



REGIONAL SYSTEM OF THE RELATIONSHIP

AMONG

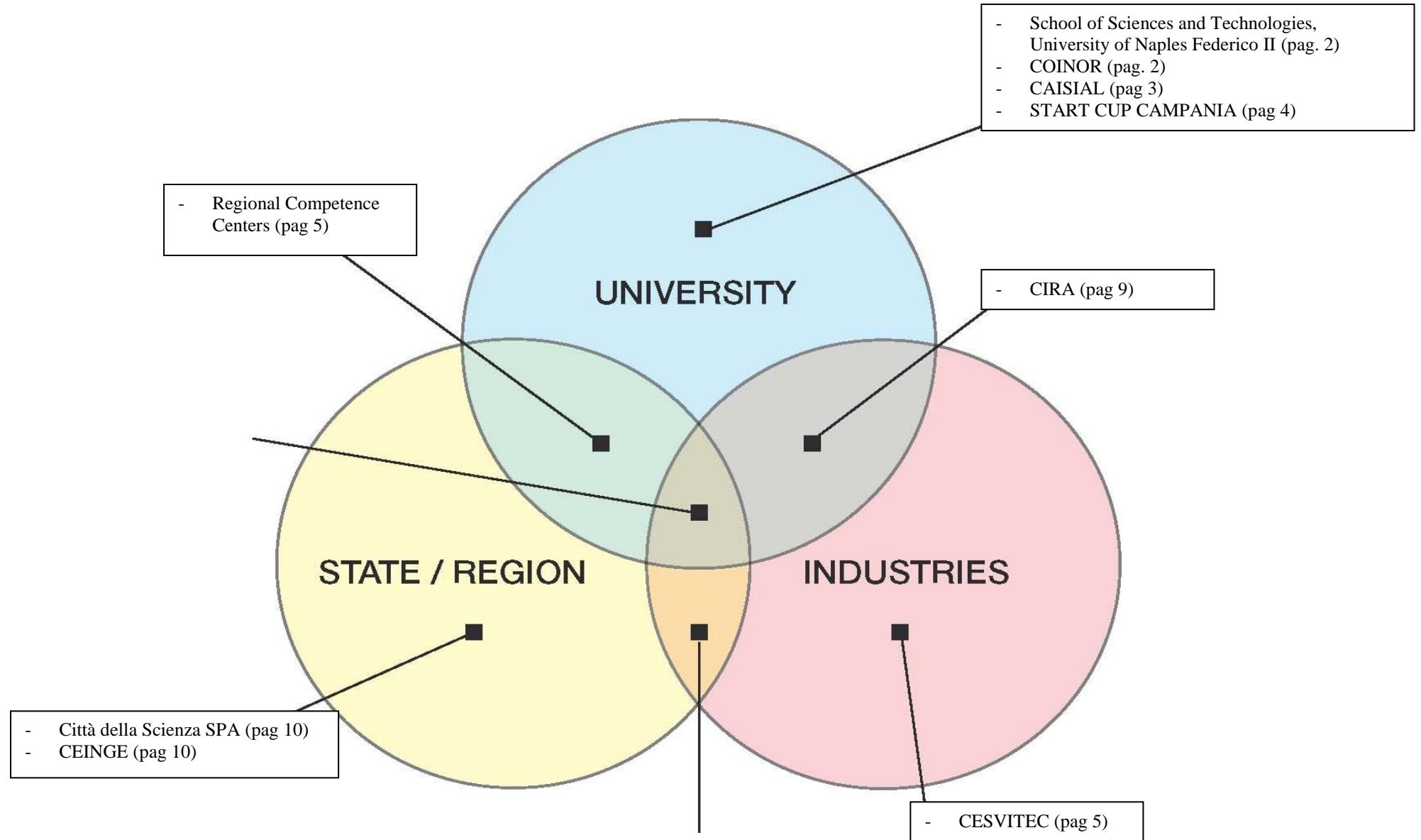
INDUSTRY - UNIVERSITY - STATE

(Practice - Intervention - Theory : PIT)

