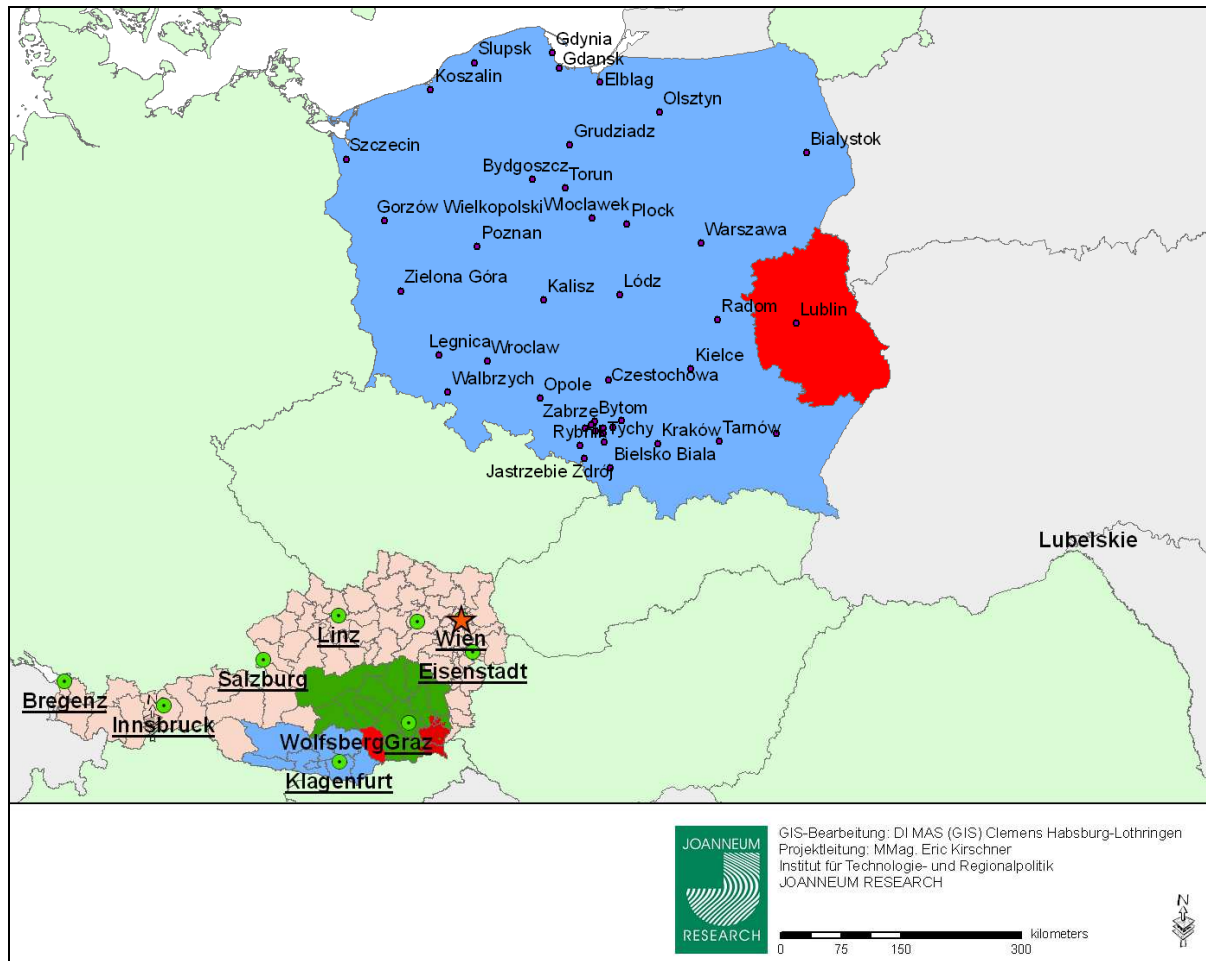


Figure 1: The D5.4 case study regions [red] in Austria and Poland compiled by JOANNEUM RESEARCH-InTeReg.

Introduction

Work Package 5 (WP5) has two main areas of analysis: (1) Actors' analysis and (2) Information transfer analysis:

Area 1: Role of actors: The role and self-understanding of different actors involved in the creation and use of innovative approaches is a key element in the overall process of fostering innovation. Different groups have different behavioural models and follow different objectives. Therefore the development of innovative projects does not only rely on appropriate tools but also on a deeper understanding of the processes and people involved. In fact, it is the management of change, with a strategic perspective. It also helps to understand why innovative projects which may look good on paper, do not develop as expected. The introduction of innovative approaches in a region should consider the interaction between private and public actors, initiatives and constraints.

Area 2: Information transfer: Knowledge and the access to information can be seen as a precondition necessary for innovation and sustained growth. The regional dimension gains new importance especially for the exchange of knowledge and for learning processes; here the focus is on the necessity and forms of proximity for knowledge exchange. Clusters and networks are among the non-market devices that can, together with communication technologies, be understood as "social technologies". Those have received renewed attention in recent years not only as a tool for regional development in general but as an institution of knowledge creation and diffusion between different groups.

Deliverable 5.1 (*Report on Analytical Framework*) developed an analytical framework to capture organisational issues and processes relevant for innovation. Building on deliverable 5.1, the aim of Deliverable D5.4 is twofold:

1. To assess case studies by using the main findings of the analytical framework developed in D5.1 and to identify main findings in terms of organisations and management rules (Task 2 in the Technical Annex).
2. To evaluate the contribution of the knowledge transfer process, hence of learning and organising firms' activities to the success of the case studies (see Task 5 in the Technical Annex).¹

Deliverable 5.4 (*Report on key factors for successful knowledge transfer mechanisms in rural areas*) contributes to the analysis of information transfer (area 2) by addressing two main issues:

- (1) To characterise the internal conditions of projects, analysed in terms of organisations and processes that explain the success of innovative projects.

¹ This will feed into deliverable *D5.3: Synthesis report and recommendations on the organisations and process management*, in which the most promising methods for knowledge exchange and dissemination strategies will be examined.

- (2) To evaluate successful knowledge transfer mechanisms, hence analyse the potential of organisational innovation on case study level in order to be able to describe overall key factors for success.

The impact case studies to be carried out in Work package 5 involve a multitude of most diverse data requirements. Starting from the analytical framework – main findings are briefly summarized in the very beginning of this paper. Chapter 2 provides the rationale of the uniform questionnaire used in the surveys on case study level. A regions' potential to innovate – in the short but also in the long run – is determined by its set of factor endowments and assets. Chapter 3 covers the three economic branches analysed in WP5 – namely agriculture, industry and services on case study level.

Although the content of all case studies differs and the analysis of regional innovation potentials is mainly undertaken sector-specifically, it is essential to have a closer look at the regional perspective. The socio-economic data described in Chapter 3 is used in every case study to describe the past and present situation of the study region and its economy by using an uniform case study structure – including a subsection on organisations and key factors for success on regional level.

The last part illustrates the present results of the main finding on case study level in a more general approach: It is shown that co-operation and geographical proximity, stable inter-firm linkages and linkages to a stable labour market is enhancing and deepening co-operation of firms over time – an increasing intensity of organisation is leading to innovative activities within or between firms, hence to interactive and collective learning.

1 Conceptual findings of Deliverable 5.1: Report on Analytical Framework

The ability of rural areas to innovate faces particular challenges – economic specialisation usually is centralised in urban agglomerations, so are R&D activities. The most hindering factors are limited accessibility, a lack of factor endowments in terms of human, physical and knowledge resources as well as limited capital resources:

- **#1:** Every region has its own economic and social structure, its existing networks and organisations as well as its specific physical infrastructure. This set of factor endowments and assets determine the region's ability to innovate and successful regional innovation results in enhanced productivity and prosperity.
- **#2:** Insufficient but also underdeveloped inter-firm linkages as well as an undersized or instable labour market restrain the creation of an industrial atmosphere. Most industrial clusters (factor-driven spatial organisations in strategically distinct industries) are concentrated in larger urban areas, marking advantages of positive externalities. Therefore successful innovation in rural areas – in order to be able to benefit from economies of scale - must focus much more on intangible assets such as conscious behaviour, cooperation and collective learning than on the classical determinates of competitive advantages (such as physical and capital resources but also accessibility).
- **#3:** Innovation is a product or process, organisational innovation or innovation in marketing that has to be new to the firm. The innovation itself has to be introduced within an enterprise, such innovations may involve radically new technologies, they

may combine existing technologies in new uses, or they are derived from the use of new knowledge. Furthermore, new process innovations do not necessarily have to be implemented to the production-process; new products do not have to be new to the market, but to the firm.

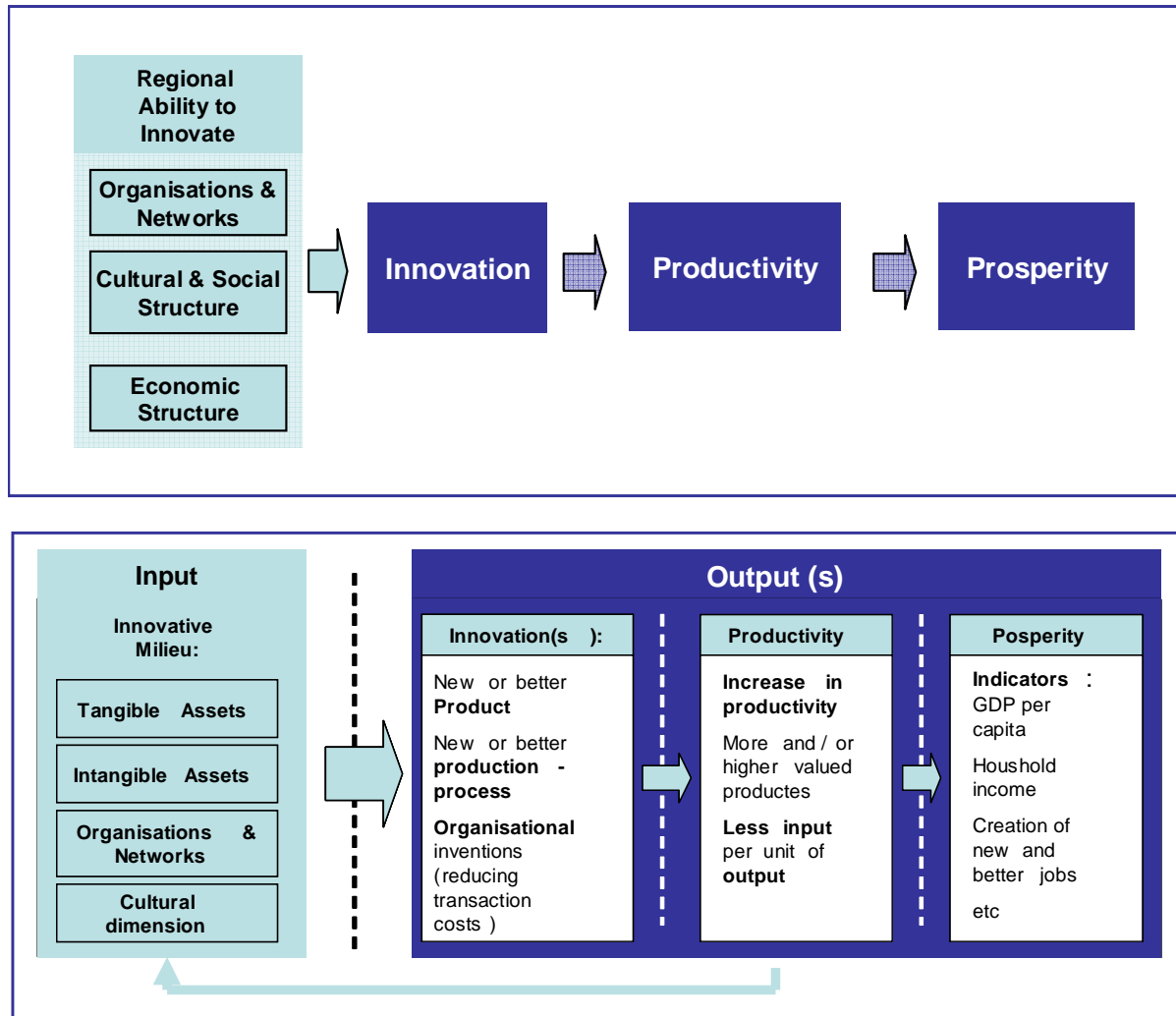


Figure 2: Regional innovation ability and prosperity and related key questions of the investigation at empirical level compiled by JOANNEUM RESEARCH InTeReg [source Deliverable D5.1 Report on Analytical Framework].

- **#4:** Successful organisation – sharing information, sub-contracting, collective actions, but also social relationships between the actors – potentially saves transaction costs. Successful organisation leads to positive external economies of scale.
- **#5:** Innovation is not an objective per se: it is a proxy-indicator for prosperity or economic well-being. Broadly spoken, regions innovate to obtain wealth, hence to strengthen their economy to create jobs and income. Strengthening innovation potentials or regional abilities to innovate is a selective measure or precondition for superior [political] objectives (see D5.1).

- **#6:** Stimulating innovation is a major route to reaching the Lisbon-targets [making Europe «the most dynamic and competitive knowledge-based economy in the world, capable of sustainable economic growth, with more and better jobs, greater social cohesion and respect for the environment»], in particular, the EU set the ‘Barcelona target’ of increasing research and development expenditures to 3 per cent of GDP by 2010. Innovation is an activity, it is a dynamic process, and there is no direct input-output relationship that can be measured. Indicators on innovation generally measure the input side; common indicators are expenditures on Research and Development or persons employed in R&D and Innovation, while the output of innovation results in new or better products or processes, enhanced productivity (hence improved competitiveness) and last but not least regional prosperity (regional growth of GDP and/or new and better jobs). But an increase in expenditure on R&D does not necessarily lead to a specific output such as a certain number of new jobs.

