

RESEARCH IN ITALY
Land of “hidden gems”

***How and Where to Invest in Italian Scientific
and Technological Excellence:
Spin-offs and Start-ups for VCs and Corporate VC***

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INDEX

EXECUTIVE SUMMARY	3
1. RESEARCH AND DEVELOPMENT IN ITALY: AN OVERVIEW	5
1.1. Evolution of Italian investment in R&D: public and private sectors expenditures.....	5
1.2. Private equity and venture capital investments.....	6
1.3. Research results: publications, patents and Technology Balance of Payments.....	7
2. TECHNOLOGY PARKS & RESEARCH INFRASTRUCTURES	9
2.1 Research Institutes and Universities	9
2.2 Technology Parks	11
2.3 Private research institutes	14
2.4 The technological meta-districts	16
3. SPIN-OFFS AND START-UPS IN ITALY	17
4. VENTURE CAPITAL	21
5. BANKING FOUNDATIONS AND ASSOCIATIONS THAT SUPPORT INVESTMENTS	23
6. GOVERNMENT STRATEGIES, POLICIES, PROGRAMS & INVESTMENT	26
6.1 Introduction	26
6.2 Action lines.....	26
6.3 National support measures recently implemented.....	27
6.4 Regional support measures.....	29
6.5 European measures	29
7. INTELLECTUAL PROPERTY	31
8. SUCCESS STORIES ITALY-USA	32
9. EVENTS	35
10. ADDITIONAL LINKS	37

Index of Figures

Figure 1: Investments distribution in high tech companies	6
Figure 2 :Regional Distribution of Patents filed at the EPO	8
Figure 3. Map of the Italian Technology Parks	12

Index of Tables

Table 1: Italian University Ranking.....	9
Table 2: National Research Council Description	11
Table 3: List of Technology Parks in Italy.....	14
Table 4: List of the Main Meta Districts in Italy	16
Table 5: Selection of 15 among the Most Established Italian Spin-offs	19
Table 6: Selection of Innovative Italian Start-ups	20
Table 7: Selection of Venture Capital Firms in Italy.....	22
Table 8: Italian Foundations.....	24
Table 9: Selection of Italian Associations that Support Innovation	25
Table 10: New Support Measures for Innovation	29

Executive Summary

It is becoming increasingly clear that the responsible factors for the economic success, growth and competitiveness of a nation in the international panorama are numerous. It is also widely accepted that a key driver for a nation's long-term growth is the ability of universities, research centers and private companies to generate innovation through knowledge and research inputs.

In the last few years, Italy has made huge strides towards improving the R&D sector with the ultimate goal to increase the country system's competitiveness worldwide. Although there is still considerable room for improvements and the Italian innovation performance remains below the EU average, the **high quality of research** occurring in the Italian infrastructures as well as the **strength of Italy's scientific community** and the gradual but **constant increase in the number of patents** are interesting features that emerge by the most accredited reports on innovation¹.

The present report aims to draw a clear picture of the Italian R&D landscape, providing VCs and Corporate VCs with tangible opportunities of investing in spin-offs and start-ups originated from Italian Universities and Research Centers.

The report will provide a broad spectrum of information on the following topics:

- o..... **An overview of the Italian R&D system:** innovation performance indicators will guide the investors through some of the most significant innovation indexes such as scientific publications, patent trends and technology balance of payments (TBP). These parameters are respectively considered necessary measurement for: the quality and the scientific relevance of new findings, the inventive activity and the technological competitiveness of an economic system within the international panorama.
- o..... **Italian main innovation and research "incubators":** technology parks, research centers and universities. They host researchers and therefore ideas, functioning as innovation accelerators and fostering the formation of spin offs and start-ups. In this section, a special attention will be given to Technology Parks and Business Incubators, able to create a dynamic interaction among companies, research, finance and the authorities, thus contributing to the creation of a growth oriented business environment.
- o..... **Spin offs and Start ups:** a growing number of spin offs and start ups are being created in Italy as a sign that entrepreneurship among scientists and researchers is increasing. In the last few years more than 700 start ups were created. This report provides VCs and investors willing to explore this "hidden treasure" with a list of 25 among the most innovative Italian companies.
- o..... **A selected list of venture capitalists in Italy:** although the country is still experiencing a significant lack of VC activity and the industry is rather immature compared to several European neighbors, however, there are several active VC funds, both private and public or a combination of the two. The listed VCs could support prospective foreign players by co-investing in early stage companies.
- o..... **Examples of additional sources of funding:** banking foundations, a traditional source of funding for education and science in Italy, have started to actively support the high-tech industry through

¹ Scientific publication data (1998-2008) are derived from: *Essential Science Indicators, Thomson Reuters, 2008*
 Patents information are derived from : *Main Science and Technology Indicators 2008/2, OECD, 2008*

several initiatives and a list of associations that work to foster economic development through innovation is also herewith provided.

- o.....A section focusing on **Italian Government Strategies, Policies and Investment**: Italian institutions, both at regional and national level, are increasingly becoming aware of the importance of supporting innovation and research. Fiscal incentives and programs such as INDUSTRIA 2015 are among the numerous possibilities of co-financing. Here, we try to give a comprehensive picture on the available and most interesting funding programs for a foreign company-entity willing to invest and co-invest in Italy in R&D activities.
- o.....**Information on the current government regime concerning Intellectual Property rights**: as a founder member of the European Union, Italy is at the forefront of European IP Rights developments and has some of the most modern and up-to-date IP practices in the world.
- o.....**A brief list of success stories**: a selection of the most recent and relevant examples of alliances, collaboration agreements and investments between Italian companies or Universities and American counterparts.
- o.....**A list of upcoming events of interest for R&D companies, start ups and spin offs**: this piece of information represents a useful instrument in highlighting the most important opportunities to meet Italian researchers and entrepreneurs, as well as current investors.

1. Research and Development in Italy: an Overview

Science and technology innovation indicators are widely used instruments employed to explore the progress of national innovation strategies and recent developments of a country in a rigorous and easily readable way. Although according to the European Innovation Scoreboard, Italy positions itself in the group of “Moderate Innovators” and the country is still facing major challenges in order to catch up with the OECD leaders, since 2006, Italy manifested important signs of positive growth in R&D sectors.

By analyzing key indicators, such as, Italian R&D expenditures, investments, TBP and research results, publications and patents, the present section of this report will highlight the measurable and important progresses Italy has made toward the difficult path of becoming a leader in innovation. The following sections will then focus on the tangible results of this improvement, giving a thorough description of the Italian R&D excellence.

1.1. Evolution of Italian investment in R&D: public and private sectors expenditures²

In the past years, Italy registered a gradual but important increase in R&D expenditure³, confirming the strong commitment the country is undertaking in order to align Italy with other European leaders. In fact, from 2003 to 2006, the cumulative R&D investments - performed by private companies, public administration entities, non for profit private institutions and universities all together - increased from € 14.769 Million to € 16.835 Million: a growth in real terms that equals to 3.99%. These numbers suggest that the Italian progress is only second to that registered by Germany and Spain, which in the last years has registered a very pronounced expansion of its R&D investments.

In 2006, the most significant contribution to the total expenditures in R&D activities comes from the private sector with a quota of 48.8% over the total national amount spent; followed by universities with 30.3%; public institutions with 17.2% and non for profit private institutions with 3.6%. The last available data - referred to year 2006 - indicate a positive trend in the growth of R&D expenditures when compared to the previous year's statistics in the all the above mentioned sectors: the private sector spent in fact 4.5% more in R&D compared to the previous year; universities registered an increase of 8.2%, public institutions an increase of 7.3% and non for profit private institutions a 90.9% increase.

It is important to highlight that investments in Italy are unevenly distributed. The Piemonte region ranks first for the highest R&D expenditure over GDP⁴ (with a ratio of 1.8%), followed by the Lazio region (1.71%), Liguria (1.29%) and Emilia Romagna (1.23%) while for Calabria and Val D'Aosta regions this ratio is below 0.5%. Interestingly, the summary of the R&D expenditures of the Northern Italian regions, together with the one of Toscana, Emilia Romagna and Lazio regions account for 75% of the all national expenditures. This investments polarization emphasizes the strong differences that exist in the Italian innovation system between northern-central and southern regions; it also highlights the autonomous role played by each region in embracing and developing specific innovation measures.

In 2006, Italy invested 1.15% of its GDP in R&D activities. Although this percentage is still below the industrialized nation's average, it is important to notice that this growth correspond to a 9.9% increase in the six years 2000-2006.⁵

² Some of the data reported in this paragraph were derived from the Annual Report on Innovation 2009, COTEC

³ ISTAT: Italian National Statistics Institute

⁴ The R&D expenditure over GDP ratio represents the size of investment in science over the wealth generated by a country

⁵ Main Science and Technology Indicators 2008/2, OECD (2008). Table A.5 Appendix

1.2. Private equity and venture capital investments

Italy is still experiencing a significant lack of venture capital activity and the industry is rather immature compared to the other European countries. However, **venture capital in Italy is starting to grow**.

OECD estimates of 2007 showed that available venture capital funds in Italy were equivalent to 0.031% of GDP. The percentage has improved in the last year since in 2008 *OECD estimates* have recorded a value of 0.067% of GDP⁶. The OECD Science Technology & Industry Scoreboard of 2007 ranked Italy in the 17th position in terms of availability of venture capital funds as a percentage of the GDP and in 2008, there has been an improvement from the 17th to the 12th position.

Although the size of the market in absolute value is rather small, the years 2006, 2007 and 2008 have registered the highest values over the past five years. According to the Italian Private Equity and Venture Capital Association (AIFI)'s statistics⁷, the effects of the international financial crisis have reached the Italian private equity and venture capital market that, after hitting record levels in 2008, the first half of 2009 saw a decrease in activity. Between January and June 2009, the market recorded **155 new deals**, for a total value of **1.069 million Euros**. The decrease in the number of deals was significant but limited to 9%.

Specifically, AIFI reports that in the first semester 2009, 27% of the total amount invested went to transactions in the high technology sector. It is interesting to observe that compared to the previous years the number of investments in the high tech sector significantly increased while the amount invested registered only a slight increase. This data suggest that there is the lack of so-called mega deals (over 300 million euros) in the first half the year.

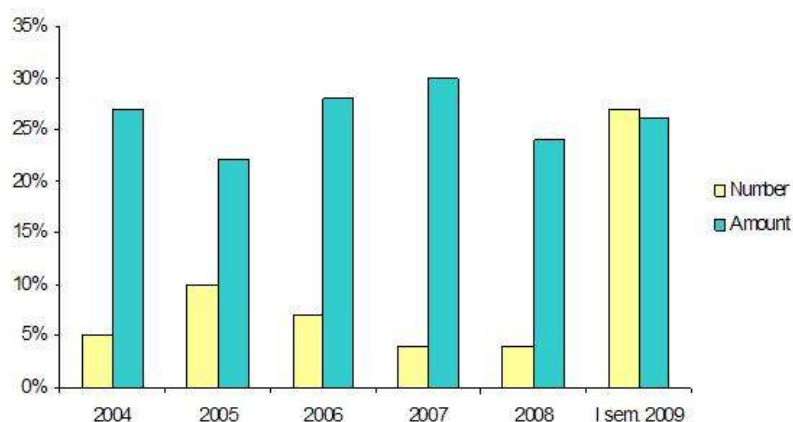


Figure 1: Investments distribution in high tech companies

⁶ Sources: OECD Science Technology and Industry Scoreboard 2007 & 2008, in Rapporto Innovazione di Sistema 2007 & 2008. Fondazione Rosselli and Corriere della Sera

⁷ AIFI statistics: The Italian Private Equity and Venture Capital market in the first semester 2009

1.3. Research results: publications, patents and Technology Balance of Payments

Scientific Publication

The analysis of a nation's research production allows to clearly evaluate not only the ability to generate new scientific findings - in other words, to evaluate how brilliant scientists are - but it also gives more complex information such as the overall level of innovation of research labs, universities, and research centres, in which the research is performed.

