

Survey on regional Clusters

Sicily (Italy)

Sviluppo Italia Sicilia

Sicily is the second region in southern Italy in terms of GDP and its economy provides 6% of the country's national wealth. Palermo is the regional capital and political-administrative centre, while Catania is the economic motor and business centre.

These two nuclei form the poles of an excellent services and infrastructure system, including their own respective international airports.

Its economy is powered by the presence of certain dominant sectors: agribusiness, chemicals and petrochemicals, high added value industrial manufacturing (precision mechanics, telecommunications and IT) prevalently located in the Catania plain, and tourism, which still has an enormous potential for development. Sicily's productive system contains over 10,000 technologically orientated enterprises and has a highly qualified workforce (engineers, scientists & professionals) which is also flexible.

The demand for skilled labour finds an immediate supply consisting of young people with elevated educational standards at wage-rates that are among the most competitive in Europe.

The region's academic system contains 160,000 students and produces 18,000 degree graduates a year. Its research system can count on public and private R&D centres of international standing, and approximately 7,700 researchers.

The availability of this pool of research talent and expertise has led to the birth of high-tech innovation clusters in sectors like ICT, life sciences, nanotech and chemicals.

Ict – Information and Communication Technology

The island saw the development of the Etna Valley hi-tech Cluster, one of Europe's most attractive and successful in recent years.

Located in the Catania area in Eastern Sicily, the Cluster grew around the major facilities of giant STMicroelectronics. Today, Etna Valley has hundreds of small and medium-sized hi-tech industries as well as large international groups with prestigious research centers and factories. These include IBM, Nokia, Selenia Communications, Etna Biotech, Wyeth Lederle, SIFI, Fraunhofer Institute and the Centro Ricerche Fiat.

The Etna Valley area is a region of excellence in Microelectronics, Advanced Technological Materials, miniaturization of devices, Mechanical Electronics and Wireless Communications Systems.

The Cluster's key to success lies in the synergy between institutional, academic and financial

communities. Local institutions have been, and continue to be, crucial both in guaranteeing the production of knowledge and qualified human resources and in providing financial support and services to accompany the investor.

Major public aid for advanced production phases are also set to speed up the Cluster's development. These measures include the Catania's designation as a Technological District for Micro and Nano Systems, along with a grant of 16.3 million Euro.

Catania has an extremely favorable business environment supported by close partnerships between local institutions, enterprise and the knowledge system, resulting in efficient and effective technological, financial, and administrative services.

The presence of a highly qualified workforce and a strong cost advantage in hiring highly specialized workers is another advantage. A Sicilian engineer is about 40% of the cost of a similar specialist in the USA (28,000 USD against 80,000 USD).

The wide availability of trained workers: around 18,000 university students and 1,700 university graduates in Sicily every year in ICT related subjects, almost half of these in the Catania area.

STMicroelectronics is one of the world's largest semiconductor companies with net revenues of US\$9.85 billion in 2006 and US\$4.69 billion for the first half of 2007. The Company's sales are well balanced between the semiconductor industry's five major high-growth sectors (percentage of ST's sales in 2007): Communications (35%), Consumer (17%), Computer (16%), Automotive (16%) and Industrial (16%). According to the latest industry data, ST is the world's fifth largest semiconductor company with market leadership in many fields. For example, ST is the leading producer of application-specific analog chips and power conversion devices. It is also the first supplier of semiconductors for the Industrial market and for set-top box applications, and occupies leading positions in fields as varied as discrete devices, camera modules for mobile phones and automotive integrated circuits.

Nanotech

Centred again around STMicroelectronics, the cluster currently accommodates more than 1,200 companies distinguished by marked network effects with strong ICT (microelectronics, materials technology, device miniaturisation, Wi-Fi communication systems, and mechatronics), and biotechnology connotations.

Etna Valley is qualified by its high concentration of research centres and production plants of international standing as above mentioned. A fertile ecosystem, nurtured and matured thanks also to the contribution of local universities and institutions.

