

***Development of Innovative Business Parks to  
Foster Innovation and Entrepreneurship in the SEE Area***

**Template for delivering WP3.1**

**Study of the innovative potential of FIDIBE partners regions**

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## **PART I. Executive summary**

The study on the innovative potential of the FIDIBE partners region involved 9 different regions of the SEE area.

The report includes an in-depth situation analysis and investigation of the innovative potential of the regions.

The study analyses the general situation of regional entrepreneurship and innovation capacity, the specific characteristics of the region through regional indicators and SWOT analysis; after this the study focuses on the main actors contributing to the development of innovative capability and entrepreneurship of the region and suggests ways for the innovative capability to foster and further be developed, as well as recommendations for the entrepreneurship's problems. The last part of the report identifies the main conclusions regarding the innovative potential of the Region of Veneto.

**Part II** of the report describes the regional situation about innovation in the Region.

The introduction on the report regards the general situation of regional entrepreneurship and innovation capacity. Veneto is the fifth Italian region in terms of GDP per capital (9.1% of the national GDP) and one of the strongest economic regions in Europe. The region is the second one in Italy for number of companies but most of all are SMEs (460.000 companies, 8,7% of Italy). The economy is based mainly on the manufacture sector (34% GDP of Veneto) and there is a very low expenditure in R&D (6% of total R&D Italy).

The most innovative businesses seem to be located in the food industry (about 30% of food businesses claim to have introduced primary product innovations, and about 28% secondary product innovations); other innovative sectors include chemicals, and rubber and plastic (32% and about 21% introduced primary and secondary product innovations respectively; 26% and 23% introduced primary and secondary process innovations; and 28% introduced organisational, management and commercial innovations).

There are some problems-obstacles that innovation development faces concerning innovative SMEs. Shortage of finance both from public and private sources has been recognised as one of the main factors that hinder innovation. Funds for innovative SMEs from private banks and venture capital are rather scarce in Italy and in the Region of Veneto. In particular, the availability of early-stage/venture capital funding needs to be absolutely improved since the market is relatively young and underdeveloped.

Moreover the index developed to measure the efficiency of technology transfer between university and enterprises shows very low levels for Italy and the Region of Veneto

With reference to regional programmes & tools supporting SMEs, instruments specifically devoted to R&D and technological innovation count at present for 20 % of the total instruments (36 % are decentralised instruments, while 10.8 % are purely regional measures). They represent the second priority after the consolidation and development of the productive system. Measures directly formulated and managed by the regions (whose number and relevance is strongly increasing in the

overall framework and have doubled from 2005 to 2006) are focalised on more specific objectives: new entrepreneurship, access to credit, environment/energy/services and infrastructures to firms. In the last years, more emphasis has been given by these interventions on innovative activities within firms. Resources are more frequently provided through grants or loans on easy terms; rarely, through intervention on risk capital. Moreover Regional policies for innovation focus on this three areas: clusters of innovation in knowledge-driven sectors, the activation of industrial districts to increase the competitive potential of the region, and the promotion of industrial research and technological transfer among small firms.

STPs have a key role in the Region. APSTI – Associazione Parchi Scientifici e Tecnologici Italiani is the national network of scientific and technological parks. The majority of STPs are members (31 members) accounting for virtually all of the Italian regions, with the aim of supporting economic development through innovation. In Veneto there are 3 Science and Technology Parks (VEGA Venice Gateway for Science and Technology, GALILEO Science and Technology Park, STAR Science and Technology Park) and they are all members of APTI.

The main missions of the technologies parks of Veneto are:

- the environmental requalification and the urban regeneration by providing infrastructure to attract firms with a high scientific and technological content, offering a range of services in order to facilitate management and promote growth;
- the industrial rehabilitation and the technological transfer: promote a series of initiatives that facilitate the transfer of knowledge, in particular scientific and technological knowledge, from the universities and the large companies to the fabric of the SMEs in Veneto area;
- the promotion and support of new innovative firms: supports academic start-ups and spin-offs with a range of innovative tools.