It is in fact well known that in order to translate great ideas into great scientific results and ultimately into great applications, scientists need to have the right support and environment - in terms of equipment, funding, human resources etc. - to finalize their research. It is therefore important to understand how Italy performs when compared to other countries.

With reference to the years 1998-2008, Italy ranks 8th in the global classification of scientific publication, with a total number of articles close to 400,000⁸. This number is significantly higher compared to the Spanish scientific production (below 300,000 publications) and it is not far from Canada (414,000) and France (548,000). Other European countries such as the UK and Germany reach higher levels in the number of publications produced. As expected, the US leads the ranking with over 3 Million publications.

Another important criteria to be taken into consideration when evaluating scientific publications, is the number of citations an article receives. This index correlates with quality, novelty, and scientific relevance. The US ranks 1st for number of citations (over 42 million), while Italy positions itself in 7th place, after France and Canada.

These results indicate how Italy represents one the most relevant contributors to the worldwide scientific production.

Patents

Among the most interesting indicators related to innovation, patents deserve a special attention since they reflect not only the creativity of a nation but also its entrepreneurial mindset. The last statistics available - referred to the time period, 2001-2006 - suggest that for Italy, the number of triadic patents filed⁹ increased by 21% - the data are normalized on 1 million inhabitants. Also, a comparison between the three-year periods, 1992-1994 and 2002-2004, shows a dramatic increase of 53% in the number of patents Italy has filed in collaboration with international partners. This index is particularly important because it gives an indication of how much a country is open to international collaboration.

It is important to underline that, as already reported for R&D expenditures, the number of patents filed at the EPO dramatically varies among Italian regions¹⁰. As shown in Fig.2, in 2006, Emilia Romagna leads with 170 patents per million of inhabitants, followed by Friuli Venezia Giulia (132.3), Lombardia (132), Veneto (117), Piemonte (102.3) and Toscana (66). Italian southern regions such as, Molise, Sardegna, Basilicata and Calabria, each filed less than 10 patents per million inhabitants.

Together, all the analyzed results indicate a positive trend of growth for the country and this is particularly true for certain Italian regions in which an outstanding research population, the proximity of good universities and creative companies are coming together to form smart clusters that are indeed serving as innovation forges.

⁸ Essential Science Indicators, Thomson Reuters, 2008

⁹ Patents filed at the three larger patent offices: the European Patent Office (EPO), the United States Patent and Trademark Office (USPTO) and the Japan Patent Office (JPO)

¹⁰ StatExtract, Patents by region database, OCSE 2008

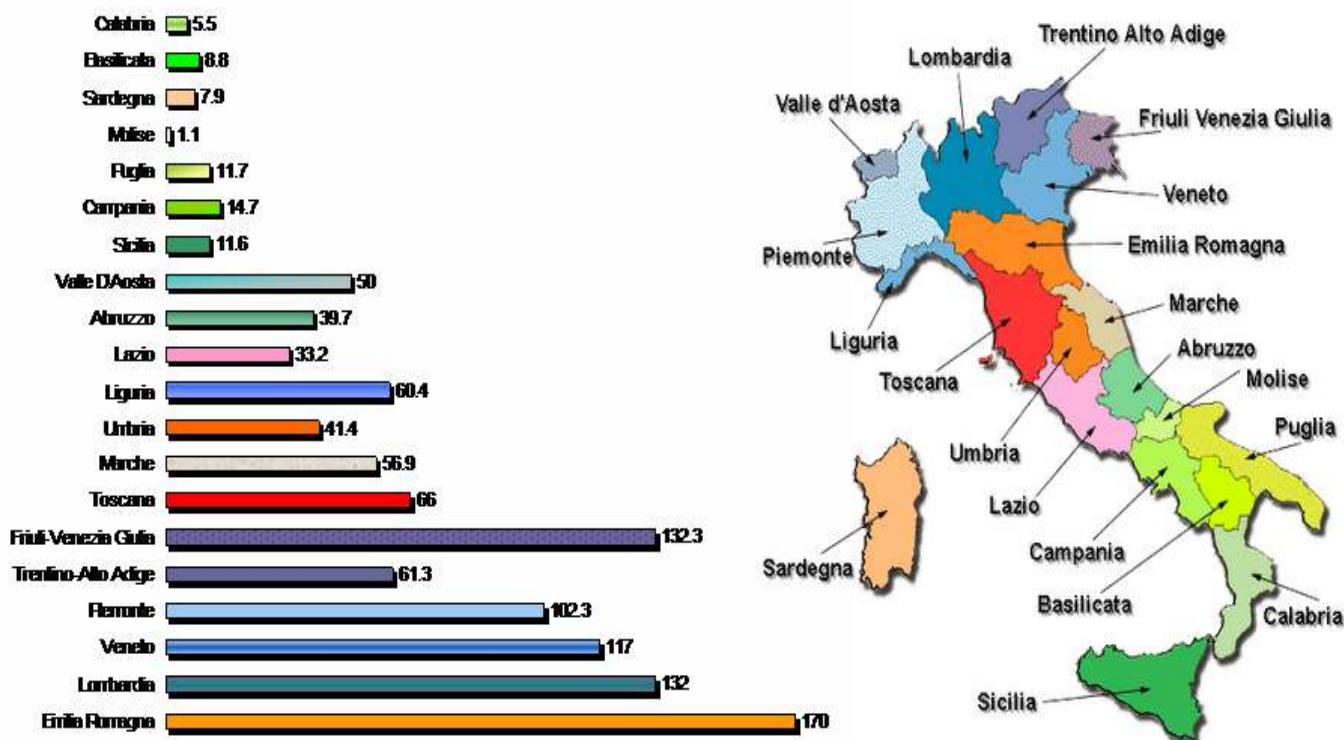


Figure 2 :Regional Distribution of Patents filed at the EPO (data are normalized on 1 million inhabitants)

Technology Balance of Payments

The technological balance of payments measures international transfers of technology, such as: patents; inventions; license fees; purchases and royalties paid; trademarks; know-how; patterns and designs; and services with technological content, like technical assistance, engineering, training of personnel, R&D services and technology exchange. Unlike R&D expenditure, these are payments for production-ready technologies.

The outbound flow indicates a certain country's ability to commercialize its technological competences and know-how in the international market, while the inbound flow indicates the ability to use and integrate foreign technologies in its system. **In the last years, Italy showed an increase in both the inbound and outbound flows** and the balance has a positive value in Italy, likewise in almost all European countries.

2. Technology Parks & Research Infrastructures

As outlined in the executive summary, in Italy, research is conducted through a network of **Science Parks, Business Incubators, several Private Research Institutes and Public Research Organizations (PRO)**. These “entities/organizations” can work autonomously or come together to develop research and business ideas within public-private consortia.

2.1 Research Institutes and Universities

In Italy the *Ministry for Education University and Research (MiUR)* coordinates national and international scientific activities, allocates funding to universities and research centers, and establishes the guidelines for the support of public and private research and technological development funding. Furthermore, MiUR coordinates the preparation of the triennial National Research Programme (NRP), the main governmental document for R&D planning that sets the strategic lines for the national system.

- Universities** - Research activity in Italy is mainly carried out by universities- in 2006 universities spent 30.3% of total R&D national expenditure as discussed in the previous paragraph. There are **95** universities in Italy, the majority of which – over 70% - is public (67 State universities)¹¹; however, Public Research Organizations (PROs) play an extremely important role in the Italian research panorama. Italian Universities - public and private - have been ranked by one of the most influential economic newspapers in Italy¹² taking into consideration 10 main criteria: number of highly talented profiles; ability to attract students; number of students that are able to graduate; inactivity; number of students that are able to graduate within the minimum time; ratio between students and available resources; ratio research/ personnel; research/funding; research/ external funding; employment rate post graduation. In Table 1, the top 10 Public Universities and the top 5 Private Universities that scored better in Italy are listed.

Italian University Ranking	
Public Universities	
1.	Politecnico di Milano
2.	Università degli Studi di Modena e Reggio Emilia
3.	Università degli Studi di Trieste
4.	Politecnico di Torino
5.	Università di Pavia
6.	Università degli Studi di Ferrara
7.	Università degli Studi di Trento
8.	Università degli Studi del Piemonte Orientale
9.	Università degli Studi di Padova
10.	Università Politecnica delle Marche
Private Universities	
1.	Università Commerciale Luigi Bocconi- Milano
2.	Università San Raffaele- Milano
3.	Libera Università Internazionale degli Studi Sociali (LUISS)- Roma
4.	Università Cattolica del Sacro Cuore (Milano)
5.	Università Carlo Cattaneo (LIUC) (Castellanza –Varese)

Table 1: Italian University Ranking

¹¹ Web Portal “Italian Research”: http://www.ricercaitaliana.it/universita_chifaricerca.htm

- **Public Research Organizations:** Italian PROs are numerous and internationally recognized for their commitment in the advancement of science, research and technology. In the national panorama in collaboration with the universities, they play a key role in fostering innovation. For brevity, we only list some of the most significant organizations, while the National Research Council (CNR) being one of the most relevant for the purpose of the present report, will be extensively described in Table 2.¹³
 - The National Research Council (**CNR**), the main national research organization working in all scientific disciplines, which acts both as research performer and financial supporter.
 - The National Agency for New Technologies, Energy and Environment (**ENEA**), operating in the fields of energy, environment and new technologies to support national competitiveness and sustainable development.
 - The National Institute for Nuclear Physics (**INFN**) dedicated to the study of the fundamental constituents of matter and conducting theoretical and experimental research in the fields of subnuclear, nuclear, and astroparticle physics. It manages large scale equipments and participates in CERN activities
 - The Italian Space Agency (**ASI**) in charge of coordinating all national efforts and investments in the space sector.