The Catania pole was chosen by Kpmg – in the 2002 “Competitive alternatives” survey – as the ideal location in which to invest in Europe, in view of the trends of growth, the reduced business costs, the quality of life, and environmental factors (specialisations, labour availability, proximity to markets, infrastructure, and public services).

Catania thanks to the presence of STMicroelectronics, the Italo-French microelectronics giant that stimulates close interaction between the knowledge system and the local manufacturing base for the development of advanced nanotechnology applications. A generous pool of high profile human capital – 55,000 students and 5,500 graduates from science faculties, 800 researchers and PhDs, 1,400 graduate students. The creation in Catania of the Micro and Nano Systems Technological District, which creates an influx of 40 million euro to the pole for the development of micro and nanofabrication technologies applied to optoelectronics, bioelectronics, biosensor engineering, bioinformatics, molecular and organic photonics, power electronics on composite materials, nanostructural devices and materials, and silicon integration of microsystems. Ample availability of facilitations and incentives and the maximum levels of assistance in compliance with European Union regulations since the region is covered by the terms of European Council Objective 1.

Chemicals

Sicily offers an economic and business panorama that is extremely attractive thanks to the presence of industrial poles specialised in various different economic activities.

The industrial clusters of Catania, Palermo, Siracusa, and Messina constitute, in their respective key sectors (ICT, tourism, chemicals, and nanotechnology), points of excellence on a national and international level.

In the chemicals sector, which is traditionally transversal and functional in relation to all other industrial sectors, and which is characterised by an infinite range of applications and innovations, Sicily, and specifically the Siracusa district, constitute a valuable resource in terms of wealth produced and competences developed.

The province of Siracusa hosts the most important Italian petrochemical plants; this industrial concentration was caused, initially, by the geographically strategic position of the Sicilian city, with a commanding outlook over the Mediterranean basin. This natural factor is compounded by the strong industrial tradition in the territory, arising from the historic presence of big companies active in the chemicals sector and other industrial fields.

The Priolo Gargallo industrial cluster, which extends for some thirty km and which accommodates industrial, chemical, petrochemical and ship-building plants, boasts: Extensive availability of adequate infrastructure and utilities with a 39 km road network and 25 km of railway lines that assure efficient internal transport and connections with the periphery and the other companies present on the site. Handling of goods by sea freight in the amount of around 6.5 million tonnes/year is assured by an on-site wharf. Advanced techniques and technologies of refinement of crude oil and other hydrocarbons, with a steam cracking plant that allows the production of large quantities of ethylene and propylene in the long term at highly competitive economic conditions; Diffused presence and marked interaction with the local business community and the research centres of CNR and Catania University, the ASI consortium of Siracusa and environmental monitoring and analysis laboratories of the province of Siracusa;

Intensive activity supporting the local business structure conducted by several organisations including the territorial industrial association (Assindustria) and the Provincial Chemical Observatory.

Excellent qualification of a workforce with a high level of secondary education, with a growing pool of researchers in the field of chemistry and its sectors applied to research and life sciences. The university of Catania alone accounts for some 50 chemistry graduates each year, with employment of around 90% of all graduates in the three universities on the island; Availability of facilitations and incentives. Sicily offers the facility to gain access to the facilities provided by the assistance regimes regulated by the European Union: 35% gross grant equivalent (GGE) and 15% net grant equivalent (NGE) in accordance with the provisions for regions in areas covered by Objective 1;

The presence of the Sicily Science and Technology Park (PSTS), the action of which is constituted by the planning, implementation and realisation of projects of innovation in Sicilian SMEs, combining research and private enterprise and supporting the territorial system of matching the supply and demand of technology.

Life Sciences

Italy has a long and well-established tradition of production and research in the Life Sciences sector.

