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ETNA VALLEY: THE SCIENTIFIC PARK OF SICILY REGION



GENERAL DATA

Technological Vocation	<i>Agroindustry, traceability, biomed</i>
Location	Catania
Region	Sicily
Main Players of the Area	<ul style="list-style-type: none"> ■ Sicily Region ■ Sicilian Universities (Catania, Messina, Palermo) ■ Science and Technology Park of Sicily ■ CNR – National Research Council (IMM, ISN, ISAFOM, ICB) ■ CRA - Council for Research and Experimentation in Agriculture ■ IOM Ricerca s.r.l. ■ Catania Research Consortium ■ Consortium Etna Hitech ■ Unifarm Research Centre ■ INFN - National Institute of Nuclear Physics ■ IZS “A. Mirri” - Istituto Zooprofilattico Sperimentale ■ ISMETT ■ COMETA Consortium ■ Etna Valley productive district ■ AAT Agroindustry Advanced Technologies Spa ■ Cosmo Pharmaceuticals ■ Franvax



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	<ul style="list-style-type: none">■ Etna Biotech-Zydus Cadila Research Centre■ IPRA SPA – Industria Chimica farmaceutica■ SIFI S.p.a Società Industria Farmaceutica Italiana■ ST Microelectronics■ Nokia Siemens Networks■ Pfizer■ IPR–Immuno Pharmacology Research Spa
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TECHNOLOGICAL VOCATION

ETNA VALLEY, the largest hi-tech cluster in South of Italy, is prominently located in the Eastern Sicily, being part of Catania province where first started and where 1,200 firms and more than 200 national companies decided to run their own business. The origin is deeply linked with ST Microelectronics (which took shape from the M&A between the Italian Company S.G.S. and the french Thomson Semiconducteur, in 1987) the Physic and Chemistry departments of Catania University. and CNR-IMM.

Catania area counts a population of 1,102,000, 58 municipalities and 83,400 firms (85% of whom are small and medium), thanks to the low production costs, qualified expertises and human resources, as well as efficient facilities and public funding for employment available biotech start-ups and pharma companies rapidly increased during the last years.

The geographic position of the city, in an area with 600-800 million of potential consumers, eligible to become one of the most trade entities and the key connection between Europe and Mediterranean regions, identified as Free Trade Area, according to the Barcelona Declaration, plays a key role in promoting business and research.

Most of Etna Valley's companies are specialized in ICT, but there are several prototypes which are growing in the field of Biotechnology, Pharmaceuticals, Chemistry, Foods and Virtual Industry. In few years Biotechnology sector gained a central role and several biotech companies based their business in *Etna Valley* area. The element which contributed to Etna Valley success and growth is the connection between companies and University research centres guaranteed in this area.

Among the wide range of biotechnology fields, agro-food industry and life sciences are the most important (followed by environment). Representative of the agrofood industry is the Agro-Bio and eco-friendly fishing district which includes many enterprises located in Catania, Ragusa and Trapani. Very important is also the district of Micro- and Nanosystems including leader companies in the life sciences, among which STMicroelectronics and ISMETT (1,000 transplants of human organs in 10 years) are the most outstanding.



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CLUSTER PRESENTATION

One of *Etna Valley's* reason for success, is the high number of laboratories and research centres (310), which represent 31% of the entire network located in Southern Italian regions. The cities of Catania, Messina and Palermo host research and R&D University Centres, CNR labs network and INFN research centres which work on the field of physic and nuclear research; Science and Technology Park of Sicily, a network of 18 research centres, either public and private, CNR- IMM (Microelectronics Institute) are located in the industrial area of Catania.





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THE BUSINESS SYSTEM

Etna Valley model is based on high innovative capability, on the presence of highly qualified human resources as well as on the good collaboration relationships existing between enterprises and University and Research Centres. The relationships developed among high technology industries, research centres, training institutes and universities have encouraged the establishment of new activities.

The capability of attracting investments represents the crucial point of the endogenous development strategy of the territory, as well as the integration of enterprise through the consortium formula, for example Consortium Etna High-Tech, Consortium Cometa and Consortium Sirio.

