OP 3.1.3

Analyse existing approaches

CENTRAL EUROPE Programme 2007 – 2013

PRIORITY 1: Facilitating innovation across Central Europe

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Summary	Analyse existing approaches of innovation transfer from clinics to companies and R&D-institutions in order to learn lessons and integrate the results in IntraMED-C2C.

Existing approaches of innovation transfer from clinics to companies and R&D-institutions were evaluated by each project partner. Therefore the results are presented for each partner:

LP: Bayern Innovativ GmbH/ Forum MedTech Pharma e.V.

Projects, programmes and innovation transfer examples in Germany

The main public innovation actors in Germany are the Federal Ministry of Economics and Technology (BMWi) and the Federal Ministry of Education and Research (BMBF). Furthermore, publicly-funded R&D organizations like Max-Planck Gesellschaft, Fraunhofer Gesellschaft and the DFG (Deutsche Forschungsgemeinschaft e.V.) are scientific autonomous institutions and key elements of the German research policy.

In 2006 the “High-Tech Strategy for Germany” was established. It aims at linking research with industry to fasten the exploitation of research results, especially of those from SME`s, and thus to boost Germany`s competitiveness in the most important future markets.

In 2006 the Bavarian Government initiated the cluster policy. The cluster “Medical Technology” is managed by the Bayern Inovativ GmbH/ Forum MedTech Pharma e.V., the Lead Partner of IntraMED-C2C. The network Forum MedTech Pharma is forming a unique platform for business contacts and knowledge exchange, which successfully facilitates innovation and co-operation in the medical sector.
http://www.medtech-pharma.de

The most popular way of transferring innovative ideas from hospitals to companies is addressing the already existing cooperations between companies and hospitals. But this is often accompanied by long development cycles for products and processes and high costs.

Visiting scientific congresses with an industrial exhibition is also a good opportunity to meet representatives of companies in order to discuss new product ideas.

In the past big companies have initiated so called “Knowledge Interchange Centres” at universities, like e.g. Siemens at the University of Greifswald or at the Technische Universität München in order to strengthen the direct cooperation and technology transfer. (http://www.medizin.uni-greifswald.de/cki/, http://www.cki-tum.de/).

The situation at university clinics concerning patentable innovative ideas is generally handled in different ways. As the first step the inventors have to inform their employer following the german law. The employer can decide if the idea will be prosecuted by him or not, depending on the potential for later economic success. Afterwards the university clinic has the opportunity to use a state supported service institution for handling the idea concerning the cooperation with patent attorneys and the search for cooperation partners from the industry. For this step a so called technology transfer office (TTO) at the university, which is linked to the university clinic is preferably used. At the Technische Universität München an example for such a TTO is TUM ForTe (http://portal.mytum.de/forte/index_html_en). An example for a state supported service institution for handling the idea concerning the cooperation with patent attorneys and the search for cooperation partners from the industry is the Bayerische Patentallianz GmbH (BayPat), a central patent and marketing agency of 28 Bavarian universities and universities of applied sciences and, as such, the link between science and industry. BayPat evaluates and markets the inventions of more than 17,000 scientists in Bavaria. BayPat thus supports the inventors in protecting their invention and then using it commercially. (http://www.baypat.de/en.html).

Examples of highly specialized interdisciplinary research groups and university institutes in the area of medical technology could be identified at the Technische Universität München. Such institutions are ideal incubators for innovations and potential links to the industry:

- MITI - Minimally invasive Interdisciplinary Therapeutical Interventions.
  MITI is an interdisciplinary research group. It deals with the development of innovative diagnostic procedures and therapeutic solution concepts for minimally invasive surgery. The research group was founded in 1999 at the Klinikum rechts der Isar of the Technical University of Munich. The motivation is to develop patient friendly methods for diagnostic and therapeutic interventions, which are mainly applied in surgery and gastroenterology.
  (http://www.miti.med.tum.de/index.php?id=5&L=1)

- Department of Micro Technology and Medical Device Technology (MIMED) of the Technische Universität.
  MIMED is specialized on Precision Engineering, Micro Technology and Medical Device Engineering. The department takes part in many national and international research programs and is a strong partner in contract research for the industry.
  (http://www.mimed.mw.tum.de/

Joint projects of university, R&D institutions and hospitals lead to an exchange of innovative ideas and to the generation of applicable new medical products. An example for such a new cooperation project is the CPC Munich (http://www.cpc-munich.org/). It is a cooperation of the Helmholtz Centre Munich, Asklepios Clinic Munich-Gauting and the hospital of the University of Munich.

At Research institutions like the Leibniz Association, Max-Planck Institutes, Fraunhofer Gesellschaft or the Helmholtz Gemeinschaft, e.g. the Helmholtz Centre Munich (http://www.helmholtz-muenchen.de/en/start/index.html), professors have a lectureship at the university and a position at the Helmholtz Centre as well. At the latter they are able to research and at the university clinics they can test their inventions in clinical trials.

The BMBF project “InnoHospital” (2006-2009) was a special programme focussing on innovation processes in hospitals. BMBF is actually planning a new project in which the innovation transfer from hospitals to SME`s is also an item.
http://www.wm.tu-berlin.de/institut_fuer_technologie_und_management/innovations-_und_technologiemanagement/menue/forschung/dienstleistungsinnovationen/das_innovative_krankenhaus/

Supported by the European Social Fund, German SME`s with no R&D departments are linked to innovations from universities via innovation assistants. Another support is the “Innovation grant” system.
http://www.esf-bw.de/esf/index.php?id=100
http://www.innovationsgutschein-bayern.de/

A very interesting programme is “SIGNO Hochschulen – Protection of ideas for the commercial use”. It supports universities, companies and independent inventors with legal protection and economic exploitation of their innovative ideas.
http://www.signo-deutschland.de/content/index_ger.html

The independent federal association of technology transfer and innovation “dti e.v.” comprises the leading agencies of innovation and technology consultants, e.g. the Bayern Innovativ GmbH.
http://www.dti-verband.de/

International campaign for innovative hospitals called "Hospital 2020"

Hospital 2020 is a mission to advocate for strengthening vision of hospitals and medical practices around the world. The mission is promoted through an alliance that will call on hospital stakeholders from officials, physicians, nurses, health care professionals, payers, insurance companies, vendors, suppliers, regulatory agencies and patients to support and sustain comprehensive efforts in this campaign.

Hospital 2020 mission will promote four initiatives that help shape the vision of the campaign.

- A Safe Hospital Initiative
- A Green Hospital Initiative
- An Innovative Hospital Initiative
- A Global Hospital Initiative

Hospital 2020 promotes collaboration among its members to adopt four initiatives and their programs.

http://www.hospital2020.org/About.html

The innovation aims of "Hospital 2020" are described in detail on: http://www.hospital2020.org/InnoHospital.html.

Central Europe projects from the 1st and 2nd call

Several other projects from the Innovation Priority are interesting for further potential cooperation with IntraMED-C2C. This idea was already activated by the JTS, namely started with the Cross Fertilization Workshop in Verona, Italy at the Annual Meeting in 2009.

Examples for projects with further cooperation:

- ***CERIM - Central Europe Research to Innovation Models Innovation***

An example for a comparable project working on a european strategy of innovation transfer from academia and clinics to SME`s is organized and characterised by the project CERIM. It focuses on the following actions:

Innovation is a key competitive factor in the global economy. The contribution of institutions of higher education and research to innovation and the welfare of the European economy is a key concern of regions and nations. Most regions and states however experience significant challenges in creating models capable of supporting academic-based innovation and its transition to the markets.

In particular problems are typically related to:

- Unclear policy and legal frameworks
- Lack of motivation of research institutions and of researchers
- Lack of qualified personnel managing the technology transfer process
- Lack of networks to regional, national and international resources, industrial partners and venture capital

CERIM's overall objective is to unleash the innovation potential of the higher education and research institutions of Central Europe through the development and validation of a technology

transfer model, adapted to the specific situation of the partners and characterised by a strong transnational networking component.

Transnational cooperation is crucial as it will help the partners:

- Reach critical mass of innovations
- Bundle competences, resources and networks
- Achieve a faster learning curve
- Better influence decision makers

The project partnership comprises technology transfer specialists and public research organisations from the Central European regions. The partners' most urgent challenge is the ability to deliver a seamless service package ranging from screening of innovations to identifying buyers and mediation of venture capital. The expected long-term effects of the project are increased competitiveness of companies and revitalisation of economic sectors.

In the section RTT for example, regional technology transfer models of the project partners will be presented within the next three years of the project.
http://www.cerim.org/.