THE NATIONAL RESEARCH COUNCIL (CNR)	
<p>The Italian National research Council (CNR) is the largest public research institution in Italy. CNR's Mission is to:</p> <ul style="list-style-type: none"> • Perform research in its own Institutes; • Promote innovation, national industrial system's competitiveness, and national research system internationalization; • Provide technologies and solutions to emerging public and private needs; • Advice Government and other public bodies; • Insure the best training to the human force the institution employs 	
<p>CNR Organization: CNR integrates its activities through an interdisciplinary structure of 11 National Departments. The 108 Institutes, coordinated by the Departments, are located throughout Italy and they function grouping together technical and scientific areas of expertise. CNR employs more than 8,000 people, of whom more than half are researchers and technologists.</p>	
<p>From a financial point of view, the main resources come from the Government - 552 Million € of Institutional Funds in 2007. The remaining part - 309 Million €- is derived from the market: as much as 30% of CNR's revenues come from external services - e.g. technological</p>	<p>CNR Technology Transfer: in order to encourage innovation and stimulate the competitiveness of businesses through market oriented Technology Transfer activities; disseminate know-how and finalize partnership agreements with external parties to foster cooperation, CNR has created an agile Tech Transfer machinery structured as follows:</p> <ul style="list-style-type: none"> - A central <i>Business Development Unit</i> that evaluates and the implements new spin-off enterprises; - <i>Rete Ventures</i>, a Technology Transfer enterprise, 90% - owned by CNR, whose task is to provide the scientific network with

¹² Italian Universities Ranking -Published in "Il Sole 24 Ore", July 24th, 2009

¹³ The present data are derived from a Publication by Ufficio Pubblicazioni e Informazioni Scientifiche – CNR

<p>due diligence; private agreements; external contracts with governmental international organizations, etc.</p> <p>CNR's financial strategy identifies the following 3 main funded activities:</p> <ol style="list-style-type: none"> 1. curiosity driven research (allocated funds: 15%); 2. development of new research capabilities (allocated funds: 15%); 3. R&D activities performed in cooperation with universities, other research institutions and industrial companies (allocated funds: 70%). 	<p>professional services and entrepreneurial skills to protect, valorize and commercialize new technologies;</p> <ul style="list-style-type: none"> - <i>Quantica SGR</i>, an Asset Management Company, whose aim is to invest in high-tech spin offs and to promote the development of venture capital. <p>The activities performed by the "Technology Transfer Unit" include the set up of spin-offs (42 operating in 2009) and the protection and enhancement of CNR scientific results (340 Patents in the entire CNR intellectual property right portfolio).</p> <p>Furthermore:</p> <ul style="list-style-type: none"> - As of 31 Dec. 2008, CNR participated in 93 joint ventures, both Italian and foreign. The joint ventures cover the entire spectrum of legal structures: companies, consortia, associations, foundations, and European Economic Interest Groupings; - CNR partners with large hi-tech companies; government departments and local authorities; associations designed to enhance the competitiveness of the manufacturing system; dissemination and know-how transfer specialized entities.
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Table 2: National Research Council Description

2.2 Technology Parks

Technology parks bring together companies, venture capitalists, universities, laboratories and research centers, increasing the wealth of the local communities by fostering the culture of innovation and the competitiveness of private companies, creating a fertile and collaborative working environment and offering a wide range of services. The first science park was set up in Trieste in 1982; in the 1990's a national program extended the creation of technology parks to the whole nation, favoring the less developed areas. According to RIDITT¹⁴, 44 Science and Technology Parks operate in Italy, most of which are shown in Figure 3.¹⁵



¹⁴ RIDITT: Italian Network for Innovation and Technology Transfer to SMEs- <http://www.riditt.it>

¹⁵ Adapted from APSTI website: <http://www.apsti.it>

Figure 3. Map of the Italian Technology Parks

Below a list of technology parks in Italy¹⁶

NAME	LOCATION	NUMBER OF PRIVATE COMPANIES/ ORGANIZATIONS	AREA OF INTEREST
Area Science Park	Trieste	90	ENVIRONMENT; ENERGY; PHYSICS; ICT; NANOTECHNOLOGY; BIOLOGICAL SCIENCES; SERVICES; TELECOMUNICATIONS
Bio Industry Park del Canavese	Torino	40	BIOTECH; DIAGNOSTICS; PHARMACEUTICAL; TECHNOLOGY TRANSFER
Centuria- RIT	Cesena - ER	70	AGRO-FOOD; INNOVATIVE MATERIAL; MECHANIC TECHNOLOGY TRANSFER
Citta' della Scienza	Napoli	22	ENVIRONMENT; CULTURAL HERITAGE; COMUNICATIONS ENERGY; ICT; MECHANICS; NANOTECHNOLOGY; R&D; BIOLOGICAL SCIENCES; SERVICES; TECHNOLOGY TRANSFER
ComoNExT	Como		ENVIRONMENT; ENERGY; TECHNOLOGY TRANSFER
Consorzio PST/KR	Crotone	39 public organizations	AGRO-FOOD; TECHNOLOGY TRANSFER; CULTURAL HERITAGE; ENERGY;
Environment Park	Torino	70	ENVIRONMENT; BIO-ARCHITECTURE; ENERGY; NANOTECHNOLOGY; R&D; TECHNOLOGY TRANSFER
Friuli Innovazione	Udine	25	ENVIRONMENT; BIOTECH; ENERGY; ICT; INNOVATIVE MATERIALS; METALLURGIC
Kilometro Rosso	Bergamo	20	AEROSPACE; AGRO-FOOD; ENVIRONMENT; BIOARCHITECTURE; BIOTECH; BIOMEDICAL; COMUNICATIONS; INDUSTRIAL DESIGN; DIAGNOSTICS; CONSTRUCTION; ELETTRONICS-MICROELETTRONICS; ENERGY; PHARMACEUTICALS; ICT; MANAGEMENT; MANUFACTURING; INNOVATIVE MATERIALS; MECHANICS; NANOTECHNOLOGY; BIO-SCIENCES; TELECOMUNICATIONS; TRANSPORTATION TECHNOLOGY TRANSFER
Molise Innovazione	Campobasso	35	AGRO-FOOD; ENVIRONMENT; ENERGY; R&D; BIO-SCIENCES; TECHNOLOGY TRANSFER
PALMER	Frosinone	Consortium	AGRO-FOOD; ENVIRONMENT; ELECTRONICS-MICROELECTRONICS; ENERGY; ICT; INNOVATIVE MATERIALS; TECHNOLOGY TRANSFER
Parco Scientifico Romano	Roma	Not Available	ENVIRONMENT; AGRO-FOOD; BIOMEDICAL; ENERGY; ICT; MECHANICS
Parco Tecnologico Padano	Lodi	12	AGRO-FOOD; ENVIRONMENT; BIOTECH; DIAGNOSTICS;

¹⁶ Data derived and elaborated from APSTI website: <http://www.apsti.it>

			PHARMACEUTICALS; R&D; BIO-SCIENCES; SERVICES; TECHNOLOGY TRANSFER
Parma Tecninnova	Parma	Not Available	AGRO-FOOD; ELECTRONICS - MICROELECTRONICS INNOVATIVE MATERIALS; TECHNOLOGY TRANSFER
Polo Tecnologico Navacchio	Pisa	14	ENVIRONMENT; ENERGY; ICT; TECHNOLOGY TRANSFER
Polo Tecnologico MI-Bicocca	Milano	Not Available	TECHNOLOGY TRANSFER
Pont-Tech	Pontedera	22	ENVIRONMENT; BIOMEDICAL; INDUSTRIAL DESIGN; ENERGY; MECHANICS; R&D; TECHNOLOGY TRANSFER
PST della Sicilia	Palermo	25	AGRO-FOOD; ENVIRONMENT; CULTURAL HERITAGE; BIOTECH; DIAGNOSTICS; ENERGY; ICT; INNOVATIVE MATERIALS; NANOTECHNOLOGY; R&D; SERVICES; TECHNOLOGY TRANSFER
PST Galileo	Padova	Not Available	BIOMEDICAL; INDUSTRIAL DESIGN; INNOVATIVE MATERIALS; TECHNOLOGY TRANSFER
PST Tecnomarche	Ascoli Piceno	65	AGRO-FOOD; ENERGY; ICT; TECHNOLOGY TRANSFER
Sardegna Ricerche	Cagliari	48	BIOTEC; BIOMEDICAL; ICT; TECHNOLOGY TRANSFER
Science Park RAF	Milano	Research centers and 2 start-ups	BIOTECH; BIOMEDICAL; TECHNOLOGY TRANSFER
Servitec Srl	Bergamo	23 companies and 6 organizations	AGRO-FOOD; ENVIRONMENT; CULTURAL HERITAGE; BIO-ARCHITECTURE; BIOTECH; BIOMEDICAL; DIAGNOSTICS; CONSTRUCTIONS; ELECTRONICS – MICROELECTRONICS; ENERGY; ICT; MANUFACTURING; INNOVATIVE MATERIALS; METALLURGIC; NANOTECHNOLOGY; SERVICES; TRANSPORTATIONS TECHNOLOGY TRANSFER
STAR-Parco Scientifico di Verona	Verona	Not Available	AGRO-FOOD; ELECTRONICS-MICRO-ELECTRONICS; ICT; TECHNOLOGY TRANSFER
Tech Napoli	Napoli	Not Available	AEROSPACE; CULTURAL HERITAGE; BIOTECH; INNOVATIVE MATERIAL; TRANSPORTATION; TECHNOLOGY TRANSFER;
Tecnopolis	Bari	26	ICT; TELECOMMUNICATIONS; TECHNOLOGY TRANSFER
Tecnopolo Spa	Roma	Tecnopolo Tiburtino: 60 Parco di Castel Romano	AEROSPACE; ENVIRONMENT; BIOTECH; ELECTRONICS – MICROELECTRONICS; ICT; TECHNOLOGY TRANSFER
Toscana Life Sciences Park	Siena	17	BIOTECH; BIOMEDICAL; DIAGNOSTICS; PHARMACEUTICAL; R&D; BIOSCIENCES; TECHNOLOGY TRANSFER
Umbria Innovazione	Terni	Not Available	TECHNOLOGY TRANSFER

Vega PST di Venezia	Marghera Venezia	200	AEROSPACE; ENVIRONMENT; CULTURAL HERITAGE BIOTECH; COMUNICATIONS; ENERGY; ICT; INNOVATIVE MATERIALS; NANOTECHNOLOGY; R&D; BIO-SCIENCES; SERVICES; TELECOMUNICATIONS; TECHNOLOGY TRANSFER;
Veneto Innovazione	Marghera Venezia	Not Available	ICT; TECHNOLOGY TRANSFER

Table 3: List of Technology Parks in Italy

2.3 Private research institutes

Private research organizations play a major role in research and innovation in Italy. Some of the most important industrial research centers are:

- **ENI Tecnologie:** Eni is an integrated energy company, committed to developing its activities in research, production, transport, transformation and marketing of oil and natural gas. Eni is active in **70** countries with a staff of about **79,000** employees.
- **Centro Ricerche Fiat:** C.R.F. was established in 1978 as the Group's centre of expertise in innovation, research and development. Now an internationally recognized centre of excellence, C.R.F.'s work constitutes a strategic lever for the Group's businesses, enhancing performance through development and transfer of innovative content which makes the Group's products both competitive and distinctive. With over 850 employees, C.R.F. draws on a broad array of technical skills, in addition to a series of cutting-edge laboratories for powertrain systems testing, electromagnetic compatibility investigations, NVH analyses, driving simulations, materials and process development, optoelectronics and microtechnologies. C.R.F. achieved significant results for the year, as demonstrated by the 51 new patent applications it filed in 2008, bringing the total number of patents it holds to over 2,300. A further 600 patents are currently pending. C.R.F. has also developed a global network of more than 150 universities and research centres and 1,000 industrial partners around the world.
- **Telecom Italia Lab:** TIL is the company of Telecom Italia Group for scouting, evaluating, developing and managing innovative business opportunities. To achieve these goals, the company focuses on R&D, corporate venture capital, incubation and the development ICT skills. The corporate venture capital and incubation activities address all phases of the development of new companies: by making investments and offering business and technological consulting we create industrial synergies both with our internal R&D and with Telecom Italia Group businesses.
- **Centro Sviluppo Materiali:** CSM is a private research company founded in 1963 at the initiative of the most important Italian steel making and mechanical industries. CSM main assets are in research and development applied to metals (steel, aluminum, titanium, special alloys and metal matrix composites), ceramics and coated products.

Among the most prestigious private science institutions:

- **Mario Negri Institute:** is a not-for-profit biomedical research organization. It was founded in 1961, and started work in Milan on 1 February 1963. There are now research units in Bergamo, at Ranica – near Bergamo – and at Santa Maria Imbaro, near Chieti. The Institute's main aim is to help defend human health and life.

