IDEA Project “Innovative Development of European Areas by Fostering transnational Knowledge Development“ (Project No. 2CE175P1)

Work Package 3
Intermediate Report

Work package 3.1

Identification of technology platforms and innovation areas with high regional impact

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1 Introduction

In the first chapter of this summary you will get a short overview of the goals of the project IDEA, in particular of the activities and goals of WP 3 more precisely in WP 3.1.

1.1 Activities and aims of the project IDEA

IDEA supports the fostering and consolidation of innovative capability by the finding, the commitment, the gaining and the development of high potentials. The focus is to develop and implement a strategy for improving human resources and knowledge development in all participating regions to increase innovativeness. The target groups are professionals of engineering technology and natural science working as designing engineers, process developers and the like. The economic competitiveness of Central Europe depends on innovation mainly affected by the existence of high potentials. Therefore the project aims at increasing quality and quantity of human capital by implementing appropriate measures. Existing measures are tested for efficiency the determine requirements for joint enhancement.

The result is a new sustainable strategy and a wide range of concrete solutions created by pilot actions, e.g. career guidance, study guidance, gender mainstreaming, creating relations between educational system and economy. Furthermore the region’s differing experiences enrich the project essentially. Their transnational exchange is of crucial importance in order to include complementary know how of several stakeholders and decision makers joining the innovation process. The focus is on SMEs, which growth is based on innovation to maintain their product expertise. In this regard they need corresponding human capital though they often suffer disadvantages from competition with major enterprises.

1.2 Activities and aims of WP 3

Work package 3 deals with the basic conditions which are to be found in the involved regions. It aims at the determination of the respective potentials as well as of the specific needs and should permit a comparison of the regions for the purpose of an appraisal of the region.

1.3 Activities and aims of WP3.1

The main task of WP 3.1 is to identify technological platforms and innovation areas with high regional impact. The goal of this task is to discover future fields of technological innovation which are having a high qualitative and quantitative demand of high potentials.

4 Areas have been identified, which are used to gather the data. Those areas are:

- Technology platforms, to go in line with European priorities
- Cluster, to go in line with regional priorities and to find out about main forces
• Fields of innovation, concentration on the companies of a region
• Sectors of innovation, concentration on universities, schools, R&D departments,... of a region

This happened on the following methodology:

1. Selection
   • Technology platforms
   • Fields of innovation
   • Sectors of innovation
   • Cluster

2. Indicators
   • Business indicators
   • Research indicators

3. Cooperation/ Connections

4. Decision
   • Sectors of innovation
   • Fields of innovation

Figure 1: Areas of innovation

Figure 2: Methodology WP 3.1
2 Results of each region

In the following chapter you can find the identified sectors and fields of innovation and their connections to technology platforms and clusters for each partner region of the project IDEA.

2.1 LP (Institute of Mechanical and Plant Engineering Chemnitz e.V.) and PP2 (CWE Economic Development Corporation, City of Chemnitz)

Country: Germany

Nuts 1: Sachsen

Nuts 2: Chemnitz

Nuts 3: Chemnitz, Kreisfreie Stadt

1. Selected fields/ sectors of innovation

Chosen fields of innovation
- Manufacture of textiles
- Manufacture of computer, electronics and optical products
- Manufacture of electrical equipment
- Manufacture of machinery and equipment n.e.c.
- Manufacture of motor vehicles, trailers and semi-trailers

Chosen sectors of innovation
- Natural sciences
- Humanities
- Social sciences

2. Reasons for the decision

Most of the companies are settled down in those fields of innovation. There is also cooperation between the identified sectors of innovation and the identified fields of innovation.

3. Description of cooperation with cluster/ technology platforms and other fields or sectors of innovation

Like mentioned above, between the fields and the sectors of innovation happens a lot of cooperation work. But there are also connections to some technology platforms.
2.2 PP3 (BSC, Business support centre ltd Kranj)

Country: Slovenia

Nuts 1: Slovenija

Nuts 2: Zahodna Slovenija

Nuts 3: Gorenjska

1. Selected fields/ sectors of innovation

The PP from Slovenia had chosen the following field and sector of innovation:

- Automotive cluster
- Technology network of information and communication technologies

2. Reasons for the decision

The Automotive cluster (61 members) and the technology network of information and communication technologies (52 members) are both one of the largest and strongest cluster in Slovenia. Both have an international partnership network and offer a large range of services to their members and also cooperate with DAs’. They are a member of several international technology platforms and are constantly upgrading and updating its services, expertise and broaden international market for its members.

3. Description of the chosen fields and sectors in the region

There are 8 members of automotive cluster in Gorenjska region. There activities are in the field of automotive industry – car components, parts, pneumatics and its parts, other mechanical parts; technical rubber products, manufacture of basic metals, manufacture of fabricated metal products, machinery and equipment, manufacture of rubber and plastic products; printed circuit boards production, telecommunications, processing of metal and plastic mass, electroindustry and similar activities. Every member of AC in Gorenjska region strives to innovativeness in its sector. Within the framework of ACs a strategically important project has been carried out: “The polycentric technological centre as an international innovation system of Slovenian automotive suppliers industry” – automotive suppliers can only be improved by common investments and by cooperation between the economic and academic spheres.