- ***CENTROPE_TT - Tools for Transnational Innovation Support in Centrope***

E.g. for cooperations between SME`s and Technology Transfer Centres in central Europe
http://www.centrope-tt.info

- ***FLAME - Future Laboratory for the Diffusion and Application of Innovation***

The EFRE project "FLAME" (Future Laboratory for the Diffusion and Application of Innovation in Materials Science and Engineering; 2010-2012) aims at strengthening the performance in the competence field materials sciences and engineering.
http://www.flameurope.eu/index.php/project-fact-sheet.html

- ***I3SME - Introducing Innovation Inside SMEs***

- ***FREE - From Research to Enterprise***

- ***ALPINE SPACE Programme: ALPS Bio Cluster - TransAlpine Bio Cluster***

The ERDF project "Alps Bio Cluster" is focusing on the establishment of a transnational cluster network in the biotech and medtech sector by involving actors from 6 alpine regions in research, training and industry, especially small and medium-sized companies, in order to boost joint economic development by reaching a critical mass of key players.
http://www.alpsbiocluster.eu/alps-bio-cluster/the-project/alps-bio-cluster-summary

http://www.central2013.eu/nc/central-projects/implementing-a-project/approved-projects/

In the Interreg IIIb project "Baltic eHealth Project"; 2004-2007 a collaboration of hospitals, healthcare administrators, and experts in telematics, investigated the use of networks and telecommunications to deliver healthcare services remotely. The follow-up project "R-Bay"; 2007-2009) was an EU-funded market validation project under the eTEN programme. The aim of the R-Bay project was to establish an online eMarketplace within the field of radiology, i.e. an eMarketplace for the buying and selling of imaging related eHealth services.
http://www.hospital2020.org/documents/Baltic_CS_0514a.pdf
http://www.r-bay.org/

The project “KASK Innovation” is focusing on the exploitation of the potential for innovation of the public health sector in the Kattegat/Skagerak, Denmark area primarily through user-driven and employee-driven innovation.
http://kask-innovation.eu/index.php?menu_id=30&content_id=66

PP3: Health-Technology Cluster, Clusterland Upper-Austria

The IntraMED-C2C project idea has been created by the Health Technology Cluster in Upper Austria in its daily work in the field of medical cluster management. For this purpose, local “innovation workshops” have been organised by the cluster, wherein clinical staff mentioned new product ideas and discussed those ideas with companies and R&D-institutions. Furthermore, plant tours in clinics were hold to acquire new ideas. All in all, a first evaluation of the innovation transfer process from clinics to companies resulted in the conclusion, that this process is overall poorly developed.

In additional discussions in the first six months of the project the existing cooperations and also the innovation and technology transfer in the companies was evaluated.

1. Clinics

Meeting of the technicians from the clinic in St.Pölten

Discussions with technicians about their troubleshooting concerning medical products were performed. Following their feedback, today “non-standard” solutions are not available on the market. Therefore they see enormous potential for SMEs, which have a specific problem-solving competence.
But a medical background within the SMEs should be implemented first!

Andreas Hufnagl

Mr. Hufnagl is technical director in the hospital of “Barmherzige Schwestern” in Ried. His input was, that the InTraMed concept is highly welcome and he will support the project team by organizing contacts with employees, physicians and nursing personnel.

Medical Society Upper Austria

Participants: Dr. Stampfl, Prim. Thaler, Prim. Böhler
Discussion about how can innovation transfer take place between a medical university Linz and companies.

Hospital Elisabethinen Linz

Dir. Dr. Franz Harnoncourt
Dir. Harnoncourt is the manager of the hospital and the discussion was about motivating factors for idea bringers as well as innovation transfer in the Elisabethinen hospital.

2. SMEs

TAGnology

Discussion with Mr. Markus Schriebl, CEO of TAGnology. TAGnology produces RFID-chips and has already realized such improvements.

Dr. Robert Gfrerer from the human.technolgy.styria GmbH, a cluster for biotechnology and pharma, could provide his network for our tasks, if there are any ideas in the pharma-related field.

MDP, Wolfgang Mayer

The company MDP is specialist for decubitus prophylaxis founded from clinical personnel. Mr. Mayer could support the project consortium with his contacts to physicians.

MED-EL Innsbruck

MED-EL produces chochlea-implants. They have continuous clinical trials in the university hospital of Innsbruck. If a project idea will come into the phase of a clinical trial, MED-EL can support the Health Technology Cluster with Know-How in this field.

Human Technology Styria

Discussion with cluster manager Dr. Robert Gfrerer
Human Technology Styri is a politico-economic initiative which sets out to boost the competitiveness of Styrian companies, institutions and scientific bodies working in the field of human technology. The cooperation in economics, research and research promotion will provide a guarantor for the future success of businesses.

HTS can provide insights in their way of creating synergy between different sectors. Furthermore, the MedUni Graz is one of the three university locations in Austria with an innovation transfer center, which could also be beneficial for InTraMed.

Proficon

Proficon is a professional company for cleanroom cleaning and training for example surgical suites in hospitals in Austria and Germany. Moreover they have set-up a professional Academy. Their customized training courses for cleanroom personnel are used by different groups in the field of cleanroom – from hospitals to medical industry. They are able to bring in their wide range of experiences in this special area and important contacts to their target group.

ÖRRG

The Austrian Cleanroom Association ÖRRG provides within its members a know-how transfer platform for cleanroom companies as well as hospitals. Discussion about the extraction of target groups within the cleanroom community was performed.

AKAtech Frankenmarkt

AKAtech is a cable confectioner and developing company. The CEO is member of the advisory board of the Cluster. The company has a vital interest in innovative ideas from clinics as they work very closely with hospitals in the field of diagnostics and devices. AKAtech supports the project with know-how and contacts to target groups.

BMP Labor für Materialprüfung

BMP is a service provider in the field of biocompatibility and cell testing for medical devices such as implants/ explants, fluids etc. BMP holds expertise to clinics as they support clinical trials and in vito tests. BMP can support project ideas coming out of the innovation workshop with know-how as well as contacts to clinics.

Lisa Vienna Region

Mag. Colette Zazjal
Mrs. Zazjal is cluster manager in the field of medical technology and presented results of a study “shared core facilities in hospitals” which can be useful for the project. Furthermore, a discussion about infrastructure and potential of innovation transfer in the Vienna region took place. Mrs. Zazjal is willing to share her expertise with the project team as well as to promote the project and its results in her region.

3. F&E

Fachhochschule Linz

Discussion with Prof. Dr. Schrempf and Prof. Dr. Mayr, Mag Erich Mayr about the IntraMED-C2C concept was performed. The access way to “Fachhochschule Linz” will be very easy. If there are any new ideas or new innovation-potential, they can support the SMEs in the tasks (eg. medical product development). The “Fachhochschule Linz has also good contacts to clinic personnel.

BioNanoNet, the Austrian network for nanotechnology

Discussion with the network manager, Andreas Falk
The BioNanoNet GmbH has the clear aim of driving innovative interdisciplinary research by supporting the cooperation and synergy of collaboration, to initiate national and international research projects in the area of medical and pharmaceutical research in nanomedicine and nanotoxicology and to set up and coordinate projects.
For IntraMed, the expertise of BioNanoNet in the field of transfer between research institutions and companies is an interesting impact.

Research Center for Pharmaceutical Engineering

The Research Center Pharmaceutical Engineering GmbH (RCPE GmbH) is an interdisciplinary research institute in the area of pharmaceutical process- and product-development in Graz. The RCPE focuses on the development and production of pharmaceuticals using rational, science-based methods derived from a mechanistic understanding of relevant phenomena at all scales.
RCPE works in a triple-helix-structure with companies, R&D bodies as well as clinics for pharmaceutical process- and product innovations. For InTraMed, RCPE can provide expertise in the combination of different sectors and in transfer facilities.

Mag. Sabine Embacher

Ms Sabine Embacher from the cinic trial center from Innsbruck presented the ways from beginning to end of a clinical trial. There are many clinical trials which are supported by Ms. Embacher and so she has contacts to the clinical head departments, which the Health Technology Cluster can benefit from it.

PGA Innsbruck

PGA is specialist for preventive tasks for the health care sector. If there is an idea in this sector, they can support the SMEs as R&D institution with a scientific evaluation.

Also one trial for an innovation workshop was established in the “Akh Linz” in the field of telemedicine. The idea from the hospital was to send patient data via electronically way to the homes for elderly.
In a first step this workshop was held with the management of the Akh Linz, the R&D department of the University for Applied Sciences of Hagenberg, the Upper Austrian health insurance (OÖGKK) and the Health Technology Cluster (see Agenda).