- **San Raffaele Institute:** is a private Scientific Institute, belonging to the San Raffaele del Monte Tabor Foundation, recognised by the Italian Ministry of Health as a Scientific Institute carrying out biomedical research and clinical activities of relevant national interest (IRCCS). San Raffaele Institute is relentlessly pursuing its three interrelated lines of clinics, research and education since 1971 when it was established.
- **The Italian Institute of Technology:** (IIT) is a foundation established jointly by the Italian Ministry of Education, Universities and Research and the Ministry of Economy and Finance to promote excellence in basic and applied research and to contribute to the economic development of Italy. The primary goals of the IIT are the creation and dissemination of scientific knowledge as well as the strengthening of Italy's technological competitiveness. To achieve these two goals, the IIT will cooperate with both academic institutions and private organizations, fostering through these partnerships scientific development, technological advances and training in high technology.

2.4 The technological meta-districts

Technological meta-districts are initiatives aimed at reproducing the positive results derived by industrial districts. They focus on high technological services and products and are promoted at the central and regional levels.

META-DISTRICTS IN ITALY	
Torino Wireless (North-western Italy)	A foundation financed with public and private funds which groups some of the key players in the geographical area of Turin operating in the field of <i>advanced telecommunications technology</i> such as the Mario Boella Institute, T-Lab (Telecom Italia), Alenia, Motorola and CRF (Fiat).
Veneto Nanotech (North-eastern Italy)	A district financed by national and regional funds aimed at creating an area of excellence on <i>nanotechnology</i> in Veneto. The district includes private companies and local scientific institutions.
Biotech in Lombardia (Northern Italy)	An initiative aimed at facilitating the development of a biotech district in an key area where this industry in Italy is already growing
Hi mech Emilia Romagna (Central-northern Italy)	A district for <i>mechatronics</i> , which brings together 130 private companies operating in the region (including Ferrari and Lamborghini) along with the most important local university departments and research bodies working on this subject.
Aerospace Technology District (Central Italy)	A pole for the development of a high tech productive system in cooperation with some of the major Italian players in the sector, such as Centro Sviluppo Materiali, Alenia, Avio and ASI (Italian Space Agency).
IMAST in Campania (Southern Italy)	A district on the <i>engineering of polymeric and compound materials</i> , with the direct involvement of national and regional institutions, universities and research centers such as CIRA (Italian Aerospace Research Centre), Elasis (Fiat), Cetena (research for naval ship building) and companies such as Fincantieri and Esaote.
Etna Valley	An initiative for the promotion of the high tech cluster in the area of Catania (Sicily Region) around ST Microelectronics, Nokia, Marconi Mobile.

Table 4: List of the Main Meta Districts in Italy

3. Spin-offs and Start-ups in Italy

As documented by the most important R&D innovation reports, in Italy, all main universities and research centers are now spinning out a growing number of innovative companies. These companies represent the hidden gems that can become a great business opportunity for VCs and/or Business Angels willing to support them. Although the *phenomenon* is still not comparable to the one experienced in the US in the last fifty years, however, the scientific talent and the enthusiasm shown by these young researchers is palpable.

Among the organizations monitoring this *phenomenon*, one of the most active is **NETVAL - the Italian Network for the Valorization of the University Research**- the association of Italian public universities whose goal is to enhance the value of its members' research activities by working with tech-transfer offices and developing collaborations with the private sector. NETVAL's platform include all Italian most important Universities and, thanks to this large network, the association is able to draw a picture and monitor universities' productivity in terms of spin offs and patents produced.

According to NETVAL's report¹⁷, since 2000, Italy continues to display signs of a strong acceleration in the number of new born spin-offs. The report highlights that among the **710 spin-offs** currently operating in Italy, more than 85% were born in the last 8 years and over 80% are located in the northern-central Italian regions, co-localized with the most active Italian universities. Among the most represented sectors are: ICT (35.8%), life sciences (15.5%), energy and environment (14.6%), electronics (11%) and biomedical (7.4%).

In order to facilitate the transition from bench to market and with the aim of providing brilliant academic scientists with the necessary instruments to best use their innovative ideas and translate them in commercial technologies, 90.7% of the Italian universities are now flanked by a Technology Transfer Office (TTO). TTOs' most relevant objective is to accelerate the creation of entrepreneurial initiative, offering the necessary assistance and valuable instruments to spin-offs.

NETVAL's website provides a **directory of Italian spin-offs organized by university**. The online list is yet to be completed. However, customized selection of university spin-offs by sector can be requested by contacting the Italian Trade Commission in New York (newyork@ice.it) - or segreteria@netval.it.

In order to provide **the reader with a selection of some of the most interesting and established Italian spin-offs** that might be of interest for VCs and/or a corporate VCs, the authors of the present report used a screening methodology able to guarantee objective and homogeneous selection criteria. A logic assumption is to think that the most established and successful spin-offs are the direct result of a fruitful, cooperative and challenging scientific environment. With this theory in mind, it was decided to use the top 10 Italian Universities listed in Table 1 - page 9 - as the source from which the most promising spin-offs could be derived.

When analyzing for instance the 15 spin-offs born by Politecnico di Milano, the 2 spin-offs described in Table 5 were selected by using the following criteria: year of establishment and information availability. It is in fact well known that the first three years of establishment are, for newly born companies, the most difficult and challenging; therefore in order to properly evaluate a company's success, it was necessary to look at companies that were able to overcome this critical threshold.

The 10 Italian Universities listed in Table 1 were analyzed by using the above described criteria with the exception of Politecnico di Torino and Università di Pavia, which in Table 1 ranked respectively 4th and 5th, given the absence in the NETVAL website of information regarding their spin-offs.

¹⁷ Sixth NETVAL Report, Jan. 2009 " *Patents and Private companies: the universities' contributions*"

15 ITALIAN SPIN-OFFS: A SELECTION
(complete list can be found on www.netval.it)

Company Name	Established in	Spin-off of	Company Description
Aresys S.r.l.	2003	Politecnico di Milano	Aresys SRL offers <i>ad-hoc</i> innovative solutions to space-borne, air-borne and ground based remote-sensing problems, exploiting state-of-the-art technologies and the latest academic research achievements in the field.
T.R.E. S.r.l.	2000	Politecnico di Milano	TRE – the first spin-off company of the Politecnico di Milano - has developed and patented the PSInSAR™ technique, a unique tool that detects, measures and monitors different geophysical phenomena (e.g. subsidence, uplift, landslides, seismic faults, etc.) and verifies the stability of individual structures, providing precise measurements of displacements.
<u>Embit S.r.l.</u>	2004	Università degli Studi di Modena e Reggio Emilia	Embit develops ad hoc embedded and wireless solutions.
Tydockpharma S.r.l.	2004	Università degli Studi di Modena e Reggio Emilia	Tydockpharma is a chemistry-driven research-intensive company discovering new drugs targeting major infection diseases. Research products are mainly hit, lead and drug candidate with anti-infective activities based on an innovative mechanism of action that involves an unexplored biological target (ThyX).
ES.TEC.O. S.r.l.	1999	Università degli Studi di Trieste	ES.TE.CO develops multi-objective optimization and design environment software.
CREST S.r.l.	2004	Università degli Studi di Trieste	CREST aims to deal with innovative organization and supply of met-ocean forecast and hindcast products and to develop services in hydrology and marine hydrodynamics.
PharmEste S.r.l.	2003	Università degli Studi di Ferrara	PharmEste is a private biopharmaceutical company focused on the discovery and development of Transient Receptor Potential (TRP) channel therapeutics for the treatment of neuropathic pain, overactive bladder and other TRP-mediated diseases.
<u>UFPeptides S.r.l.</u>	2003	Università degli Studi di Ferrara	UFPeptides produces custom synthesized bioactive peptides.
Mountain-eering S.r.l.	2008	Università degli Studi di Trento	Mountain-eering models sustainability for the environment.
Detech S.r.l.	2004	Università degli Studi del Piemonte Orientale "Amedeo Avogadro"	Detech specializes in chemistry and polymeric materials.

OZ FuelCells S.r.l.	2006	Università degli Studi del Piemonte Orientale "Amedeo Avogadro"	OZ Fuel Cells develops solutions fuels cells based.
Cap Research S.r.l.	2003	Università degli Studi di Padova	Cap is the technology partner for solutions hardware, software, applications and management for companies and web marketing strategy.
UNILAB S.r.l.	2003	Università degli Studi di Padova	UNILAB specializes in dimensional metrology and geometric, in particular the geometric precision measurement products and tools, advice and training in the field of metrology.
Ocean Soc coop.	2003	Università Politecnica delle Marche	OceAN produces tropical fish bred and kits for all micro-algae's aquarium. It also offers services for the conduct of projects in fisheries and environmental monitoring, proposing their scientific expertise in molecular biology.
Nautes S.r.l.	2001	Università Politecnica delle Marche	The company performs its activities in the ICT sector, mainly in the fields Knowledge Management and BPM.

Table 5: Selection of 15 among the Most Established Italian Spin-offs

Another important information source regarding young innovative companies in Italy comes from **PNICube** - the Italian Association for the University Incubators & Business Plan Competition. PNICube, which today consists of 42 members between universities and academic incubators, organizes and sponsors two important initiatives: the *National Award for Innovation*, which selects the best ideas for innovative businesses, and the event *Start-Up Year* that rewards young hi-tech companies that have achieved the greatest success in the market. The aim of the initiatives is to positively contribute to the growth of innovative entrepreneurship.

A list of innovative Italian start-ups was derived by using the Start Up competition's finalists' list. The finalists were selected by a jury composed of professionals in international funding and entrepreneurs, taking into considerations criteria such as best performance and technical development.

11 ITALIAN START-UPS: THE FINALISTS		
Start-up Name	AREA	Start-up commercial area
ELECTRO POWER SYSTEMS	Clean-tech	Fuel cell systems for backup power.
WAYMED	ICT	Waymedia develops systems that allow to create new channels of interactive communication proximity, using the phone as the average consumer and transmission systems using short-range wireless (e.g. Bluetooth and NFC) to convey multimedia content such as movies, music and games information in a free and broadband.
KHAMSA	ICT	Working in the field of Information and Communication Security, KHAMSA offers market professionals and small to medium sized businesses with a means of confidential communication (email and mobile encryption).

ACTUA	ICT, E-business, Biotech, Mechanics, services	ACTUA aims to become a holding company for the development of technologies on energy efficiency, technological change as a niche product.
BIOTRACK	Biotech	Biotrack develops innovative molecular approach to the study of proteins through the splitting, profiling and biomarker discovery through a platform of integrated proteomics (SELDI-ToF HPLC).
Delta R & D	Biomechanics, ergonomics, safety in sport, mechatronics, robotics	The company proposes its digitizers (Foot-o-graph, Bust-o-graph).
EVS	ICT, electronics	EVS designs machine vision systems on embedded architectures for industrial automation, security and monitoring.
FLUIDMESH	ICT	The company is focused on developing wireless products for security, video surveillance and transmission of data over large areas at risk.
GARRISONPOP	ICT services	Garrisonpop aims to provide the markets with innovative instruments to compensate for areas of uncertainty in the chains of production, distribution and marketing.
LACHESI	Monitoring, Environment, ICT	LACHESI is a company that develops and markets products for the monitoring architecture - control of operating conditions and safety of bridges, tunnels, dams and marine structures- especially compared to the interactions between those structures and the environment in extraordinary conditions, for example in relation to floods or earthquakes.
MINTEOS	ICT-environmental monitoring	Minteos work in the field of environmental monitoring technologies through WSN -Wireless Sensor Network.

Table 6: Selection of Innovative Italian Start-ups

Please note that the list of spin offs e start ups of Table 5 and 6 of the present report represent only a selection of the numerous ideas and business plans born in Italy by young and innovative companies. Many more examples can be found by participating to the events listed in the last paragraph of this report or by contacting the Italian Trade Commission in New York at newyork@ice.it.