The specific characteristics of the region under study has been analysed through regional indicators and a SWOT analysis. With reference to geographical location, Veneto is located in the north-east of Italy with Venice as the regional capital, it has around 4.6 million inhabitants and covers 6% of the Italian territory. Just for its good geographical location, in 2007 Veneto's exports exceeded 50,557 million euro, a 9.2% increase on 2006, while its imports exceeded 39,844 million euro, a 7.7% increase on the previous year.

The economy- basic figures are:

1. University graduates: In Italy the percentage of graduates is only 10.2% and all the Italian regions have results comparable to the national average; Veneto ranks last with 9.2% of graduates out of the population aged 15-years old and over;
2. Unemployment rate : Veneto had a low unemployment rate (3.3%) and was second only to Emilia Romagna (2.9%);

3. Employment rate: Veneto reached an employment rate of 65.8%, ranking, among the Italian regions considered, behind Emilia Romagna (70.3%) and Lombardia (66.7%) and ahead of Piemonte (64.9%) and Toscana (64.8%);
4. Female employment rate: the Italian regions considered here recorded low levels of female employment, except for Emilia Romagna, which reached 62%. Veneto is last in the ranking, with 54% of women aged 15-64 in gainful employment;
5. Female employment rate : the Italian regions considered here recorded low levels of female employment, except for Emilia Romagna, which reached 62%. Veneto is last in the ranking, with 54% of women aged 15-64 in gainful employment;
6. GDP per capita: GDP per capita in Veneto was equal to 28,700 euro, more than 17%, i.e. 4,200 euro, above the national average.;
7. Female employment rate: the Italian regions considered here recorded low levels of female employment, except for Emilia Romagna, which reached 62%. Veneto is last in the ranking, with 54% of women aged 15-64 in gainful employment.
8. GDP per capital: the most recent year for which data for comparison with the other European regions is available, GDP per capita in Veneto was equal to 28,700 euro, more than 17%, i.e. 4,200 euro, above the national average.
9. Innovation performance: the index for Italy, equal to 0.34, demonstrates the general lag when compared to the European average of 0.45, and the lack of improvement over the period 2001:2005 (-0.9%). In this context, looking at the overall index for regional innovation, it can be seen that Veneto is in circumstances similar to those of Italy.
10. Employees in high- and medium-high technology content businesses: the percentage of employees in firms with high- and medium-high technology content was also rather significant in Veneto, 10.7% in 2007, which was higher than the Italian average of 7.6%.
11. Tourist-density index: Veneto had a tourist-density index equal to 35.1 nights spent per 1000 residents and is the region with the highest rate, more than double the national average (17.4).
12. Road Quality Indicator: In 2006 Lombardia and Veneto were the most congested Italian regions, with figures equal to 0.23 and 0.33 km of roads per 100 vehicles in circulation.
13. Motorization rate: Veneto, with 678 vehicles available per 1000 residents, is in line with the Italian average, and it experienced an increase of 6.6 vehicles compared to 2005 and 13 over the last five years.

With reference to Trade and finance, in 2007 Veneto's exports exceeded 50,557 million euro, a 9.2% increase on 2006, while its imports exceeded 39,844 million euro, a 7.7% increase on the previous year. The region's trade surplus was more than 10,713 million euro, up 15.5 percentage points on 2006. With 13.9% of the national total, Veneto is Italy's second leading exporting region behind Lombardia (28%) and ahead of Emilia Romagna, Piemonte and Toscana.

In infrastructure field, regional data for 2007 indicates that the different types of infrastructure in Veneto have grown since 2000 with values above the national average.

SWOT analysis of the region underlines the main features regarding strengths (Strategic geographical position, Higher local presence and greater presence of enterprises etc.), weaknesses (Poor funding and low investments in R&D, Poor capacity for radical product innovation, lack of “financial instruments for innovation” etc.), opportunities (in particular take advantage of a local collaboration networks) and threats (Inefficient research/enterprise collaboration, lack of a proper national and regional innovation policy, etc.)

**Part III** of the report describes the main actors contributing to the development of innovative capability and entrepreneurship of the region of Veneto. The general situation of the business sector, mostly focusing to innovative entrepreneurship starts with the analysis of the present situation of the regional business sector.