Agenda

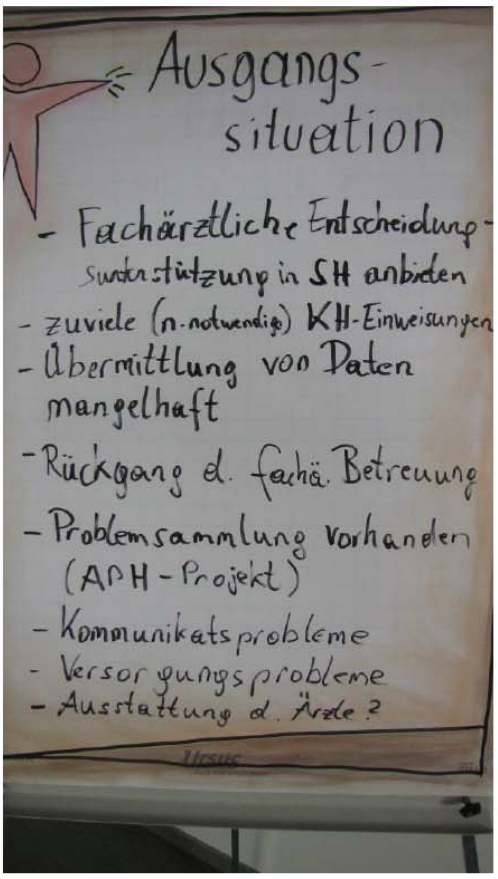
Thema:	Innovationsworkshop „Telemedizin Akh Linz mit SH Spallerhof“		
Datum:	19.04.2010, 10.00 Uhr	**Von:**	WIT
Ort:	Besprechungszimmer Automobil-Cluster TechCenter Linz, Hafenstraße 47-51 Bauteil B, 4. Stock	**Version:**	1.0
Teilnehmer:	Dr. Heinz Brock, MBA, Ärztlicher Direktor AKh Linz Dr. Johann Schalk, MPM, SZ der Stadt Linz Mag. Franz Kiesl, OÖGKK DI Dr. Herwig Mayr, FH Hagenberg DI Dr. Werner Christian Kurschl, FH Hagenberg Mag. Dr. Josef Altmann, FH Hagenberg DI (FH) Philipp Wittmann, Gesundheits-Cluster		
Dzt. entschuldigt		**Moderation:**	WIT
		Protokoll:	WIT

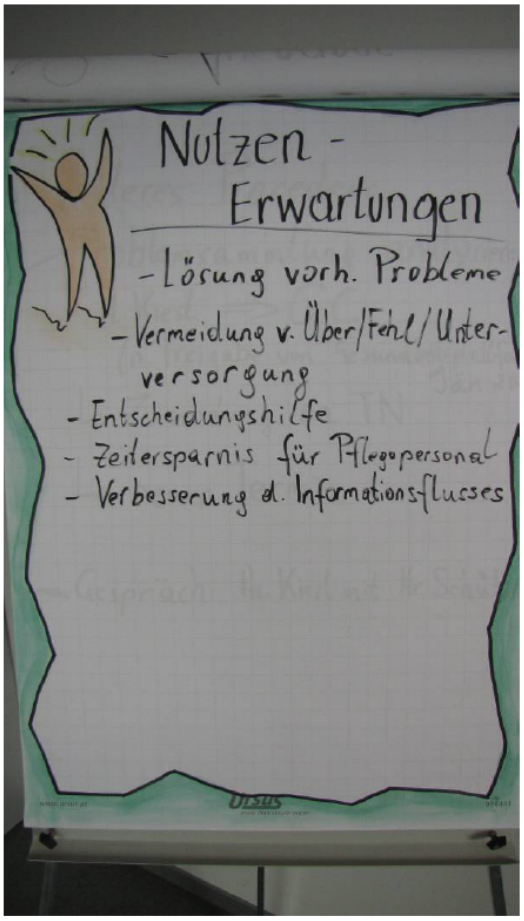
TAGESORDNUNGSPUNKTE	Uhrzeit
• **kurze Vorstellrunde**	10.00
• **Erörterung Ausgangssituation/Problemstellung der einzelnen Institutionen**	10:15
• **gewünschter Nutzen - Einsatzmöglichkeiten – Erwartungen an eine telemedizinische Lösung**	10.30
• **Kurzvorstellung Kompetenzbereiche/Projekte FH Hagenberg**	11.00
• **Ansatz zur Realisierung (inhaltlich/zeitlich) zu einer telemedizinischen Lösung**	11.10
• **weiteres Procedere**	11.50
• **Ende**	12.00

The first results can found in the following minutes. The process to the solution is still going on and will be useful for the preparation of the action plan in WP4.

Fotoprotokoll

Thema:	Innovationsworkshop „Telemedizin Akh Linz mit SH Spallerhof“	
Datum:	19.04.2010, 10.00 Uhr	**Version:**
Ort:	Gesundheits-Cluster	
Teilnehmer:	Dr. Heinz Brock, MBA, Ärztlicher Direktor AKh Linz Dr. Johann Schalk, MPM, SZ der Stadt Linz Mag. Franz Kiesl, OÖGKK DI Dr. Herwig Mayr, FH Hagenberg DI Dr. Werner Christian Kurschl, FH Hagenberg Mag. Dr. Josef Altmann, FH Hagenberg DI (FH) Philipp Wittmann, Gesundheits-Cluster	**Verantwortlich:**
Verteiler:	w.o.	**Protokoll:** Wittmann

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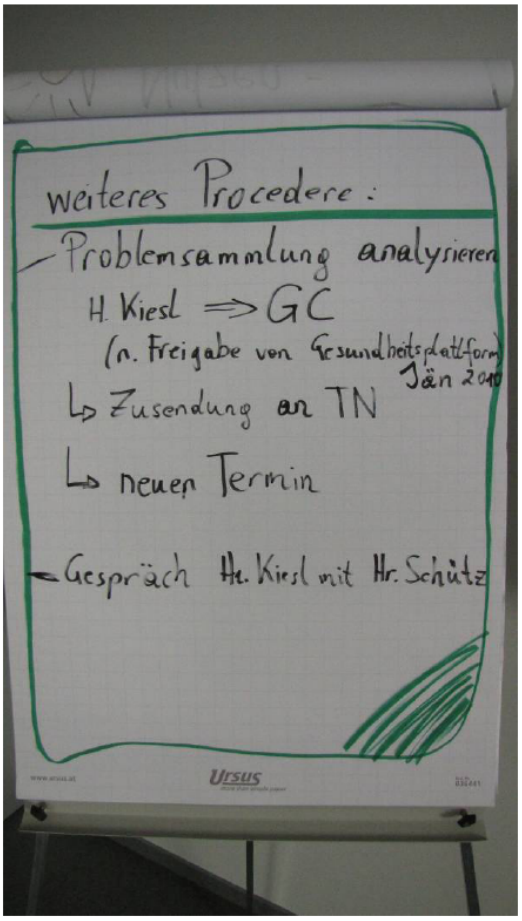
- Lösung vorh. Probleme
- Vermeidung v. Über/Fehl/Unterversorgung
- Entscheidungshilfe
- Zeitersparnis für Pflegepersonal
- Verbesserung d. Informationsflusses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Gespräch Hr. Kiesl mit Hr. Schütz

PP4: TIS innovation park, Italy

In the Province of Bolzano there is a difference between the public hospitals and the private infrastructures. In the first case the hospitals are not able to affect directly the process of innovation transfer since it depends mainly on the strategic decisions of the health department of the Province of Bolzano. When a hospital has a new innovative idea it must ask to the health department which decides whether or not issue a “call for tender” for developing such idea.

On the other hand, private clinics in the Province of Bolzano have a different approach to innovation and know-how transfer. An example is the approach adopted by the Bonvicini Clinic. This private clinic discusses the new ideas with the TIS innovation park and normally provides the implementation to small enterprises of the Bolzano region. The feasibility study is done by the TIS innovation park in cooperation with the clinic. During this phase TIS together with the clinic will define in detail needs, how they can be met and what the envisaged costs are. After the feasibility study the clinic will decide about the implementation of the purposed solution. During the implementation TIS creates and coordinates the working group including all the enterprises involved in the project. The clinic has not an active role in the research and development process which is outsourced.

PP5: Lower Silesian Voivodeship, Poland

There are no identical completed or still running projects at the European, national, or regional level. But there are some already existing cooperation’s between clinics and companies, which will be explained in the following.

For example the ***Working Group for the Innovation in Health Care*** is a group of scientists, public health experts, representatives of public and private health care, and patient representatives and manufacturers of modern medicines and medical equipment.

The Group was established to improve access to modern methods of therapy in Poland by offering system solutions which can help in reforming the health care system. In frame of the Working Group activities for the Innovation in Healthcare at the Polish Academy of Sciences a debate was held in 28 September 2009. It was attended by representatives of this Group and representatives of the Ministry of Health, Agency for Health Technology Assessment (AOTM), eminent doctors - clinicians and health experts. The debate was related to innovations in diagnosis and treatment of chronic diseases. This is not the same subject as Innovation transfer in medical sector from Clinics to Companies, but it was estimated that by 2025 the number of diabetes will reach 324 million, which makes that this disease is called civilization. Similar situation is in diagnosing colon cancer and rheumatoid arthritis. According to the medical and the political community these chronic diseases are the result of ageing population in Poland (and other countries in Central and Eastern Europe). The ageing population is one of the major challenges of the future of our country and Europe. It will require changes in many paradigms - including the health care.