2 Methodology: Case-study assessment

Description of work [see Technical Annex Task 2]: Assessing the case studies by using the main findings of the analytical framework and identifying main findings in terms of organisations and management rules. The methodology that was used to fulfil this task mainly relies on semi-structured interviews carried out in the case study areas. Interviewees were mainly CEOs of local companies, managers of innovative projects or innovation agencies but also private agents were involved in them “having experienced success or failure, allowing them to analyse the conditions aimed at in the Work Package” (as explicitly mentioned in the description of work).

2.1. Rationale behind the questionnaire

The location of an enterprise is widely recognized as an important factor regarding innovative activities and the attitude towards innovation. Under consideration of specific factors such as the availability of human resources, communication and specialized services to firms, enterprises within urban clusters tend to benefit from the generation of knowledge spillover effects and as a consequence tend to have a more positive attitude towards innovation than firms situated in rural environments. In contrast to their urban counterparts, enterprises in peripheral regions face certain problems such as small local markets and an industrial structure dominated by small firms missing large, sophisticated leaders. Therefore the innovation system in rural areas is presumed to differ in several respects from innovation within urban agglomerations. In this context the questionnaire focuses especially on the attitude towards innovation (the phase prior to the actual innovative process) proposing several factors that influence the attitude towards innovation of a certain enterprise. These factors can either be internal (i.e. the cost of undertaking R&D, the level of financial indebtedness of a firm, a firm’s openness to trade, the attitude of employees and the firm’s size) or external (such as the technological competition in the sector of activity and the location). Besides their possible influence on the attitude, these factors can also be taken as an orientation for regional policy of R&D and innovation.

The key questions of the investigation at the empirical level are: on the input-side the regional asset base, including physical, human, knowledge resources, specific organisational

issues and the role of networks, co-operations are investigated. Impacts of such a milieu to the process of innovation will be elaborated as four kinds of output:

- (1) The kind of innovative activity,
- (2) its (potential) impact to productivity and
- (3) the effects on growth, jobs and sustainability - on indicators of “prosperity”
- (4) The final research question is about backward linkages of innovation, productivity and prosperity to the innovative milieu – as shown in (5) in Figure 3.

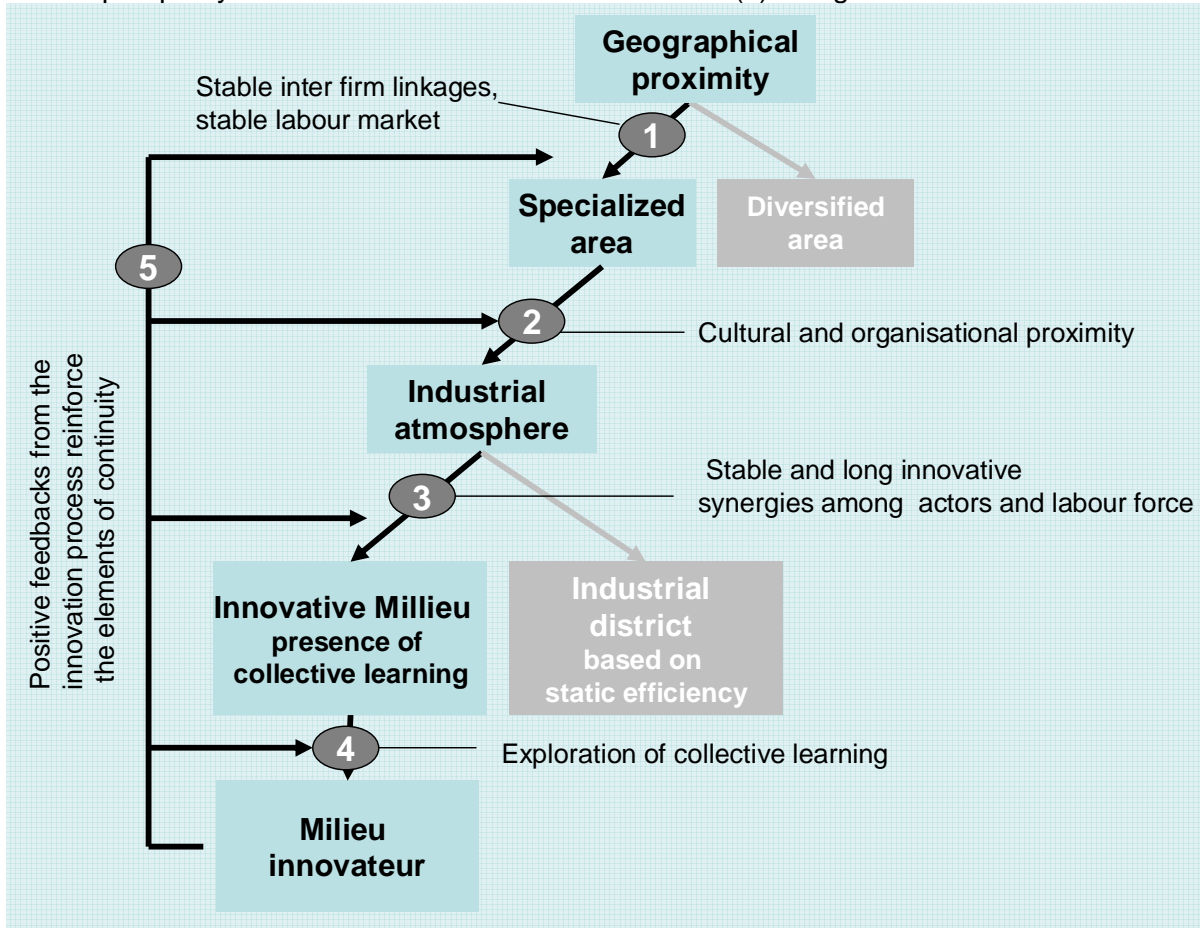


Figure 3: The dynamic nature of collective learning [Source: JR-InTeReg, based on Capello (1999, p 358)].

The guideline of the interview with the case-study firms consists of six parts which are the following: (1) General Information, (2) Co-operation partners, (3) Sources of knowledge, (4) Labour force, (5) Location and (6) Competitiveness:

The introductory section “general information” constitutes mostly questions about reference numbers concerning the enterprise such as number of employees, transaction volume, products, export markets and export share. The aim of this part is to identify the size and main markets of the interrogated firm as well as its development over the last 5 years and to ascertain the differences between the interviewees [to evaluate potential effects on growth, jobs and sustainability - on indicators of “prosperity“, see (4) in Figure 3].

The second part of the interview comprises questions about the co-operation partners of the considered actors (along the regional production chain of value added) and with educational as well as R&D and training institutions) in order to identify the amplitude of their networking

activities and the position of the individual firms within the network. In this regard, it is not just important to acquire information about the frequency of interactions but also about the different kind of interactions between the co-operation partners (i.e. collective R&D or common products and employees) and whether the collaboration between enterprises as well as of enterprises and educational institutions is locally restricted or exceeds regional borders [to evaluate the intensity of co-operation of firms over the time and to measure stable inter firm linkages and a stable labour market compare (1) and (2) in Figure 3].

As knowledge plays a major role in the innovative process the objective of the third section is to detect the different sources of knowledge. As far as the acquisition of knowledge is concerned, the aim is to identify the way firms get access to the latest technology and to new information. In addition, it is necessary to figure out whether the firms motivate their employees to participate in the exchange of knowledge and thereby using the sources of knowledge available within the firm and/or generate knowledge in collaboration with other enterprises, institution and/or costumers [to prove stable and long innovative synergies among actors and labour force, see (3) in Figure 3].

Besides the latest technology and well-grounded knowledge, an educated labour force is an indispensable component concerning innovation and research and development activities. Therefore the fourth part "labour force" aims to attaining information about where skilled employees are obtained from (i.e. from local educational or training institutions) and whether these are local inhabitants or accrue from outside the region under consideration. Considering the competition for skilled labour, it is also necessary to find out what firms do to resurrect educated employees in order to stay competitive [to measure the type of innovation].

In the course of the fifth section information about the advantages and disadvantages of the location should be attained. Regarding the main indicators which are essential for the choice of site such as human resources, infrastructure, transport connection and others, the attractiveness of the region should be identified and as a consequence possible weaknesses should be detected.

The final part deals with the competitiveness of the interrogated enterprises. As R&D and innovative activities are crucial for maintaining or achieving a certain level of competitiveness, it is important to figure out which measures are undertaken by the enterprises under consideration and which future plans they have concerning the entry on new markets. Moreover, it should be accented which services and products differentiate the interviewed firm from its competitors and how much financial and human resources are spent on increasing the stock of knowledge as well as improving the quality of products.

Beside the pre-conditions for collective learning also regional core competences as well as the dynamic and combinative capabilities can be used to describe the endogenous potential of a specific region. A core competence describes what a certain region is able to do better than others, whereas a dynamic capability refers to the ability of a region to renew and augment its core competences over time.

On case study level the analysis describes internal conditions and explanations of success of the innovative projects, hence the regional case study specific success factors.

3 Case Study Assessment

The findings of the prior RAPIDO Work Packages 1 and 2 show the high presence of activities in all economic sectors. Therefore, three sector specific case study regions were chosen. Main economic indicators on these three case studies are summarised in Table 2 below.

	Lavanttal	Vulkanland	Lubelskie Region
Sectoral Innovative Perspective	Industry, producing branches	Services, handicraft and tourism	Agriculture and farming
Area	974 km ²	Approximately 1.050 km ²	25.122 km ²
Inhabitants	55.553 (2007)	Approximately 100.000 (2007)	Approximately 2.200.000 (2007)
Statistical/Administrative Unit	Bezirk located in [NUTS3] AT213 Unterkärnten	77 municipalities [Gemeinden] located in [NUTS3] AT224 Oststeiermark	NUTS 2 PL43 Lubuskie
Association	Verein zur Förderung des Steirischen Vulkanlandes	Verein zur Förderung der Lavanttaler Wirtschaft	Organic Food Valley
Regional economic indicators for related NUTS Regions (EUROSTAT regional data, 2008 ²)			
NUTS Code	AT213 Unterkärnten	AT224 Oststeiermark	PL31 Lubelskie
Gross Regional Product (2005)	3194,6 mio. €	5253,4 mio. €	8105,9 mio. €
GRP/ Inhabitant (2005)	20341,5 € per inhabitant	19563,3 € per inhabitant	4777,8 € per inhabitant
GRP/ Purchasing power standard per Inhabitant in terms of the EU27 average (2005)	84,6 %	83,8 %	45,3 %
Regional unemployment rate (2005)	3,7 %	4,6 %	19,1 %

Table 2: The WP5 Case study regions [source WIBIS Kärnten; WIBIS Steiermark; EUROSTAT].

² Regional data is mainly available for administrative units. The size of administrative units and population size differs in each country, depending on its political system and its specific historical development – which makes cross-border interregional comparisons quite difficult. However, more serious problems arise because of national methodological, conceptual and definitional differences in collecting, aggregating and distributing available data. By using EUROSTAT regional data, most methodological, conceptual as well as definitional differences are addressed.

3.1. The Carinthian Lavanttal Case Study³

Innovation in rural areas recently is often put on a level with agriculture, services and tourism – thereby neglecting the specific manufacturing potentials in sparsely populated areas. Nevertheless, fostering applied research in low-tech industries provides a broad field of opportunities to obtain sustainable growth especially for rural regions. Putting old wine in new bottles usually is a bitter taste - this definitely does not hold true for the development of the Lavanttal – where regional development made use of an old formula for economic success: strengthening the endogenous manufacturing potential in low tech industries, by having a particular focus on applied research.

3.1.1 Description of the Case-Study Region

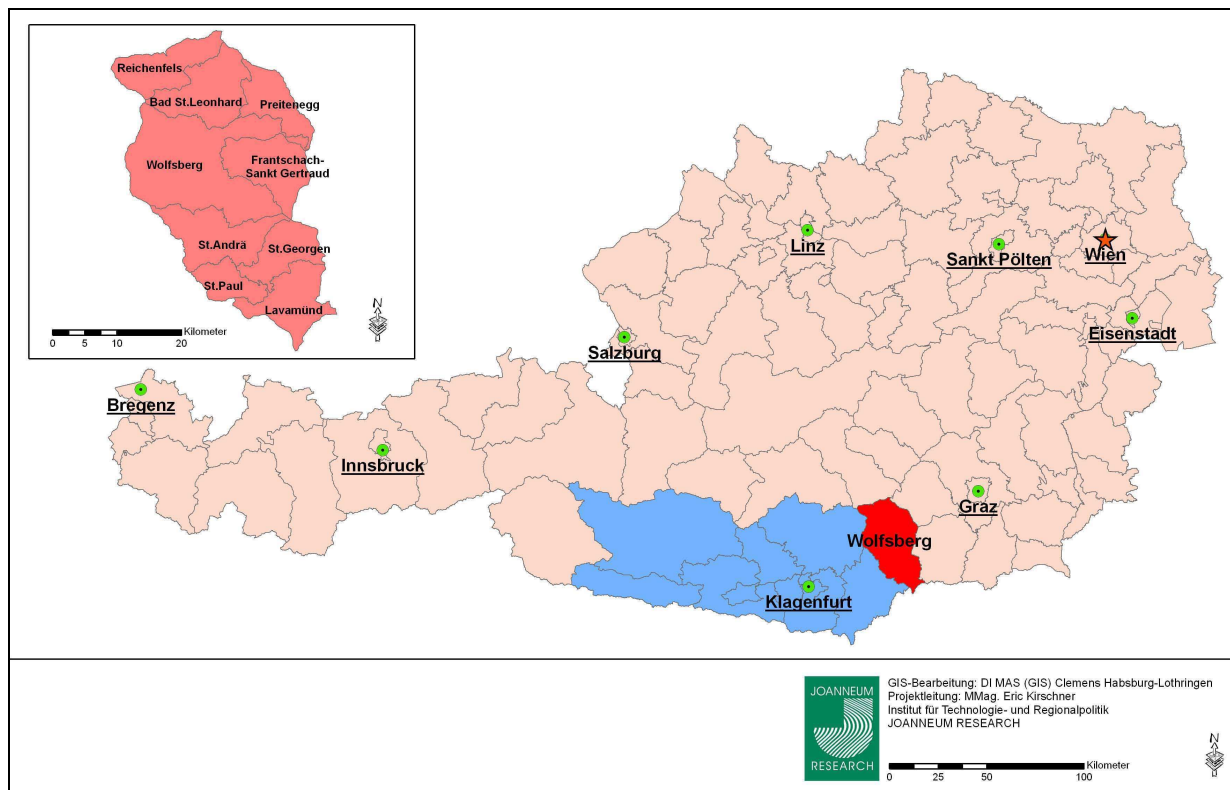


Figure 4: Case study region Lavanttal [red] in the province of Carinthia [blue] compiled by JOANNEUM RESEARCH-InTeReg.