4. Venture Capital

As already reported VC investments in Italy are far less than the US's, but constantly growing. According to AIFI, the Italian Private Equity and Venture Capital Association, in the first six months of 2009, early stage investments grew by 7% in terms of volumes invested and for a total of 56 Million euros and 46 deals closed (+15%).

Listed below, are **some of the most active Italian VC funds**, both private and public. It is advisable, for a US capitalist willing to invest in Italian early stage companies to partner with a local VC. The alliance would help foreign investors to overcome legal and bureaucratic issues. As an example, Meta Group, the Venture Capital firm who manages the Ingenium Fund, partners with the Dutch VC Zernicke Meta.

FUND	Description
360° Capital Partners	It is a Venture Capital firm, investing in Innovation at full scale, in Europe and more particularly in France and Italy. The new 360 Capital fund Sicar has reached a total capital commitment of over €100 Million. http://www.360capitalpartners.com
Atlante Ventures	With the goal of investing in high technology start-ups and university spin-offs, Italian bank Intesa San Paolo launched this fund in May 2009. The initial funding amount to €25 Million and have a planned duration of 12 years. In its current portfolio: Igea Spa, a biomedical company based in Modena. http://www.sanpaolope.com/fondi-chiusi/fondo-atlante.htm
Atlante Venture Mezzogiorno	Intesa San Paolo set up this parallel fund to its Altante Venture fund to specifically invest in companies in the southern regions of Italy. The funding amount to €25 Million, with a planned duration of 10 years. http://www.group.intesasanpaolo.com/scriptlsir0/rntisInvestor/content/comunicatiStampa/viewStream.onetwo?id=CNT0000000000002F5&attachmentName=attachmentPdf&type=comunicatiStampa&locale=en
dpixel	Dpixel, venture capital firm specializes in start-ups in their "seed" and "early" stage. In its portfolio: Charta; Seolab; Sounday; Kiver; Glomera; SmartRM Crowdengineering. http://www.dpixel.it
Eporgen Venture	Eporgen is the first Italian company specialized in seed financing of early stage biotech initiatives and R&D projects. Eporgen is entirely funded by private non-institutional investors. Currently in its portfolio: Noto Pharm, Bionucleon, Biopaint, Genovax, Narvalus, Spider Biotech, Target Heart and Apavadis. http://www.eporgen.com
Ingenium	Launched in 2005, Ingenium is the first public-private venture capital fund for financing innovative enterprises based in the Region of Emilia Romagna. It is managed by Zernike Meta Ventures, a joint venture between the Italian META Group and the Dutch Zernike Group, and it currently has €7 Million under management, of which €5.3 are regional public funds and €1.7 are provided by the managing companies. http://www.meta-group.com/ingenium/ilfondo.html

<p><i>Innogest Capital</i></p>	<p>Innogest Capital, with its € 80 Million, is currently the largest Italian Venture Capital fund in the Seed and Early Stage segment. Set up in 2005, it is recognized as a reference investor for young, high-potential companies that intend to raise capital in order to sustain their growth plans. The goal of Innogest is to invest in and encourage the success of about twenty highly entrepreneurial and young companies with very strong technology and a distinctive and unique approach to the market. Among biotech and healthcare companies in its portfolio: Silicon Biosystems, Adriacell, Erydel and Igea. http://www.innogest.it/</p>
<p><i>Piemon-tech</i></p>	<p>Piementech, the holding company of the Torino Wireless Cluster, is a VC investor providing capital to the most promising Piedmont-based companies in the biotechnologies and biomedics sectors as well as ICT, energy and advanced mechanics. Promoted by the Torino Wireless Foundation and co-founded with I3P, Eurofidi and the Employers' Industrial Association of Turin, Piementech supports the creation of new enterprises by acquiring Equity shares with Angel Investments, typically between €20,000 and €200,000. Among the biotech companies currently in its portfolio are: DemItalia, APAvadis. http://www.piementech.it</p>
<p><i>Quantica</i></p>	<p>Quantica SGR is an Asset Management Company specialized in closed-end funds for venture capital activities, investing in high-tech spin-offs and start-up stemming from scientific research, as well as early-stage financing. Quantica's Principia Fund is the first Italian venture fund promoted by experienced managers and prestigious research and university institutions. At present, in its portfolio: Kee Square, Pharmeste, GreenFluff, Dialectica and NewCorTec. http://www.quanticasgr.it/</p>
<p><i>TT Venture</i></p>	<p>TT Venture is the first Italian closed-end fund dedicated to Technology Transfer. The fund supports the development of high-potential entrepreneurial projects within the sectors of Biomedicine, New Materials, Agro-food and Energy/Environmental Technologies. TT Venture invests in all phases of an entrepreneurial project – seed, start-up, and development – through the selection of investment opportunities offering a high development potential, capable entrepreneurs and a varied disinvestment strategy. The fund will also invest in international venture capital funds in order to strengthen its network and to gain access to the latest R&D developments overseas. http://www.ttventure.it/</p>
<p><i>Z Cube</i></p>	<p>Z-Cube was founded in 2003 to support young life-science start-up and spin-off companies with novel therapeutics to address significant unmet medical needs. Z-Cube has achieved the launch of 3 start-ups based on projects with the goal to develop highly innovative medicine: PharmEste, SuppreMol GmbH and ProtAffin Biotechnologie AG. http://www.z-cube.it</p>

Table 7: Selection of Venture Capital Firms in Italy

5. Banking Foundations and Associations that Support Investments

The Italian Banking Foundations are non-profit, private and autonomous entities that originated in the early 1990s to continue with the socially-oriented activities that the former Savings Banks and Pledge Banks had conducted together with their lending business. At the moment, there are **88 Banking Foundations**, which engage solely in socially-oriented and economic development undertakings. According to data for the system as a whole¹⁸, in **2007** the Italian Banking Foundations approved funding requests for a total of € 1,715.4 Million, showing a growth rate of 7.6% on 2006 (€1,594.3 Million). After the sector “Art, cultural activities and heritage” the second most funded sector in 2007 was the “Research” sector, receiving 14.4% of total funding - a significant increase (+44%) on the previous year when the percentage allocated was 10.8%. The sub-sector for “Research and experimental developments in the field of Natural and Technological Science” received 33.5% of the funds allocated to this sector (an increase of 74.3% on 2006) while “Medical Research and Development” received 30.9% and “Research in Social Sciences” was given 7.3%. The third funded sector was “Education, learning and training”, with 12% of total funding (11.6% in 2006). The main sub-sectors were: “Primary and secondary education” (39.1%); “Higher learning”, i.e. university or equivalent education (32.7%); “Adult training” (14.9%); and “Youth development and training” (6.4%). Table 8 reports some of the most representative examples of Italian Foundations.

Fondazione Monte dei Paschi di Siena (Toscana) – Scientific research is the sector in which the Monte dei Paschi di Siena Foundation – MPS - is most directly involved. In addition to providing support to various universities and earmarking almost € 12 Million in 2007 for specific third-party projects in this field, the Foundation also supports Siena Biotech, an operational arm of the MPS Foundation. Furthermore, the MPS Foundation is part of “Toscana Life Sciences,” the science and technology park taking shape in Siena, having established an operational arm BioFund, a seed-capital company, to provide support for companies in their start-up phase.

<http://www.fondazionempis.it/eng/default.asp>

The Compagnia di San Paolo (Piemonte) is one of the most important foundations in Europe, which devotes one third of its budget - €150 million in 2007- to the research and education sectors. In the biomedical field Compagnia focuses on projects linked to diseases with important social impact, like cardiology and oncology. One of the main biotechnology projects spearheaded by the Compagnia was the establishment in Turin in 2007 of the Human Genetics Foundation, together with the University of Turin and Politecnico of Turin, which covers activities in advanced training and cutting edge research in genomics and proteomics.

<http://www.compagnia.torino.it/>

NEXT Fund (Lombardia) is a closed-ended “fund of funds”, subscribed by institutional investors, created by Regione Lombardia with the aim of developing on the territory a venture capital market focused on innovation and development of new technologies. NEXT can invest both in other closed-ended venture capital funds and directly in companies in partnerships with other investors. NEXT’s direct investments focus on start-up or early stage SMEs located in the Lombardy region, and belonging to innovative and technological sectors.

<http://www.finlombardasgr.it/on-multi/en/Home/Funds/Next.html>

Intesa Sanpaolo Eurodesk- Part of the Intesa San Paolo bank, the EuroDesk offers technical support to companies engaged in research and innovation. Its services are designed to inform companies about the content and operation of EU funding programs and assist them in the application process. Companies making use of the Intesa Sanpaolo Eurodesk can also benefit from the banking and financial services offered by Intesa Sanpaolo, in view of their participation to the calls for proposals at the European level.

<http://www.intesasanpaoloeurodesk.com/tiki-index.php>

¹⁸ Associazioni di Fondazioni e Casse di risparmio S.p.A: <http://www.acri.it/files/default.asp>

Fondazione CRT – Cassa di Risparmio di Torino - Fondazione CRT is a private non-profit organization established in 1991 by the Cassa di Risparmio di Torino. The organization runs its activity for the development of the Piedmont and Valle D'Aosta regions. Projects range from conservation and valorization of artistic heritage and cultural activities to scientific research; from education and training to health and assistance to aiding the socially needy; from public safety to environmental protection to innovation in local organizations.

<http://www.fondazioneCRT.it/fondazioneEng>

Table 8: Italian Foundations

Other important point of entry in Italy for investors is represented by the numerous **associations and agencies** that work to support economic development through innovation. In particular, the Business Angels association (IBAN) as well as AIFI (the Italian Venture Capital and Private Equity association) is becoming very active in Italy and it is always advisable to visit their website before entering the Italian market.

Associazione dei Parchi Scientifici e Tecnologici in Italia (APSTI) is the national network of scientific and technological parks. The objective of the Association is to work as an **integrator** between the companies' need for innovative growth, especially small- and very small-sized businesses, and the wealth of knowledge embodied by the Centers of Technological and Scientific Excellence, Universities and Research Centers.

For further information: <http://www.apsti.it/index.php?id=14&L=1>

Agenzia per l'Attrazione degli Investimenti Esteri in Italia (INVITALIA) is the government agency for inward investment promotion and enterprise development dedicated to assist companies in all stages of the investment process, to support new business ventures and to enhance local development.

For further information: <http://www.invitalia.it/on-line/eng/Home.html>

Italian Business Angel Network Association (IBAN) is the association that groups an extensive network of more than 200 Italian business angels, investing in early stage companies.

For further information: <http://www.iban.it>

Italian Angels for Growth Association is a non profit organization whose purpose is to promote entrepreneurship as an engine for economic growth. Its members are entrepreneurs, managers and professionals who provide financing to early stage companies and support their development.

For further information: <http://www.italianangels.net>

Italian Venture Capital and Private Equity Association (AIFI) was created in 1986, in order to promote, develop and represent institutionally the venture capital and private equity activity in Italy. The Association is an organization composed of different entities which, throughout direct investment of their own funds or through the management and advisory of independent funds (closed-end funds) are private equity and venture capital investors with the objective of purchasing, managing and divesting in unquoted companies. Associated members are Italian and foreign associations as well as institutions and companies interested in the development of the venture capital industry in Italy.