in the

CAMPANIA REGION

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1. UNIVERSITIES

The Schools of Sciences and Technologies of the University of Naples Federico II	<p>Aims of Schools of Sciences and Technologies are to decongest the structural, managerial and University administration, to increase flexibility and effectiveness in teaching activities and research, to reach the highest level of integration of resources, to enable the capacity to interact with the social and productive environment.</p> <p>To this end, the School:</p> <ul style="list-style-type: none">a) promote the development and integration of scientific and technological culture at all levels;b) promote and coordinate the activities of the research relating to the Pole by providing support and facilities needed;c) provide support structures and staff educational activities, paying particular attention to the promotion of all those learning activities that promote the diffusion of scientific and technological culture and the creation of tools for lifelong learning. <p><u>Structures</u></p> <ul style="list-style-type: none">-30 Department-9 Research Centers-213 Research Laboratories-3 Faculties: Architecture, Engineering, Science-3 Service Centers. <p><u>People:</u></p> <ul style="list-style-type: none">-864 Professors-416 Researchers-701 Technical Staff Employees. <p><u>List of Departments:</u></p> <p>Aerospace engineering. Architectonic and environmental design, Architectural history and conservation, Architectural technology and design, Biological sciences, Business and managerial engineering, Chemistry, Chemistry engineering, Computer science and systems, Conservation of architectural and environmental assets, Earth sciences, Electrical engineering, Electronic and telecommunication engineering, Energetics, applied thermodynamics and environmental control, new, Materials and production engineering, Mathematics, Mechanical and energetics, Naval architecture and marine engineering, Organic chemistry and biochemistry, Physics, Planning and territorial science, Structural analysis, design and mathematical methods in architecture, Structural engineering, Structural and functional biology, Transportation engineering, new</p>
COINOR	<p>Coinor – Centre of University Federico II for Communication and Organizational Innovation – is a staff centre and its aim is to exploit resources and competences of University Federico II into projects focused on communication and organizational innovation. The projects foster the development and the strengthening of synergies between the University and the external environment. Through the continuous exchange with the external environment, Coinor provides improvements of offered services and stimulates the active participation of University into the economic and social growth of all actors involved in the project.</p> <p>In brief, the projects, carried out by Coinor, focus on the following three areas:</p> <ul style="list-style-type: none">- communication area;

	<ul style="list-style-type: none"> - innovation area; - internationalization area. <p>The communication area: COINOR fosters topics, actions and experiences related to communication and organizational processes in order to enhance the culture of traditional and innovative communication. The key point is represented by techniques, methodologies and tools of communication which allow to manage and building systems able to joint resources and competencies of University and its partners.</p> <p>The innovation area: Coinor manages and coordinates projects related to improve the organizational action and processes of University and its partners. For this activities, an analysis of methodologies and techniques of management of organizations is carried out. Furthermore, it gives attention to knowledge management and innovation process to increase the value of resource and competencies of University and of territory.</p> <p>The international area: Coinor aims to develop and strengthen the role of University Federico II in an international context. Its goal is to foster the scientific and technological research and the development of human kowledge. The aim is to create an University able to play a key role in a international cooperation and in the value creation. To promote and international perspective, the University Federico II and other three ONU organization involved in ART program (support to territorial network for human development) created the center CIRLE, Center for International and Regional Cooperation for Local Economies.</p> <p>The organizational structure of Coinor presents a Manager and a Scientific Committee. The manager coordinates all activities of Coinor and he is responsible for planning and for financial and economic control. The economic and strategic guidelines are set by Scientific Committee which approves of annual activities plan proposed by the manager and set general criteria for funds utilization.</p>
CAISIAL	<p>CAISIAL is the Centre of Food Innovation and Development for interdisciplinary research in the Food Industry within the Università degli Studi di Napoli FEDERICO II. A team of expert food technicians work closely with engineers and business development specialists and market researchers to provide entrepreneurs and food enterprises with technical support for a new or currently produced food product.</p> <p>Services range from simple one to one practical education programs in which a food entrepreneur is given technical support and guidance to create, package or launch a single food product for a specific target market to the development and commercial launching of a full line of products for an array of markets. The people working within the Centre are internationally recognised experts in their respective fields and come together to tackle problems that require a combined approach embracing both the economic and food technological sciences.</p> <p>The mission of the professional activity of CAISIAL is to furnish the instruments necessary to make advances food industry through innovation. It is a unique incubator for new food businesses and the only urban-based Agriculture Experiment Station in the Italy.</p> <p>The activities are focused on knowledge development as well as on knowledge transfer and the application of knowledge. We are able to assist smaller food companies and not only who lack the resources to develop new products or companies</p>