The demography of Veneto businesses in 2008 closed on a positive note: the number of active businesses on Veneto's Business Register increased by 2,549 units last year. When compared with 2007, growth in 2008 was equal to 0.6% when considering all sectors and reached 1.4% excluding agriculture. Although Veneto's annual growth is well below the national average and despite fierce competition, Veneto is Italy's third-ranking region for the number of active businesses with 8.7% of the national total: a value that highlights the major role the region plays. The highest increase in active businesses was in the business-service sector, which recorded growth of 3.2% in the last year.

Veneto is home to 9.3% of Italy's high-tech industry, ranking third after Lombardia (22%) and Lazio (9.6%), so at first glance it would seem a hub of high-tech excellence. However, 53% of Veneto's production industry was still low-tech in 2008. The tertiary sector, which has been reclassified on the basis of different knowledge levels, highlights the prevalence of traditional services, which account for 61.5% of the entire sector, as well as the dynamic nature of services with a high knowledge content.

The European Innovation Scoreboard 2005 confirmed the EU's weakness in innovation when compared to its principal global competitors, i.e. the United States and Japan, but it did highlight its rapid improvement.

The index for Italy, equal to 0.34, demonstrates the general lag when compared to the European average of 0.45, and the lack of improvement over the period 2001:2005 (-0.9%). Among European regions, Veneto ranked 122nd out of the 203 regions considered, with an index in 2005 of 0.40, which is near the average value of 0.43. Compared to 2001, Veneto improved by 4.6 percentage points. The percentage of employees in firms with high- and medium-high technology content was also rather significant in Veneto, 10.7% in 2007, which was higher than the Italian average of 7.6%. regions considered, with an index in 2005 of 0.40, which is near the average value of 0.43. Compared to 2001, Veneto improved by 4.6 percentage points. The percentage of employees in firms with high- and medium-high technology content was also rather significant in Veneto, 10.7% in 2007, which was higher than the Italian average of 7.6%.

After this the report focus on the entrepreneurship policies in the region-country examining firstly the national innovation policy mix. The latest report on the incentive system for enterprises published by the Minister of Economic Development in June 2007 and the Document for Economic and Financial Programming for the period from 2008 to 2011 show that Italian companies still devote few resources for investing in R&D and technological innovation. Past governments recognised the importance of innovation as a driver of the national economic development and competitiveness, and the need to create an environment favourable to innovation and technology transfer has become a priority in the national policy formulation process.

The new policy approach has been developed along two major strategic lines:

1. generalised (horizontal) support addressing all companies through automatic incentives (tax credit);
2. Industria 2015, the new national policy plan (Initiatives for industrial Innovation) which strongly links industrial and innovation policy to help Italian companies recover their competitiveness.

The 2007 and 2008 Budget Laws foresaw the introduction of several measures to support R&D and innovation.

- Tax credit for R&D,
- Industrial Innovation Projects,
- High-tech fund for SMEs,
- Tax exemption for high-tech enterprises.

At regional level, instruments specifically devoted to R&D and technological innovation count at present for 20 % of the total instruments (36 % are decentralised instruments, while 10.8 % are purely regional measures). They represent the second priority after the consolidation and development of the productive system.

Measures directly formulated and managed by the regions (whose number and relevance is strongly increasing in the overall framework and have doubled from 2005 to 2006) are focalised on more specific objectives: new entrepreneurship, access to credit, environment/energy/services and infrastructures to firms. In the last years, more emphasis has been given by these interventions on innovative activities within firms. Resources are more frequently provided through grants or loans on easy terms; rarely, through intervention on risk capital.

The overall picture, however, shows that regional instruments are still too fragmented (too many measures addressing different objectives and topics).

With reference to the national specific Policies and Programmes for Innovative Start-ups, there have been some support instruments developed to favour capital markets, in particular the venture capital sector.

- Law 388/00, Articles 103 and 106 foresaw a public cofinancing scheme for young enterprises wishing to develop innovative projects. Unfortunately, results of this measure cannot be considered satisfactory, also due to a very slow take-off. (IT 41 — Support to the promotion and development of new innovative enterprises).