- The consequences of the health system and socio-economic process of aging population are more chronic diseases of civilization, and disability and increase long-term care need.
  - Action is needed to promote healthy aging.
- It is necessary to introduce systemic changes (legislative, organizational and financial) to enable the inter-sectoral collaboration for health promotion.

- Nutrition and feeding programs in kindergartens, schools and hospitals require precise control not only on grounds of hygienic criteria but also in terms of food quality and health.
- The public media should include health education to the same extent that advertisement of medicinal products and dietary supplements.
- Elderly people should have the same access to modern methods of treatment.
- Access to treatment should be equal in all provinces.
- The Agency for Health Technology Assessment, in addition to the analysis of efficacy and safety, and cost-effectiveness analysis and the impact on the budget, should also look at the impact on patient quality of life and take into account indirect costs.
- Effective and cost-effective health-management in the health sector requires adequate electronic information systems, among other things, about their patients (patient records), which especially in the case of the elderly in many diseases at the same time allow for a more integrated way of treatment.

Local networks/ cluster between clinics and companies are based on the ***Cluster "Medicine of Poland South-East"***, which is the first in Poland, a unique medical cluster established in 2007. 45 parties joined this cluster from five provinces of south - eastern Polish province: Malopolskie, Slaskie, Podkarpackie, Lubelskie and Świętokrzyskie. The cluster is supported by business support institutions, universities, local government authorities and government bodies.

Wroclaw Medical Science and Technology Park is an initiator and coordinator of a new initiative called "National E-Health Cluster." This cluster project focuses on themes of modern ICT in health care, both in management and in terms of telemedicine systems to support patient care.

The ***National E-Health Cluster*** was established in February 2007 to solve these problems and ensuring their effectiveness. Cluster focus a wide range of experts representing all relevant socio-professional groups ranging from physicians and health care facilities directors and ending with the academic authorities of schools, regions and Wroclaw city and the single payer of medical services of the National Health Fund.

The Cluster has the objective of creating the Lower Silesia leading country region in the implementation of modern IT technology in the medical industry, increasing competitiveness of enterprises, optimizing the costs of diagnosis and treatment, as well as modernizing the management of health services:

- activation of cooperation in the medical, pharmaceutical and related industries,
- creation of new jobs,
- influx of foreign investors in the medical industry, pharmaceutical, IT and related industries,
- development of small and medium-sized enterprises based on innovative medical technologies, pharmaceuticals, IT and some medical
- increase the potential of science and R & D resources of universities and entrepreneurs,
- increase the competitiveness of regions,
- extending the offer of medical services through the implementation in the new telemedicine services,
- Reduction of maintenance costs of medical services by submitting doctor.

Participation of universities in the cluster project as initiators and implementers will be supported. This will allow the use of scientific potential (know-how) of higher education while providing opportunities for funding research and development. This includes a number of advantages:

- cooperation with medical and pharmaceutical industry,
- development of IT and telemedicine applications in medicine,
- use of new databases, including telemedicine,
- preparation and sale of patents, licenses, know-how to companies
- implementation of new research projects and business
- to support innovative projects of university staff by providing infrastructure Park
- university staff participation in training, seminars, international exchanges and other projects related to the activity of the Park,
- support the development of entrepreneurship among students and university staff.

Support for companies in the National E-Health Cluster:

- improve competitiveness by reducing operating costs (transport costs, costs for infrastructure, capital costs)
- the possibility of obtaining grants from the EU project affiliated companies in the cluster,
- use of highly concessional terms of the training system of "distance" through the Internet (training of educational points)
- use of ancillary services (business consulting, access to know-how, legal services)
- opportunity to support entrepreneurs during the start-up,
- improve the image of marketing companies
- Co-operation and exchange of experience between companies.

PP6: The John Paul II Hospital, Poland

In Malopolska province medical technology transfer to industry is not standardized and there is no uniform approach to this issue.

The InTraMed-C2C project is unique in its assumptions and scope. In Malopolska province this type of projects has never been implemented, either with European, national or regional support. The achievement of InTraMed-C2C goals will translate into significant changes in the current situation. Its unique character will provide a breakthrough in the hospital's organizational culture, which at present does not include innovation management systems. It is a serious gap in hospital systems as R&D results are not implemented by the business on a wide scale.

The cooperation between hospitals and SMEs concerns mainly those aspects which have an impact on quality improvement of medical services. Most projects are realized jointly with IT companies, pharmaceutical industry, enterprises and construction companies. Partnership regarding nutrition, maintenance etc. is also important. There is no distinct tendency to transfer medical technology to industry.

However, hospitals undertake measures to standardize medical services. These efforts usually take the form of partnership with external companies and other activities. It is a rising tendency that hospitals implement ISO standards in total quality management. Every effort is made to be accredited by the Center for Quality Monitoring in Health Care, thus confirming

the highest standards of care and patient safety. Other initiatives such as No Pain in the Hospital or Baby-Friendly Hospital are also undertaken to assure the highest degree of professional care. These activities send a strong signal that hospitals are open for development and cooperation and thus a positive environment is created in which the assumptions of the InTraMed-C2C project acquire validity.

In Malopolska province there are three clusters which focus on cooperation between healthcare institutions and industry. They are:

- **The Medicine of Poland Southern-East Cluster** – is formed by 45 partners from the Province of Malopolska, Silesia, Podkarpackie, Swietokrzyskie and Lubelskie. The group includes enterprises in the field of healthcare and medical tourism, research institutes, manufacturers of medical equipment and software, spas, wellness centers, cosmetic centers, IT companies, consulting companies, tourist companies, marketing agencies, PR agencies and local government agencies. The goal of the cluster is to establish coordinated health care, comprehensive medical services and medical tourism services using the most advanced and innovative technology.

- **The Interregional Cluster of Innovative Technologies „MINATECH“** – is the common initiative of the Province of Malopolska, Podkarpackie, Silesia and Swietokrzyskie regarding innovative technologies in the field of microtechnology, nanotechnology and biomedical engineering to concentrate the potential for accelerating the development of modern technologies and their implementation in everyday practice. The Cluster promotes rationalization of intellectual and material potential through building an environment of cooperation between universities, research institutes, local governments, enterprises, development agencies, associations and foundations and through increasing competence of partner regions. Partners are local governments, universities, enterprises and business related institutions.

- **The Cluster LifeScience Krakow** – of 57 partners 30 represent companies in the field of life science (biotechnology, pharmacy, medicine, nutrition and environment), consulting firms and other local government entities. The Cluster carries out its activities in three areas:
    - Building a network of collaborators to assure effective ties and making use of the existing potential in the market: people, companies, universities, research institutes, business related institutions, local and regional governments
    - Supporting entrepreneurship and innovation and building an environment of effective commercialization of R&D results
    - Pooling and developing resources and competences to assure more effective use of existing resources and chances of evolving innovative and knowledge-based economy

The cooperation between hospitals and clusters promoting innovation of technology is especially important because of the diversity of projects. The participation of universities and companies in R&D projects facilitates sharing experience, knowledge and scientific results. However, projects related to medical technology transfer to industry have not been carried out so far.

Apart from clusters there are also business related institutions which cooperate with hospitals in Malopolska:

- **The Medical Technology Transfer Center and the Technology Park Ltd.** – was established in 2007 by the John Paul II Hospital in Krakow having 100% of the share capital of the Center. The company was a response to demand formulated by the

scientific and research circles and by industry in order to initiate and coordinate cooperation of both sectors. The John Paul II Hospital in Krakow is the first institution of the health sector in Poland that has established a company of this type. The scope of activity is as follows:

- commercialize inventions and research results obtained by science and research institutes
- promote their intellectual and infrastructural potential
- support innovations and cooperate with industry, especially medical and pharmaceutical
- generate research and translate its results into technological innovations to provide medical services
- protect intellectual property, coordinate commercialization of innovations and support to obtain funding for innovative projects

The strategic goal of the Center is to establish a technological and scientific basis i.e. Technology Park being part of the John Paul II Hospital in Krakow to facilitate knowledge and technology transfer between research institutes and industry. The Center developed also internal regulations for the management of intellectual property at John Paul II in Krakow. It is the first instance of intellectual property regulations in a healthcare institution in Poland. The process of implementation will end in March 2011. The Center for Medical Technology Transfer Technology Park Ltd. has obtained external funds as part of the project “Innovations – Hospital – Business – implementation of comprehensive intellectual property management regulations at John Paul II Hospital in Krakow” supported by the Ministry of Science and Higher Education under the headline “Creator of innovation – academic innovation support”. At present the Center is carrying out several projects funded by the European Social Fund helping people improve their knowledge of academic entrepreneurship, commercialization, financing innovations, protection of intellectual property, promoting science.