TN ICT has 6 members in Gorenjska region. Companies are involved in R&D, they provide turn-key software and hardware solutions in the ICT and industrial automation control fields; they are active in the field of information systems and technology.
4. Description of cooperation with cluster/technology platforms and other fields or sectors of innovation

Automotive Cluster of Slovenia is a member of European Road Transport Research Advisory Council among the others for instance Europe Innova, CLEPA, FIEV, JAMA, etc. Members of the Cluster have the access to the information, R&D projects and expertise provided by members of Technology platforms and R&D Agencies, Institutes through the Cluster or with the help of the cluster. The ICT Network is a member of Mobile and Wireless Communications Platform, Nanotechnologies for Medical Applications, Networked and Electronic Media Technological Platform. Member companies of the ICT Cluster: Alpineon team has extensive experience in hardware and software development, including CTI applications, VoIP devices and services, speech technologies: Slovenian text-to-speech synthesis (TTS), automatic speech recognition (ASR), speech-to-speech translation (STS), voice portal applications etc. It also has a research group that is registered with the Slovenian Ministry of Science and Technology - Slovenian Research Agency. The group currently coordinates or participates on several basic and applied research projects. Alpineon continues the established cooperation with major industrial players, academic institutions and other research organizations. Alpineon is a member of the Slovenian ICT Technology Network and of the Slovenian Centre of Excellence in ICT Technologies - Speech Technologies Group. Genis d.o.o is an independent business consultant in the field of developing and upgrading information systems. In their work, they pursue the leading trends in information technology and they heavily invest in development and training. Genis is in partnership to develop large scale information projects. Genis’ success is based on a synergy of experience and innovation. Iskratel Group, its basic activity is the development of complete solutions for fixed and mobile telephony, convergence networks, next-generation networks, and network management required for the communication needs of the future information society. Iskratel Electronics include production and counselling in the field of electronics. Iskra MIS, d. d. provides customers with quality products and services at competitive prices and at agreed times, with professional sales and after-sales service, and with a possibility of joint development and technological projects. With innovative approach they constantly improve the quality of processes, products and services. They quickly adapt to the needs of the market and the consumers, while considering all standard and legislative requirements. he company Perftech developed into a modern organized a company that offers all types of solutions in the field of information technology in conjunction with premium service and ancillary services. SRC Infonet is the leading Slovenian company in the field of healthcare and pharmacy system integration. Their solutions support the work of experts in the majority of Slovenian hospitals, more than half of primary health centres, one third of pharmacies, a few
social care institutions and retirement homes and more than 400 private practices. Our software solutions run daily on approximately 4000 computers and are used by some 6000 healthcare workers. Some members are involved in the automotive industry and are also connected with Automotive Cluster of Slovenia.

Members of cluster are cooperating with cluster in R&D projects, they are cooperating with other partners in the cluster or companies in industry compatible cluster and foreign partners. Cluster provides several services to the members and helps them to connect with Research Institutes. Cluster is a member technology platforms and different international networks and they connect the members of the cluster to partners in technology platforms and foreign institutes. They also provide information about project calls and operatively help at R&D projects and other.

5. Influence on IDEA

Members of the Cluster in the Gorenjska region can be identified as high potentials for the project IDEA and can contribute to identification of innovativeness by other partners in the project.

2.3 PP 4 (Technical University of Kosice)

Country: Slovakia

Nuts 1: Slovenska Republika

Nuts 2: Vychodne Slovensko

Nuts 3: Kosicky kraj

1. Selected fields/ sectors of innovation

The fields selected are:

- Civil, mechanical and electrical engineering
  - C23 – Manufacture of other non-metallic mineral products
  - C24 – Manufacture of basic metals
  - C26 – Manufacture of computer, electronic and optical products
  - C27 – Manufacture of electrical equipment
  - C28 – Manufacture of machinery and equipment n.e.c.
  - C29 – Manufacture of motor vehicles, trailers and semi-trailers
  - D – Electricity, gas, steam and air conditioning supply
  - E – Water supply; sewerage; waste management and remediation activities
  - F - Construction
• Information and communication technologies
  o G46.5 – Wholesale of information and communication equipment
  o J58 – Publishing activities
  o J60 – Programming and broadcasting activities
  o J61 – Telecommunications
  o J62 – Computer programming, consultancy and related activities
  o J63 – Information service activities
  o R90 – Creative, arts and entertainment activities

• Natural and life sciences
  o C20 – Manufacture of chemicals and chemical products
  o C21 – Manufacture of basic pharmaceutical products and pharmaceutical preparations
  o C32.5 – Manufacture of medical and dental instruments and supplies
  o M72.1 – Research and experimental development on natural sciences and engineering
  o Q86.1 – Hospital activities

2. Reasons for the decision
Conditions for the decision to be met were:
  • Regional priorities
  • European priorities
  • Sectors of innovation which show a positive development in the last years
  • Sectors of innovation which cooperate with other fields or sectors of innovation, clusters or technology platforms

3. Description of cooperation with cluster/ technology platforms and other fields or sectors of innovation
Obviously civil engineering is dependent on electro technical engineering for without machinery and power, it would be difficult to build up-to-date buildings with high standards also in terms of ecology. As for the name of the fields there are included in the following diagram. Although in the figure were presented three fields of cooperation, it is self-evident that many more overlaps exists as there where great numbers of study courses identified (67 in 2008).

The companies in the cluster AT+R due to March 2010, were: Spinea, YTS VVU, VUKOV Extra, Procont, EVPU, CEIT, Technical University, and University of Zilina. This cluster has stated that they are connected to the platform of Manufuture, EUROP and EUnited Robotics and also for the EFFRA.
Now the cooperation can be explained in better sense, which is the course taught at universities create high potentials directly for the needs of this cluster as the cluster member are two universities, one of them in the eastern Slovakia region. The cooperation could take also latent form, which is rather “invisible” for the studied data. For instance the cooperation, in learning from articles and experiments, taking place either at university area or at cluster or platform area.