- The High-tech fund for SMEs (IT 55) announced in 2005 also foresaw the establishment of a fund for the public participation in risk capital of start-ups located in the Mezzogiorno and operating in high-tech sectors. Despite a long delay, the measure has finally become operative in 2008.
- TTVenture, a private fund (seed, venture capital, private equity) recently launched to support the creation and the growth of high-tech SMEs in biomedicine, energy, environment, agrofood and materials.
- Law 388/00 (Article 106) also contemplates the promotion and technical assistance for innovative start-ups in high-technology sectors. Under this framework, a measure was launched to encourage the creation of business incubators that can favour the birth of innovative companies through the provision of services supporting the start-up phase (IT 51 Incubators for start-ups).

Veneto has a regional strategic plan for scientific research, technology development and innovation 2008-2010 (according to regional law 9 / 2007 art. 11) and we have identified the main tools supporting research and innovation: 9 budget lines for a total of € 231.400.000,00 already financed (until 2007).

The main actors contributing to the development of innovative capability of the region are the Technology Transfer Institution (TTIs).

According to the study "Open innovation in Veneto – map of TTIs", the TTIs in the region of Veneto are 88. The main TTIs category refers to analysis laboratories and industrial tests (44,5% on the total); then there are research laboratories for applications practices and thematic centres (11,4%) and public research centers (6,8%) and companies incubators (5,7%).

The 88 TTIs have an average age of 19 years old and they are mainly oriented to active collaboration in order to realize projects (1/3 on the total).

Regional TTIs have a good collaboration with the universities, in particular with the university of Padua. The bridging skill between industrial system and university system is an emerging characteristic of the TTIs network; in fact more than an half of the TTIs collaborate with at least one university (mainly the regional one) on the management in sharing projects (61.5% on the total TTIs) and on sharing information (56.4% on the total TTIs). The main actors in the TT system are the regional development agency and two science and technologies parks of Venice and Padua.

A big problem concerning the open innovation context is linked to the TTIs skill of bridging towards new markets of technology and scientific knowledge (outside the regional and national boundaries).

there're some spill-over phenomena: informal knowledge and information sharing through personal contact; these phenomena decrease the services demand that represents for the companies a high cost and an uncertain result.

According to the report on Veneto by MET 2008, the regional companies have some factors that limit their capability to realize development strategies through investments.

The negatives perspectives in their own business sector represent the most important reason to decrease the investment of the regional companies; there are other critical factors: SMEs' limited access to credit (16,4% companies in Veneto, 15,6% in Italy), high energy cost (16,5% in Veneto, 14,1% in Italy), low corporate capitalization (12,2% in Veneto, 11,7% in Italy), few high skill human capital (9,7% in Veneto, 8,6% in Italy).

**Part IV** focus on the suggestions and proposals for over-passing problems of entrepreneurship (innovative SMEs) in the region of Veneto.

Based on the inno policy trend chart 2008, the National Innovation System is subject to a number of challenges and the creation of an innovation friendly environment means acting on four main fronts.

1. Increasing the amount of funds (both public and private) allocated to R&D activities: the Italian government still devotes an insufficient amount of public funds to sustain research and development. The latest value recorded by the EIS indicators for Public R&D expenditure is 0.56, below the average of EU-15.
2. Reinforcing and rationalising the incentive system to foster R&D and innovation within SMEs, as the lack of R&D and innovation within SMEs (that represent 98 % of the Italian industrial fabric) is one of the reasons often cited for the drop in competitiveness of the Italian industry.
3. Improving the existing technology transfer mechanisms to reduce the existing gap between research and the market.
4. Establishing a system based on 'meritocracy', ensuring that the 'best' (firms, researchers, projects, universities) are the ones that receive the (scarce) resources: this has been an often cited pitfall of the Italian system that is calling for an urgent intervention by the majority of the NIS' stakeholders.

Three main challenges can be extracted:

Challenge 1: Innovation financing (especially venture capital): SMEs' limited access to funds is a key challenge for the Italian system as increasing global competition calls for investments in innovation.

Challenge 2: Mobility of talents: The degrees of retention and attraction of skilled human capital are important indicators of the efficiency of educational and labour market systems of the country. Having young researchers, professionals and university graduates moving abroad may put a serious and strong impediment on innovation in the next years as the brightest human resources move away, taking with them high levels of skills and know-how.