- **The Jagiellonian University Center for Innovation, Technology Transfer and Development of the Jagiellonian University** – based on a great intellectual potential of the University. The scope of activities is as follows:
  - Commercialization of research results
  - Building an environment of cooperation between the sector of business and science
  - Promotion of innovation and related issues
  - Intellectual property management (patents, internal regulations)

  Excellent technical resources and experienced teams provide the milieu for undertaking unique tasks and projects.

- **The Krakow Technology Park** – the main actors are the Krakow University of Technology, AGH University of Science and Technology and the Jagiellonian University. The main goals are as follows:
  - Development of advanced technology industry making use of R&D potential of universities and research institutions in Krakow
  - Creating an economic, infrastructural and organizational environment for national and foreign investors who declare to use and develop R&D potential of Krakow, especially in the field of advanced technologies

- **The Jagiellonian Center of Innovation Ltd.** – a university company established in 2004 which manages the LifeScience Park in Krakow. It aims at:
  - Improving cooperation between companies and institutions in the field of life science in the country and Malopolska Province

- Providing services based on resources of the Jagiellonian University
- Participating in capital investments (innovative projects and companies)
- Promoting Krakow as a site for developing life science in the field of biotechnology, biomedicine, chemistry, pharmacology, biophysics, physics and environment

The Jagiellonian Center of Innovation Ltd. has established a daughter company - **JCI Venture Ltd.** which serves as the seed capital fund for high risk projects in the field of life science in their first phase of development. The goal of the company is to establish 11 innovative entities which will use the model of R&D commercialization.

- **The Malopolska Agency for Regional Development S.A. (MARR)** – was established in 1993 to support entrepreneurship in the region. As an institution it underwent modification to become a Regional Funding Institution and since 2001 it has been responsible for promotion and management of EU resources. Since January 2010 the MARR has been implementing capital investment projects – MedFund. This capital fund is used for commercialization of scientific results in the field of medicine. It will support technology transfer from R&D entities to companies established with the help of MedFund. The Project is addressed to companies which apply modern solutions and manufacture products or provide specialist services in the field of medicine, pharmacy, rehabilitation, sports or leisure. The Project will end in December 2013.

There is cooperation between hospitals and companies, but it is not initiated upon analysis of scientific achievements in the healthcare sector. The assumptions of the InTraMed-C2C project provide a missing link in the approach to medical technology transfer to industry. The existing network of ties between hospitals, companies and clusters in Malopolska may provide a platform for further collaboration and project implementation.

PP8: Regional Development Agency of Gorenjska, Slovenija

3.1.3. Analyse of existing approaches –projects + 3.3.1. evaluation of clinics

University Clinic Golnik; pulmonary, allergic and other interna ldeseases

Research labs;

Cytology and Pathology Laboratory cytology ;(6,000) and histology (2,000) specimens, mostly for diseases of the lung, mediastinum, chest wall, pleura and for allergic diseases.

Laboratory for Clinical Immunology and Molecular Genetics; is one of the top-level laboratories of its kind both in Slovenia and internationally. Five employees provide up-to-date standardised immunological and genetic diagnostic testing of pulmonary and allergic diseases, and perform hypersensitivity tests, immunological, serological and genetic tests, autoimmune disease serology tests and flow cytometry.

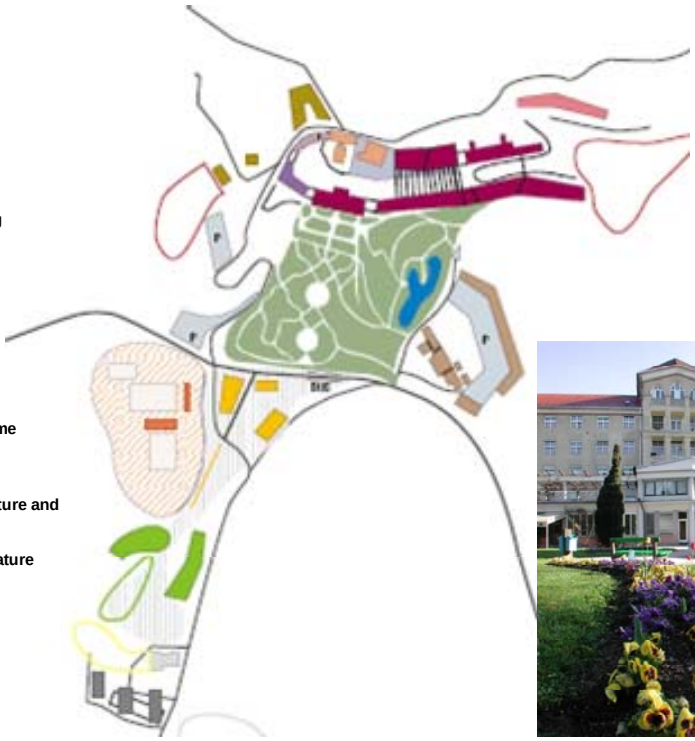
Laboratory for Clinical Biochemistry and Haematology; carries out the most basic and the most complicated assays in clinical biochemistry and haematology

Laboratory for Mycobacteria diagnosing, treating, and controlling tuberculosis

Laboratory for Respiratory Microbiology; respiratory specimens processed.

Programming scheme

- Hospital, complex diagnostic centre Golnik
- Educational programme, cafeteria, chapel
- Escort programme
- administration
- Entering and administration building
- Laboratories, services
- Science and technology
- Park and recreation
- Entering into the garage
- parking
- Technology and economical programme
- Economical business programme
- recreation
- Hotel with interested programme culture and education
- Spreading of kindergarten with nature
- New residential programme
- Spreading of the settlement



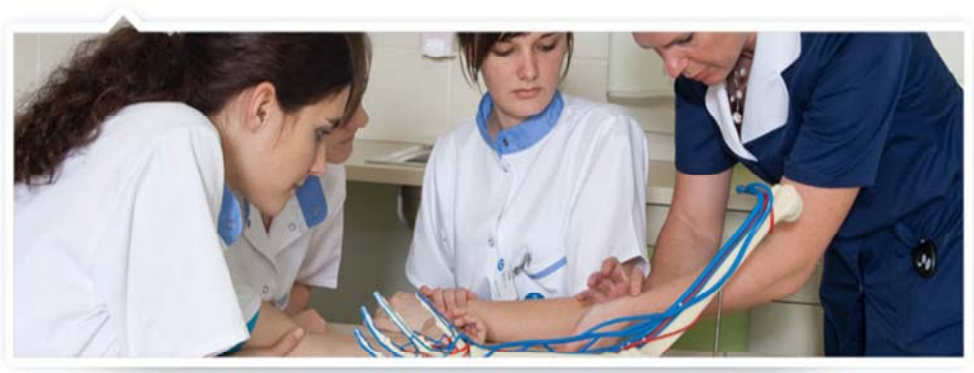
3.1.3. Analyse of existing approaches –projects + 3.3.1. evaluation of clinics
General gospital Jesenice –Primary care

•SURGICAL WARD
•INTERNAL MEDICINE UNIT
•DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY PRINCIPAL:
•ANAESTHESIOLOGY AND RECOVERY DEPARTMENT
•EITOS — Surgical Intensive Care Unit
•*OUTPATIENT DEPARTMENT*
•*PAIN MANAGEMENT DEPARTMENT*
•PAIN MANAGEMENT OF TERMINALLY ILL PATIENTS
•CHILDREN'S WARD
•DEPARTMENT OF RADIOLOGY
•DEPARTMENT OF PATHOLOGY
•LABORATORY DIAGNOSTICS
•PHARMACY
•SURGICAL AND ORTHOPAEDIC DEPARTMENT
•DERMATOLOGY DEPARTMENT
•OTOLOGY DEPARTMENT
•MEDICAL CARE
•MEDICAL CARE DEPARTMENT
•OUTPATIENT DEPARTMENT
•CENTRAL STERILE SUPPLY DEPARTMENT
•PHYSIOTHERAPY DEPARTMENT

•RESEARCH AND DEVELOPMENT
•(mainly area;travmalogy, abdominal kirurgy, kardiology, nefrology, support medicine

3.1.3. Analyse of existing approaches –projects + 3.3.1. evaluation of clinics
High school for healt care in Jesenice

Preparing programs and start up since 2007, established in 2010;
- **High school for nurses,**
- **Master degree in health care**



3.1.3. Analyse of existing approaches –projects + 3.3.1. evaluation of clinics
Institute for protection of health

social medicine with health statistics and health promotion, hygiene and health ecology with laboratory diagnostics of foodstuffs, water and other environmental parameters, and monitoring of infectious diseases with laboratory diagnostics of infectious agents in humans.