For further information: <http://www.aifi.it>

I3P Technology Incubator of the Polytechnic University of Turin hosts start-ups with high growth potential, founded by university researchers or entrepreneurs from outside the university sphere, providing them with strategic and technical advisory services, and putting them in contact with investors, partners and customers. For further information: www.i3p.it

Italian Venture Capital Hub constituted under the coordination of Torino Wireless foundation with the cooperation of Polytechnic University of Turin, the Italian Venture Capital Hub groups together sixteen venture capital funds, covering every segment of activity, from Angel Investing to Late Stage. The hub is hosted inside I3P, the incubator for innovative start up companies, located next to the Polytechnic University of Turin. For further information: <http://www.centroestero.org/invest/index.php?lang=eng&cat=68-about-piemonte&page=412-venture-capital>

Italian Association for Industrial Research (AIRI) represents an important point of reference for organizations involved in industrial research activities. The Association was set up in 1974 and sustains an intense dialogue with enterprises, public bodies and universities, with a view to supporting industrial research as a decisive factor for the country's technological and productive development. For further information: <http://www.airi.it>

Table 9: Selection of Italian Associations that Support Innovation

6. Government Strategies, Policies, Programs & Investment

6.1 Introduction

When analyzing two of the most important documents available today on Innovation Policy in Italy^{19,20} it is clear that the Italian government is working to face and solve three main challenges:

1. Shortage of innovation financing -especially venture capital;
2. Talents - researchers, scientists, high-skilled human capital - *brain-drain*;
3. Improvement of technology transfer mechanisms.

Regarding the challenges concerning innovation, R&D policy objectives at national level are formally outlined in a “National Research Plan” (NPR)²¹. The NPR sets scientific research and technological innovation together with reinforcement of education and training as major priorities. In particular, the NPR highlights the importance of technology transfer and the need for strengthening networks and co-operation between public and private sectors - consortia of universities, laboratories and enterprises - as the main tools for achieving a long term economic growth. The next NPR (2009-2013) is planned to be released in the next months by the Ministry.

6.2 Action lines

The main action-lines implemented by the current Italian government can be summarized as follows:

Modernization and digitalization of the public administration, implemented through e-gov 2012.

“e-government 2012” was launched in January 2009 with the objective to recover the accumulated delay in the implementation of the Lisbon strategy through the modernization of the public administration. This plan is expected to generate important savings –a round €40 billion in the next 4-5 years - by increasing productivity in the public sector; to reduce the P.A.’s administrative burden; and to have a booster effect on growth.

Creation of public-private partnerships: Industria 2015.

The Italian government’s flagship program to increase the competitiveness of the industrial system, which includes a specific focus on biotech, is Industria 2015, promoted by the Ministry of Economic Development, and launched in 2006. The strategy seeks: to take advantage of the opportunities arising from the growth of private demand of highly innovative goods; to improve the capacity of the productive system to effectively fit the new needs characterizing an advanced society; to improve the competitiveness of traditional sectors by developing new synergies between technology producers and consumer goods producers. Among the main actions planned are the *Industrial Innovation Projects* – IIPs -, which aim to stimulate and promote the development of innovative products and services in five strategic areas, namely Energy Efficiency, Sustainable Mobility, Life Sciences and Biotechnology, New Technologies for SME’s Development, and Innovative Technologies for the Enhancement of Cultural

¹⁹ INNO-Policy Trend Chart – Innovation Policy Progress Report Italy, 2009: soon available online

²⁰ ERAWATCH Country Report 2008: An assessment of research system and policies, Italy

²¹The National Research Plan for the years 2005-2007 was oriented towards 3 main action lines:

1. Reinforcement of the scientific national level, attention to excellence, meritocracy, internationalization, economic growth and valorization of the human capital.
2. Strengthening the technological level of the national productive system to maintain competitiveness, focusing on 10 strategic industrial research programs that imply the participation of universities and research centers.
3. Support active participation in EU programs and international agreements.

The new National Research Plan should be finalized and published by autumn 2009.

Heritage. Once a strategic plan is devised for each IIP and priority areas of funding are clearly defined, the Ministry will issue requests for bids through which entities can submit project proposals and be considered for funding. Proposals must: be detailed and represent innovative and technical scientific progress, while matching the technological objectives established in the strategic plan of the relevant IIP; lead to the concrete implementation of an innovative product or service prototype that has a positive impact on the industry; be the result of *cooperation between research organizations and entrepreneurial companies*; and be competitive in economic terms. Although the program is aimed at financing Italian companies and research centers, foreign entities are eligible to obtain funds when submitting proposals in partnership with Italian counterparts. Nonetheless, if the project is eligible to obtain funds, the amount the foreign entity will receive cannot exceed 15% of the total project amount.

Creation of clusters in order to reach critical mass, specially at regional level, taking advantage of the existing regional competences and “excellences” (e.g. technological districts, high technology poles, centres of competence).

Re-launching of R&D investments in the energy sector. Research Plan in the energy sector (2009-2011). The plan launched by the Ministry of Economic Development in March 2009 foresees the allocation of funds - €210 Million - to boost research and innovation in the energy sector. The resources will be allocated to research centers and universities in order to strengthen research in the fields of production, electricity consumption optimization, nuclear energy and environment protection.

6.3 National support measures recently implemented

Data from the annual report on “Instruments for the support of economic and productive activities” carried out by the Ministry of Economic Development²² shows that the amount allocated to R&D and innovation for national and regional measures during the period 2003-2008 was €14 billion. The year by year analysis of the funding shows that the budget allocated for R&D almost triplicates from 2007 - from €1.16 billion- to 2008 - €3.32 billion in 2008. Listed below, some of the most important measures implemented by the Italian government to favor innovation and financially support research projects.

Research Incentive Fund (FAC) – Among the most important funding programs administered by the Ministry for University and Research is the Research Incentive Fund, which was created with Legislative Decree 297/99 and supports applied research programs for the development of new products, production processes and services and to promote existing technologies.

Fondo per gli Investimenti della Ricerca di Base (FIRB) – The FIRB, administered by MiUR, is the main instrument for funding of basic research. The funding includes activities which aim to widen the scope of scientific and technical knowledge not linked to immediate and specific commercial and industrial objectives, with the aim of enhancing Italy’s global competitiveness.

Fund for Scientific and Technological Research (FIRST) – Since its establishment in 2007, MiUR allocated €900 Million for research in high innovation industrial fields, including biotech.

Technological Innovation Fund – Established by Law 46/82, the Fund seeks to finance programs in high to medium-high tech sectors, including Life Sciences, supporting industrial research projects and the establishment of research centers or conversion and/or renovation of existing ones. A tender procedure has opened in July of 2009 to award €55 Million - €35 from this Fund and €20 Million from the PON Research and Competitiveness- which have been specifically allocated to finance R&D activities and projects carried out by start-ups with less than 5 years of operations.

Fondo per le Agevolazioni alla Ricerca (FAR) – Established by Decree 593/00, the Fund aims to finance research projects submitted by companies, research centers, science parks and consortia. It

²² Ministero dello Sviluppo Economico: Relazione sugli incentivi di sostegno alle attività economiche e produttive (Giugno 2009)

covers up to 25% of the budget with a grant and 70% with a soft loan for a sum not exceeding Euro 7,5 millions .

Progetti di Ricerca di Interesse Nazionale (PRIN) – These projects are promoted by the MiUR (Ministry for University and the Research) and are aimed at supporting projects of relevant interest to the country and being submitted by universities.

Italian Industry Association, Confindustria, is strongly supporting a tax exemption measure for all companies investing in R&D. The lobbying conducted by Confindustria will hopefully lead to a such an important fiscal measure in the near future.

The table below lists some of the most relevant and recent initiatives introduced in support of innovation in the last year.

New support initiatives introduced during the period July 2008 – July 2009		
IT 100	<i>Tax exemption on capital gains from start-ups</i>	This measure is oriented to reinforce the role of the private investors, especially the one of business angels. The measure establishes that capital gains are exempted from personal income taxes in compliance with the following: (i) shares are from young companies (no older than seven years), (ii) they have been owned by at least three years and (iii) the capital gains obtained are re-invested in the next two years on young start ups that operate in the same sector as the first company.
IT 101	<i>National Fund for Innovation</i>	The National Fund for Innovation - €60 Million - has been created by the Ministry of Economic Development with the objective to promote innovative projects based on the exploitation of the industrial property. The Fund's main goal is to support SMEs and to reinforce Italian patents. It will act as an instrument to reduce investment risk for banks and financial intermediaries that participate in the funding/financing of innovative projects based in the valorisation and use of patents.
IT 102	<i>Incentives for the elimination or reduction of substances of very high concern</i>	The Ministry for Economic Development will finance experimental development projects, regarding product or process innovation with the objective to reduce or eliminate the chemical products/substances that have been defined by the EC as "of very high concern" - CE 1907/2006 (REACH). Resources amount to €120 Million.
IT 99	<i>Risk capital fund for SMEs</i>	The Ministry for the Public Administration and Innovation has launched the fund for risk capital for the SMEs located in the South of Italy. This is one of the measures included in the e-government 2012 Plan and its objective is to favor the influx of risk capital in southern Italy, as well as in Abruzzo and Molise regions. The fund - €160 Million- will support the creation and development of SMEs involved in investment programmes related with product and process innovation through the use of digital technologies.
IT 108	<i>Strengthening patents and intellectual property</i>	The Italian Patents and Trademarks Office coordinates a project for the re-qualification of national patents.
	<i>"Brain-return" measure</i>	The "anti-crisis decree" launched by the Italian government last November 2008 foresees the introduction of fiscal incentives to attract Italian researchers living abroad. This measure will try to counteract the brain-drain phenomenon, which is posing a serious threat in the Italian R&D system. The measure consists of a tax incentive - 10% tax applied to personal income - during the first five years of fiscal residence in Italy as from 10 January 2009.

	<i>Funds for research and innovation in the energy sector:</i>	The new plan for the research in the energy sector - 2009-2011 - launched by the Italian Ministry of Economic Development has allocated €210 Million to research centers and universities to strengthen research in the fields of production, rationalization and savings of electricity, nuclear energy and environment protection.
IT 109	<i>Funds for innovation projects in start-ups</i>	The Ministry for Economic Development finances innovation projects proposed by start-up firms operating in medium and medium-high sectors in the following areas: biotech, ICT, materials, robotics and energy. The funding allocated amounts to €55 Million.

Table 10: New Support Measures for Innovation

6.4 Regional support measures

In Italy, both central and regional authorities can legislate, however a series of interventions are the exclusive right of the central State. Within a division of competences, regions have acquired more responsibility through a change in the Italian Republic's Basic Law - L. 3/2003- which enables them, along with the State, to adopt autonomous Science, Technology and Innovation (STI) policies.

Regional policies at national level, including R/D activities as a critical component are additional to ordinary budget and consist of co-funding of structural funds *-national and regional operational programs, PONs and PORs-* and a fund for under-exploited areas, **FAS** -recently included by the 2007 Financial Law within a new larger *"Fund for competitiveness and development"*.

The National Strategic framework for the regional policy (**QSN 2007-2013**), which has been approved by CIPE²³ in December 2006, includes actions of strategic coordination between State and Regions and activities of monitoring, evaluation and strategic reporting. The QSN regional policy is promoted through "projects", where a combination of policy measures (incentives, regulations, infrastructures) contributes to the realization of sustainable processes of innovation. This model of intervention, different from a simply "incentive based" one, has been followed by the 2007 Financial Law also when tracing the lines of a new industrial policy for innovation (Industria 2015).

Regions directly manage three types of policy instruments, all including R/D activity support, even if with different weight: the co-funded instruments (PORs see above), the regional based measures and the transferred from the State measures (established by national laws, such as the case for the R/D fiscal credit, L. 140/ '97) with State attribution of financial resources. The three types of measures are mainly oriented towards generally sustaining the local industrial system consolidation and have a diversified range of instruments (promotion of new entrepreneurs, access to bank credit, infrastructures) but with a low amount of funding.