	<p>of all sizes who want to pursue a process development investigation.</p> <p>CAISIAL provides specialist technical services in the areas of: added-value products, nutritional developments, process developments including use of food additives (colourings, flavourings and texture modifiers) market research assistance (screening of ideas for the appraisal of the technical-economic-financial feasibility. elaboration of business plan, brain storming of experts in order characterizing the new frontiers of food innovation, surveying on the data banks of new products launched on the market, gap analysis), sensory and consumer testing, package engineering, realization of prototypes.</p>
Start Cup Campania	<p>Start Cup Campania is an official award promoted by the Univeristis situated in the Camania Region, Italy. It is finalized at create a challenge among groups of people whom have entrepreneurial initiatives in the start-up stage.</p> <p>It is a real business plan competition aimed at sustain technological research and innovation to improve the level of economic and social development of the Region. Indeed, it stimulate the born of new firms high level of knowledge based. Participants are students, researchers and teacher of Campania Universities</p> <p>The challenge is part of the National Award for Innovation (PNI), a National challenge Italy based among all the Italian universities.</p> <p>Start Cup Campania provide with four different awards:</p> <ul style="list-style-type: none"> a) Business Plan lessons for all the participants; b) price based awards (5.000, 3.000, 2.000, 1.000 e 1.000 euro); c) local winner will take part at the National competition; d) specific field support for the start up.

2. INDUSTRY (UI)

CESVITEC	<p>CESVITEC is the operative instrument through which the Chamber of Commerce of Naples carry out their plans relating to the promotion and technological development of Small and Medium Enterprises. The catchment area is represented by small and micro businesses in the Naples area and regional level, but also by all the actors of regional innovation system. CESVITEC acts as a system integrator of the innovation processes in the Campania Region with the following aims:</p> <ul style="list-style-type: none">- help reduce the uncertainty in the relationship between research field and enterprises, especially small and medium-sized, and the market;- break down the barriers to use, especially by small and medium enterprises, the expertise available at research centers: barriers to information, "language" of financial and professional resources.- promote the use of the fund of knowledge accumulated in research centers, as well as "waste" of the research carried out by large firms;- promote and enhance the local innovative environment to attract new investment "high tech". <p>The action developed by CESVITEC within the pre-competitive and promotional side, is to improve visibility of local systems of innovation, offering services and facilitating the development of a formal network of relationships between its protagonists and other regional systems technologically advanced.</p>
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3. OVERLAP STATE-UNIVERSITY

The Competence Regional Centres	<p>The Competence Regional Centres are interface structures between public research centres and local small firms. The centers are organized in three levels: top management level, managerial level, operative level. Top management includes representatives members of both Universities and Industrial Associations. The main task of the top management is defining the strategic guidelines for the Centre. Then, the managerial level makes operative decisions, such as management of the relationship among research teams, the construction of research with the environment and of collaboration with firms. Finally, the operative level is constituted by several research teams, e.g. operating in university departments. Such teams are focalised on specific technological domains that are individuated keeping in mind both the technological offer and firms' demand in a given area.</p> <p>The research teams are represented by researchers, who individually work for their own institution and may be allocated on one of the centre's projects.</p> <p>This organizational model is finalized to the creation of a network both among researchers working in different research centres through their involvement in projects and between these researchers and firms. The object of such a network is not only the technological transfer through the encounter between demand and offer of new research and technological solutions but also the sharing of information, ideas, experiences, competence needs for starting and fostering innovation</p>
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	<p>processes.</p> <p>The promotion of this Centres in Campania Region is aimed at overcoming the obstacles influencing the effectiveness of interaction between research teams and small local firms.</p> <p>Currently, in Campania Region operate ten Regional Competence Centers acting in seven different sectors or industry. Each Center is focused on a specific technological domain and includes competences able to meet local firms requirements.</p> <p>Following, a brief list of Regional Competence Centers in the Campania Region is provided:</p>
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Regional Competence Centre Sector	The Regional Competence Centres of Campania Region	Brief Description
Safeguard of Environment	1 AMRA - Analysis and Monitoring of Environmental Risk	The AMRA Centre aims to create a stable research and development structure for development of innovative methodologies applied to environmental issues. The AMRA is set up by a network of high technology laboratories, its main services are related to develop of prototype, to make test and measures, and to build analogical and numerical models. The main customers of Centre are the both public and private body and firms.
Advanced Biology	2 Biotecknet	<p>BioTekNet integrates the know-how in the field of industrial biotechnologies among Campania Universities and public research centres.</p> <p>BioTekNet aims to create a regional integrated network of scientific, technological, economical and managerial resources in the field of Industrial Biotechnologies to perform R&D activities related to production system's needs, directly involving enterprises in the innovation planning and creating process; build up favourable conditions to attract, in the Campania Region, new industrial investments in the biotechnological field, thus creating new job opportunities; support the local traditional agro-food industry by transferring the high impact biotechnological know-how to the production system; assist new knowledge-based companies in the start-up phase, by making infrastructures and laboratories available for their needs; improve the quality of technological expertise to be used from national and local business; educate and train highly qualified professionals.</p>
	3 Molecular Diagnostics and pharmacology	The CRdC Diagnostics and Pharmaceutics Molecular fosters research activities and innovative industrial project in the field of diagnostics and pharmaceutics molecular. The