The history of the Bezirk Wolfsberg reveals a long tradition of metal processing and paper industry. Whereas mining and agriculture were dominant at the very beginning, the Lavanttal today primarily depends on the manufacturing sector comprising especially the paper and metal processing industry as well as mechanical engineering. Due to the extension of the motor-way A2, the main transport connection between the north-east and the south-east of Austria, former structural problems were solved and the settlement of firms was encouraged. The Bezirk Wolfsberg [LAU level 2] is situated in Carinthia [Kaernten] (more precisely in

³ By JR

Unterkaernten), the most southern province [Bundesland] of Austria. With a size of 974 km² Wolfsberg has about 55.553 inhabitants, indicating that 57 people are living per each km².

In 2006 the employed population of Wolfsberg comprised 14.419 people with an annual development of +1,7 % during the period 2002 to 2006. Accounting for the education, 2,6 % (9,8 %) of employed people in Wolfsberg (Carinthia) are university graduates, 6,4 % (11,3 %) completed a secondary school, 58,2 % (45,9 %) terminated an apprenticeship, 26,4 % (22,8 %) at least attended the compulsory school and only 0,6 % (0,5 %) are without any completed formation.

Comparing the situation on labour markets in 2006, Wolfsberg had about 1.527 unemployed. Once again looking at the qualifications, only 3,3 % of the unemployed in Wolfsberg were university graduates, 52,3 % completed an apprenticeship and 37,7 % only terminated the compulsory school. In total, the unemployment rate⁴ in Wolfsberg amounted to 7 % compared with 7,7 % in Carinthia and 6,8 % in Austria.

The change of the structure of the industry in the Lavanttal was initiated by a severe crisis within the mining industry. Besides financial problems and increasing deficits, a mine fire in November 1967 destroyed two third of the production. In 1968 it was decided to cease production and to shut the coal mine. As a consequence 1.300 miners lost their jobs. To prevent a social and economic crisis, alternative enterprises should settle in the area of the coal mine and the unemployed miners should be retrained. With the help of the financial support on part of the ERP-fund and the government especially the settlement of firms within the steel and metal processing industry should be encouraged.

Regarding its economic structure, Wolfsberg can be characterised as an industrial region with 52,5 % of the employed population working in the secondary sector. In the secondary sector the major enterprises are found in the manufacturing industry with 58,6 % of the labour employed and in the construction industry with 41 %. As far as the manufacturing industry is concerned, most firms operate in mechanical engineering (21 % of the people employed), metal production and processing (19,6 %), food processing (12,6 %), the paper industry (12,3 %) and construction material (8,2 %).

Comparing these results with Austria, only 27 % of the employed population are working in the secondary sector (with 67,3 % in the manufacturing and only 28,2 % in the construction industry) whereas the lion's share is employed in the tertiary sector with 72,2 %. 4.438 people are employed in the manufacturing industry which are 58,6 % of the total number of employees working within the secondary sector. In consideration of the industrial development in the Bezirk Wolfsberg the core competence of the Lavanttal today lies within the manufacturing sector. In particular, the paper, mechanical engineering and metal processing industries are successful.

⁴ According to the Austrian definition for unemployment (for the the unemployment rates of related NUTS 3 regions based on EUROSTAT definition see Table 2).

3.1.2 The Association “Verein zur Förderund der Lavanttaler Wirtschaft“

The ‘Verein Lavanttaler Wirtschaft’ Association (VLW) was founded 10 years ago in order to spur the regional and economic development within the Bezirk Wolfsberg. Thereby the association, in cooperation with the ‘Entwicklungsagentur Kärnten’⁵, aimed to change the former traditional industrial structure and to provide certain pre-conditions for a development towards a high-technology region focusing on the mechanical engineering, the paper, pulp and wood industries as well as the pharmaceutical industry.

The VLW today comprises about 60 members mainly of the service (32,1 %) and manufacturing industry (48,2 %). The enterprises in the VLW employ in total 6.000 people which account for 41,6% of the total number of employees in the Bezirk Wolfsberg. Of those 6.000 people 3.454 are employed by members within the manufacturing industry, which make up 77,8% of all employees working there.

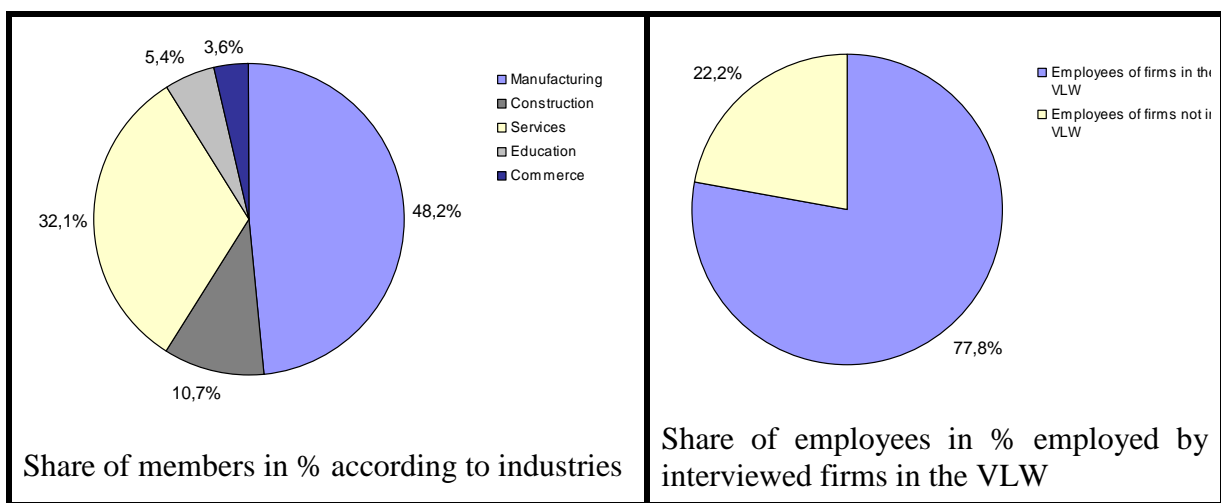


Figure 5: The importance of Industry in the Lavattal [source WIBIS Kärnten].

Out of the 27 enterprises of the VLW operating in the manufacturing industry, 8 were interviewed in course of the present work package. These 8 firms make up for 51,8% of the 3.454 people employed by members of the VLW in the manufacturing industry (Figure 5) and thus yielding a representative example. Within the manufacturing industry the work package especially focuses on the paper industry [ÖNACE 21], the metal processing industry [ÖNACE 27/28] and on mechanical engineering [ÖNACE 29]. These industries employed in the year 2006 in total 2.347 people in the Bezirk Wolfsberg, thus about 31% of the people working in the secondary sector and 52,9% of those employed in the manufacturing industry.

⁵ Carinthian development agency

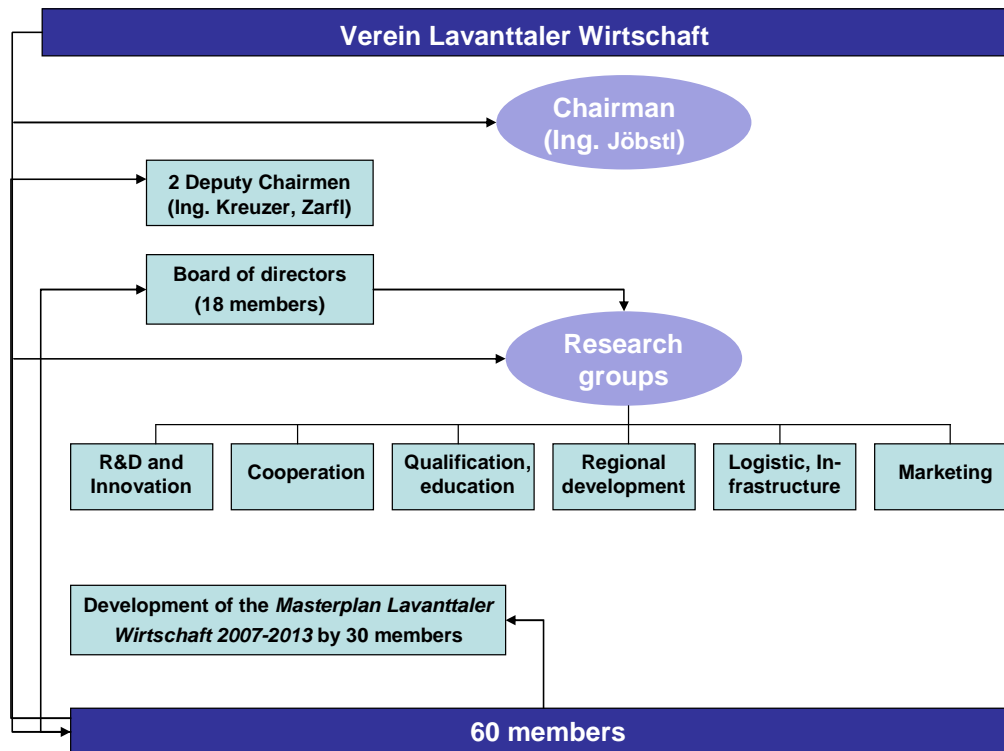


Figure 6: Organisation of the association «Verein Lavanttaler Wirtschaft»

The remaining members of the 'Verein Lavanttaler Wirtschaft', which included two out of three educational institutions – the HTL-Wolfsberg and the Technische Akademie – were interviewed. Not part of the interview session were the 18 service companies in the VLW as the regional core competence of the Lavanttal today still lies within the manufacturing industry.

3.1.3 The Lavanttal Case: Innovation from bottom to the peak

A decade ago the Lavanttal was a weakly performing region, characterised by high unemployment rates, a loss of population and suffering from the loss of the once important mining industry. Applied research in low-tech industries stated on a very low level of organisation. Innovation was mainly learning by doing, but also embedded tacit knowledge was used, especially the forging and carpentering tradition, where old techniques proved to be highly competitive (by now the region is leading on the world market of hand-forged axes – most of the production is exported to the US and Canada).

At the very beginning local authorities [the Carinthian development agency] mainly tried to attract companies. Therefore, the net increase of the stock of firms in the region, and not their innovation potentials – were mainly of interest. The prior objectives were to reduce regional unemployment and to increase the regional competitiveness. The 'Verein Lavanttaler Wirtschaft' (VLW) firstly enhanced regional and economic development, but also tried to provide a common platform for firms to communicate and to discuss common issues – which turned out to be a remarkable success as the development of the regional innovation capacity clearly indicates [the estimation of quantity and quality of innovative activities over time was part of the survey]. In course of an endogenous regional development firms pass different stages of innovative maturity described by the so called Innovation Pyramid below

(see illustration). The pyramid itself represents the stock of enterprises operating within the Bezirk Wolfsberg, whereas the smaller pyramid within includes only those enterprises which pursue innovation. These innovative firms are categorized according to one of the following three stages: the innovative maturity describes (1) the Peak of Innovation, (2) Emerging innovating firms and (3) irregular or sporadic innovating firms.

The Peak of Innovation comprises all innovating enterprises which pursue R&D activities continuously. Due to their continuous research activities, firms located at the peak of the Innovation Pyramid therefore possess an own R&D laboratory or innovation centre and hence skilled labour directly employed on R&D (such as direct services such as R&D managers, administrators, and clerical staff).

Emerging innovating firms, in contrast to their continuously innovating counterparts, pursue R&D and innovative activities regularly, but in a more project based manner. This level of the Innovation Pyramid therefore includes all firms on the threshold for permanent innovation.

Irregular or sporadic innovating enterprises constitute the basis of the smaller pyramid within the whole Innovation pyramid. These firms are usually smaller or medium sized enterprises which do not have the capacity (concerning the budget and stock of employees) to pursue innovation or R&D regularly. These firms characterized by a small, specialized range of products actuate a much more application-oriented R&D than firms located in the upper two levels of the pyramid.

Along with the developmental stages of innovation, the cooperative profile of the regional enterprises also changes. Firms at the very beginning of their innovative activities, hence all irregular or sporadic innovating enterprises hardly cooperate with other regional firms or just in a loose, incoherent manner. Learning at this developmental stage of innovation is therefore largely characterized by 'learning-by-doing' or 'learning-by-interaction' with a strong focus on competition via the price of provided products and services.

When innovation or R&D activities are pursued regularly, cooperation with regional enterprises increases and learning patterns change towards a system of collective learning. Within this stage territorial relationships between different regional actors and the existence of a specialized regional labour market characterized by high levels of skilled labour mobility gain in importance. At the Peak of Innovation collective learning processes are intensified with an even stronger focus on R&D and innovation spurring regional development. A region with distinct patterns of collective learning therefore step by step develops towards a learning region marked by strong horizontal cooperations between regional enterprises and a good access to regional knowledge.