![Diagram](image.png)

**Figure 3: Cooperation based on fields of innovation (PP4)**

### 2.4 PP6 (Central Transdanubian Regional Innovation Agency Ltd.)

*Country: Hungary*

*Nuts 1: Dunantul*

*Nuts 2: Kozep-Dunantul*

*Nuts 3: Fejer*

1. **Selected fields/ sectors of innovation**

The Hungarian Project Partner had chosen the following fields and sectors of innovation:

- **Chosen fields of innovation**
  - Manufacture of motor vehicle, trailers and semi-trailers and other manufacturing
  - Electricity, gas, steam and air conditioning supply
  - Waste collection, treatment and disposal activities, materials recovery

- **Chosen sectors of innovation**
  - Mathematics and computer sciences
2. Reasons for the decision

The reasons for choosing the above listed fields and sectors are threefold:

As a grounding activity CTRIA have settled a workgroup meeting (in August 2010), where the character of the region have been discussed with all the relevant professionals. The result of the discussion, supported by the Regional Innovation Strategy, Regional Operational Programme and Regional Action Fields gave the opportunity to highlight the core branches of the region. They are:

- Materials and Technology
- Information and Communication technologies
- Mechatronics
- Automobile Industry
- Logistics
- Green technology
- Food manufacturing

The participants kept the future development in mind and suggested to not only a part field will be take into the IDEA project but also appoint that branch which clasps more important part fields in the development of other regions too. Based on these, the energy efficiency and renewable energy fields had chosen, because having connections to all key branches. Attend to discussed, the participants suggested the branches of renewable energies and technologies to increase energy efficiency at the core branch of future development.

The other reason was the approaches of the national development policies and current networking. On policy side, the selected branch has stressed importance, as well as it seems to be a core issue in clustering.

3. Description of the chosen fields and sectors in the region

One of the main tasks in the Central Transdanubian Region Strategy is expanding utilization of renewable energy and increasing use of this kind of energy. Main objectives of these activities are the following:

When Hungary joined in EU, it assumed to raise renewable energy utilization in the electricity processing. Publicity of renewable energies helps to develop the current network, to put the lid on carbon emission and to support economic development in regions. The Central Transdanubian Region has to take part to achieve the aims of EU 2001/77/EC directive. This aims are as follows:
To raise rate of renewable energy in electricity supply (green electricity) from 0.8% to 3.6% to 2010
To raise rate of renewable energies in whole energy utilization to 6%
To keep Kyoto pledge. To prove environment protection

From the entrepreneur side, the following statements can be taken:
- This sector includes many growing potential. It is supported by national and international side too and it is an unused field in the region.
- The renewable energy sector not only respects one kind of entrepreneur, it covers every innovation actor (like R&D, manufacture, SME etc.)
- The cooperation in this sector is better than elsewhere. It proves the clustering too in this sector.
- The regional education trend has already laid down and recognized this sector´s human capacity importance

4. Description of cooperation with cluster/ technology platforms and other fields or sectors of innovation

There is no serious technology platform participant in the region, so the cooperation with this level is not relevant.

Clustering in renewable energies and technologies is well developed. The existing clusters are covering the whole range of innovation chain and have a huge impact on regional economy. Additionally they have good cooperation with universities and other clusters as well.

The cooperation between the fields/ sectors of innovation and clusters are meaning weak alliances which usually concreting to realize common projects and improve the positions of participants.

The sectors mainly mean micro companies. These companies usually try to survive the challenges of economic and social environment. This day to day survival sometimes covers the only result i.e. the cooperation.

The main actors are the higher educations of the region. The offer their education capacity at first and just then before offer their R&D opportunity if they have. By doing so, they are supporting the SMEs HR capacity in service and professional side.

5. Influence on IDEA

The influences on IDEA can be described by the following characteristics:
- The chosen field/ sector is suitable to select and address High Potentials in the region
• The sector/ field is suitable to develop and implement valuable HR strategy that can be a sample for other branches as well
• The chosen sectors/ field is suitable for joining supply and demand side
• Additionally, cross-sectorial approach can be realized
• Finally all relevant activities of IDEA can be implemented through the selected sector/ field.

2.5 PP7 (Municipality of Alessandria)
Country: Italy

Nuts 1: Nord-Ovest

Nuts 2: Piemonte

Nuts 3: Alessandria

1. **Selected fields/ sectors of innovation**
The most important fields and sectors of innovation in Alessandria economy, on which the IDEA project will be developed, are the ones where more firms exist and which are more industrialized. They are the ones related to packaging and plastic material district (214 firms), to which it is possible to add the firms of the packaging and logistic district (29 units) and the ones related to the transport and logistics district (151 firms). They are the:

• Chemical sciences
• The other engineering sciences
• The earth and related environmental sciences

2. **Reasons for the decision**
These fields of innovation have been chosen because Alessandria economy is strictly interconnected and there is a high cooperation with the other regional clusters.

3. **Description of the chosen fields and sectors in the region**
Because of the central role in Alessandria economy of each district, all of them should be considered in this summary:

• The “Cold – White” district: it is composed by 20 firms that operate in the production, installation, commerce and industry of machineries and equipment for refrigeration and cooling.
• The “Cement” district: it is composed by 8 firms that operate in the production and fabrication of products in cement.
• The “Goldsmith - Jewellery” district: it is composed by 361 firms that operate in the production of precious metals and semi-manufactured products, goldsmith articles, jewellery, swatch, precious coins and stones.

• The “Packaging and Plastic Materials” district: it is composed by 214 firms that operate in the production of packages (in different materials: plastic, woods, cork, cardboard, rubber and glass), in the production of machineries for the construction of packages and for the measuring in packaging, they are working in the plastic materials and in their commerce too.

• The “Transport and Logistic” district: it is composed by 151 firms that operate in the fabrication of means of transport (motor vehicles, trailers, semi-trailers, boats, locomotives, space shuttles, bicycles and aircrafts) and their parts and accessories, in the management of goods traffics, railway infrastructures and other transport activities.