		projects can be developed into national and international context. Its aim is also the transfer of advanced knowledge to firms and training.
	4 Industrial Technology Transfer of structural and functional genomic	The CRdC Functional Genomic is a network of laboratories which links interdisciplinary competencies in the field of biotechnology applied for human health. The CRdC Functional Genomic carries out two kind of activity: R&D activity and activities oriented to the market. The R&D activities are identification of disease gene, making of genetic therapy file, and development of diagnostic tools. The activities oriented to the market concern the services offered such as bioinformatics and advanced tools in cellular and molecular biology.
Preservation, Development and Fruition of Cultural and Environmental Assets	5 BENECON - Cultural Assets, Ecology, Renewal and Reorganization of Environmental and Cultural Systems	Benecon is one of the ten Research Centres endorsed by the Region of Campania, the committee to the University and Scientific Research- Technological Innovation and New Economy- Information Systems and Statistics, for the support and the technological transmitting to the businesses of the innovative know-how. Through its competencies network multicriteria, it creates a spin off that is able to increase the territorial capital through the direct involvement of the social actors, identifying the state of the current income, defining the correct strategies and therefore inducing the formation and growth of occupation. Benecon not only promotes the competitive growth of the territory through the transfer of knowledge, but also gives the opportunity to verify the total impact of the interventions and development acts.
	6 INNOVA - Preservation, Development and Fruition of Cultural and Environmental Assets	INNOVA is the Regional center to enable the transfer of innovation applied in the field of Public Structure and Environmental Arts. Science and technology parks, European University Center for the Cultural Arts have invested approximately € 25,000,000, of which 70% rely on POR Campania and 30% as the share of Subjects co-financing of actuators. The created network collects, complements and supports teams of researchers that refer to all technical areas - science involved in the development and transfer innovation to BB.CC.AA. More than 320 researchers currently engaged in the development of techniques, tools, advanced materials by make available to one of the most important strategic areas for economic development of the region and throughout the country.
New Technologies for Production Activities	7 New Technologies for Production Activities	The mission of CRdC Technologies is “the development of technology transfer activities, the promotion of cooperation with Public Research Centers and the diffusion of innovative culture”. In particular CRdC Tecnologie promotes the development of product and process innovation for the firms. The product and process innovation

		concerns the technological areas sucha as electronic, energy and materials.
Agro industrial	8 ProdAI Scarl - Agro industrial	ProdAI is a highly original institution. In fact, it is the first experience in Italy acting as a link between public research institutions in the agri-food field, and a unique big laboratory for research and development in the service of enterprises. The Mission of ProdAI is to promote the technology transfer, transforming the experimental results of the applied research into usable innovation through a continuous monitoring of needs of the agri-food productive chain. ProdAI is an innovation engine thanks to its significant competences, complex instrumentation, available pilot plants and the continuous market evolution analysis. ProdAI acts by integrating the multidisciplinary competences of its human resources to support the agri-food enterprises through the whole productive chain.
Technologies	9 Information and Communication Technologies Information and Communication	The Regional Centre ICT has been trasformed into CeRICT, a stable organization able to direct the results of academic research towards applied projects carried out jointly with the firms. CeRICT is set up by 8 units belong to University and Research Centre, each characterized by distinctive competences in ICT sector, and it can be seen as virtual network of knowledge in ICT. The mission of CeRICT is the creation of new productive context through spin-off or other typologies of firms.
Transport (by air, by sea, by road, by rail	10 Test Scarl (Technology, Environment, Safety, Transport)	The CRdC Test aims to create a regional network of competencies and laboratories to foster the research and innovation for: <ul style="list-style-type: none">-reduction of environmental pollution,- increasing the safety of vehicles- increasing the efficiency of transport system. The CRdC Test manages 8 laboratories gathered in three macro area of application. The first area studies the use of new combustibles which are a low environmental impact. The second one analyzes the safety and efficiency of vehicles trough advanced technique of design, such as virtual reality. The third one focuses on transport system in order to manage efficiently the road infrastructure and the services.