Firms at this stage develop towards learning organisations where given capacities are expanded continuously in order to create new knowledge. Thereby not only quality and technology of provided products can be improved, but also findings of other regional enterprises can be nurtured by new results and know-how of regional technological leaders. To sum up, out of an initial situation characterized by sole geographical proximity of regional enterprises a specialized area and as a consequence of an increasing cultural and organisational proximity an industrial atmosphere develops.

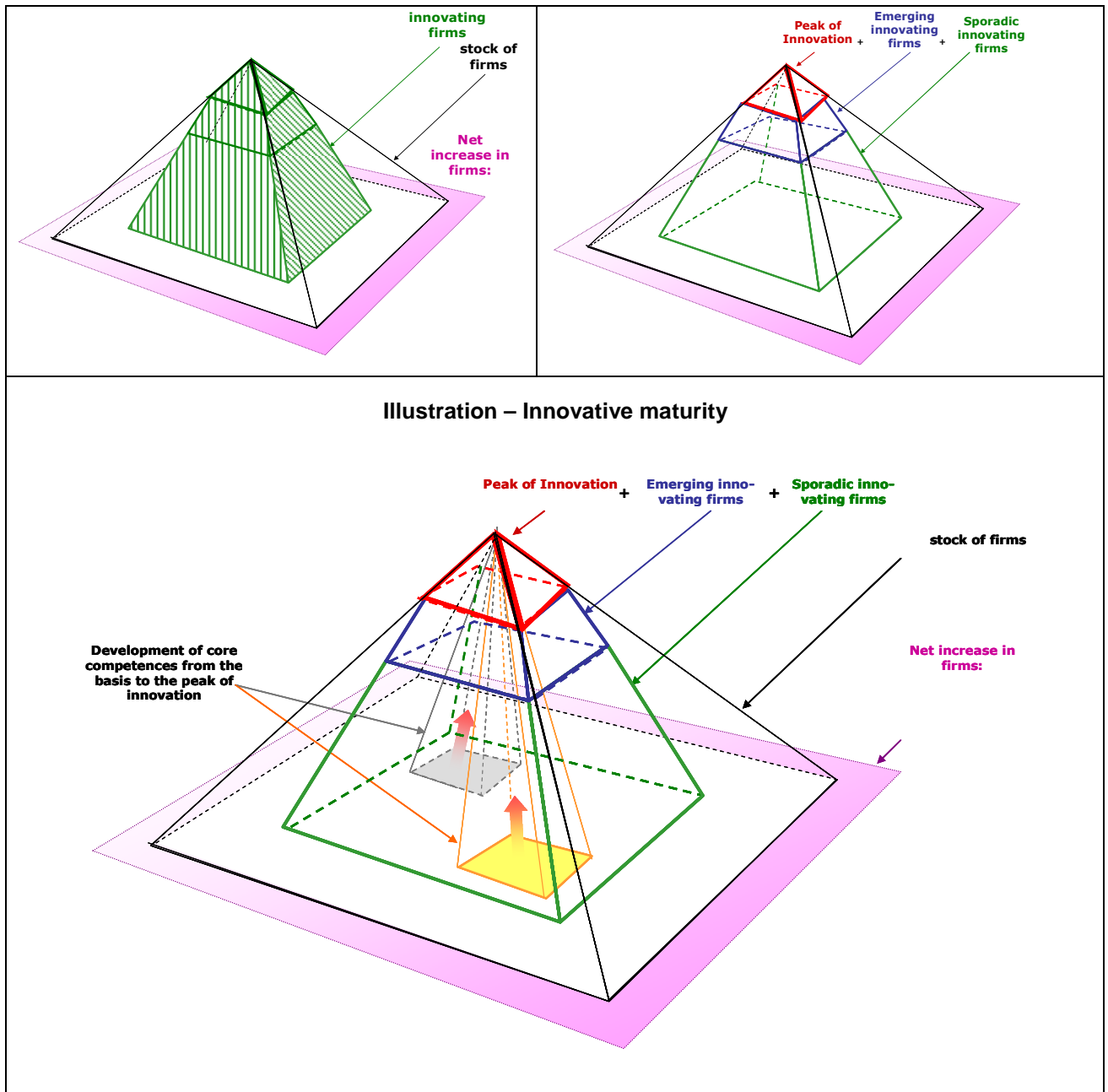


Figure 7: Innovative maturity compiled by JOANNEUM RESEARCH-InTeReg [source Ploder, Niederl, Kirschner 2008].

The existence of a specialized regional labour market as well as of stable and long innovative synergies drives the region towards the development of an innovative milieu with strong presence of collective learning. As collective learning is increasingly explored by regional enterprises positive feedbacks from the innovation process are generated and stable inter-firms linkages as well as a stable labour market are reinforced.

Thereby the VLW especially aimed to change the former traditional industrial structure and to provide certain pre-conditions for a development towards a technology region – by using the regions endogenous potential and its tacit base of knowledge.

3.1.4 Key factors for success in the Lavanttal Case Study Region

The concentration and promotion of the “old” industry in low- or medium tech industries, the paper industry [ÖNACE 21], the metal processing industry [ÖNACE 27/28] and mechanical engineering [ÖNACE 29] opened a niche market in the field of applied research (see box below) for the Lavanttal – in which the region is performing extraordinarily successful.

As the descriptive statistics (see Table 3)⁶ clearly point out, regional knowledge was usually not obtained from tertiary educational institutes but from secondary educational institutions that are located in the region. The deepening of the cooperation of firms and secondary educational institutes was the basis to establish a skilled and stable labour force within the region. Most of the firms strongly rely on internal education of trainees and employees. In addition to the regional labour market, a second important source of labour seems to be leasing companies. In contrast to leasing companies and the regional labour market, the Austrian Public Employment Service (AMS) is not seen as source for qualified workers.

Thereby the needs of regional firms and the special requirements to the labour force are a core element of the regional education system. Training begins in a very early age, starting with secondary education at the age of 15 or 16. As shown in the second part of Table 3 labour acquisition is clearly concentrated on the regional level. Regional employees tend to be loyal to the firm, hence not being job-hoppers, which is of extraordinary importance in the case of the Lavanttal.

Definition of Applied Research [Frascati Manual]: *Applied research is also original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific practical aim or objective. Applied research is undertaken either to determine possible uses for the findings of basic research or to determine new methods or ways of achieving specific and predetermined objectives. It involves considering the available knowledge and its extension in order to solve particular problems. In the business enterprise sector, the distinction between basic and applied research is often marked by the creation of a new project to explore promising results of a basic research programme. The results of applied research are intended primarily to be valid for a single or limited number of products, operations, methods or systems. Applied research gives operational form to ideas. The knowledge or information derived from it is often patented but may be kept secret. It is recognised that an element of applied research can be described as strategic research, but the lack of an agreed approach in member countries to its separate identification prevents making a recommendation.*

⁶ The descriptive statistics in Table 3 and Table 4 (see Section 3.1.4 and 3.2.4) indicates the importance of selected indicators for innovation, cooperation, competitiveness and labour-force in the first two case study regions. For the polish sample no reliable data was available. For interpretation: In the case of the Lavanttal 100 % of the interviewed firms regard secondary educational institutions as extremely important for regional cooperation, while the R&D infrastructure was seen as not that important for cooperation.

Applied research is based on a skilled labour force, the learning of firm specific techniques [see definition in the following box] – to obtain tacit firm knowledge, which serves as the key factor for competitiveness – usually takes a long time of training within the firm. Once employees leave the firm not only their manpower is lost, but also – in the worst case – essential knowledge may be given to competitors (loyalty of employees was seen as the most important competitive advantages of the region). While acquisition of labourers as well as innovation activities are carried out on regional level, competition is highly international.

In context of competitiveness most of the interrogated firms focus on product development and innovation. Nearly all of the products and services provided are outstanding in terms of technology and quality whereby of the enterprises mentioned quality as their distinguishing competitive characteristic. Continuous optimisations and innovative activities are seen as core competences (see box below).

The most important *endogenous sources* of knowledge are employees, especially graduate engineers and technicians, and/or internal R&D departments. In collaboration with other regional enterprises even a research and innovation centre in the year 2006 as a further source for technical know-how was founded. Deepening co-operation which comes along with an increasing formalisation of communication [creating formal partnerships] led in the case of the Lavanttal to an increasing number of innovative firms on all levels of maturity.

The development of innovative maturity – an example: In order to spur regional development one has two major possibilities: strengthening the peak of innovation or strengthening the basis of the innovation pyramid. The first option cannot be identified as a strategy of endogenous regional development, as external technological leaders or large concerns have to be situated within the region under consideration. In contrast, the second possibility of spurring regional development strongly relies on strengthening the core competences of a certain region. In case of the Bezirk Wolfsberg, the region clearly concentrated on supporting sporadic or regularly innovating enterprises within the metal processing and wood industry – an example of successful regional product innovation is illustrated in the figure below. At the beginning a single entrepreneur developed a harvesting application for trucks, a generation later the firm has a unique selling position by providing complete harvesting systems, which were developed and constructed in the region. The developing firm outsourced construction mainly to local partners to be able to enhance research and development. The whole development process is highly sophisticated, but was mainly carried out on the basis of applied knowledge; no university-level engineers were involved in developing the vehicle, but customers and their specific wants and needs were included at a very early stage of the developing process.

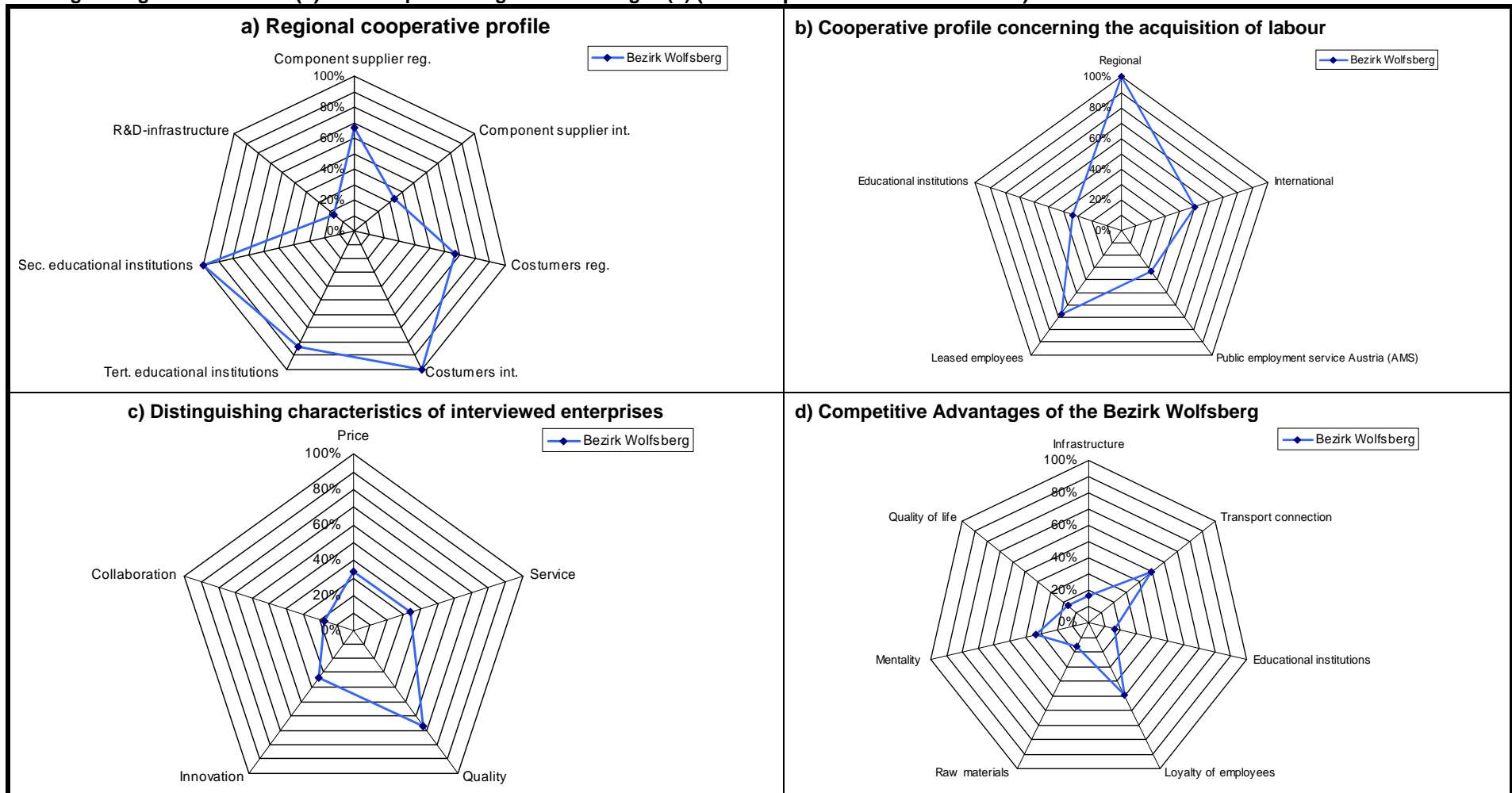


The Lavanttal became a learning region per se as the alteration in the objective of the 'VLW' demonstrates: "The major objective of the future process "Quo vadis Lavanttal?" is to solve the conflict between a prosperous economy and a high quality of life as well as to identify of the "Unique Selling Position" of the economic region Lavanttal. "Quo vadis Lavanttal 2008" aims to position the industrial location Lavanttal with the subordinate objective of turning the Lavanttal into an economic showcase of Europe" (VLW).