• The “Packaging and Logistic” district: it is composed by 29 firms that operate in the production of packages (in different materials: plastic, wood, cork, cardboard, rubber and glass), of machineries for the construction of packages and for the measuring in packing; they are also active in the management of goods traffic, of the railway infrastructures and other transport activities.

• The “Mechanic” district: it is composed by 25 firms that operate in the metals treatments and covering, in the fabrication of metal engines and machineries (for all the types of firms).

• The “Musical instruments” district: it is composed by 5 firms that operate in the commerce of records, tapes, scores and musical instruments.

4. Description of cooperation with cluster/ technology platforms and other fields or sectors of innovation

In Alessandria, firms belonging to European technological platforms or economic clusters (the ones recognized by the EU government) are not officially present. It is impossible to find some firms or areas included in the technological platforms or clusters listed by EU. Anyway, in some cases, it is possible to recognize groups of firms that operate in sectors that could be included in the listed EU Technological platforms and clusters.

These firms belong or create some Italian districts (like mentioned in the answer of question 3), which have a central importance in Alessandria province economy. These districts are evolving as clusters (the thin difference between clusters and districts cannot be considered in this case), but they aren’t still recognized in the EU list.
The links among the universities and the companies in Alessandria Province is low. For this reason the local government created the “city of science and technology” that collaborates with the different Piemonte Orientale structures and with the Polytechnic of Turin too.

5. Influence on IDEA
The identified fields of and sectors of innovation in Alessandria are the most important ones on which the IDEA project will be developed.

2.6 PP8 (The city of Lodz office) and PP9 (Technical university of Lodz)
Country: Poland

Nuts 1: Region centrally

Nuts 2: Lodzkie

Nuts 3: Miasto Lodz

1. Selected fields/ sectors of innovation
The project partner from Poland had chosen the following fields and sectors of innovation:

Chosen sectors of innovation
- Computer sciences
- Biological sciences

Chosen fields of innovation
- Computer programming, consultancy and related activities
- Manufacture of chemicals and chemical products
- Manufacture of basic pharmaceutical products and pharmaceutical preparations

2. Reasons for the decision
Chosen fields and sectors of innovation which are in line with priorities of Lodz defined in long mid-term development strategy, which focus on i.a. developing business services sectors and IT sector. Both sectors have shown a positive development in the last years in terms of start-ups and the level of employment. They are consistent with the European priorities.

3. Description of the chosen fields and sectors in the region
Lodz has a well-established and very strong network of biotechnology research institutes. The majority of the research facilities belong either to the Academy of Sciences of Poland or to Universities (Medical university of Lodz, Technical university of Lodz, University of Lodz). Lodz is developing into a hub of biotech companies because of its good infrastructure, strong network of universities and research institutes and encouragement from the local
government. An example of this cooperation is the BioTechMed consortium. The aim of the BioTechMed Advanced Technology centre is a common long-term development as well as the research and implementation works. This is directed to new technologies and services elaboration having the application for the protection and improvement of the people’s health and environment (making the diagnosis, treatment, preventive treatment of diseases, production of safe food, consumer product, etc.).

Another fast developing sector in Lodz is Business services based on IT technologies and financial services. Information technology companies from Lodz are recognizable on the national market. Lodz has a wide-array of companies that specialize in advanced software design, while local universities and technical institutes are becoming centres of expertise in the area of new technologies. The potential of the local labour market has been recognized by world leaders such as Infosys, CitiGroup, Nordea which based their financial services centres in Lodz. Moreover, Lodz based bank BRE launched the first e-banking services in Poland.

4. Description of cooperation with cluster/technology platforms and other fields or sectors of innovation

There are some basic relations between chosen and other fields of innovations. Computer sciences cooperate with economics and other social sciences. Biological sciences established relations with basic and clinical medicine, health sciences and chemical sciences.

The cooperation with the sectors of innovation is established on the basic level and needs improvements. Regarding chosen fields of innovation there is one cluster and one technology platform. Biotechnology cluster aims elaboration of new technologies and services having applications in the protection and improvement of the people’s health and environment.

NESSI is the European Technology platform support of the strategic area of software and services. It covers a wide range of areas, structuring research, building links to coordinate national and international programmes.

5. Influence on IDEA

Chosen fields of innovation enable definition of dedicated strategic fields of action.

2.7 PP10 (District Economic Chamber of Most)

Country: Czech Republic

Nuts 1: Ceska Republika

Nuts 2: Severozapad
Nuts 3: Ustecky kraj

1. Selected fields/sectors of innovation

The Project Partner from Czech Republic had identified the following fields and sectors of innovation in their region:

Chosen fields of innovation
- Manufacture of rubber and plastics products
- Repair and installation of machinery and equipment

Chosen sectors of innovation
- Engineering sciences
- Biological sciences

2. Reasons for the decision

Manufacture of rubber and plastics is an important part of the industrial structure of the Usti region. It is a constantly developing sector using modern technologies, as well as research and development results.

Repair and installation of machinery and equipment is an important part of the industrial structure of the Usti region. Given that the mining, energy and chemical industry and mechanical engineering are the main sectors in the region, is the field with a future. It develops constantly, uses modern technologies, as well as research and development results.

Engineering sciences is typical for Usti region and due to its industrial character is very important. Innovative field is focused on production technology, material engineering and surface engineering, especially in machine building. High potential from these sectors is scarce and demanded in the region.

Like engineering sciences, Biological sciences including environmental issues are typical and important for Usti region due its industrial character. They are focused on research of areas with heavy drain environment and population in interaction with health of the population and other natural and socio-economic implications and in research of areas with different degrees of environmental protection and prevention of environmental degradation.