Challenge 3: Improvement of technology transfer mechanisms to reduce the existing gap between research and the market.

The Italian National Reform Programme highlights among its priorities the promotion of scientific research and technological innovation (priority number two) and the reinforcement of education and training (priority number three). In particular, the importance of technology transfer as one of the most important tools for achieving economic growth in the long term and the need to strengthen networks of

relations and cooperation between universities, laboratories and enterprises have been significantly stressed in the document.

Referring to the proposals for regional actions, According to 'Libro Bianco 1' the Region of Veneto an over-passing the problems through some specific actions based on: network to produce efficient innovation, the value of human resources, a new finance for innovation, monitoring and evaluation of the regional innovation results, strategic planning with a few clear objectives, communication of the regional innovation, support to new innovative companies, the optimization of the results of technology transfer and incremental innovation and the support to radical innovation.

## **PART II. Report on regional situation of Region of Veneto**

### **II.1 Introduction**

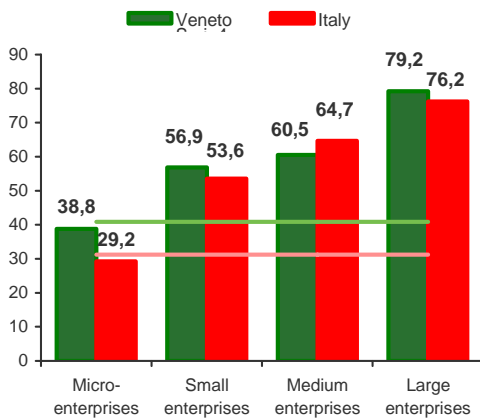
#### *General situation of regional entrepreneurship and innovation capacity*

Veneto is the fifth Italian region in terms of GDP per capital (9.1% of the national GDP) and one of the strongest economic regions in Europe. The region is the second one in Italy for number of companies but most of all are SMEs (460.000 companies, 8,7% of Italy). The economy based mainly on manufacture sector (34% GDP of Veneto) and there is a very low expenditure in R&D (6% of total R&D Italy).

Industry plays an important role in the region and employs 40% of the labour force. Typical industrial sectors include clothing and furniture. Small and medium-sized firms, often family-run, form the region's industrial base. Many SMEs are launching into collaboration, mainly with other regional companies but also outside Italy. The economic system is strongly export-oriented, in particular in sectors such as metal-mechanical products, textiles, leather, electrical equipment, metals and metal products, and other manufactured products. The region has efficient transport structures including airports, harbours and inter-modal structures. More than half of the regional work force is employed in the service sector. While employing only 4%, the agriculture sector is also an important resource for the region.

A 2008 report on Veneto by MET, an economic observatory, highlights that it is the trend towards innovation, which also involves small and very small enterprises, that is one of the main reasons behind the positive performance of the region's economy. In Veneto, 40.9% of businesses claimed they had introduced some form of innovation during the three-year period 2005-2007, a figure that is much higher than the one recorded for the rest of Italy (31.2%). At both regional and national level, there was a positive correlation between company size and drive towards innovation, but there was also significant activity in even the smallest businesses. It should be noted that with the exception of businesses with between 100-249 employees, the percentage of innovating businesses in Veneto was higher than those recorded for the rest of Italy. It is, however, in the micro class (1-9 employees) that the gap between regional and national figures is most significant, highlighting that the differences in innovation performance at aggregate level depend heavily on Veneto's 'micro enterprises', which seem more driven than their national counterparts (fig. 1).

**Fig. 1 – Percentage of businesses introducing innovation per size class. Veneto and Italy - Year 2008**



Source: processing by Regione Veneto - Direzione Sistema Statistico Regionale on Met data

**Percentage of businesses introducing innovation per size class. Veneto and Italy - Year 2008**

	Micro-enterprises	Small enterprises	Medium enterprises	Large enterprises	Total
Veneto	38,8	56,9	60,5	79,2	40,9
Italy	29,2	53,6	64,7	76,2	31,2

A closer look at the innovations introduced reveals that 20% of Veneto businesses introduced primary product innovations (compared with 15.8% nationwide) and 17% secondary product innovations (compared with 13.8% nationwide). The gap is similar in process innovations, although smaller: 13.7% and 10.1% of Veneto businesses introduced primary and secondary process innovations respectively, where national averages equalled 11.4% and 8.8% respectively. About 22.7% of Veneto businesses declared that they had introduced organisational innovations compared with a national figure of about 14%.