4. OVERLAP UNIVERSITY - INDUSTRY STATE

CIRA	<p>The Aerospace Sector, due to its very nature, is a field of high technology. The availability of advanced technologies and, still more, the ability to develop them with continuity, is considered in every country the basic requirement for the growth and durable success of its industries. CIRA-Centro Italiano Ricerche Aerospaziali (Italian Aerospace Research Centre) was established in July 1984 to respond to these needs. . CIRA is a shareholders' consortium with a public-owned majority: the State, through the Italian Space Agency (ASI) and the Consiglio Nazionale delle Ricerche - National Research Council (CNR), have held, since 1998, the majority of the share capital, to which the Campania Region and the main Italian aerospace industries also participate. The joint public-private participation has made CIRA's objectives consistent with national strategic guidelines and the needs of industry, thereby contributing to Italy's social and economic development. The headquarters and operational facilities of CIRA are located in Capua, approximately 50 km north of Naples. CIRA is located in Campania, a region with a high concentration of industries that operate in the aerospace sector: Alenia, Fiat Avio, Alfa Romeo Avio, Vulcan Air, Piaggio, Magnaghi, Tecnam, etc. There are also two universities, "Federico II" and the "Second University of Naples," both with aerospace engineering departments, the Accademia Aeronautica (Aeronautics Academy) and the Scuola Sottufficiali dell'Aeronautica. CIRA is located on an area of 1,600,00 square meters. A small artificial hill divides the entire area into two parts: the computer laboratories, administrative offices and the cafeteria are in the first area, while the second area contains the testing facilities: the wind tunnels, crash testing facility and technological laboratories.</p>
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5. OVERLAP STATE REGION

Città della Scienza S.p.a	<p>It is Campania Region's instrumental agency that supports innovation and the internationalisation of the regional system. As representative of the region, it organizes all the region's programmes and strategic activities. Its beginning is deep-rooted in a well-structured system of facilities and services carried out by '<i>Fondazione IDIS-Città della Scienza</i>' and whose history unravels from the Mid-Nineties on the grounds of the former industrial area of Bagnoli, west of Naples. Over the years, <i>Città della Scienza S.p.A.</i> has set into motion new programmes that assist in its function as <i>BIC</i>, among which <i>CompeteLAB</i>, a laboratory for the competitiveness of small and medium-size enterprises. Inside BIC there is Technology Incubator, 4.000 sq meters where programmes have been realized for creating and developing competitive enterprises alongside companies that are already incubated. BIC aims at consolidating business competitiveness and drawing investment. Among its programmes, <i>CompeteLab</i> plays a central role as the laboratory for the competitiveness of small and medium-size enterprises.</p>
CEINGE	<p>CEINGE – Advances Biotechnology is a non-profit consortium that deals with advanced biotechnologies and their possible applications. It was founded in 1983 and its partners include the Campania Region, the University of Naples 'Federico II', the Naples Provincial authority, the Naples Chamber of Commerce, and the Naples Municipality. CEINGE is devoted to research in the field of advanced biotechnologies and their applications in the health sector, the transfer of research results to the productive sector, providing high-tech services to support research and the promotion of on-the-job training at various levels (including an international PhD program in Molecular Medicine through the SEMM Foundation). Aims include promoting and participating in interactions between university institutes, public research institutions (Italian National Research Council, the Marine Biological Station Anton Dohrn, etc.) with the productive section in order to contribute, through finalized research, training and scientific cooperation, to the development of know-how and to its productive applications.</p> <p>CEINGE makes available to research institutes, through agreements of collaboration, advanced infrastructures (clinical phenotypes in mouse models, generation of transgenic knock-in and knock-out mice, proteomics, nucleic acid sequencing, etc.) required to carry out institutional aims in the fields of scientific and technological research.</p> <p>Molecular diagnostics: in collaboration with the Dipartimento Assistenziale di Medicina di Laboratorio (DAsMeLab) of the Azienda Universitaria Policlinico, University of Naples Federico II, CEINGE also provides diagnostic and care services in highly specialized sectors for individuals, and for public and private healthcare bodies thereby contributing to optimization of the regional health service</p>

Please list below the bodies, institutions and organizations concerned

IMAST

IMAST has the mission to realize an integrated system on research, training and innovation to develop the territory, to impove knowledge, to promote new technologies, to increase the competitiveness of partners.