3. Description of the chosen fields and sectors in the region

Manufacture of rubber and plastics products has a long tradition in the Usti region, which is linked mainly to the chemical and petrochemical industry. There is a number of SMEs there. Also multinational companies have their headquarters and branches in the region. Due to industrial character of the Usti region, is the sector with wide application and future. There is a lack of qualified technical experts in this sector.
Mechanical engineering, therefore repair and installation of machinery and equipment is one of the major industrial branches in the region. There are a number of firms from self-employed persons through SMEs to large companies located in the Usti region. Due to industrial character of the region and due to seats of many manufacturing firms, is the sector with a great future. There is also a lack of qualified technical experts.

Engineering science in the Usti region is primary focused on machine building and production technologies used especially in engineering branches. The region has a number of SMEs but also large companies that use results of research and development of this innovative field and they ask experts from the engineering science. Research programmed is primary focused in production technologies, material engineering, surface engineering and mechanics of solids. All this combined with the economics and management.

The industrial character of the Usti region, which is represented by brown coal mining, power industry, chemical industry and machine building, provides the background for practical use and wide opportunities for active cooperation with industrial companies.

The field of biological sciences in the Usti region is focused on research and education in the broad field of ecology and environment. In relation with industrial activities drains, put emphasis on study of causes that affect essential components of the environment, on the methods and ways of their rehabilitation and on preventive measures in the field of formation and protection of the environment. The principle of multidisciplinary and flexibility in balanced proportion of scientific, technical, economic and information disciplines is applied in the research programmed.

High degree of devastation of essential components of the environment in the North region not only provides conditions for practical use and wide opportunities for active participation in revitalization programmed of the region (recultivation of landscape, solution of emission situation, waste management and water resource pollution).

4. Description of cooperation with cluster/technology platforms and other fields or sectors of innovation

Both fields (Manufacture of rubber and plastics products and Repair and installation of machinery and equipment) do not cooperate with any cluster and technology platforms. The field manufacture of rubber and plastics products cooperates largely with the innovation sector chemical sciences and other engineering sciences whereas the sector repair and installation of machinery and equipment cooperates largely with the innovation field other engineering science. This cooperation primarily occur with universities, high schools and research institutes and consists in preparation of specialists for businesses, in dealing with contracts in the field of science and research and their further application and use in practice.
The both fields of innovation (Engineering and biological sciences) do not cooperate with any cluster and any technology platforms. The field engineering sciences cooperates largely with the innovative sector C whereas the field biological science cooperates primarily with the innovative sectors A, B, C and D. The engineering science cooperates with industrial companies both in the Usti region and outside. The cooperation consists in the preparation of specialists for these companies, in dealing with contracts in the field of science and research for businesses, all of that in its applied research. A number of these are aimed at solving specific tasks for needs of cooperating companies.

The field biological science cooperates with industrial companies placed largely in the Usti region. The cooperation also consists in the preparation of specialists for these companies, in dealing with contracts in the field of science and research for businesses. A number of these are aimed at solving specific tasks for cooperating company’s needs.

5. Influence on IDEA

**Fields of innovation:**
The numbers of research activities which are important for the Usti region are placed in these fields. Other industrial areas of several PP can participate on research and development results of these fields. HP of these innovative fields asserts themselves almost in all innovative sectors.

**Sectors of innovation:**
These significant sectors using modern technologies cooperate with vocational college, research department, where their knowledge and results of science and research is applied in practice. The project will use experiences from their cooperation. Both sectors are dynamic, very important for the region and where is a lack of HP.

2.8 PP11 (AREA m Styria GmbH)

*Country: Austria*

*Nuts 1: Austria*

*Nuts 2: Styria*

*Nuts 3: Eastern upper styria*

1. Selected fields/sectors of innovation

The Austrian Project Partner had chosen the following fields and sectors of innovation

**Chosen sectors of innovation**

- Natural sciences
- Engineering and technology
Chosen fields of innovation

- Manufacture of rubber and plastics products
- Manufacture of basic metals
- Manufacture of fabricated metal products, except machinery and equipment
- Manufacture of machinery and equipment n.e.c.

2. Reasons for the decision

In the region of eastern upper styria, especially the industrial and commercial sectors are above average importance. The economic focus of the region is in the range of materials (steel, stainless steel, metals, and plastics). In this sector the real strengths of the region are concentrated and international competitiveness is demonstrated here continuously. To ensure this in the future it will require well-trained staff. The region of eastern upper Styria is captured by a demographic change therefore, measures are essential to ensure the supply of quality workers.

Furthermore, the economic structure of the eastern upper Styria is markedly different from the economic structure in Austria. In the eastern upper Styria region, particularly the secondary sector is very dominant while the share of agriculture and forestry and of the service sector is below the value of Austria.

3. Description of the chosen fields and sectors in the region

These sectors are critical for the characterization of the region. Not only well-known large companies, such as Böhler or Voestalpine are in the eastern upper Styria also many micro, small and medium enterprises can be found here.

In 2007 were in the secondary sector (including mining, manufacturing, energy and water supply, construction) of the region a total of 1188 workplaces with a workforce of an annual average of 24 767 counted. As the largest employment branches among others, in this sector, are named the manufacture of basic metal and the manufacture of fabricated metal products, except machinery and equipment (C25).

Fitting to the core competencies of the region there are 69 elementary schools, 24 primary schools, 6 vocational schools, 7 academic secondary schools, 3 commercial colleges, 2 technical and vocational secondary schools, 2 Business career colleges, 1 university, 1 university for applied sciences settled down in the region.