Key factors for success (main findings of the survey on firm level):

- The quality of the labour force in Wolfsberg was improved significantly. Employees had to be educated over a long period (on average two years for employees having higher secondary education) - wages increased, firstly to attract employees to stay in firms but even more relevant to guarantee quality in the production process. Firms had to co-operate in order to avoid getting get headhunted by other companies.
- Strengthening the innovation potential by increasing the number of sporadic innovation firms increased the number of emerging innovation firms. The deepening of the regional maturity of innovation firms broadened the innovation peak, leading companies in R&D and innovation substantially increased their efforts in R&D and innovation, hence growth rate in R&D and innovation expenditure and personnel increased twice as high as turnover did.
- Innovative firms concentrated on their R&D and innovation activities by outsourcing non-related activities to other local enterprises. The regional value added chain was strengthened and deepened. The lack of skilled labourers led to common efforts to ensure a stable and well educated labour force. Partnerships with local education institutes were formalised and strengthened.
- Recruiting employees starts a very early age (by implementing school projects in the innovation process and by implementing firm relevant knowledge into the curriculum of the technical academies). A common secondary education centre for the wood industry was founded.
- As the intensity or maturity of innovation in firms increased, the export orientation became much more important. The export intensity of emerging innovation firms enlarged up to on 80 Percent in average. The export orientation of the innovation peak is nearly 100 Percent.
- A asset proved to be essential in the Lavanttal: Accessibility, especially the completion of the Motorway A2 to be able to work efficiently on interregional markets (for the wood and paper industry Italy, Slovenia and Croatia became major export markets)

Table 3: Descriptive statistics/Lavanttal – which factors are of major importance regarding regional cooperation (a), acquisition of labour (b) distinguishing characteristics (c) and competitive regional advantages (d) (for interpretation see footnote 6)



3.2. The Styrian Vulkanland Case Study⁷

The name Vulkanland denotes the co-operation of 77 Austrian municipalities [Gemeinden] in the South-East of Styria. These municipalities are located in the 'Bezirke' Feldbach, Radkersburg, Fürstenfeld and Weiz [LAU level 2]. As most of the municipalities of the Vulkanland are located within the Bezirke Feldbach and Radkersburg, some economic and demographic facts of these two regions are presented in the following sections.

3.2.1 Description of the Case-Study Region

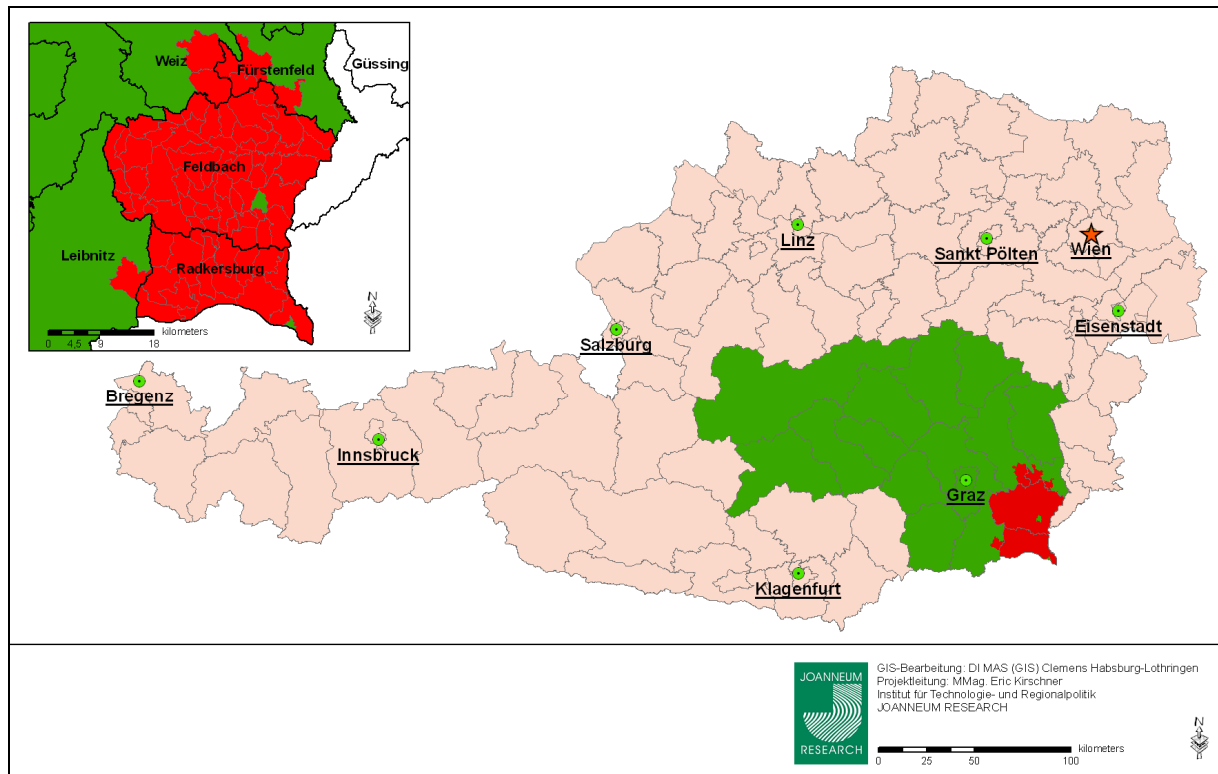


Figure 8: Case study region Vulkanland [red] compiled by JOANNEUM RESEARCH-InTeReg.

The 'Bezirke' Feldbach and Radkersburg together constitute an area of 1.064 km². The Vulkanland in total has about 100.000 inhabitants whereas Feldbach accommodates about 67.626 and Radkersburg 23.433 people (the rest 8.941 people are living within the Bezirk Fürstenfeld or the Bezirk Weiz, see Figure 8).

In 2006 the employed population of Vulkanland comprised about 17.177 people (Feldbach with 12.293 and Radkersburg with 4.884 employed persons). The annual development in the period 2002 to 2006 was 1,6 % in Feldbach and 1,9 % in Radkersburg. Accounting for the education, 2,4 % (2,5%) of the employed people in Feldbach (Radkersburg) are university graduates, 8,4 % (8,9 %) completed a secondary school, 53,1 % (50,2 %) terminated an apprenticeship, 27,3% (30,2 %) at least attended compulsory school and only 0,7 % (0,6 %) are without any completed formation. In comparison with Styria, there 10,1 % of the

⁷ By Simone Harder

employed population are university graduates, 11,5 % completed a secondary school, 46,6 % terminated an apprenticeship, 22,4 % at least attended compulsory school and only 0,6% have not completed any formation.

Comparing the situation on labour markets in 2006, Feldbach and Radkersburg together had about 2.515 and Austria even 239.174 unemployed. The Vulkanland's share on the total stock of unemployed people in Austria is therefore 1,0 %. Once again looking at the qualifications, only 2,7 % (3,1 %) of the unemployed in Feldbach (Radkersburg) were university graduates, 47,7 % (53,4 %) completed an apprenticeship and 39,0 % (31,3 %) only terminated compulsory school. In total, the unemployment rate in the Vulkanland amounted to about 6,7 % compared with 6,8 % in Styria and Austria.

In the year 2006, 1.893 enterprises in the Vulkanland (1.377 in Feldbach and 516 in Radkersburg) offered jobs to local inhabitants. In Feldbach (Radkersburg) 26,7 % (26,3 %) of the employed population are working in very small enterprises with 1 to 9 employees in general, 34,0 % (28,0 %) in small enterprises with 10 to 49 employees, 25,9% (38,8%) in medium sized enterprises with 50 to 249 employees and 13,4 % (6,9 %) in large enterprises with more than 250 employees. Comparing these numbers with whole Austria – only 16,8% of the employees are employed in very small enterprises whereas 38,9 % are working in large firms – it seems that in the Vulkanland small and medium sized enterprises (SMEs) are much more important concerning employment than large regional firms.

Regarding the economic structure, the Vulkanland strongly resembles the Styrian average (see figure 9). In Feldbach (Radkersburg) 37,4 % (32,5 %) of the employed population are working within the secondary sector compared to 60,4 % (64,8 %) of the people employed in the tertiary sector. Although the tertiary sector dominates the secondary sector concerning the percentage of employees, these numbers are slightly different to the Austrian average: 27,8 % of the employed population are working in the secondary and 72,2 % in the tertiary sector.

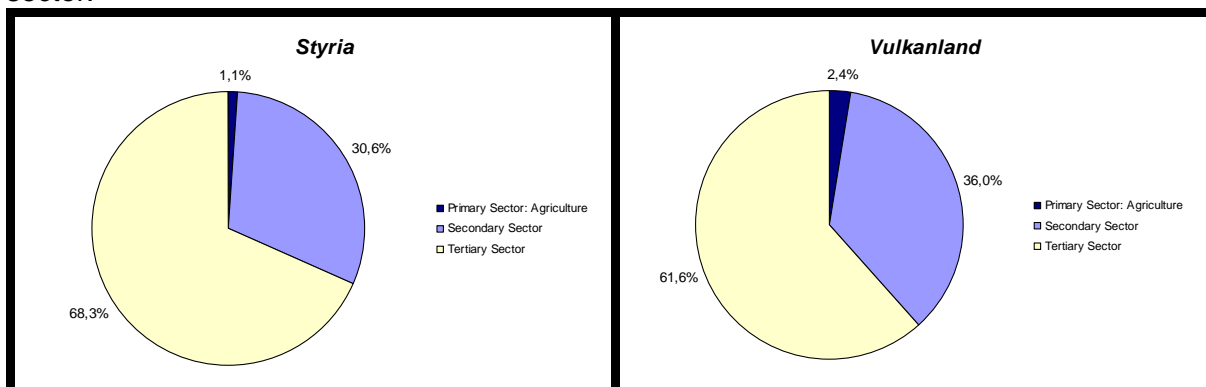


Figure 9: Comparison of the economic structure of Styria and the Vulkanland

As far as the secondary sector is concerned, the major enterprises in the Bezirk Feldbach (Radkersburg) are found within the manufacturing industry employing 51,2 % (45,2 %) of the labour employed in the secondary sector and the building industry with 43,8% (41,6 %). Looking more closely at Feldbach's (Radkersburg's) manufacturing industry, most firms operate in the food processing industry with 36,3 % of the people employed in manufacturing. Within the tertiary sector, commerce is dominant with 41,9 % of all employees working in the tertiary sector within the Vulkanland (see figure 10).

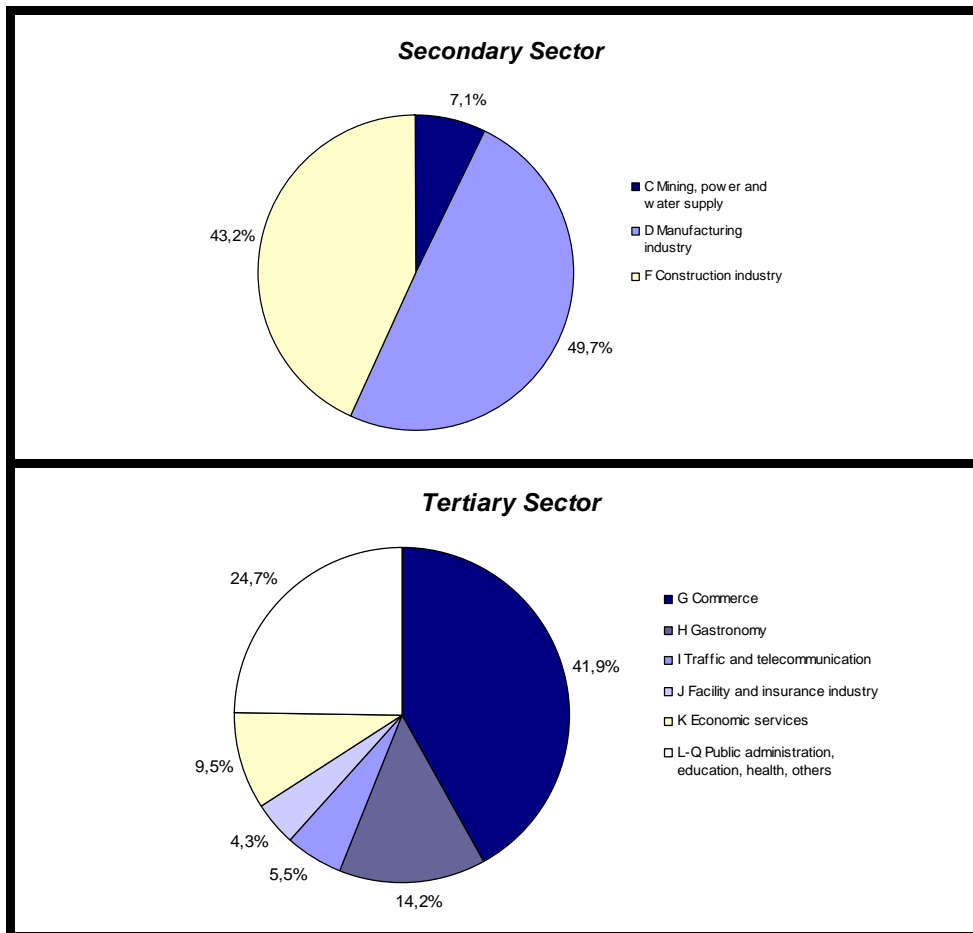


Figure 10: Economic structure of the Vulkanland's secondary and tertiary sector

Concerning the average annual development of the economic structure of Feldbach (Radkersburg) during the period of 2002 to 2006, the percentage increase of the employed population amounted to 2,7 % (0,4%) in the secondary sector and to 0,9 % (2,7 %) in the tertiary sector. The development in the Vulkanland therefore slightly differs from the one in whole Austria where the number of employees decreased in the secondary by 0,8 % and increased within the tertiary sector by 1,5 %.