Company	Technologies/Applications/Products
A.A.T. Agroindustry Advanced Technology Spa	The company is based in the industrial area of Catania with state-of-the-art production and research & development facilities. It has developed diagnostic systems for the early detection and monitoring of plant and food pathogens as well as producing advanced juice squeezers. The company has two commercial offices in Italy (Rome and Milan) and a branch office in China (Shanghai).
CONSORZIO ETNA Hitech S.C.P.A.	A SMEs' consortium founded in 2005, offers a complete and innovative product/process planning and optimization to the public institutions and private companies. The main research fields are: plant genoma, drug development and bioinformatics. The Consortium offers innovative ICT solutions for team collaboration on healthcare sector.



<p>Cosmo Pharmaceuticals SpA</p>	<p>The company, established in 1997, produces pharmaceuticals for major Italian and foreign companies specialized in optimising therapies for selected gastro-intestinal diseases. Has developed compound drugs against inflammatory bowel disease as well as nutraceuticals and is currently developing a range of drug projects that are mostly based on its Multi Matrix MMX® technology. The company has established in STPSicily Catania, since 2003, to develop biotechnological applications for immune therapy.</p>
<p>ETNA VALLEY productive district</p>	<p>During a five-year span, several enterprises were born around Catania, all involved in new technologies and in high level of research and innovation activities.</p> <p>Main fields are represented: High-tech Services with medium technological content, High-tech Manufacturers with high technological content.</p> <p>Enterprises system: 139 Enterprises, 3.008 employees, 605 R&D employers, € millions 310 total turn-over (excluded STMicroelectronics) and most of the research cluster in the island.</p>
<p>FRANvAX</p>	<p>This small enterprise from Swiss AmVac AG, a biopharmaceutical company based in Zug. The company, focused on the vaccine market, opened a preclinical research unit in STPSicily Catania in June 2008.</p>
<p>IPR – Immuno Pharmacology Research Spa</p>	<p>IPR was established in 1986 and is located in <i>Valverde</i> area, no far from Catania city, to develop products able of detecting diseases at their first stages.</p>
<p>IPRA SPA – Industria Chimica farmaceutica</p>	<p>Was born in 1992 to manufacture, according the highest standards, infusion solutions in big and small volume, injectable (vials in plastic), dialysis and pharmaceutical solutions. The operative headquarters is located in <i>Dittaino Industrial Zone, Assoro (Enna)</i>.</p>



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Nokia Siemens Networks	Nokia Siemens Networks employs around 1,800 people in Italy and has offices in Milan, Cinisello Balsamo, Rome and Catania. Consultancy and integrations specialists are located at office in Catania.
Pfizer	The Catania site, already Cyanamid (1959) and Wyeth (1995), was acquired by Pfizer since 2009. La surface area is approximately 50 acres and is divided into: Area of pharmaceutical production, within two production areas Penicillin and no penicillin; Research Centre (EDSM - European Drug Safety and Metabolism); Production area of Animal Health, specialized in the production of active ingredients and ecto-parasites.
SIFI SpA - Societa' Industria Farmaceutica Italiana	SIFI is a privately owned pharmaceutical company working in the EyeCare sector since 1935. The company produces and markets innovative pharmaceutical treatments, tools for diagnosis and surgical devices for prevention and care of the most common ocular pathologies. SIFI research and innovation team investigates the eye system in all its elements and all disease related to it taking into consideration new and better therapeutic approaches, as well as new diagnostics.
STMicroelectronics S.r.l.	STMicroelectronics is a semiconductor company that designs, develops, manufactures and sells a wide range of integrated circuits (ICs) and discrete devices used in a wide variety of microelectronics applications. The company's products are manufactured and designed using a wide range of processes manufacturing and design methods patented. To complement the variety of technologies process design and held, the company also has a broad portfolio of knowledge and patent used, to establish cross-licensing relationships with major manufacturers semiconductors. ST group ranks fifth in the world.