Additionally to the companies, the schools and the universities there are a lot of research facilities and centres which focuses on the mentioned areas.
4. Description of cooperation with cluster/ technology platforms and other fields or sectors of innovation

- Cooperation between cluster and identified sectors and fields of innovation
A lot of companies from the eastern upper Styria region and also schools, universities and R&D departments are a member of one or more clusters which are working together for one joint target.

- Cooperation between the identified fields and sectors of innovation
Especially the cooperation between the fields and sectors are of major importance. Many of the companies in the region are using the possibilities of the University of Applied Sciences in Kapfenberg, the University of Leoben or of R&D departments. This is done primarily through research projects, student projects, practices or dissertations. All integrated partners benefit from this type of cooperation.

5. Influence on IDEA
On the one hand, the identified fields and sectors are precisely those areas in which the high potentials of the region are formed but these two sectors and fields are also including those areas which are looking for high potentials. For that reason these sectors and fields of innovation are ideal for the development of the project IDEA.
3 Overview

The following table should give an overview and summarize the above written in a few words. In the table you can see the different sectors and fields of innovation, cluster and technology platform which had been chosen by the partner regions of the project IDEA.

<table>
<thead>
<tr>
<th>Regions</th>
<th>Sectors of innovation</th>
<th>Fields of innovation</th>
<th>Technology platforms</th>
<th>Cluster</th>
</tr>
</thead>
</table>
| Chemnitz (LP, PP2) | - Natural sciences  
                    - Humanities  
                    - Social sciences | - Manufacture of textiles (C13)  
                                                - Manufacture of computer, electronic and optical products (C26)  
                                                - Manufacture of electrical equipment (C27)  
                                                - Manufacture of machinery and equipment n.e.c. (C28)  
                                                - Manufacture of motor vehicles, trailers and semi-trailers (C29) |                                                                                       |                                                                        |
| Gorenjska (PP3)   |   |                                                                                 |                                                                                        | - Automotive cluster  
                                                        - Technology network of information and communication technologies |                                                                        |
| Fejer (PP6)       | - Mathematics and       | - Manufacture of                                                                      |                                                                                        | - Environmental technologies |
| Kosicky kraj (PP4) | **computer sciences**  
- Chemical sciences  
- Other engineering sciences | **motor vehicles, trailers and semi-trailers and other manufacturing (C29)**  
- Electricity, gas, steam and air conditioning supply (D35)  
- Waste collection, treatment and disposal activities, materials recovery (E38) | **Solar energy**  
**Recycling** | **natural and life sciences**  
**Civil, mechanical and electrical engineering**  
**Information and communication technologies** | **Manufacturing (C20, C21, C23, C24, C26, C27, C28, C29, C32.5)**  
**Electricity, gas, steam and air conditioning supply (D)**  
**Water supply; sewerage; waste management and remediation activities (E)**  
**Construction (F)**  
**Wholesale of** | **Renewable Heating & Cooling**  
**European Biofuels Technology Platforms**  
**Mobile and Wireless Communication** | **Technology and communication**  
**Automatization technology and robotics**  
**Information and Communication technologies** |
<table>
<thead>
<tr>
<th>Overlapping sectors</th>
<th>Construction</th>
<th>Technology and communication</th>
<th>Manufacture of basic metals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ustecky kraj (PP10)</strong></td>
<td>Engineering science</td>
<td>Manufacture of rubber and plastics products (C22)</td>
<td>/</td>
</tr>
<tr>
<td></td>
<td>Biological science</td>
<td>Repair and installation of machinery and equipment (C33)</td>
<td>/</td>
</tr>
<tr>
<td>Region</td>
<td>Key Areas</td>
<td>Innovation Areas</td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Alessandria (PP7)</td>
<td>Chemical sciences, Other engineering sciences, Earth and related environmental sciences</td>
<td>EuMat, ERRAC, ESTEP, ETP SMR, MANUFUTURE, ETP, EUROP, SusChem, Cluster of construction, Material, Plastics, Transportation, Food, Metal manufacturing, mechatronics, production technologies</td>
<td></td>
</tr>
<tr>
<td>Miasto Lodz (PP8, PP9)</td>
<td>Computer sciences, Biological sciences</td>
<td>Computer programming, consultancy and related activities (J62), Manufacture of chemicals and chemical products (C20), Manufacture of basic pharmaceutical products and pharmaceutical preparations (C21), Sustainable chemistry</td>
<td></td>
</tr>
<tr>
<td>Obersteiermark Ost (PP11)</td>
<td>Natural sciences, Engineering and technology, Economics</td>
<td>Manufacture of rubber and plastics products (C22), Manufacture of basic metals (C24), Material cluster, Automotive cluster, Education cluster</td>
<td></td>
</tr>
</tbody>
</table>

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| | • Manufacture of fabricated metal products, except machinery and equipment (C25)  
• Manufacture of machinery and equipment n.e.c. (C28) |

Table 1: Overview of the identified fields and sectors of innovation, cluster and technology platforms per region
4 Decision

4.1 Process of decision
Before we can make a decision it is necessary to appoint a process how to choose the future fields of technological innovation. Therefore it is necessary to contemplate the chosen fields and sectors of innovation, cluster and technology platforms.

![Diagram showing the process of decision]

Figure 4: Process of decision

- **Sectors of innovation**
  This should give an overview of the identified sectors of innovation. At this point it doesn’t matter anymore which partner region of the project IDEA had identified which sector of innovation.

- **Fields of innovation**
  This should give an overview of the identified fields of innovation. At this point it doesn’t matter anymore which partner region of the project IDEA had identified which field of innovation.

- **Combination of identified fields and sectors of innovation**
  To come to a common denominator it is necessary for the fields of innovation and the sectors of innovation to get in touch with each other.