Having a final look at infrastructure, one needs to address the problem of transport connection. Inhabitants living within the Vulkanland need on average between 20 to 45 minutes to reach the main highway connecting Graz and Vienna, the A2. This insufficiency may also negatively affect the regional economy.

3.2.2 The Association “Verein zur Förderung des Steirischen Vulkanlandes“

The implementation of the regional development strategy of the Vulkanland is organized by two structural levels:

1. The association responsible for the promotion of the Styrian Vulkanland called Verein zur Förderung des Steirischen Vulkanlandes (VSV);
2. The LAG-Management responsible for the coordination of local groups.

The executive committee of the VSV, comprising in total 26 members (13 practitioners and 13 politicians), is in this context the superordinate control system responsible for the regional development, control and communication process.

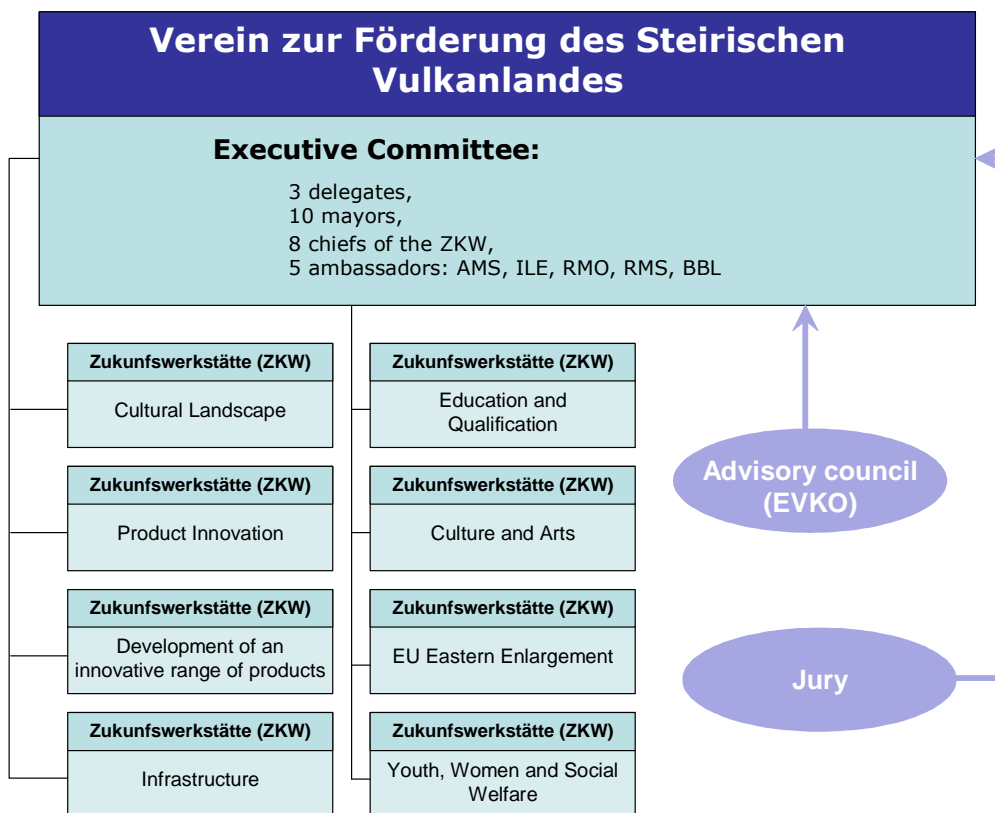


Figure 11: Organisation of the association *Verein zur Förderung des Steirischen Vulkanlandes*

The association consists of 4 institutions which are the advisory council (the EVKO, a commission for the continuous evaluation of regional development), 8 factories (“Zukunftswerkstätten”: ZKW) responsible for the development of major regional projects, a jury (consisting of selected citizens) and the executive committee.

3.2.3 The Regional Development Strategy of the Vulkanland – the Creation of a common regional brand

Summary of the regional development strategy

- Concentration on the regional economy instead of concentrating on globalisation;
- Endogenous regional development strategy (strengthening regional enterprises on the bottom of the innovation pyramid) instead of an exogenous regional development strategy (broadening the peak of innovation by settling external technological leaders within the region);
- Besides “Global excellence” one tries to strengthen regional competences;
- Creation of a sense of belonging as well as a regional identity in order to spur the consumption of regional products within the Vulkanland;
- Financial support and full attention for regional economic strength;
- Sustainable labour market policy via a regional economic policy.

Located in the periphery of Styria, the major objective of the 77 Styrian municipalities which united to form the Styrian Vulkanland is to create an innovative and liveable region by developing a regional awareness for the cultural, resource-based and innovative potential of regional producers and inhabitants. Strongly relying on traditional values concerning a respectful attitude towards nature and living beings as well as on the direct responsibility of each individual and local firm, a regional development strategy was created, strengthening the three core competences of the Vulkanland: quality food, handcrafts and health and tourism. With the aim of supporting an endogenous regional development, these three core competences are integrated within the major economic offensive which emphasis the regional strengths under the headings “Culinary region”, “Handcraft region” and “Region of vital force”. Regional core competences are:

- **The Culinary Region:** The natural resources of the Styrian Vulkanland are the pre-condition for an agriculture based on diversity and quality. With a strong focus on the development of a common regional brand “Vulkanland” as well as on the construction of local networks and cooperations concerning product and process innovation, local producers operating within the food industry and gastronomy are trying to provide groceries extraordinary in terms of quality and composition. As the culinary region received much attention during the last few years and due to the up-coming, self-sustaining and positive dynamics within the field of quality food production, attention has switched towards handcrafts.
- **The European handcraft region** tries to bring a traditional regional competence to perfection with the aim to create a Europe-wide reputation concerning quality, durability and design. Individual solutions for costumers and aesthetics combined with a range of functions as well as the processing of regional raw materials are common within the European handcraft region. The support of regional co-operations and the development of networks within this area of competence are as important as to promote innovation as well as R&D within the Vulkanland. Incentives, such as the innovation award or a financial support via a certain budget for innovation in each municipality, are trying to improve the attitude towards innovation.

The further development of handcrafts within the Vulkanland is at its beginnings as regional attention has just switched recently towards this traditional core competence. With the priority on handcrafts the Vulkanland now is aiming to increase the production of high quality products which should provide the basis for a product-based tourism in future.

Within the region of vital force the Vulkanland attempts to promote tourism and health in the region. With the aim to create a centre of regeneration based on given natural resources, quiescence, healthy food and an appealing landscape tourists and visitors should be attracted to the Vulkanland.

Although the Vulkanland tried to advance tourism and health significantly during the last few years, the present case study focuses exclusively on enterprises operating within the first to areas of competence – quality food and handcraft. The promotion of these two strengths seems to be of great importance in spurring the consumption of regional products and the development of a product-based tourism.

Creation of a common regional brand: Additional to the concentration on the further development of regional strengths, the Vulkanland initiated a specific marketing strategy innovative to the region – the creation of the common brand “Vulkanland”. The development of a regional brand resulted from the decision of a regional process orientation instead of a project orientation. In the course of strengthening regional core competences and firms operating within these areas, five parameters characterizing a successful brand have been identified:

- (1) Identification and the creation of a sense of belonging,
- (2) orientation (by providing a thematic fortification of the brand)
- (3) trust,
- (4) competence (concerning the belief in the regional economic potential for further development) and
- (5) the creation of a positive regional image (by transforming a former peripheral area into a liveable, innovative region).

As a consequence, the common regional brand “Vulkanland” not only eases marketing for local firms, but also contributes to a changing perception of the region itself (within and outside the Vulkanland). The establishment of a common brand therefore plays a key role in the regional transformation process within the Vulkanland as regional firms and inhabitants start to identify themselves with the common vision of an innovative, upcoming region.

Under consideration of the concentration on regional core competences and the regional process orientation including the creation of a common brand, the economic philosophy can be summarized the following:

3.2.4 Key factors for success in the Vulkanland Case Study Region

The interview guideline used for the case study in the Vulkanland strongly resembles the interview guideline for the survey in the Bezirk Wolfsberg. In the Vulkanland 9 firms have been interrogated by now (6 within the culinary region and 3 operating in the handcraft region). In the following results of the conducted interviews concerning cooperations, sources

of knowledge, labour force, competitiveness as well as the advantages and disadvantages of the Vulkanland should be described.

As far as the regional co-operative profile is concerned, one can observe that all interrogated firms operating within the culinary region (food processing industry or gastronomy) and the handcraft region (textile or furniture industry) sell their products regionally (see figure 3). About 88,9 % of the interviewed enterprises also sell their products outside the Vulkanland, mainly in other Austrian provinces [Bundesland] such as Salzburg, Vienna, Burgenland and others. The export intensity in general is quite low, varying from 2 % to 20 %. Besides the co-operation with regional costumers, 55,6 % of the interviewees also collaborate with regional component suppliers concerning the acquisition of raw materials and with tertiary educational institutions. In most cases, the co-operation with tertiary educational institutions and Innovation centres (with which 44,4 % of the interrogated enterprises collaborate) is project-based and conducted in an irregular or sporadic manner. Only a few firms co-operate regularly with R&D centres or educational institutions.

The main exogenous sources of knowledge of the interviewed enterprises are interactions with co-operation partners within the same industry (77,8 %) and technical literature (55,6 % of the interrogated firms). Knowledge in the context of interactive learning with co-operation partners is mostly generated informally via the exchange of tacit knowledge and experiences. A formal or semi-formal atmosphere is mostly common with the generation of new know-how via the attendance of technical courses, workshops or seminars used by 44,4 % of the interviewees. External consultants and costumers are a less frequent exogenous sources of knowledge within the conducted survey. The most important endogenous source of knowledge is learning-by-doing which is practiced by 55,6 % of the interviewed enterprises. 44,4% of the interviewees regard the exchange with employees as important for the generation of new know-how.

One result concerning the acquisition of labour is that nearly all firms (88,9%) acquire their employees from within the Vulkanland (figure 5). The evaluation of the interviewed enterprises of the availability of human resources within the Vulkanland is riven. Some firms, especially those operating in the area of gastronomy have no problems to acquire new labour, whereas the supply for enterprises within the manufacturing industry is problematic. Skilled employees in these cases are rare due to a specific qualification level required. 66,7 % of the interrogated enterprises use regional educational institutions such as the school for tourism in Bad Gleichenberg as potential source for new labour. Leasing companies (11,1 %) and the Public Employment Service Austria (AMS) (44,4 %) are in contrast not regarded as potential source for qualified labour.

In the context of competitiveness, all firms rely on quality and about 77,8 % on innovative activities to stay competitive. Price competition is used by 44,4 % of the interviewed enterprises whereby these mostly operate in the gastronomy sector where the relation between price and quality seem to be most important. All other firms try to provide high quality products which are more expensive but extraordinary in design or composition. Long lasting relationships and collaborations are only in 22,2 % of the interrogated enterprises of importance (see figure 6). All interviewees value the high quality of life in the Vulkanland, followed by the quality of educational institutions (88,9 %) and the attitude of regional actors (66,7 %) which changed significantly during the last few years. Thanks to the endogenous development strategy and the creation of the a common regional brand "Vulkanland" positive changes were induced within the minds of regional costumers and the degree of popularity of

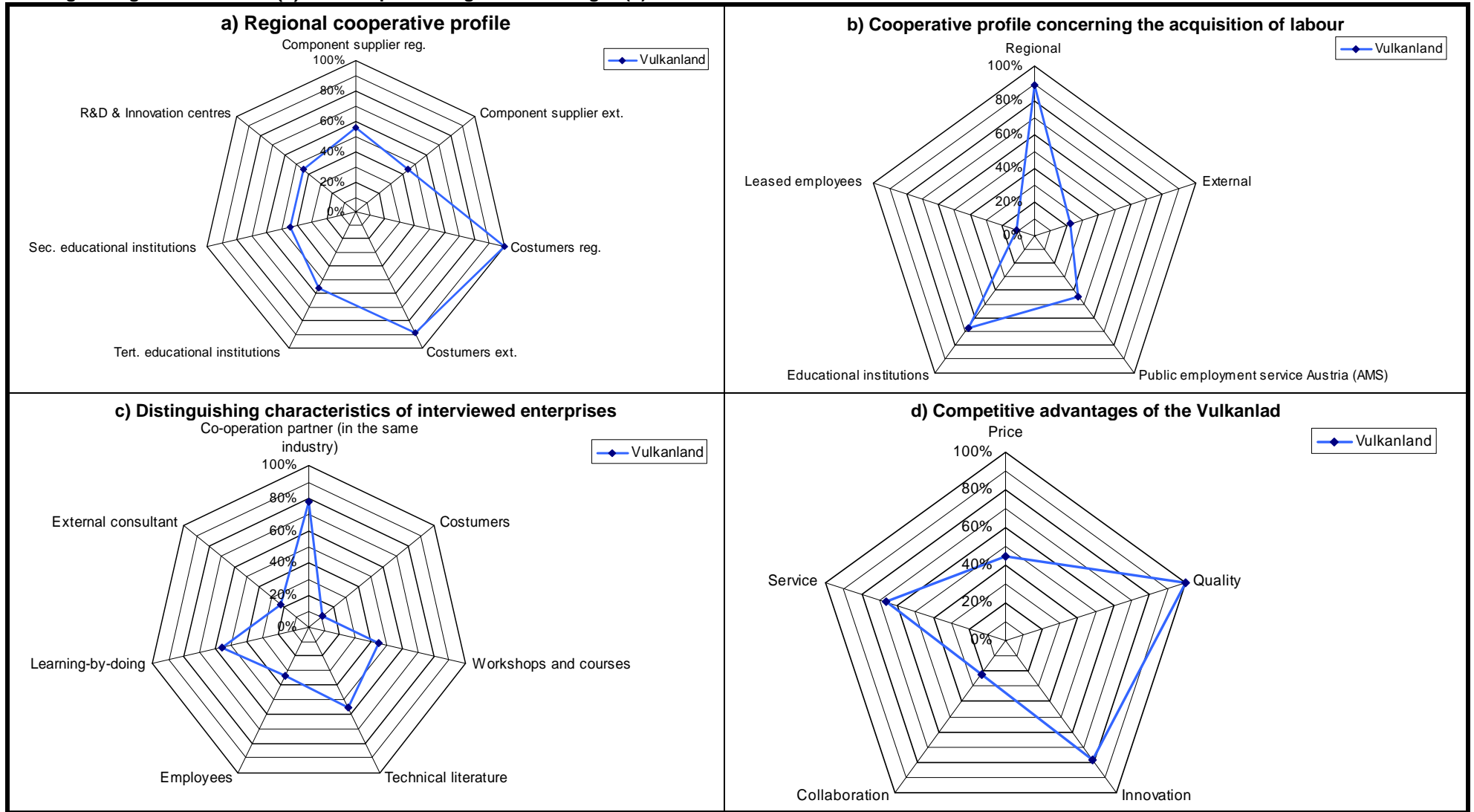
the Vulkanland increased spurring tourism. This development is appreciated by 33,3 % of the interrogated enterprises. The most frequently mentioned disadvantages or problems of the Vulkanland are the institutional framework for SMEs concerning financial support of innovative activities and the insufficient transport connection (some inhabitants take between 20 and 50minutes to reach the main highway A2) with 66,7 % each. Only 33,3 % of the interviews see no significant problems within the Vulkanland.