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RESEARCH INFRASTRUCTURES AND TECHNOLOGY TRANSFER

Etna Valley's biotech cluster is definitely the main research platform in Southern Italy, with a wide range of Hi-Tech companies extremely connected to several academic research centres, which are listed below:

INFN - National Institute of Nuclear Physics is a leader in experimental research on subnuclear, nuclear, and astroparticle physics sectors. It develops technologies and instrumentation in its own laboratories and in collaboration with the Italian industry network and with the academic world likely. Research is carried out through two complementary types of facilities: Divisions and National laboratories. Divisions provide a direct connection between the Institute and the academic environment whereas, the four Laboratories, located in Catania, Frascati, Legnaro, and at Gran Sasso are involved in the production of the main facilities.

The INFN taskforce includes about 2,000 of its own employees, around 2,000 University employees involved in project research and 1,300 young researchers, including undergraduate and graduate students.

IOM - RICERCA SRL is a biotech company established in 2003 as spin-off by *Istituto Oncologico Mediterraneo*. It specializes in cures of cancer as well as prevention and it aims to develop new diagnostic and therapeutic methods in oncology.

Its laboratory activities include molecular and cellular biology and immunology. Plans for enlargement are under way, pharma-toxicology services, molecular and cellular biology laboratories, two BL3 clean rooms for stem cells and viruses.

Projects: development of a cellular system for screening pharmacological active compounds; characterization of anti-apoptotic properties of ligand molecules; biorepository for cancer cells.

ISMETT is located in Palermo and is the first hospital in Italy designed exclusively for transplants and treatment of end-stage organ failure. Opened in 1999, ISMETT provides all solid organ transplants for adults and liver, kidney, and lung procedures for pediatric patients. ISMETT's national and international reputation brings patients from across Europe and the Mediterranean region. In May 2007 the hospital opened the first CELL FACTORY, one of the biggest worldwide.

It has been funded by Sicily Region which have given a contribution of 6 million Euro. The laboratories produce cells through "Good Manufacture practices" to produce cells for clinical experimental analysis, to treat diabetic patients, heart patient and burnt patients through transplant of skin cells.



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INBB - National Institute For Biostructures And Biosystems is specialized in neurological diseases. The headquarters is located in Cosenza and there are two branches, located each in Catanzaro and Catania. The one located in Catanzaro is specialized in Pharmacology, while in Catania Laboratories are mainly focused on Biostructures, Bio-imaging and **Functional genomics**.

STPS - Science And Technology Park Of Sicily. STPS headquarters are located in the heart of the Etna Valley, in Catania, in a 3,000 sqm area. The main research topics are: biodiversity of plants, viruses, bacteria and fungi; gene cloning of agro industrial enzymes; gene and protein analysis; DNA sequencing; genome analyses; molecular markers; plant and food pathogen detection and monitoring; selection of a superior micro-organism for food industry. In few years of activity more than 200 sequences have been submitted to gene bank and 40 papers have been published on journals. STPS completes the innovation circle – know how, research and development – by disseminating and continuing to improve results.

Etna Biotech-Zydus Cadila Research Centre, Etna Biotech, a R&D centre founded in 2001, has been acquired in 2008 by Zydus Cadila, India's leading healthcare company. Since 2010 has established in the STP Sicily, Catania headquarters. The deal offers the group a highly evolved research platform for developing new vaccines and technology. Etna Biotech is mainly specialized in research and tests for vaccines against hepatitis, malaria and HIV through the Measles technology platform.

CONSORZIO CATANIA RICERCHE, a public/private consortium partner of STPS, has two laboratories in the area: *Biolab* works on molecular biology and the *Photon Spectrometer laboratory* equipped with an ESCA AXIS Ultra DLD spectrometer.

CNR-ISAFOM, Institute for Mediterranean agriculture and forest systems, is a National Research Council's institute devoted to the study of sustainable Mediterranean crops.

CNR – IMM, Institute for Microelectronics and Microsystems, is a National Research Council's institute focused on setting up a competitive facility for research in microelectronics, microsystems and sensors.