- **Summary of results**
  There are 2 summaries: One regarding the combination of sectors and fields based on the identified fields of innovation and another one based on the identified sectors of innovation.

- **Decision -> 10 future fields of technological innovation**
  Together with the other PP of the project IDEA it is necessary to take a decision.
### 4.1.1 Sectors of innovation

In the following figure you can see a summary of the sectors of innovation which had been identified by the partner regions of the project IDEA.

**Figure 5: Chosen sectors of innovation**

- **Chemical sciences**
- **Mathematics and computer sciences**
- **Biological sciences**
- **Earth and environmental sciences**
- **Civil Engineering**
- **Electrical Engineering**
- **Other engineering science**
- **Economics**
- **Humanities**
- **Medical sciences**
- **Social sciences**

**Interpretation:**

As you can see in Figure 5: Chosen sectors of innovation, Figure 5 most of the identified sectors of innovation in the IDEA partner regions are in the sector “Natural sciences” (Chemical sciences, Mathematics and computer sciences, Biological sciences and earth and environmental sciences) and “Engineering & technology” (Civil engineering, electrical engineering and other engineering sciences). But also “Social sciences” (economics), “Medical sciences” and “Humanities” seems to be important for some partner regions in the project IDEA.

### 4.1.2 Fields of innovation

In the following figure you can see a summary of the fields of innovation which had been chosen by the partner regions of the project IDEA.
**Figure 6: Chosen fields of innovation**

**Interpretation:**
As you can see in Figure 6 most of the identified fields of innovation in the IDEA partner regions are in the field “C-Manufacture” (C13, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C32.5, C33) and in the field “J-Information & communication” (J58, J60, J61, J62, J63). But also the fields “D – Electricity, gas, steam and air conditioning supply”, “E – Water supply, sewerage, waste management and remediation activities”, “F – Construction”, “G – Wholesale and retail trade; repair of motor vehicles and motorcycles “J – Information and communication”, “M - Professional, scientific and technical activities”, “Q - Activities of membership organizations n.e” and “R - Arts, entertainment and recreation “seems to be important for some partner regions of the project IDEA.

4.1.3 Combination of fields and sectors of innovation

To come to a common denominator it is necessary for the fields of innovation and the sectors of innovation to get in touch with each other. The following figure shows a try how the identified fields and sectors of innovation could be put in contact with each other based on the sectors of innovation.
The next figure shows a second try how the identified fields and sectors of innovation could be put in contact with each other based on the fields of innovation.
Figure 8: Combination of the chosen fields and sectors of innovation on the basis of fields of innovation
4.1.4 Identified future fields of technological innovation

In the following chapter you get an overview and a more detailed explanation of the above mentioned figures. This chapter should describe how the identified sectors and fields of innovation could get in connection to each other in view of the further use.

4.1.4.1 Based on sectors of innovation

1. Mathematics and computer sciences (Information and communication)

Mathematics and computer sciences includes mathematics and other allied fields like computer sciences and other allied subjects (Software development only; hardware development should be classified in the engineering fields). Identified fields of innovation which would fit to this sector of innovation could be C26 Manufacture of computer, electronic and optical products, J58 Publishing activities, J60 Programming and broadcasting activities, J61 Telecommunications, J62 Computer programming, consultancy and related activities and J63 Information service activities. All of the mentioned fields have connections to the contents of the mathematics and computer sciences.

2. Chemical sciences

Chemical sciences includes chemistry and other allied sciences. Identified fields of innovation which could fit to this sector of innovation could be C20 Manufacture of chemicals and chemical products, C22 Manufacture of rubber and plastics products and M72.1 Research and experimental development on natural sciences and engineering. These fields have connections to the contents of the chemical sciences.

3. Earth and related environmental sciences

Earth and related environmental sciences includes geology, geophysics, mineralogy, physical geography and other geosciences, meteorology and other atmospheric sciences including climatic research, oceanography, volcanology, paleoecology, and other allied sciences. Identified fields of innovation which could fit to this sector of innovation could be C23 Manufacture of other non-metallic mineral products, C24 Manufacture of basic metals, C25 Manufacture of fabricated metal products, except machinery and equipment, E38 Waste collection, treatment and disposal activities, materials recovery and M72.1 Research and development on natural sciences and engineering because they have connections to the contents of the earth and related environmental sciences.

4. Biological sciences

Biological sciences include biology, botany, bacteriology, microbiology, zoology, entomology, genetics, biochemistry, biophysics, other allied sciences, excluding clinical and veterinary sciences.
Identified fields which could fit to this sector of innovation could be C21 Manufacture of basic pharmaceutical products and pharmaceutical preparations and M72.1 Research and development on natural sciences and engineering because these fields have connections to the contents of the biological sciences.

5. Civil engineering

Civil engineering include architecture engineering, building science and engineering, construction engineering, municipal and structural engineering and other allied subjects. Identified fields which could fit to this sector of innovation could be all parts of the sector F Construction because these sectors have connections to the content of the civil engineering.

6. Electrical engineering

Electrical engineering include electronics as electrical engineering, electronics, communication engineering and systems, computer engineering (hardware only) and other allied subjects. Identified fields which could fit to this sector of innovation are C26 Manufacture of computer, electronic and optical products, C27 Manufacture of electrical equipment and M72.1 Research and experimental development on natural sciences and engineering because they have connections to the contents of the electrical engineering.