The descriptive statistics at the end of this section (Table 4) underline the importance to co-operation with customers, the region does provide a regionally produces goods and services to local but also international customers. The most important competitive advantage of the region is the quality of goods and services, but also its innovative potential. Again, regional products are produced by a regional labour force – that is usually educated within the region. Besides inter firm co-operation and partnerships within the same industry or branch was deepened and opened the field of sector-specific collective learning in the Styrian Vulkanland.

Key factors for success (main findings of the survey on firm level):

- Most of the interviewed firms in the Vulkanland are strongly dependent on the regional market and customers respectively. The export intensity is still very low (between 2 % and 20 %) as most firms are small or even very small enterprises not having the financial and personal capacities to enter new external markets.
- The most important sources of knowledge are learning-by-interaction and learning-by-doing which is typical for firms which pursue innovation in an irregular or sporadic manner. Only a few interviewed firms can be regarded as an emerging enterprise showing patterns of collective learning.
- Although the regional supply of skilled labour is low, nearly all interrogated enterprises acquire labour from within the region, strongly relying on further on-the-job-training within the firms themself.
- Despite the fact, that most of the interviewed firms are found at the bottom level of the innovation pyramid, all enterprises aim to produce high quality products or services. Only actors in gastronomy regard a low price as an important measure to stay competitive.
- The regional development strategy in the Vulkanland and the creation of a common regional brand succeeded in developing a regional identity as well as a sense of belonging of regional firms and inhabitants. Thereby the Vulkanland laid grounds for the development towards an innovative milieu based on processes of collective learning.

Table 4: Descriptive statistics/Vulkanland – which factors are of major importance regarding regional cooperation (a), acquisition of labour (b) distinguishing characteristics (c) and competitive regional advantages (d)



3.3. The Lublin Case Study⁸

Lubelskie region/voivodeship [województwo lubelskie, NUTS level 2] is situated in the south-eastern part of Poland. It borders with the following regions: Podlaskie, Mazowieckie, Świętokrzyskie, Pod-karpackie and with countries Ukraine and Belarus.

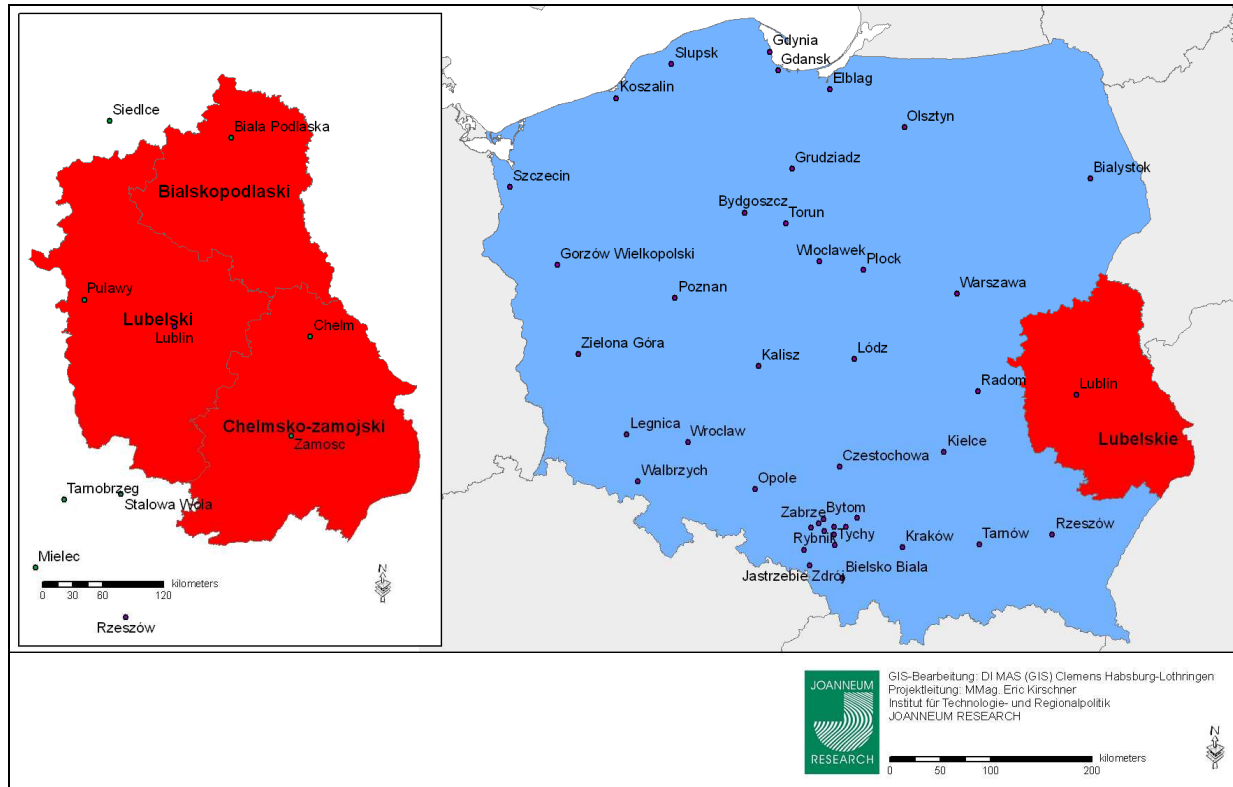


Figure 12: Case study region Organic Food Valley [red] compiled by JOANNEUM RESEARCH-InTeReg.

3.3.1 Description of the Case-Study Region

Nearly 2,2 million People are currently living in the Region of Lublin. In August 2008 the unemployment rate amounted 10,8 %.The Lubelskie region covers an area of 25.122 km² (which represents 8% of the whole country) and is divided into 20 poviats [LAU1], 4 major cities (Lublin, Biała Podlaska, Chełm, Zamość) and 213 gminas [LAU2]. The regional population amounts 2.164.600 people (5,7 % of total population in Poland, March 2008). 46,6 % population lives in cities (61,9 % in other regions), whereas the lion's share of the population is inhabitants of villages (53,4 %). The whole region has a low population density with only 87 people per km² compared to 122 people per km² in other regions.

The economy of the Lubelskie region is traditionally based on agriculture and food production. The Lubelskie region is known for fruit growing (over 20 % of orchards in

⁸ By LUT.

Poland), especially for raspberries, currants, strawberries and cherries. The region also plays leading role in the production of: hop, sugar, tobacco, cereal. A clean and natural environment, favorable soil-climatic conditions as well as traditional, small and family-owned farms have contributed to the dynamic development of organic agriculture. Today the Lubelskie region is one of national leaders in organic food production.

3.3.2 The Organic Food Valley

“Organic Food Valley” - the cluster of organic food producers - is a social initiative, started by the pilot project of the Regional Innovation Strategy for the “Organic Food Valley” (Strategia “Doliny Ekologicznej Żywności”) the Lubelskie region, in Eastern Poland. The project lasted two years and was finished in autumn of 2006. It was co-financed by the European Social Fund and the national budget of Poland, and managed by the College of Enterprise and Administration in Lublin (Wyższa Szkoła Przedsiębiorczości i Administracji w Lublinie). The main goal of the project was to build a network of cooperation in the field of organic farming, food processing and marketing. The objective was to combine supply and demand of the eco-market (already functioning in the Lubelskie region) with the participation of different organizations of supportive institutions like, e.g. local authorities, universities, consulting centers, etc. Organic food is supposed to be a leading product of the region.

The importance of the EkoLubelskie Association (Stowarzyszenie “EkoLubelszczyzna”): The EkoLubelskie Association was started in January 2007 in Lublin as a consequence of the implementation of the above mentioned project. It is a non-profit organization gathering 40 individual members and 7 institutional members. 7 people regularly cooperate as volunteers within the Association.

As main objectives of its actions, the Association treats: a) promoting organic farming, production of ecological goods and offering services connected with them and their promotion among consumers, b) promotion of Lublin’s countryside, its culture and tradition, as well as improving its qualities as an inhabitant-friendly place and the area of leisure for tourists from Poland and abroad.

The Association operates in Poland, especially in the Lubelskie voivodeship. It has also established contacts with partners from other countries – Germany, Italy, France and Austria – where the market of organic food is much bigger than in Poland, with a tendency to increase.

The subjects of the Association’s actions are the popularization of ecological knowledge, the organization of competitions and promotion programs on ecology, discussions, lectures, symposia, seminars, meetings, trainings, exhibitions, shows, the editing and publishing of written materials on ecology, running a system of information which enables the establishment of trade contacts as well as the legal, economic, technical and organizational consulting connected with ecological activities.

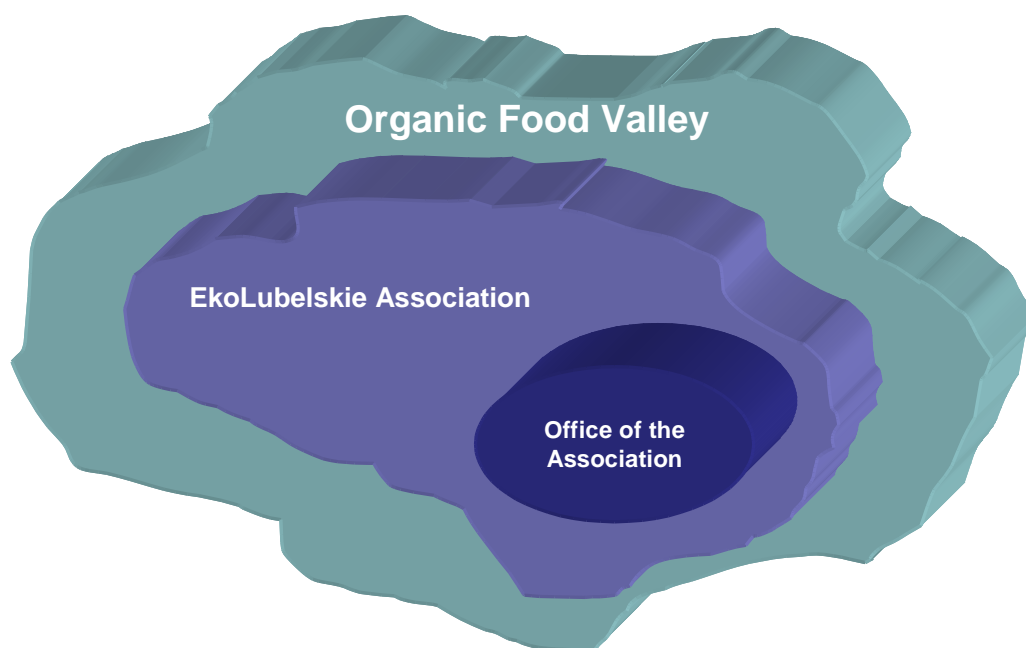


Figure 13: The structure of the Organic Food Valley in the Lubelskie Region

Cooperation within the cluster: As the leader of the Organic Food Valley, the “EkoLubelskie” Association cooperates with many companies and institutions. Among its main partners are:

- **Companies:** Symbio Poland (fruit, vegetable and grains), POL-MAK (pasta), Wasag (meat), Jagiełło (brewery), agricultural commodity exchange The Lublin Wholesale Market in Elizówka and several farms and companies dealing with the production of organic food;
- **Schools and institutions:** College of Enterprise and Administration in Lublin, Lublin University of Technology, University of Environmental Sciences in Lublin, the Maria Curie-Skłodowska University in Lublin, IUNG in Puławy, the Slavic Town, centers of agricultural consulting and the local self-government in Lublin.

3.3.3 Key factors for success in the Lublin Case Study Region

The process of development of the Organic Food Valley as a cluster structure comprises two simultaneous processes:

- (1) generating knowledge and social confidence among participants of the cluster,
- (2) development of organic farming, processing and marketing.

The first process of generating and transfer of organic knowledge, as well as building social confidence, was animated mainly through the activity of EkoLubelskie Association and its agenda. It fulfilled two main objectives: 1) through the activation of the demand for organic food (promotion of ecological consciousness among potential customers of organic food - education, promotion) it opened the field of operation for the development of production and distribution of organic food, and 2) it supported manufacturers and tradesmen of ecological knowledge, as well as helped in developing contacts among themselves and with external partners.