The initiative of the Technological District have a guideline consisting with the general aim of the growth of the territory and they concentrate on three macro-veins:

- reach the international excellence in the research: becoming leader in the engineering of the materials and their industrial application, through the Academy-Company cooperation,
- attract and train the talents: becoming an attraction pole for the best internationals talents in the field,
- promote new technological entrepreneurship: creating e forge of new enterprises which leads the technological development of the region. Spread the innovation created in the industry of Campania speeding up the development.

Short summary /comment describing the structure of the operating modes among the players, considering their relationships and critical issues:

As stated in the report, it is easily to reveal the high level of overall resources, skills and competences in the Campania Region. Such resources can be find both in the Research Environment as in the Local Institutional Organization. Thus, a consequence, several collaboration path can be develop.

By the way, several critical aspects must be highlight. Indeed, such criticalities can be actually considered as barriers to the efficacy and durability of the feasible collaboration could be realized between Research Field and Firms Environment.

In the following sections, we will underline the main critical factors based on our field experiences.

Universities and Research Centres side:

Background:

- Limited experiences of collaboration with firms

Research scope:

- Perception of research aims mainly in terms of scientific knowledge accumulation and publications
- Low researchers interest in the industrialization of new research ideas. Collaborations and agreements with firms are mainly based on individual (researcher or small group of researchers) motivation and interests.

Interaction objects:

- stage, degree thesis, agreements to solve specific firms problems
- Still too low the joint participation in research project (such as the Community Program)

Organizational and human resources

- Limited networks among research departments
- Absence of effective management transfer office
- Absence of monitoring systems on the results realized through cooperation and collaboration with firms
- Low experience and capability to address research project to solve firm's problems related to specific new products life cycle phases: early stage, planning stage, prototyping stage, experimental stage, industrialization stage.
- Only recently, the Universities are trying to map in depth technological competencies and services could be offered to firms. The problems is that usually, the language and terms are only partially clear and shared, and, thus, useful for entrepreneurs
- Absence of a rate table for the technical and technological advisory services, and high bureaucracy for the agreement between firms and departments.

Perception of benefits in collaborating with Firms:

- Anxiety about academic carrier and publications
- Low interest and benefits perception in collaboration with firms

Firms side:*Organization and human resources*

- Absence of research team and of R&D department of technologists within the firm that can interact with the research team
- Low propensity in financing research projects
- Limited experiences of collaboration with universities/research centres

Perception of benefits in collaborating with Universities and Research Centres:

- Perception of excessive theoretical approach in Universities and Research Centres
- Scarce knowledge about technological competencies of Research World and opportunities to exploit it for solving firms' problems
- Perception of Universities and Research Centres as organization too far from the real world of firms
- Perception of researchers as only partially able to address their research activities towards specific firms problems
- Perception of limited alignment between the research results and the real technical needs of the firms
- Limited perception of possible benefit derived by a collaboration with Universities and Research Centres

Please describe the existence and the role of a formal or informal broker professional profile within the above-mentioned context:

On the basis of our experiences, the broker profile cannot be considered as a formal role, although several research and training project had tried in the past to create the broker figure. It is still an “unexplored profile”, in particular in this Region, regarding both the analysis of requirements from demand side (firms) as for the development of specific competences and skills requested.

Since it is still needed the intermediary role to be covered with the broker, the success of the relationship between Research Environment and Firms World, is strictly related to the attitude and expertise actually covered by researchers and entrepreneurs.

As for the researchers, our experiences tell us that their propensity to collaboration with firms can be detected by following *behaviors*:

- the collaboration with firms is considered as crucial for the research activities, and not just a “task”;
- research results are communicated in a language shared with the entrepreneur, with a low level of “formalism and theoretical aspects”
- availability of the researchers to collaborate for a long period with entrepreneurs and to define in sharing war goals of research project
- helping entrepreneur to define the innovation scope (sometimes, such scope are not so well understand by the entrepreneur).

From the side of the firms, we think that it is crucial that entrepreneurs start planning long term strategies, and that they start perceiving the opportunity they can found in the Research World.

Intellectual curiosity and innovation propensity, both with the availability to invest money for a long term period, are, in our opinion, critical factors for the success of technology transfer experiences.

In this picture, the role of the broker will be crucial, since the spontaneous and sporadic agreements between universities and firms could be converted in durable and repeatable collaborations.