3.1.3. Analyse of existing approaches –projects + 3.3.1. evaluation of clinics
Technology platform; I Techmed

Main areas of work

physical medicine and medical rehabilitation
- **IPL technologies**
- **dermato-venerology**
- **ophthalmology**
- **dental programmes, development of implants (materials, technologies), infrastructural research**
- **preventive medicine**
- **health tourism programmes**
- **wellness programmes**
- **development of recombinant proteins**
- **knowledge of physical-chemical and biological properties of pharmaceutical compounds**
- **development and assessment of delivery systems**
- **development of biotechnological products**
- **research of new substances**
- **synthesis of generic drugs**
- **telemedicine and eHealth**

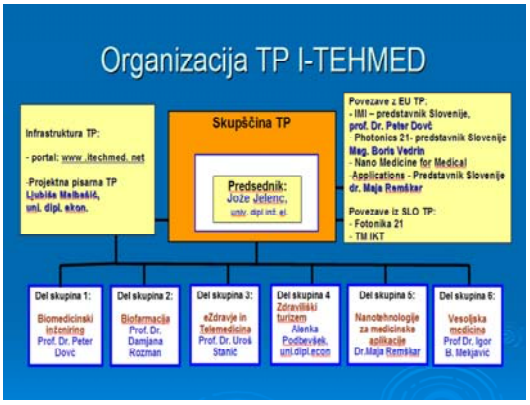
Main goals;

establishment of a technological platform for innovative and supporting technologies in medicine on a national and European level.

3.1.3. Analyse of existing approaches –projects + 3.3.1. evaluation of clinics
Technology platform; I Techmed – established 2005

Main areas of work

physical medicine and medical rehabilitation
- IPL technologies
- dermato-venerology
- ophthalmology
- dental programmes, development of implants (materials, technologies), infrastructural research
- preventive medicine
- health tourism programmes
- wellness programmes
- development of recombinant proteins
- knowledge of physical-chemical and biological properties of pharmaceutical compounds
- development and assessment of delivery systems
- development of biotechnological products
- research of new substances
- synthesis of generic drugs
- telemedicine and eHealth



Working groups;

Biomedicine engineering
Biopharmacy
E healtha nad Telemedicine
Health tourism
Nanotechnologies for medicine applications
Space medicine

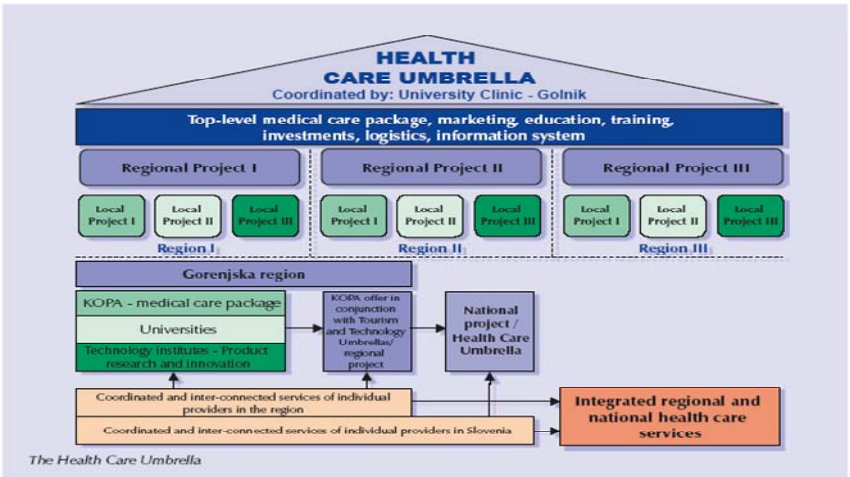
3.1.3. Analyse of existing approaches –projects + 3.3.1. evaluation of clinics
Technology platform; I Techmed

Main goals;

establishment of a technological platform for innovative and supporting technologies in medicine on a national and European level.

Preparation of healt hare umbrella

strategic involvement in regional/national development



The Health Care Umbrella

3.1.3. Analyse of existing approaches –projects + 3.3.1. evaluation of clinics

Technology platform; Fotonica 21 – established in 2006

TP Fotonika 21 is part of EU TP Photonics 21; 60 members

inital members; partly the same as I Techmed;
- **Iskra Techno,**
- **Iskra Medical,**
- **Optotek, Fotona,**
- **University clinic Centre in Ljubljana (Ofmalogy, Dermatology),**
- **University in Ljubljana(Faculty for mechanical engineering, Faculty for electrotechnic);**

Very good cooperation beween I Techmed and Fotonika 21.

Conclusions and motivation scheme

Conclusions;
- **Innovation transfer; very vivid KOPA Golnik**
- **Important role; Technology platform I TECHMED (Sme-s interested)**
- **Vivid interest also from General Hospital Jesenice (part of TEPOS; certificate)**
- **Possible extension of contact to University clinical centre in Ljubljana and**
- **Medicine faculty in Ljubljana (strong existing relations)**
- **No competence centre so far established**
- **Main issues discoussed with clinics; very open research fields; legal issues mostly "prevent" the transfer**

- **Motivation scheme;**
- **Based on knowledge of experts in the region; R&D researchers, management of hospitals, directors of SME-s and support institutions (e.g. schools, health care researchers,…)**

PP9: CVVI - Centre for research, innovation and regional development, Czech Republic

- **Hospital structure (hospital = hospital + clinics)**
  - Public hospitals
    - University Hospitals (Faculty Hospitals)
    - Specialized Hospitals
    - Regional and “Small area Hospitals”
  - Private hospitals (aprox.20 in CZE)
    - In Central Bohemia – “Small area hospitals” – pilot actions for transformation of ownership – in reality a kind of PPP model
    - Specialized private hospitals

- **Innovation leaders in Health industry**
  - RTDs
    - Academy of Sciences of Czech republic
    - Medical universities
    - Specialized institutions
  - SMEs and other private institutions
    - Becoming important part of innovation circle in sector
  - University hospitals
    - Medical universities – in fact the IP owner is university
  - Hospitals at need identification
    - Main role is as identification of needs

- **National approaches and frameworks**
  - Health innovation policy is not set up
  - Topic particularly attracted through policies:
    - Czech national health policy
    - Czech national program of public health
    - Czech national innovation policy
  - Topic supported by policy tools:
    - i.e. IGA MZ – national grant agency (MoH CZE) – particularly also supporting innovation transfer projects; other grant schemes available
    - EU structural funds – financial schemes (i.e. OPPI – primary , OPZP and OPVK)

- **Regional approaches and frameworks**
  - Regional Health innovation policy is not set up
  - Topic particularly attracted through policies:
    - Regional Mid-term development plan for health and social services
    - Regional Innovation Policies including RIC concept

- **Regional initiatives**
  - MedChemBio cluster initiative
    - Olomouc region
    - www.medchembio.cz
    - Strategic focus: research and testing of basic essences, medicaments and new diagnostic methods
  - NanoMedic cluster initiative
    - Pardubice region
    - www.nanomedic.cz

        - Strategic focus: research, development, production and commercialization of products for wound healing, tissue substitution and devices for specific drug delivery, gene therapy
    - CzechBio
        - Central Bohemia region
        - www.czechbio.org
        - Strategic: biotechnology

- **Transregional project level**
    - I4W project (mini-program Interreg IVC)

        - Through the mini-program implementation directly addresses the policy or policy tools improvement in welfare area particularly through innovation transfer
        - Regional/capacities overlapping with IntraMed-C2C project – ClusterLand – TMG, RERA – CVVI (CzechDEX)
        - Possible cooperation also under 3.1.4.

PP10: Budapest University, Biomedical Engineering Knowledge Centre, Hungary

Wording

We interpret *approach* as any kind of "help" given to a newborn idea toward its adulthood. In this context an approach may be:

- an – electronic or printed – **medium**, providing an opportunity to present the actors of the innovation process, to organize conferences and to inform the partners (i.e. SMEs and clinics) about the events focusing to the new ideas, to follow-up the life-cycle of an innovation;
- an **innovation centre** at a medical university joining group of ventures and projects which wishes to facilitate innovation processes, to contribute to the collaboration between the university staff and the industrial partner;
- an organization to promote the creation, spread, transfer, adoption and the practical utilization of intellectual products, as a professional and copyrighting partner in the innovation process;
- a national entity implementing Hungary's science, technology and innovation policies;
- a group of SMEs dealing with the development, production, sale and servicing of Hungarian medical devices, products
- a non-governmental association grouping the IT oriented enterprises acting in the health sector

A medium: IME - Journal of Health Managers

This **monthly periodical** gets to the management of the hospitals and polyclinics, the economic, financial, nursing and information specialists, the local governments representing the owner's circle, the private investors, the guiding authorities influencing the health policy (Ministry of Health, National Health Assurance Found, national institutions, professional associations).