7. Other engineering sciences

Other engineering sciences include chemical, aeronautical and space, mechanical, metallurgical and materials engineering and their specialised subdivisions, forest products, applied sciences such as geodesy, industrial chemistry etc.; the science and technology of food production; specialised technologies of interdisciplinary fields e.g. systems analysis, metallurgy, mining, textile technology and other allied subjects. Fields which could fit to this sector of innovation are C13 Manufacture of textiles, C20 Manufacture of chemicals and chemical products, C21 Manufacture of basic pharmaceutical products and pharmaceutical preparations, C22 Manufacture of rubber and plastics products, C23 Manufacture of other non-metallic mineral products, C24 Manufacture of basic metals, C25 Manufacture of fabricated metal products, except machinery and equipment, C26 Manufacture of computer, electronic and optical products, C27 Manufacture of electrical equipment, C28 Manufacture of machinery and equipment n.e.c., C29 Manufacture of motor vehicles, trailers and semi-trailers, C33 Repair and installation of machinery and equipment, D35 Electricity, gas, steam and air conditioning supply, E38 Waste collection, treatment and disposal activities, materials recovery and M72.1 Research and experimental development on natural sciences and engineering because these fields have connections to the contents of the other engineering sciences.

8. Medical sciences
Medical sciences include basic medicine, clinical medicine and health sciences. Fields which could fit to this sector of innovation are C21 Manufacture of basic pharmaceutical products and pharmaceutical preparations, C32.5 Manufacture of medical and dental instruments and supplies and Q86.1 hospital activities. These fields have important connections to the contents of basic medicine.

9. **Economics**

It is one sector of the social sciences. All the identified fields of innovation could fit to this sector of innovation because economics could be related to all fields of innovation.

10. **Humanities**

Humanities include history, languages and literature and other humanities as philosophy, arts, painting,... All the identified fields of innovation could fit to this sector of innovation because humanities could be related to all fields of innovation. Especially mentioned were Q86.1 hospital activities and R90 Creative, arts and entertainment activities.

### 4.1.4.2 Based on fields of innovation

1. **Manufacture of textiles**

This category includes C13. Identified sector of innovation which could fit to this category is other engineering sciences because the contents between the sector and the fields of the category are similar.

2. **Medical manufacturing and medical activities**

This category includes C20, C21, C32.5 and Q86.1. Identified sectors of innovation which could fit to this category are other engineering sciences, biological sciences, chemical sciences, humanities and medical sciences because the contents of the sectors and the fields of the category are very similar.

3. **Manufacture of basic metals and fabricated metal products except machinery and equipment**

This category includes C24 and C25. Identified sectors of innovation which could fit to this category are earth and related environmental sciences and other engineering sciences because the contents of the sectors and the fields of innovation of the category are very similar.

4. **Manufacture of computer, electronic and optical products and electrical equipment**
This category includes C26 and C27. Identified sectors of innovation which could fit to this category are electrical engineering and mathematics and computer sciences because the content of the sectors and the fields of the category are very similar.

5. **Manufacture, repair and installation of machinery and equipment and motor vehicles, trailers and semi-trailers**

This category includes C28, C29 and C33. Identified sectors of innovation which could fit to this category are other engineering sciences because the contents of this sector and the fields of the category are very similar.

6. **Manufacture of rubber and plastics products and other non-metallic mineral products**

This category includes C22 and C23. Identified sector of innovation which could fit to this category are other engineering sciences, chemical sciences and earth and environmental related sciences because the contents of this sector and the fields of this category are very similar.

7. **Energy and resource management**

This category includes D35 and E38. Identified sectors of innovation which could fit to this category are other engineering sciences and earth and environmental related sciences because the contents of this sector and the fields of the category are very similar.

8. **Scientific research and development**

This category includes M72.1. Identified sectors of innovation which could fit to this category are mathematics and computer sciences, biological sciences, chemical sciences, earth and related environmental sciences, civil engineering, electrical engineering and other engineering sciences because the contents between these sectors and the field of the category are very similar.

9. **Construction**

This category includes F41, F42 and F43. The sector of innovation which could fit to this category is civil engineering because of similar contents.

10. **Information and communication**

This category includes G46.2, J58, J60; J61, J62 and J63. The identified sectors of innovation which could fit to this category are mathematics and computer sciences and humanities because of similar contents.

The sectors economics and humanities are in connection to all categories/fields because the contents of these two sectors can be similar to the contents of each category/field.
4.2 Statement
Based on the process of decision we have now developed two concepts how to combine the chosen sectors and fields of innovation to come to 10 future fields of technological innovation having high qualitative and quantitative demand of high potentials.
Now we have:

- 10 future fields based on the mentioned fields of innovation in connection to the mentioned sectors of innovation
- 10 future fields based on the mentioned sectors of innovation in connection to the mentioned fields of innovation

Now it is important to choose, together with the other involved project partner regions which alternative should be used for the further approach.
5 Conclusion

On the basis of the developed methodological guide in WP 3.1 the PP tried to analyse their regions and find out about the most innovative fields and sectors of innovation in the different regions.

The task was to choose fields and sectors of innovation which:

- are in line with your regional priorities
- are in line with the European priorities
- show a positive development in the last years
- cooperate with other fields or sectors of innovation, cluster or technology platforms

Now we have an overview of the most innovative fields and sectors of innovation in the different partner regions of the project IDEA.

There have been called many fields and sectors of innovation. Based on this, it was important to find a method to find a relation between the sectors and the fields of innovation to define at least not more than 10 future fields of technological innovation. For this reason, it was necessary that all mentioned sectors and fields are considered. So we developed two alternatives:

- Combination of sectors and fields based on the fields of innovation
- Combination of sectors and fields based on the sectors of innovation

Both alternatives include all the mentioned sectors and fields of innovation.

Now it is necessary to take a decision, which one of the two alternatives should be used for the further approach. The suggestion of PP11 regarding this is to take the decision on the 3rd or the 4th of February together with the other PP during the meeting in Leoben.