Today it stands in third place among European nations in terms of turnover (15 billion Euro) and workforce (over 85,000) and demonstrates a strong commitment to innovation through the over 1 billion Euro it spends yearly on Research and Development, the bulk of which is destined for the more avant-garde fields connected with biotechnologies in the health sector. Company expenditure on R&D is constantly rising, as is the number of new entrepreneurial biotechnology initiatives, frequently the result of academic spin-offs or connected with major foreign companies present in Italy. The excellent quality levels to be found in Italian research can be confirmed by the elevated rates of scientific success, an *ever growing expenditure on R&D* and an extremely widespread network comprised of Universities and public and private institutes active in technology transfer processes and research in the fields of vaccines, oncology, the central nervous system, gene therapies, cardiovascular and infectious diseases, and immunology. In recent years the relationship between public research centres and business has grown much closer: a recent study has shown that 60% of Italian universities and research institutes regularly collaborate with private companies, contributing notably to raising their levels of innovation.

In Catania there is the main cluster of Life Sciences of the region, in the well known "Hi tech Etna Valley". **SIFI** is a company operating in the ophthalmic industry in the above mentioned district together with Wyeth Lederle, a U.S. company.

Sifi develops, manufactures and markets pharmaceutical products, diagnostic instruments and surgical equipment. It is the only European company which adopts a holistic approach to EyeCare, providing integrated and synergic solutions.

Since its foundation in 1935, SIFI has displayed a constant commitment to working alongside ophthalmologists. Being close to practitioners, sharing their passion for EyeCare and contributing to the improvement of disease management in ophthalmology is indeed SIFI's principal concern. SIFI Pharma's product range comprises over 50 pharmaceutical forms for the treatment of a large number of eye diseases; SIFI Surgical manufactures surgical equipment based on highly sophisticated technology; and SIFI Diagnostic conceives and develops advanced diagnostic instruments. The company is making good progress in the implementation of its international expansion plan. As a matter of fact, pursuing an increasingly significant geographic diversification is a strategic objective for SIFI. The aim is to take an Italian business style to the world markets: a style rich in creativity and innovation,

intellectual vivacity and cooperation, along with a constant commitment to achieving results and to social responsibility. Sifi interprets its role according to a distinctive style based on a close relationship with doctors, patients and partners. SIFI's manufacturing facilities are among the most advanced of their kind in Europe. Producing drugs, as well as diagnostic and surgical devices, according to the highest quality standards, enables the company to offer safer and more effective products. The 60,000 m² drugs production plant has a capacity of up to 23 million units a year and is equipped with advanced Blow-Fill-Seal (BFS) technology, allowing the release of ophthalmic products in unit- and multi-dose formats. The adoption of sophisticated control systems, such as the monitoring of thermohygrometric and particles conditions of sterile environments, guarantees the safety and high quality of our manufacturing process, in accordance with European GMPs (Good Manufacturing Practices). The introduction of the unit-dose format has enabled Sifi to respond effectively to the need for greater tolerability and dosage precision of the drug. Indeed, the BFS system provides the opportunity to manufacture without using preservatives and to accurately calibrate the quantity of drug to be instilled.

Etna Biotech is the first start-up company in Sicily, founded in 2001 as a research centre of the Istituto Sieroterapico Berna S.r.l., Milano, Italy, now Berna Biotech Italy, is a member of the Crucell N.V. group.

Etna Biotech headquarters, as well as R&D facilities, are located in Catania, Italy. Currently, the company also has access to R&D and production facilities in Berne, Switzerland.

The existing Etna Biotech, focussing on cutting-edge research into viral vectors and virosome-based vaccines, forms the nucleus of a centre of excellence in vaccinology with a very promising vaccine pipeline.

The in-licensing of R&D projects in different stages of development and technologies, as well as access to a state-of-the-art production facility for the manufacturing of vaccines under current good manufacturing practices (cGMP), place the new Etna Biotech Ltd at the forefront of vaccine research and development.

Benefiting from the transfer of key know-how from Crucell Holland N.V., Berna Biotech Ltd and SBL Vaccines Sweden, including quality assurance and quality control, legal and regulatory affairs, Etna Biotech Ltd operate according to the strictest industry standards, maximizing the chances for success and ensuring that pre-defined project milestones will be reached according to plan.

Etna Biotech encourages relationships with the Academy, participating in the formative activities at the University of Catania (PhD programs & masters), in the follow-up of formed students and, ultimately, accompanying new professionals into the industrial world.