Regional policies for innovation focus on three areas: clusters of innovation in knowledge-driven sectors, the activation of industrial districts to increase the competitive potential of the region, and the promotion of industrial research and technological transfer among small firms.

The Innovation actors in Veneto Region include:

- 88 Technology Transfer Institutions (TTIs) and Research and Development laboratories,
- 3 Technological and Scientific Parks,
- 45 Production districts recognised by the Veneto Region.

### *Most promising sectors-progress*

The most innovative businesses seem to be located in the food industry (about 30% of food businesses claim to have introduced primary product innovations, and about 28% secondary product innovations); other innovative sectors include chemicals, and rubber and plastic (32% and about 21% introduced primary and secondary product innovations respectively; 26% and 23% introduced primary and secondary process innovations; and 28% introduced organisational, management and commercial innovations). Figures that were somewhat higher than the regional average emerged for secondary process innovations in the vehicle sector (20%) and in the electric machinery and electronic equipment sectors (19%). However figures were somewhat lower than the regional average (though in line or better than national figures for the same sectors) in the transport and telecommunications sectors, which produced figures for product and process innovations (both primary and secondary) that were 50%-70% of the regional average. As mentioned above, however, these figures were equal or higher-at times even 50%-60% higher-than national figures for the sector.

The contribution innovative products made to turnover seems particularly high for new products or services (on average about 46% of turnover in 2007 was attributed to these goods, compared to a national figure of 34%). This data seems to confirm that Veneto is an innovative area that contributes a significant amount to the creation of wealth in the manufacturing sector. There is strong growth in advanced innovative strategies, as well as in ones that literature describes as "modern": today about 18% of businesses consider innovation to be an essential requirement for remaining on the market; 15% innovate because it is an essential part of their sector; and 10% innovate to keep up with their competitors.

One of the region's peculiarities is that there has been a drop in the number of both low-tech and high-tech businesses, which means that Veneto's manufacturing industry develops on mid-range products, but ones that are highly specialised and require high-level techniques rather than high technology.

Overall figures confirm the strength of Veneto's business fabric: at one year the rate stands at about 92%, at two years it is higher than 85%, at three years it is almost 80%, and at four years three out of four businesses are still active. The most developed trends in manufacturing stem from the food, metal and mechanical sectors, which vaunt survival rates consistently above the regional average.

### *Main problems-obstacles that innovation development faces concerning innovative SMEs*

In an economic climate that is under considerable strain both nationally and internationally, businesses need to be able to consolidate their competitive position if they are to perform better than the sector average, or simply to survive. These goals can be achieved by continuing the minor, yet in some cases radical, structural changes that have swept Italian businesses over the last few years.

Analysing the births and deaths of Italy's active businesses gives a glimpse of how worsening markets have affected them: the failure rate is a little higher than the start-up rate, which produced a 0.4% drop in the business population.

Shortage of finance both from public and private sources has been recognised as one of the main factors that hinder innovation. Funds for innovative SMEs from private banks and venture capital are rather scarce in Italy and in the Region of Veneto. In particular, the availability of early-stage/venture capital funding needs to be absolutely improved since the market is relatively young and underdeveloped. The value of the 2007 EIS indicator 'early-stage venture capital' (0.002) is very low with respect to the EU average.

Technology transfer processes should be further promoted since one of the flaws of the Italian and Veneto Region system is its difficulty in generating innovation from knowledge and research inputs. An index developed to measure the efficiency of technology transfer between university and enterprises shows very low levels for Italy (3.60 whereas the same index for countries like Denmark, Finland, Germany, Sweden or the US is around 6.00 to 6.69).

Another critical feature is the amount of research conducted by Veneto's production system. Although Veneto is starting to show some dynamism in this field, it is emblematic of the Italian model of "innovation without research": much of the innovation produced is informal and thus escapes detection by statistical research based on objective indices.