The philosophy of the journal is to present the new trends, approaches, financing techniques, information solutions and **innovations**.

In each year the editorial staff organizes 4-6 **professional conferences**, among others the *ICT in Health Care National Conferences,* which are the most relevant from the point of view of the innovations.

An NGO (non-governmental organisation): Hungarian Association for Innovation (MISZ)

The Hungarian Association for Innovation as a professional and employer's business federation focuses its activities on the economy stimulating role of innovation.

It was established by 30 member institutes in 1990.

The Association

- intends to promote the creation, spread, transfer, adoption and the practical utilization of intellectual products, so
- that the performance and the income generating potential of the companies and the Hungarian economy be increased,
- by making use of innovation the modernization and the development of economy as a result of it should be accelerated.

The objective of the Hungarian Association for Innovation is that in the course of research, development and design the ambition of permanent renewal should be a genuine resource for the Hungarian economy.

A national agency: National Office for Research and Technology)

The mission of the National Office for Research and Technology (NKTH) is to promote Hungarian and international R&D&I activities with links to Hungarian R&D&I

NKTH plays a key role in elaborating and implementing Hungary's science, technology and innovation policies.

NKTH was founded in 2004.

The Office is a public body with full powers and independent budget, it is supervised by the Ministry for National Economy.

A medical cluster: Cluster of Hungarian Medical Service Providers and Manufacturers

Established in 2006 by the members of the Professional Society of Hungarian Medical Service Providers and Manufacturers (1994).

Establishers are SMEs: manufacturing, developing, selling hospital and medical equipments, and providing related services.

50 members

Another NGO (non-governmental organisation): Hungarian Association of IT Companies (IVSZ)

- has been in operation for more than 18 years,

- has more than 300 members (besides all major multinational and telco companies one can find also the largest Hungarian ICT enterprises as well as local SMEs).
- a strong and effective lobbying force
- professional speaking partner for the policy makers and governmental actors
- Workgroups: eHealth, R&D…, Innovation Workgroup: methodology for the life-cycle of an innovation

PP11: University of Debrecen, Hungary

General overview of the region

Észak-Alföld Region has **significant research and development capacities** that promote intensive development of innovation-oriented technologies in the region. The region provides a solid R&D base, concentrated in Debrecen, Szolnok and Nyíregyháza, which attracts companies with high quality requirements. At a national level the region holds the second position regarding R&D expenditure and it is the third concerning the number of R&D personnel. Institutions of tertiary education have age-long tradition in the region, with specialized institutions among them. **University of Debrecen is the major and dynamically developing university centre of the region.** College-level education is available in Nyíregyháza, Szolnok, Hajdúböszörmény, Jászberény and Mezőtúr. The importance of research and development is also reflected in the Regional Innovation Strategy (RIS), identifying three main focus areas for RTD activities: health, ICT and agriculture.

1. *Main indicators of the Észak-Alföld Region*

Area	17 729 km2 (19,1%)
Population	1 552 704 people (15,3%)
Population density	87 person per sq. km
GDP per capita	4 248 EUR
Unemployment rate	6,8%

The University of Debrecen (UD) plays a significant role in the everyday life of the Észak-Alföld Region. It is the biggest higher educational institution in Eastern-Hungary and its **Medical and Health Science Center** (UD MHSC) **is one of the largest clinics in Hungary**. The 15 faculties of the University of Debrecen form 3 centers - those of medical sciences, agricultural sciences, and arts and natural sciences. The centers also comprise research institutes, research groups and other auxiliary units aiding education.

2. *Main indicators of the University of Debrecen*

R&D income per year	70% of the staff ~17 million €/year
Number of research teams	244
Number of PhD schools	24
Number of students per year	30 000
Number of PhD graduations per year	150

Innovation and technology transfer has recently been in the focus of the most significant Hungarian universities' innovation strategy. The University of Debrecen actively supports the utilization of the innovative ideas, products and services developed by the researchers of the university since 2005 by setting up the **Knowledge and Technology Transfer Office** (UD TTO) of the University.

The mission of the UD TTO is to **facilitate the transfer of research results** achieved at higher education institutions into business and industry, as well as to **disseminate innovation culture** among the citizens of the University.

Completed or still running projects (European, national, regional level);

There are many completed and ongoing projects related to innovation and technology transfer at the University of Debrecen.

3. The most relevant innovation and technology transfer related projects of UD

	Title or acronym of the project	Short description of the project
Completed national/ regional projects	**Genomnanotech - Debrecen Regional Knowledge Center** (GND RKC): Leading Edge Technologies in the Debrecen University Region: Applications in Genomics, Nano- and Biotechnologies	GND RKC has set the goal that the results of its basic research should lead to industrial restructuring and increasing income for the region and the university. The interdisciplinary activities of GND RKC are aimed to utilize and commercialize, with the help genomics, nano- and biotechnology, products of translational research which can improve the quality of life.
	Establishment of the Bioincubator-center Reference incubator centre for proteomics, fermentation and biochemical technology development and service at the University of Debrecen	The goal of this project was to extend the network of the core facilities at the University of Debrecen by laboratories using modern protein, bio-analytical and fermentation methods in order to support R&D with industrial applications. The business plan was based on the incubation of small enterprises in the region and in the country specialized in doing research and developments for the biotechnological and pharmaceutical companies.
	Evolving the service-portfolio of the Bioincubator-center of the University of Debrecen to increase the competitiveness of the biotech SME-s	Several SMEs focusing on biotechnological development have been set up at the University of Debrecen. The goal of this project was to create an innovation service package provided by the already operating Bioincubator-center at the university. The services were planned to support the incubated companies in the starting phase of their life cycle: from the innovation idea to the break-even point.
Completed European projects	**Coordination of R&D&I policies and their coherences with other policies in Newly Acceded Countries (COGNAC)** EU FP6	The project aimed to support the regional dimension of the European Research Area by increasing the effectiveness and coherence of the RDI policies, focusing on the public research spending and policy mixes and comprehensively the SMEs and research target areas. The key priority of the project was to directly enhance the research and development issues by the exploitation of additional use and possibilities of the parallel projects by the coordination of the regional policy making processes (RIS-NAC, Structural Funds), so that the added-value of the internal/final results (deliverables) and the synergies of the parallel running projects and activities are exploited.

Ongoing national/regional projects	**Knowledge and technology transfer at the higher education institutions of the Region Észak-Alföld** National project co-financed by the EU.	The main goal of this project is to create a complex technology transfer service portfolio for the higher education institutions of the Region Észak-Alföld. We aims to further develop the already existing technology transfer services of UD and spread this activity to the other two higher education institution of the region.
	Supporting Innovative Research Teams at UD National project co-financed by the EU.	The main objectives of these projects are to encourage and stimulate the innovation activities in the higher education institutions and to develop the research infrastructure of these organizations. Transnational research teams will be established and the quality and quantity of research cooperation between R&D institutions and companies will be enhanced.
Ongoing European projects	**FREE: From Research to Enterprise** Central Europe Programme	FREE project intends to contribute to regional development of Central Europe by setting up innovation systems capable of bridging between technical experts, researchers, entrepreneurs and administrations, policy makers included.
	INNOvation TRAINing IT Central Europe (INNOTRAIN IT) Central Europe Programme	INNOTRAIN IT has the aim to strength the performance of IT departments in European SMEs in order to stimulate IT based process and product innovations.
	Bio-CT: Biotechnological Common Tools EU FP7	This project deals with the necessity in the EU to build a system that enables entrepreneurs or academia Technology Transfer Offices to achieve, in the best conditions of rapidity and cost effectiveness, the Industrial Proof of Concept that enables a real economic valorization of Research achievements.
	AFRESH: Countering diet-related diseases through competitive regional food- and physical activity clusters EU FP7	This project aims at developing a research agenda for reducing diet- and physical inactivity-related diseases, such as diabetes, obesity, cardiovascular diseases and various types of cancer, by developing innovative products and services within the field of nutrition and physical activity.
	HEALTH TIES: Healthcare - Technological Innovations and Economic Success EU FP7	Health-TIES combines four of Europe's top region in biosciences, medical technology and health entrepreneurship. The partners are intending to maximise the impact of innovation and RTD for the benefit of health care.