Since EkoLubieszczynna Association was founded, its members often succeed in their economic activity. For example: the owner of POL-MAK - the producer of organic pasta, Mr. Wojciech Polak was awarded with the title of Agrobiznesmen of the Year 2007, Symbio Polska S.A. – the manufacturer of organic fruit, vegetable and crops won the prize Gazelle of Business 2007 for the most dynamically developing enterprise in the region, while the Organic Farm of Ms Urszula and Mr Piotr Osik won the title of the Best Organic Farm of the Year 2008 in Poland. Those named firms and persons took in an active part in researches of RAPIDO.

The development of ecological consciousness on the area of the whole cluster may be seen as the main result of the activity of members of the EkoLubelskie Association. The ecological sensibility, production and consumption are not only the important fragment of their business or institutional activity (in many cases the most important, e.g. in ecological farms or in the controlling - certifying institutions), but also become the essential criterion in the search for new areas of market activity and in the planning of the further development of the cluster. The ecology is the basis for learning new competences and development of enterprising behaviours among participants of the cluster.

The consequence of the development of ecologic consciousness was the creation and constant development of the “base of ecologic knowledge” both in the form of written documents and in virtual form. The participants of the cluster update, enrich and use that base and its resources simultaneously. Telephone line, internet side with the possibility of sending e-mails as well as the possibility of personal consultations in the office of Association are the supplementation of that base. The other forms of sharing knowledge are meetings, trainings, workshops and studio visits. The Association both organizes such visits for its own members and accepts participants of economic trainings from different regions and countries.

The other common effect of the development of the cluster is the regional orientation in plans of activity and development of the majority of cluster participants. The development of the region is taken here as the reference point for own developmental plans, estimation of chances and threats for the future and as a common component of own strategic mission. There also is a great conformity to the expectations concerning directions for further development of the Lubelskie region and its image. The participants of the cluster have no doubt to accept the joint responsibility for the regional development as their “own” environment. In this they perceive their common business and common interest in building business contacts.

The development of the cluster as an innovative structure is also marked by the increasing level of interaction among participants of the cluster. Those interactions have the form of feedback and they become more and more operational. The organic farms are a good example, as on the one hand they use the substantial support of agricultural advising centres, universities and R&D institutions, while on the other hand they make their area accessible to experimental plots and they invite students and interested groups. As far as contacts with recipients of organic products are concerned, they show themselves in double part: as tradesmen of material for further processing or retail and as the recipient of seedlings, seeds or the advisory services.

The firm that plays the key role in the second process is Symbio Polska S.A. - the company that manufactures and distributes organic fruit, vegetable and crops. That company organizes in the Lubelskie region the base of raw materials for organic food production. As the main recipient of material for organic processing it encourages farmers to change their way of farming to an organic one, offers them support in form of trainings and professional advises. The process of organic farming and processing is supervised by another participant of the cluster - EKOGRANICJA PTRE Sp. z o.o. - the largest all-Polish certifying body granting certificates to producers.

Key factors for success (main findings of the survey on firm level):

- The number of organic farms, acreage of organic farming as well as processing of ecological materials increases, and organic products are more and more present in wide channels of distribution (organizing stands and interesting expositions of organic products in large chains of retailers). New business initiatives are undertaken on the base of organic products of regional origin (like gastronomy, agro-tourism). The organic product more and more often appears as the important attribute of regional identity during numerous environmental events, e.g. holidays, fairs and trades.
- The participants of the cluster are more open for partners while searching for new information and knowledge. It was stated that the majority of the cluster participants, their “map of knowledge sources” changes and goes towards external sources, particularly inside the cluster and its institutional surrounding. It is accompanied by the development of the “base of knowledge” as well as personal and virtual forms of knowledge and information sharing by the Office of EkoLubelskie Association
- The market of organic food in Poland shows light but durable increasing tendency. In the Lubelskie region this tendency seems to be even more sharp. In that region chances for the development of organic agriculture can be seen in solid base of raw materials, distracted agrarian structure as well as in the large potential of workforce in the country. Some tradition of organic farming and healthy food processing, the state of organic consciousness among farmers and the policy of financial support of organic farms with EU funds can also be advantageous. Therefore agricultural farms have large natural reserves of growth of organic tillage and supply of organic products. However, to activate this potential, the demand side of this market has to be developed. This however encounters a huge obstacle of growth - low purchasing strength of Polish customers.
- In this context the development of the cluster structure of Organic Food Valley can become a driving force for further balanced development of the organic food market in the Lubelskie region, as well as beyond its borders. So in what direction should the cluster develop as an innovative structure, relying on a faintly developed and unbalanced market of organic food? There are 3 dimensions of such a process:
- The development of processing and distribution of organic products, realized mainly by the key company of the cluster - Symbio. Innovativeness in this process depends on the continuous search for new ideas of organic products and their market testing, experimenting with new forms of sale and founding stands in large chains of retailers, offering to organic farms new plants with the technology needed to their cultivation and protection, professional advising, encouraging new farmers to switch to organic farming as well as training newly gained organic farmers. The expansion of the organic market, growth of culture of organic tillage and also the improvement of efficiency of organic farms in the Lublin region are the outcomes of this process.

- Forming the organic consciousness among real and potential customers through the promotion of organic food using a wide scale of marketing instruments, the organic education particularly among children and school youth, promoting the healthy style of living and consumption, showing problems and threats of excessive usage of chemical materials and GMO in agriculture. Innovativeness of this process is shown in searching for different forms of promoting organic products with the use of initiatives of local communities as well as in referring to the calendar of regional cultural and tourist events, showing products on events and environmental meetings with businessmen, politicians and local authorities, drawing the attention of media to the organic issues and involving them in educational, informational and promotional programs. The EkoLubelskie Association plays the leading part in this process.
- Knowledge transfer and building social trust among cluster participants, through the systematic informative policy, the development of a data base of producers and customers and consultative bodies, facilitating contacts among participants of the cluster, the exchange of experiences and knowledge regarding good agricultural practices, organization of trainings and marketing events. This process coordinated by the Office of the EkoLubelskie Association should run spontaneously and should favour the cohesion of the whole cluster structure. The innovativeness of this process is connected with generating and sharing knowledge as well as in searching for new effective ways of knowledge transfer within, and outside the cluster.

4 Conclusions

Spill-over effects lead to a rapid diffusion of newly gained experiences within a cluster of firms. Knowledge within this framework proved to be a public good with the characteristics of non-rivalry and non-excludability. In the case of the Vulkanland, this effect is not only related to certain branches of the service sector, but cross-sectoral. Goods and services are combined into a regional set of commodities which are promoted and labelled by a single brand. Trust among producers and customers was established in the region of Lublin. An atmosphere of trust proved to be the essential precondition for the organic production process, production techniques have to guarantee highest quality of the agricultural production. Spill-over effects promoted a rapid diffusion of newly gained experiences such as the techniques of organic farming in the field of agriculture within the region. The same holds true for the Lavanttal, in which firms and customers already have deepened cooperation in certain branches of the producing sector. Collective innovation activities among firms and customers, hence the introduction of mutual developing processes - as it holds true for the Lavanttal - is going beyond an atmosphere of trust. Positive feedbacks from the innovation process reinforce the elements of continuity, therefore co-operation increased the number of innovation firms, sporadic innovative firms became emerging innovating and last but not least, the peak of innovating firms was broadened [the survey estimated the innovative maturity of the stock of the firms but also its development over the past 5 years in the case study region].

Furthermore, co-operation is leading to innovative activities within or between firms and actors of different branches in all sectors, hence to interactive learning. An increasing intensity of co-operation of firms over time creates stable inter firm linkages and a stable labour market. While the sectoral innovation perspective differs in all three case study regions, impacts or results remain the same: a unique selling position was established in the region. With stable inter-firm linkages and a stable labour market price competition becomes less important; competitive advantages are granted through quality competition.

Finally, organisation and knowledge proved to be intangible assets to the means of production in the rural case study regions, in which firms benefit from positive external economies. Nevertheless, co-operation has to be organized, particular knowledge transfer mechanisms have to be chosen. In general, in rural areas geographical proximity and specialisation do not necessarily lead to a specialized area. The preconditions for classical Marshallian clusters, which are factor-driven, spatial organisations in strategically distinct industries, are usually not given.

The creation of joint organisational knowledge, a general and common understanding as well as shared knowledge that allows firms to collaborate effectively leads to stable inter-firm linkages and to a stable labour market, hence to a creative milieu. The research on case study level showed that the use of internal or tacit know-how through a process of collective learning saves transaction costs (in terms of Coase), efficiency increases – but organisation in this sense is conscious. The framework for co-operation, and to secure a transmission-process of knowledge over time depends on the willingness for conscious co-operation.

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Annex – interview guideline

I. General Information

1. General information concerning your firm's progress in the last 5 years

a) Number of employees 2008: _____ 2003/4: _____

b) Transaction volume 2008: _____ 2003/4: _____

c) Number of graduate engineers 2008: _____ 2003/4: _____

d) **Production:**

- Which of your products account for the largest proportion of your transaction volume? Which of your products are demanded most?
- Did you introduce any new products in the last 5 years?

e) **Which are your main (export) markets?**

- Export share (share of exports in transaction volume in %): _____
- Does the domestic demand differ from the international demand concerning your products?

II. Co-operation partners

2. Who are your co-operation partners (along the value chain) in and outside the region?

a) Who are your component suppliers?

- ...
- ...
- ...

b) Who are your costumers?

- ...
- ...
- ...

3. Do you collaborate with training centres and/or educational institutions in and outside the region?

a) **Tertiary educational institutions** [universities and technical colleges,

b) **Secondary educational institutions:**

c) R&D institutions and innovation centers:

4. Did collaboration with your partners change during the last five years?

- a) Do you pursue common research and development (e.g. R&D projects and teams)?
- b) If so, in which way:
- c) Do you develop products together?
- d) Do you share employees and/or specialists?

5. How would you describe the intensity of cooperation with each of your partners? Are these interactions frequent or seldom?

Who [partners/suppliers/costumer]	Form of co-operation/Interaction [What?]	How often during the last 5 years?
Partners		
Suppliers		
Costumers		

III. Sources of knowledge

6. How do you generate knowledge within your firm? How do you get access to new information and technology?

Exogenous sources of knowledge [technical colleges, universities, others]	Endogenous sources of knowledge [graduate engineers, others]
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7. Which source of knowledge is the most important to your firm?

8. How do you sensitise your employees to participate in the exchange of knowledge?

- a) Workshops
- b) Monetary incentives
- c) Quality management
- d) Processes (others)

Who is responsible for knowledge exchange within your firm?

9. Do you pursue R&D within your firm?

YES

a) How much do you spend on R&D per year?

b) How did your expenditures on R&D change during the last 5 years?

c) Who pursues R&D within your firm?

- Describe your activities concerning R&D. Do you have a R&D department or R&D laboratory?
- If you do, which size do they have and who is employed there?
- Do you pursue R&D in collaboration with other enterprises and/or educational institutions?
- Why do you pursue R&D? Give reasons.
- In which areas do you use innovation and R&D within your firm?

Core area	Other areas
Once	Continuous R&D

NO / PARTLY

a) Why don't you pursue R&D?

b) Do you think it is necessary (to your firm) to pursue R&D in future?

c) If yes, do you have any plans concerning the expansion of your R&D capacity?

10. Beside of R&D activities, do you exchange knowledge with other enterprises and/or educational institutions?

11. How important are costumers in the generation of knowledge?

IV. Labour force

12. Where do you obtain labour from and how do you do it?

- a) Do you obtain labour mainly from inside or outside the Lavanttal?
- b) By leasing? How large is the proportion of leased labour?
- c) Austrian employment service (AMS)?
- d) Do you obtain labour from educational institutions such as [depending on the region]
- e) From non-profit associations?

13. Which qualifications must your employees have?

- a) Which level of education is required?
- b) Are age and experience important criteria?

14. How do you resurrect skilled labour? Which incentives do you provide to prospective employees?

15. How could you prevent the migration of labour force?

16. How would you evaluate the quality and availability of human resources?

VI. Competitiveness

17. What is the distinguishing characteristic of your firm? Which measures do you take to stay?

- Price competition
- Quality competition
- Long lasting relationships

18. Do you focus on particular external markets? How far is it connected to internationalization?

19. Which measures do you take, to overtake your competitors concerning knowledge and new information (e.g. R&D, market research, ...)?

- ...
- ...
- ...

20. Does the location influence the competitiveness of your enterprise? How relevant are for example infrastructure, labour market, labour costs, R&D, capital market, investments, social environment, ecology, taxes and legal framework?

21. What do you do to keep your costumers satisfied?

- ...
- ...
- ...

22. Which of your products and services differentiate you from your competitors?

- Design
- Technics
- Quality, ...

23. Which future plans do you have concerning the entry on new markets?

V. Location

24. Which are the advantages and disadvantages of the location?

<i>Advantages</i>	<i>Disadvantages</i>

25. How would you evaluate

- infrastructure
- the quality of local educational institutions such as the [...]?
- the cross linking between science and economy as well as the collaboration between enterprises and educational institutions?

d) the network of local actors?

e) the quality of the transport connection of the region ([...] to foreign countries)?

26. How would you evaluate the institutional framework?

- a) for R&D
- b) for the foundation of new enterprises

27. How would you evaluate the collaboration between your municipality and local enterprises? Does your municipality support your activities?

28. Which importance do organisations such as the ... [association] have to you?

29. How did the ... [association] change during the last five years?

30. How would you evaluate quality of life in region?

- b) Jobs
- c) Education
- d) Habitation
- e) Appearance
- f) Security
- g) Leisure activities
- h) Mobility

31. How would you evaluate the potential for development of the location ... ?

32. What could be your contribution to a positive economic development (e.g. situation on the labour market)?