Eurostat figures show that between 2000 and 2005, regional expenditure on research and development was lower than the Italian average, which is already modest by European standards, both in terms of percentage of Gross Domestic Product and number of researchers. Europe is, however, still far from the objective set in Lisbon in 2000, which aims for 3% expenditure by 2010. Equally distant is the 2.5% set for Italy. The situations in individual countries are very different: alongside countries such as Sweden and Finland, which surpassed the objectives in 2001, stand countries that devote a lower percentage of GDP to R&D: among them is Italy, which spent 1.1% in 2006. In Veneto, this form of investment has developed in recent years, and there was a 22.7% increase in expenditure on R&D last year. In Veneto, the number of R&D employees has also grown consistently, and there was an increase in all sectors last year. There was a particular increase in the number of people employed in R&D by businesses, which rose by almost 50%. The number of R&D employees also rose by about 20% in public and not-for-profit institutions.

The mobility of Veneto's economy has also been examined by looking at business demography and the rate of business survival. A recent nationwide survey<sup>1</sup> showed that being a larger business and introducing a higher level of product technology both reduce the risk of failure. The positive effect of technology increases with the size of the company: large enterprises operating in high-tech sectors survive on average longer than small enterprises in traditional sectors. Being an exporting company

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<sup>1</sup> Size, Innovation and Internationalization: A survival analysis of Italian firms. Giovannetti, Ricchiutti e Vellucchi at University of Florence and Masi Foundation, National Observatory for Internationalization

and making Foreign Direct Investments can also reduce survival: on average competition on international markets is fiercer and thus operating in those markets entails greater risk. Likewise, the risk grows if a business is small and it operates in traditional sectors. Comparative analysis of exporters and non-exporters reveals that size and technology play a major role for exporters. It is important for businesses that innovate to be active in a high-tech market; non-innovating companies, however, can survive by exploiting their market power. We can confirm therefore, that an Italian business operating on the international market has more likelihood of survival if it is a large enterprise that sells a high-tech product and introduces innovation in products and processes in particular. We also wanted to observe the survival rate of Veneto businesses at regional level, so the different trends between business sectors were analysed in terms of both enterprises and employees. Between 2002 and 2006, the trend in business survival rate was studied, with survival rate meaning the relationship in percentage between the number of businesses active in year t and survived in t+n and the number of businesses active in year t. This study confirms the strength of Veneto's business fabric: at one year the survival rate stands at about 92%, at two years it is higher than 85%, at three years it is 80%, and at four years three out of four businesses are still active. Analysis of the various cohorts of Veneto's active businesses in this period reveals that there are no great differences between survival rates, which suggests that the trend is not particularly affected by the economic cycle. However, analysis of survival rates at sector level shows that survival depends partly on the type of business activity. In general manufacturing businesses tend to survive longer than tertiary businesses. The most developed trends in manufacturing stem from the food, metal and mechanical sectors: the survival rates of these businesses at four years are consistently above the regional average by about four percentage points.

There is also a strong correlation between the survival of a business and its size: on average smaller businesses are more likely to leave their market. A comparison between survival rates in 2002 and business size reveals that businesses in sectors that are larger than average have higher rates of survival. The mechanical (16.8 employees per business), metal (10.7) and food (10) sectors are the ones that between 2002 and 2006 recorded the highest survival rates (78.4%, 78.6% and 79% respectively).

Analysis of business survival also highlights some features of occupational development within businesses: the longest surviving businesses tend to increase the number of people they employ. During the above-mentioned four-year period, surviving businesses recorded a 5% increase in employees. This rise in employment, however, did not include all of the business sectors taken into consideration: although employment rose in the food, metal, tourism and business-service sectors, it fell in the electronics and furniture sectors. The fashion sector was hit particularly hard by the fall in employment (-15.3 %), which occurred against the backdrop of a long-term structural decline that has worsened in recent years due mainly to the growing competition from emerging markets.

### *Regional programmes & tools supporting SMEs*

At regional level, instruments specifically devoted to R&D and technological innovation count at present for 20 % of the total instruments (36 % are decentralised instruments, while 10.8 % are purely regional measures). They represent the second priority after the consolidation and development of the productive system.