6.5 European measures

European 7th Framework Programme (FP7)

The Seventh European Research Framework Programme (FP7) provides funding of more than € 54 billion over 7 years (2007-2013) to increase Europe's Research Area and its global competitiveness. FP7 consists of four specific programmes: *COOPERATION* - to fund collaborative projects between research teams; *CAPACITIES* - to enhance research and innovation capacities throughout Europe; *PEOPLE* - to fund training, mobility and career development of researchers; and *IDEAS* - to fund excellent individual investigators in cutting-edge frontier research through European-level competition.

Further information: http://cordis.europa.eu/fp7/understand_en.html

To download the key documents for the FP7, please consult the following web address: http://ec.europa.eu/research/fp7/index_en.cfm?pg=documents.

²³ CIPE: Inter-Ministry Committee for the Economic Planning

EuroTransBio is a joint initiative of 11 European countries and regions including Italy- working to *support trans-national R&D private/private and private/public co-operations* between companies, especially SMEs, and academic labs by coordinating their national or regional public funding programs. The goal is to allow economic and academic biotech players to share risks, costs and skills related to innovation in order to develop more efficiently new products and technologies that could reach the market in the short to medium term. Consortiums consisting of at least two SME partners from two different ETB member countries can bid for the joint calls for industry-driven trans-national R&D projects launched by the countries and regions involved. From 2004 to 2009 ETB has launched four calls and the next will open in October 2009 and close in February 2010. An entity from a non-member country can participate in the bidding consortium -at its own costs- as long as it is offering a significant technical scientific contribution and there are already at least 2 participating entities from 2 member countries; In some case it could also be included as a subcontractor and managed under the national/regional financing regulations of the eligible participant. For further information: www.eurotransbio.net

7. Intellectual Property

Italy is at the forefront of European IPR developments and has some of the most modern and up-to-date intellectual property practices in the world. Foreign companies investing in the Italian market can rely on the same legal protection of Intellectual Property Rights (IPR) granted to Italian companies.

Under the Italian system, it is possible to patent new products or processes in any technological field. However, it is not allowed to patent methods for human or animal therapy, plant varieties or essentially biological methods for producing plants or breeding animals. The filing of an Italian patent can represent the basis for a claim in any member country of the Paris Convention within a year from the date of filing.

The technical solutions of product, process or use may be protected by a patent for industrial invention, which gives the inventor the right to prohibit third competing parties from using the invention. The invention can not be made, marketed, used or distributed if not by the patent holder or with permission. The right is granted by the Italian Patent and Trademark Office (UIBM) for a period of twenty years from the date of the application, at the end of which the invention becomes public. The collections of data or information, under certain conditions, such as databases and new plant varieties as well as biotechnological inventions which have been accepted in our country, can also be protected.

As for *University Intellectual Property rights*, in Italy the ownership of the patent belongs to the researchers and not to the University, with some exceptions, such as when the research is funded by private parties or certain public entities. Under those circumstances, the parties must establish the ownership of the patent contractually with *ad hoc* agreements. In the United States universities cannot automatically claim ownership of a researcher's federally funded invention. However, the university on the other hand has the right to ask the researcher to assign ownership of the invention to the university per agreement signed between the two parties.

The Intellectual Property Rights Desk (New York)

Given the importance of negotiating and drafting non disclosure agreements which adequately protect the interests of the parties involved, the Italian Government has dedicated ample resources in creating various agencies aimed at ensuring ancillary services in IP matters. Among those, the Ministry for Economic Development instituted a network of IPR Desks in strategically designated markets for Italian companies and investors. They are located in different countries; amongst them, there is the New York IPR Desk which covers the entire US territory. The IPR Desk of New York, situated at the Italian Trade Commission, works synergistically with the Italian Embassy in Washington, DC.

*The scope of the Desk is mainly to provide information and legal assistance, on how to protect patents and trademarks in the United States. However, there is also the intent, from a legal IPR standpoint, to **counsel on how to facilitate the co-operations between Italian companies, universities and academic labs, brewing innovation that is marketable, and their foreign counterparts.** In order to obtain this goal and to provide a broader range of legal services tailored to the specific needs of the biotechnology/life science research centers and industry at large, the NY IPR Desk has concluded a memorandum of agreement with a law office, specializing in IPR matters.*

INTELLECTUAL PROPERTY RIGHTS DESK-NEW YORK

ITALIAN TRADE COMMISSION

33 East 67th Street

New York, NY 100653-5949

Donatella Iaricci, Head of the IPR Desk

Tel +1 212 848-0317 Fax +1 212 758-1050

For more information, visit:

<http://www.sviluppoeconomico.gov.it/>; <http://www.ice.it/tutela.htm>

Or Contact: – iprdesk.newyork@sviluppoeconomico.gov.it

8. Success Stories Italy-USA

Italy has attracted the interest of many among the most important multinational firms such as Microsoft, IBM, Pfizer, General Motors, Procter & Gamble, Eli Lilly. These companies have established throughout the country major research centers, tapping into the enormous scientific and technological talent of the Italian researchers:

- **IBM** carries out applied software research at its Rome Tivoli Laboratories as well as in five other Competence Centers on advanced solutions located in Bari (2), Naples, Cagliari and Catania. With a team of 400 researchers, Rome Tivoli's Lab, the only one of its kind in Europe, develops and manages IBM Tivoli Software. It is charged with planning, developing and providing global support on the main Tivoli product line, which includes advanced software for the secure and intelligent management information system and networks.
- **IBM**, again, in cooperation with the prestigious Scuola Normale Superiore di Pisa, has established the Quantum Information Competence Center, the first Italian research center devoted to the quantum informatics with the goal of exploring the potentialities as well as the impact of quantum computing and the most advanced frontiers of software development.
- **Microsoft**, in collaboration with the Italian Government, the University of Trento and the Province of Trento created the **Centre for Computational and Systems Biology at the University of Trento**, a cutting edge Science and Technology centre in Trento seeking to increase the understanding of fundamental biological processes at system level by using programming language theory to design new conceptual tools.
- **Micron Technology**, a US firm with the leadership on high-quality semiconductors has further enhanced its existing research center in Avezzano (Abruzzo) for an investment of 4.3 million dollars, and making this small town one of its main R&D centers. Micron Technology is present in Avezzano since many years now with a high tech wafer production plant.
- **Boeing** has an aerospace research center near Portici (Naples) located within the Imast district, an excellence point for the research and development of polymers.
- In 2007 **General Motors** has moved its European diesel engine laboratories from Germany to Turin within the city campus Politecnico
- **Genentech**, signed an agreement with **Nerviano Medical Sciences**, the largest pharmaceutical R&D facility in Italy and one of the leading oncology-focused and integrated discovery companies in Europe. The collaboration agreement focused on small molecule inhibitors, promising anticancer agents.
- **Bristol-Myers Squibb Company** announced in 2006 an agreement with **Nerviano Medical Sciences** according to which Nerviano will identify and conduct early stage development of active compounds against new oncology targets provided by Bristol-Myers Squibb. Terms of this collaboration include the potential for up to \$150 Million in clinical and regulatory milestones in addition to royalty payments for each successful research program.
- **Schering-Plough Research Institute (SPRI)**, the human pharmaceutical research unit of Schering-Plough Corporation, established a research center within the **San Raffaele Science Park in Milan**.
- **Amgen** and **Dompè Biotech** signed an agreement for a € 10 Million investment aimed at the creation of a biotech research center.
- In 2008 **Cisco Systems** –the US multinational corporation leader in the web- solution sector – already present in Italy with a research center that employees over 200 scientists, is now opening a Center for Business Collaboration in Vimercate, near Milano. The center will focus on new technology development in Business Collaboration.

In addition to these R&D Investments done by US companies in Italy, there are also examples of alliances and collaboration agreements between Italian companies or Universities and American counterparts.

GALILEO ONCOLOGICS, a company established in 2008 and originating from Abiogen Pharma S.p.A, with anti-neoplastic projects at different stages of development, has existing research partnerships with the **University of Texas Southwestern Medical School** and the **Wistar Institute in Philadelphia**.

The science park **Insubrias Biopark in Gerenzano** (in the region of Lombardy) signed an agreement in 2009 with **Texas University** to study possible cures of tuberculosis and malaria, diseases that have registered an increase in resistance cases. Texas University has acquired a copy of all of the 166.000 biological extracts of Insubrias Park's Foundation.

A team led by Professor **Saverio Minucci** of the **Institute of Molecular Oncology/European Institute of Oncology in Milan**, in collaboration with **J Craig Venture Institute** in Maryland and **Sangamo Biosciences** in Virginia, has developed a new epigenetic screening technology that improves molecular-based disease diagnosis. The technology employs high-throughput DNA sequencing that enables doctor to determine patient's epigenetic profile in 3-4 days.

The **Area Science Park** in Trieste and the **Case Western Reserve University of Cleveland** have entered a partnership agreement in 2008 aimed at identifying common research activities capable of stimulating the development of both institutions; supporting and facilitating opportunities for technology transfer on the respective markets; promoting the program which allows Italian and American researchers to work in both institutions; sharing skills and experiences relating to the creation, development and management of scientific parks.

The **University of Pittsburgh Medical Center (UPMC)** has created a \$398 Million **Biomedical Research and Biotechnology Center near Palermo** by 2010, in partnership with the Italian government, the region of Sicily and Italy's National Research Council. The UPMC and the University of Pittsburgh School of Medicine are also creating a new medical simulation center in Palermo, Italy, at UPMC's transplant facility there, to be based at the **Mediterranean Institute for Transplant and High Specialization Therapies -Istituto Mediterraneo per i Trapianti e Terapie ad Alta Specializzazione**.

Last but not least, a clear example of the Italian talent and entrepreneurial spirit which developed and grew in the US. Summarized below are some examples of **Italian scientists and researchers** who not only have been extremely productive in terms of scientific research but were also enthusiast entrepreneurs having created high-tech start ups and spin offs, both in Italy and in the US:

- **Alberto Sangiovanni Vincentelli** has a multifaceted career: a scientist, engineer, entrepreneur and inspiring teacher. He received his PhD in Engineering from Politecnico di Milano, Italy, in 1971. He is currently the Edgar L. and Harold H. Buttner Chair of Electrical Engineering and Computer Sciences at the University of California at Berkeley. He has been on the Faculty since 1976. He was a co-founder of Cadence and Synopsys, the two leading companies in the area of Electronic Design Automation. He is the Chief Technology Adviser of Cadence. He is a member of the Board of Directors of Cadence and the Chair of its Technology Committee, UPEK, a company he helped spinning off from ST Microelectronics, Sonics, and Accent, an ST Microelectronics-Cadence joint venture he helped founding. He was a member of the HP Strategic Technology Advisory Board, and is a member of the Science and Technology Advisory Board of General Motors and of the Scientific Council of the Tronchetti Provera foundation and of the Snaidero Foundation. He consulted for many companies including Bell Labs, IBM, Intel, United Technologies Corporation, COMAU, Magneti Marelli, Pirelli, BMW, Daimler-Chrysler, Fujitsu, Kawasaki Steel, Sony, ST, United Technologies Corporation and Hitachi. He was an advisor to the Singapore Government for microelectronics and new ventures. He consulted for Greylock Ventures and for Vertex Investment Venture Capital funds. He is a member of the Advisory Board of Walden International, Sofinnova and Innogest Venture Capital funds and a member of the Investment Committee of Atlante Ventures, by Banca Intesa/San Paolo. Dr. Sangiovanni-Vincentelli has been a Fellow of the IEEE since 1982 and a Member of the National Academy of Engineering, the highest honor bestowed upon a US engineer, since 1998.