Already existing cooperation between clinics and companies

Pharmapolis Innovative Pharmaceutical Cluster as a significant existing approach

The establishment of the **Pharmapolis Innovative Pharmaceutical Cluster** represents the general intensions of the economic sectors dominantly present in Debrecen and the stakeholders of the pharmaceutical industry as well as the City Council of Debrecen of County Rank, the Chamber of Commerce and Industry of Hajdú-Bihar and the University of Debrecen on the basis of which they wish to **cooperate on the promotion of industrial networking** supported by the makings of the region. The name of 'Pharmapolis' has been clearly apparent in the collaborations between the city and the university since 2005 when the City Council of Debrecen and the University of Debrecen together with several small and medium enterprises brought about the Pharmapolis Debrecen Ltd. This economic company together with the Richter Gedeon Pharmaceutical Company, which is the most important pharmaceutical stakeholder of the cluster, carry out closely aligned R+D activities in the field

–primarily – clinical researches. The name of 'Pharmapolis' is also used to refer to the Debrecen Pole Program.

The objective of the Pharmapolis Cluster is versatile; it wishes to **strengthen the less developed elements in the innovative chain of the Hungarian pharmaceutical industry** as it is required by the export interests of economic stakeholders and on the other hand, it also wishes to contribute to the improvement of European innovative capacities. They wish to reach these goals by adopting the pharmaceutically-specified elements of the European Technological Platforms.

The vision of the Pharmapolis pole cluster is to establish a remarkably outstanding pharmaceutical cluster even by international standards that considerably contributes to the **intensification of economic achievements** as well as to the further improvement in the field of employment. With its positive foreign effects the cluster has a favorable impact on Hungarian economy, too.

The statements laid down in the strategic and activity plan of the Pharmapolis Innovative Pharmaceutical Cluster is largely in line with the overall purposes of the Pole Program in Hungary.

- the promotion of the establishments of internationally competitive clusters
- specialization in **high value-added, innovative activities**
- **strong cooperation between the enterprises** in the interest of holding competitiveness on the long run, and additionally, **between city councils and universities**
- strengthening the regional central roles of pole cities thus supporting the development of their business environments and their general competitiveness in a broader sense

Due to the high number of research projects (and innovation and technology transfer related projects) of the UD and its Medical and Health Science Center there are **plenty of existing cooperation between clinics and companies**. Most of the cooperation are about joint research, drug testing, doing joint clinical studies, joint equipment development and equipment testing.

There are **five medical spin-off companies** operating at UD. The research activities of these companies are based on research results arisen at the University.

Medical spin-off companies at the University of Debrecen:

1. AVE-FON Ltd. – development of an audiovisual transcoder tool
2. Inno-Tears Ltd. – development of innovative eye drops, eye-diagnostics
3. Biomer Ltd. – research of telomerase enzyme
4. UD-Genomed Medical Genomic Technologies Ltd. – provides complex genomic services based on university-technology and infrastructure
5. Microimmun Ltd. – development of needleless vaccine technologies

Local networks/ clusters between clinics and companies

The *Pharmapolis Innovative Pharmaceutical Cluster* was set up in 2008 with 27 members. The cluster deals with pharmaceutical research, drug development, drug testing and clinical trials.

The **contacts between the pharmaceutical and the biotechnological enterprises** of the cluster strengthened by **cooperation with university experts and researchers** will reach

beyond a size that is necessary for competitiveness in Europe and through the development of **value-added, export-oriented activities** it will remarkably improve the competitiveness of the Hungarian economy on the whole. It will also add up to the development of universities and educational institutions as well as health-care and cultural services strictly in line with the purposes of the Pole Program.

In the course of R+D cooperation the Pharmapolis Debrecen Innovative Pharmaceutical Cluster puts a great emphasis on the **development of new innovative products** as well as getting around the results of R+D+I activities carried out by the member organizations in a wide circle. The Pharmapolis Cluster Ltd. acting as the embodiment of the Pharmapolis program as well as management of the cluster has clearly defined its basic principles; to **strengthen the pharmaceutical innovative chain** in Hungary; to establish and **operate internationally competitive platforms** and to develop the cluster of the particular branch. The most progressive unrivalled characteristic feature of the Debrecen cluster is that it has created a networking process of propulsive industry of national importance based on the pharmaceutical-biotechnological innovative axis – apparent in the cluster - connecting Szeged and Debrecen. As a remarkable endeavor among other Hungarian clusters it uniquely **combines the industry-developing efforts of universities, city councils, chambers, innovative university spin-off and start-up enterprises and middle and large enterprises** of considerable means.

Pharmapolis Innovative Functional Food Cluster has 31 members from which 20 are SMEs. The cooperation between the members started in 2008. The main **goal of the cluster is to develop healthy functional food for the population of Észak-Alföld Region** involving milk industry, fruit and vegetable producers, cereal industry and meat industry. The main knowledge base of Észak-Alföld Region is the University of Debrecen where the medical and agricultural departments cooperates strongly and launches joint R+D projects in the fields of drug development, innovative functional food development and “hungaricum” product development. Along these projects industrial cooperation have been formed with the active contribution of member companies of the cluster.

Thermal- and Health Industry Cluster is aiming to amend the state of health of the population of the region by doing health care related research, preclinical trials, biotechnology related research, research on thermal water of the region and developing wide range of wellness services. The cluster has 22 members.

Pharmapolis Science Park will launch its business in 2011. The science park is being set up as an affiliate of the Pharmapolis Innovative Pharmaceutical Cluster in an 8 000 square meter area in Debrecen. The main goal of the park is to provide **modern R&D&I services, incubation services, special laboratory services and modern infrastructure for biotechnological and pharmaceutical SME’s of the region** in order to develop new marketable products services.

PP12: Medical Valley EMN e.V., Germany

Within the Medical Valley innovation transfer from clinics to companies is not standardized and almost no distinguished approaches are visible. Having a look at the specific situation in Medical Valley it has to be distinguished between university hospitals and almost all other kinds of clinics.

1. The university hospitals located in the Medical Valley provide a structure for innovation transfer. Normally a knowledge and technology transfer unit offers full service for inventors to implement the innovative idea. The knowledge and

technology transfer unit provides support for setting up spin-offs, searches cooperation-partners from the industry and supports the inventors in all questions regarding IP. The knowledge and technology transfer unit accompanies the inventor during the complete innovation process.

2. The other public and private hospitals located in the Medical Valley in most cases have no specialized innovation transfer structure. Several approaches exist on how to deal with the topic of innovation management. In most cases the focus lies on process innovation.

    a. Due to § 135a of the German social security statute V[1] all clinics are required by law to have a quality management system implemented. In the framework of the quality management system most of the clinics in Medical Valley have implemented - under the directive of the clinical quality management - an employee suggestion scheme. In a number of clinics the employee suggestion scheme is included in a continuous improvement process (system can also contain patient inquiries, staff appraisals, evaluation systems for quality of care and hygiene, etc.)

    b. Clinical quality circles or quality conferences are used in different clinics for identifying inventions.

Besides, some clinics have implemented down-to-earth innovation transfer that closely depends on the clinical staff and the innovative culture of the clinic. In clinics where clinical staff can follow innovative ideas and discuss them with superiors the innovative climate leads to bottom-up innovation from the clinics that can also lead to IP participation. The insufficient innovation management structures will be equalized by personal efforts. This works, but efficiency is on a low level because limited structures within the clinics exist. Implementing structures would professionalize the exploitation of inventions from the clinic.

Even if the innovation transfer from clinics to companies is mainly centred in university hospitals currently no projects with the same focus as InTraMed-C2C exist in Medical Valley to support the innovation management in a broad clinical basis. Neither on European, national or regional level any initiatives exist in the Medical Valley. InTraMed-C2C is an outstanding project for the region. Innovation transfer from clinics to companies is not standardized and no distinguished approaches are visible within Medical Valley.

Of course manifold co-operations between clinics and companies exist. A total number of 180 companies dedicated to medical devices are located in Medical Valley. A high number cooperates with regional clinics. But in most cases the co-operation is not initiated by inventions of clinics. In most cases the co-operations are results of studies testing the medical devices in the clinical environment. And in most cases the co-operation is between the companies and university hospitals.

Just to name one example: The Medical Valley was recently selected as Germanys` leading edge cluster in the field of medical devices. More than 40 R&D projects from the region are funded under this framework. Each R&D project is implemented by a consortium comprising

[1] § 135a SGB V: Commitment to quality assurance

(1) Service providers are required to secure and develop the quality of services they provide. The services must correspond to the state of scientific knowledge and must be provided in the professionally required quality.

(2) Panel physicians, health care centers, licensed hospitals, providers of prevention services and rehabilitation measures and facilities, in which a supply contract pursuant to § 111a insists, are obliged in accordance with § § 136a, 136b, 137 and 137d, 1. to participate in cross-institutional quality assurance measures, which aim in particular on improving the quality of results and 2. to introduce and develop an internal quality management.

the value chain. So, in a large number of consortia clinical partners, especially the university hospitals are involved. The companies together with the R&D-institutions are responsible for research and development, the hospitals test the results.