CNR – ICB, Institute of biomolecular chemistry is a National Research Council's institute specialized in chemistry, biochemistry, and microbiology in application development of biomasses and of compounds of interest in biotechnology and ecology.

COMETA Consortium is the Sicilian Multi-Agency Consortium for the promotion and the adoption of Advanced Computing Technologies, by supporting basic research activities and technological



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applications, promoting the development and dissemination of new computing technologies, especially by GRID; obtaining commitment for research and development from private and public organizations.

CRA ACM – Research Centre for Citrus and Mediterranean crops is a public research institute for citrus and cereal growing, focused on breeding and bio-agronomic evaluation, specialized in citrus genesis research topics and micro-propagation, cereal improvement, quality control and warehouse monitoring systems. Genomic profiles are studied and new varieties patented.

UNIFARM Research Centre is a centre (founded together by the University of Catania and some private Institutions) entirely devoted to drug phase I/phase II clinical research. The aim is to develop research projects with special emphasis on innovative drugs. The most important activities at UNIFARM are coordination and management of controlled clinical trials.

A number of researchers are specifically dedicated to monitoring procedures. Experience in full service performance of clinical trials covers a broad spectrum of therapeutic categories in the major clinical centres in Sicily (Italy).

IZS "A. Mirri" - Istituto Zooprofilattico Sperimentale IZS of Sicily is a public research and services center and it has 5 premises in Sicily: Palermo, Caltanissetta, Catania, Ragusa and Barcellona Pozzo di Gotto (ME). Research is focused on aetiology and pathogenesis of infectious and contagious disease of domestic and wild animals, on breeding hygiene and zootechnical production. IZS performs epidemiological surveillance in the animal health and zoo-technical production hygiene. It carries out actions of consultancy, sensibilization and assistance to breeders for the improvement of animal production, hygiene and animal health

SERVICES, SUPPORT AND FINANCING SOURCES

For the next three years (2010 – 2013) Sicily Region policy aims to achieve economical and social changes and promote innovation, entrepreneurship and environmental sustainability.

Equally important is the European Territorial Cooperation objective to improve cross-border, transnational and interregional cooperation and to promote the development and economic relations and networking.

Among the main financing sources are:

MED Programme: is a National and European network which includes the whole Northern Mediterranean seacoast. Its priority, as determined by the new 2007-2013 period, aim at strengthening the European competitiveness, employment and sustainable development.



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Seventh Framework Program: The knowledge triangle “research-education-innovation” is a core factor in European efforts to meet the ambitious Lisbon goals. Numerous programmes, initiatives and support measures are carried out at EU level in support of knowledge.

The **Seventh Framework Programme (FP7)** bundles all research-related EU initiatives together under a common roof, playing a crucial role in reaching the goals of growth, competitiveness and employment.

ENPI CBC Italie-Tunisie 2007-2013 is part of the European neighbourhood policy, particularly Cross-Border Cooperation Strategy 2007-2013 of the European Neighbourhood and Partnership Instrument (ENPI), which aims to "promote the sustainable development of countries bordering the EU, and to reduce differences in living standards of these, as well as detect the common challenges and exploiting the opportunities by the proximity of the regions concerned.

ENPI European Neighbourhood and Partnership Instrument. ENPI CBC Mediterranean Sea Basin Programme 2007-2013 provides the framework for the implementation of cross border and cooperation activities in the context of the European Neighbourhood Policy, complementing efforts exerted within the framework of the Euro-Mediterranean Partnership, with the final aim of developing an area of peace, stability and prosperity and good neighbourliness involving EU Mediterranean Countries and Mediterranean Partner Countries as they are listed in the Strategy Paper on Cross Border Cooperation Programmes within the ENPI. The strategy of the Programme is based on the combination of three main components: the institutional, economic, social, cultural, environmental characteristics of the cooperation area, the strategy of ongoing and future programmes in the Mediterranean area and the finalities and objectives of the territorial cooperation component in the framework of the ENPI.