- **Mauro Ferrari** is a well known scientist: Professor and Chairman, Department of Nanomedicine and Biomedical Engineering (nBME) and Professor of Internal Medicine, Division of Cardiology at The University of Texas Health Science Center, he is internationally recognized expert in the development, refinement and application of biomedical nanotechnology. He was trained in mathematics, engineering and medicine at the University of Padua (Italy). He has published approximately 200 peer-reviewed articles and received many national and international awards. Dr Ferrari was also the first recipient of a Research Superiority Award of the Emerging Technology Fund of the State of Texas. From 2003 to 2005, he served as Special Expert on Nanotechnology and Eminent Scholar at The National Cancer Institute, where he led in the development of the NCI's program in Nanotechnology, which remains the largest program in NanoMedicine in the world. Dr. Ferrari has more than 30 U.S. and International patents awarded to his credit and has founded several startup companies. Furthermore, he is the scientific founder of NanoMedical Systems (NMS) in Austin, Texas and Leonardo Biosystems. He also currently serves as the Director of Scientific Strategy at the Arrowhead Research Corporation (NASDAQ:ARWR).
- **Francesco Stellacci** a former brilliant researcher in engineering and materials science at the MIT in Boston and the only Italian winner of the Emerging Technologies EMTECH35 prize for young innovators, has founded his own start-up company in Italy, in which MIT holds 10% of the shares. Molecular Stamping is based upon a patent that allows a new method to produce microarrays, nanotechnological tools used for the DNA analysis, mostly to study diseases like Alzheimer and certain types of cancer.

9. Events

The following list of events in Italy provides an excellent opportunity to learn about latest developments of Italian companies and research institutes and meet their representatives.

National Award for Innovation

June 8, 2009, Roma

On a yearly basis, the President of the Italian Republic grants an Award to the Italian firms and entrepreneurs that distinguished themselves for the results achieved in the field of innovation. The event is hosted and organized by Cotec, the national foundation for technology and competitiveness. The National Award for Innovation encompasses several branches, such as Industry, High-tech start-ups, Services, Design and Public Administration.

<http://www.cotec.it/it/2009/06/il-%E2%80%9Cpremio-dei-premi%E2%80%9D/>

Business Day

October 2, 2009, Trieste

Business Day is an event dedicated to entrepreneurs and managers interested in the results, technology and products from the top cutting-edge companies in the AREA Science Park, the first multi-sector Science and Technology Park in Italy and one of the largest in Europe. The catalogue containing information on the participating companies is accessible online and it is possible to request meetings before the event on the show's website. The next edition of BDay will be held in Trieste in October 2010.

http://www.area.trieste.it/opencms/opencms/area/en/informa_en/news_en/2009/news_0130.html

SMAU PERCORSI PER L'INNOVAZIONE – Innovation Pathways-From Business Idea to Business Start Up

October 22-24, 2009, Milano

SMAU is one of the major ICT trade shows taking place in Italy at Fiera Milano City. It is within this major event that "Innovation Pathways" has been organized. Innovation Pathways is addressed to start-up, spin-off, research institutions, University, Business Incubators, Scientific Parks, Technological Districts. The 2010 edition of SMAU will take place in Milan in October 2010.

http://www.smau.it/html/pdf/2009/milano09/smau09_percorsi_en.pdf

MIND THE BRIDGE

6-7 November 2009, Milano

April 2010, Silicon Valley

A non-profit foundation of Italian entrepreneurs in the USA willing to boost ideas and innovations born in Italy but that might find investors and supporters in the US, and in Silicon Valley in particular. Mind The Bridge has organized, for the first time in Milan, the Venture Camp (November 6 and 7, 2009) during which 24 business plans were presented to a group of investors. On April 2010, in Silicon Valley, Mind the Bridge will host the Grand Finale when the selected projects will tour to showcase their ideas.

www.mindthebridge.com

ResearchToBusiness (R2B)

November 12-13, 2009- Bologna

R2B - at its fourth edition - is the first initiative in Italy aimed at fostering collaboration between advanced research and industry on a national and international level. R2B is the venue where the research key players have the opportunity to present new ideas for technological innovation, research results, prototypes and applications to be marketed for businesses, R&D managers and sponsors interested in supporting technology transfer operations.

www.rtob.it

Global Entrepreneurship Week in Italy

November 16, 2009- Pisa

For the first time the Global Entrepreneurship Week (GEW) will have an Italian edition. The event will take place in Pisa, at the prestigious Scuola Superiore Sant'Anna. The topic of this event will be Research in Italy, the new Italian entrepreneurship spirit spinning out from all the major universities and research centers.

<http://www.sssup.it/gew>

Premio Nazionale per l'Innovazione

December 4, 2009- Perugia

The “PNI - Premio Nazionale per l’Innovazione” (National Prize for Innovation) - is the competition that every year gathers the winners of the Italian “Start Cups” - the business plan competitions organized by the universities taking part to the “PNI Cube”. The PNI is the grand final among the winners of the seventeen local contests for the best high-tech entrepreneurial ideas.

<http://www.pni.it/>

INTESA SAN PAOLO START UP INITIATIVE

January 2010

A moment in which start ups and investors get together to evaluate the best business plans selected by the Intesa San Paolo Innovation team. After a first “pilot” event which took place in Milan last October, and that generated the closing of two deals, 5 more events will be held in 2010. For more information, please contact newyork@ice.it.

www.startupbusiness.it

TECHGARAGE

May 2010, Rome

TechGarage is a start up competition featuring 10 hot and new European start ups. These 10 finalists will have the chance to present their ideas and business plans to VCs and business angels. 3 winners will receive an award and a package of services: accounting, legal and advising services that will guide the company to its next stage and prepare it to get funded.

www.techgarage.eu

ESOF2010

July 2, 2010- Torino

Created by Euroscience, ESOF – Euroscience Open Forum – is the biennial pan-European meeting dedicated to scientific research and innovation. At ESOF meetings leading scientists, researchers, young researchers, business people, entrepreneurs and innovators, policy makers, science and technology communicators and the general public from all over the world discuss new discoveries and debate the direction that research is taking in the sciences, humanities and social sciences.

http://www.esof2010.org/what_is_esof

10. Additional links

Below some additional links to useful sources related to the Italian R&D system available on line.

www.ricercaitaliana.it	A resourceful and comprehensive web portal, offering detailed information on research programs, institutes and government policies in Italy. Searchable by keywords, research area, region. It can be translated in English by using the Google Toolbar.
www.riditt.it	The Italian Network for Innovation and Technology Transfer to SMEs offers a database on technologies developed by Italian universities and research centers, and another on research centers, science parks and incubators, both searchable by technology type or by geographical area.
www.netval.it	A list of all University spin-offs (soon available by sector) and links to Universities' web pages listing patents are available on the website of the Italian Technology Transfer Offices Association - English translation through Google toolbar).
http://www.ditt.de/atlas/it/	A directory of Italian Science and Technology Parks and Technology Districts, available by sector and services. It is managed by the Italian Trade Commission of Berlin.
www.aginnovazione.gov.it	AGENZIA NAZIONALE DELL'INNOVAZIONE established by the Italian Government to promote technology transfer from University to Industry and accelerate the competitiveness of Italian SMEs.
www.reteventures.com	ReteVentures is the technology transfer and industrial development company operating in the fields of innovative materials and advanced technologies of the CNR, the National Research Council. The shareholders include three National Institutes with 10,000 researchers working in Italian and international Universities and Laboratories in the fields of Science and Engineering of Materials, Devices, Nano- and Micro-technologies and Computational Sciences.
www.associazionericerca.it	AIR is a non profit organization born with the aim of promoting the Italian R&D sector.
www.italianapplications.com	A private company, based in Milan that helps selecting and transferring innovations and research from the lab to the market. With an extended network of scientists, universities, research centers both in Italy and abroad, Italianapplications is also able to provided assistance in searching for suitable sources of funding.
www.cotec.it www.cotec.it/en/	COTEC – Fondazione per l'Innovazione Tecnologica - is a non profit foundation under the Honorary Presidency of the President of the Italian Republic. COTEC operates with the ambitious goal of fostering Italian technological competitiveness, mainly by representing a platform through which the Innovation stakeholders can cooperate and share technology and knowledge. Among its structural activities, the COTEC foundation publishes every year the Italian Innovation Report, a detailed picture of the strengths and weaknesses of the Italian Research and Innovation system.
www.issnaf.org	ISSNAF -the Italian Scientists and Scholars of North America Foundation- is a non profit organization aimed at promoting R&D interaction and exchange of knowledge among Italians active in

North American and Italian academic and non-academic institutions in the fields of Biology, the Humanities, Medicine, Mathematics, Physics, Engineering, Information Technology, and Social Sciences. Founded in 2007, ISSNAF offers a platform to connect Italian scientists and scholars, facilitate exchanges between American scientific institutions and Italian young scientists and companies and create opportunities with focused fund raising. Among some of its main activities are the promotion of contact and exchange of knowledge between Italian scientists, scholars, and entrepreneurs in Italy and North America, facilitating joint R&D projects and collaborative agreements; the administration of research and study grants and fellowships bringing Italians to the United States; and the identification of significant research opportunities for Italian academia and industry, stimulating their development.

*The **Italian Trade Commission** is the government agency responsible for the promotion of trade, business opportunities, and industrial cooperation between Italian and foreign companies, as well as the attraction of foreign direct investment into Italy. Its promotional activities are financed both by government funds, provided by the Italian Ministry for Economic Development, and by private contributions by companies that benefit from its activities and services. These include the exchange of information, assistance in marketing planning, promotion, multilateral cooperation, and training.*

The Italian Trade Commission operates through 115 branch offices in 86 countries. In the United States the Italian Trade Commission is present in New York, Los Angeles, Chicago, Atlanta, Houston and Miami. The Trade Commission offices in the US are deeply committed toward tighter economic partnership between Italy and the US and one of the goals is to encourage US companies to intensify their activities in Italy. To that end, and within the framework of its mission to promote business cooperation between Italy and the US, the New York and Los Angeles offices have Investment Desks, which specifically carry out various programs aimed at positioning Italy as a desirable destination for American investment and provide first assistance to US companies wanting to locate, invest or expand their operations in Italy.

Moreover, the Trade Commission is also active in raising foreign investors' awareness of, and involvement in, the scientific and technological innovations of Italian research centers, universities and of the increasing number of spin offs and entrepreneurial enterprises stemming from these infrastructures.

U.S. technology companies and investors are encouraged to contact the Italian Trade Commission to learn what Italy has to offer in terms of products, services and investment and collaboration opportunities.

For more information please contact:

ITALIAN TRADE COMMISSION
Trade Promotion Section of the Consulate General of Italy in New York
New York Investments Desk

33 East 67th Street
 New York, NY 10065
 Tel. +1 212 980-1500
 E-mail: newyork@ice.it
www.italtrade.com

This document has been prepared by Marcella Debidda- marcella@innova-us.net - Innova Consulting Group, Inc., in collaboration with Valentina Petricciuolo - VPetricciuolo@italtrade.com – Deputy Trade Commissioner, Italian Trade Commission, New York, and Richard Fishler - RFishler@italtrade.com – Assistant Investments Desk – Italian Trade Commission, New York.

The organizations herewith portrayed were selected by the Innova Consulting Group and the Italian Trade Commission in New York and do not intend to be an exhaustive list of entities in Italy. Moreover, whilst every effort has been made to ensure that the information contained in this document is accurate, the Italian Trade Commission is not liable for any errors or omissions contained in any part of this report.

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