PON - Research and Competitiveness 2007-2013, adopted by European Commission Decision is aimed at the promotion and financial support for initiatives and projects in the fields of scientific research, technological development, industrial competitiveness and innovation. The PON Research and Competitiveness 2007-2013, co-financed by EU funds (ERDF) and national, is one of the most important programmes under the National Strategic Framework (NSF) for 2007-2013 and Regional Policy: as mission, the convergence of levels of development of the regions Calabria, Campania, Puglia and Sicily to European values, by enhancing their competitiveness in the international arena in a strong and rapidly changing; as a strategy, integration into a unified and coherent policy for sustainable development with activities related to research and innovation undertaken or are under construction at the regional, national and community, as governance, process improvement consultation with the regions, developed in recent years of decline for the Structural Funds programming objectives, actions and resources of the "Strategy-country" according to the characteristics of each territory.



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MISE - Italian Minister of Economic Development Italian Minister of Economic Development has signed three decrees for specific companies of Sicily, Campania, Puglia and Calabria in implementation of European programming. In particular, the band relates to innovative areas of production: the industrialization of research results, use of innovative technologies, renewable energy, energy efficiency.

SUPPORT AND SERVICES COMPANIES:

Many services and facilities to reach a high innovation level are available.

STPS - Science And Technology Park Of Sicily plays a leading role in biotechnology sector, through its top level research staff, several facilities and collaboration with local companies. Laboratories for “Plant Disease Diagnosis” and “Varietal Identification” provide a wide range of services improving the quality of agrofood products and for the environment safeguard and territory protection. The facilities and services provided are: space for labs and offices; meeting and convention rooms; lab packages and training; technical and administrative advice for building and managing projects; feasibility studies and technology transfer.

With its flexible operational model, its constant interaction with institutions and enterprises, its closeness to the university and research centres, its network of competences and laboratories with specific biotechnology know how, STPS provides empowering knowledge and advanced research, even more services to SMEs, supporting their technological and networking needs, even in the internationalization process.

The interconnection between “The Italian Association of Science and Technology Parks (APSTI), and the “Italian association for the development of Biotechnology (Assobiotec), makes STPSicily an insider into the network of multiple interregional and international companies.

Sviluppo Italia Sicilia is a regional agency for economic development and works closely with the President of the Sicilian Region and its departments for planning and management aimed at improving competitiveness of Sicily. It works within the regional economic structure, to promote and use many territorial vocations, in close cooperation and interaction with institutions and local governments, through the provision of support services to the attraction of investments, the creation and the consolidation of business and technical assistance to Public Administration. In the industrial area of Catania has established the incubator as tools designed to accommodate, in early-stage ventures of small and medium-sized and promote development through services, support type logistical and financial instruments. It is a full member of EBN - European Business and Innovation Centers Network.

BridgEconomies Consortium the new network launched by DG Enterprise and Industry in the framework of Competitiveness and Innovation Programme (CIP), offers support and advice to businesses across Europe and helps them make the most of the opportunities in the European Union. Is partner of the Enterprise Europe Network, (around 4,000 experienced staff working to



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support the competitiveness of EU businesses) the largest network of contact points providing information and advice to EU companies on EU matters, in particular research centre and small and medium enterprises (SMEs). The network offers concrete and effective solutions to entrepreneurs and companies in more than 40 countries, including the 27 EU member states, three EU candidate countries (Croatia, the former Yugoslav Republic of Macedonia and Turkey), members of the European Economic Area (EEA) and other participating third countries.

ILO - Industrial Liaison Offices are established by three universities in Sicily (Catania, Palermo, Messina) to promote collaboration and exchange between universities and enterprises and to enhance the features of the University as an entity for economic development and attraction of productive investments in the territory. The structure of the development of care services in the areas of innovation and scientific research, protection of public research results, licensing and support the creation of spin-off. The Liaison Offices also act as a Patent Office in order to enhance the results of scientific research through the University's services for training and outreach activities that aim to raise awareness of the audience of university researchers to issues in patents.

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