Measures directly formulated and managed by the regions (whose number and relevance is strongly increasing in the overall framework and have doubled from 2005 to 2006) are focalised on more specific objectives: new entrepreneurship, access to credit, environment/energy/services and infrastructures to firms. In the last years, more emphasis has been given by these interventions on innovative activities within firms. Resources are more frequently provided through grants or loans on easy terms; rarely, through intervention on risk capital.

Moreover Regional policies for innovation focus on three areas: clusters of innovation in knowledge-driven sectors, the activation of industrial districts to increase the competitive potential of the region, and the promotion of industrial research and technological transfer among small firms.

Small and medium sized enterprises in Veneto represent the great socioeconomic wealth of the territory in terms of turnover generated and number of jobs, making them competitive in the domestic and foreign markets. With Regional Law No. 8 of 4 April 2003, "Regulations on production districts and local industrial policy measures" the Region of Veneto defined an organic regulation of the measures to support production districts, providing them with the identification criteria and recognition procedures.

The strategic production areas highlighted by the regional development plan for research and innovation are:

1. Health and new technologies for living
2. Energy efficiency, renewable energy and bioenergy
3. Sustainable mobility
4. Agrofood products and biotechnologies
5. IT and communication technologies
6. Nanotechnologies, nanoscience and nanomedicine
7. New building materials and technologies
8. New Italian-made technologies
9. Innovative technologies for cultural goods and heritage conservation

Veneto Innovazione is the regional agency for innovation and technology transfer with the aim of promoting applied research and innovation. Its stakeholders are the Veneto Region, the Regional Enterprise Federations, the Veneto Union of Chambers of Commerce, four universities of the Region and, as far as studies and research of regional interest are concerned, the National Research Council. Its mission is to coordinate and support technologies parks, companies, private and public research centres encouraging new projects and joint ventures. Veneto Innovazione's main activities include

promotion of a research and innovation regional network, assistance to companies to submit European and regional research and innovation projects, provision of information on technological innovation and applied research, and participation in European projects on research and innovation. Veneto Innovazione co-ordinates the participation of Veneto in European research programmes. The agency is responsible for several initiatives, which include the Regional Research Community, a scheme that aims to supply Veneto's SMEs and researchers with instruments to start research projects, the Veneto Net ELTW project that focuses on innovative methods for e-learning, and the E-cluster project, which aims to establish a strategic model of evolution for clustering of interrelated firms that cooperate in a global and virtual context.

### *Role of science technology parks*

APSTI – Associazione Parchi Scientifici e Tecnologici Italiani is the national network of scientific and technological parks. The majority of PSTs are members (31 members) accounting for virtually all of the Italian regions, with the aim of supporting economic development through innovation. In Veneto there are 3 Science and Technology Parks (VEGA Venice Gateway for Science and Technology, GALILEO Science and Technology Park, STAR Science and Technology Park) and they are all members of APTI.

The main missions of the Technology Parks of Veneto are:

- the environmental requalification and the urban regeneration by providing infrastructure to attract firms with a high scientific and technological content, offering a range of services in order to facilitate management and promote growth;
- the industrial rehabilitation and the technological transfer: promote a series of initiatives that facilitate the transfer of knowledge, in particular scientific and technological knowledge, from the universities and the large companies to the fabric of the SMEs in Veneto area;
- the promotion and support of new innovative firms: supports academic start-ups and spin-offs with a range of innovative tools.

The 3 Technology Parks of Veneto has signed an agreement on 27 april 2007 to cooperate in order to enhance the territorial competitiveness. The Region of Veneto has shared the agreement with the DGR 2018/2007 and it has fixed the objectives for the period 2008-2010.

## II.2 Specific characteristics of the region under study

### *II.2.1 General Situation in the region and regional indicators*

#### *Geographical location /characteristics and their effects on the economy*

Veneto has around 4.6 million inhabitants and covers 6% of the Italian territory. It is located in the north-east of Italy with Venice as the regional capital. After the Venetian Republic lost its independence during the last years of the 18th century, the Veneto region was characterised by poverty and emigration. The situation changed around thirty years ago when the inhabitants' entrepreneurial spirit started to create welfare and economic development.

Veneto generates a considerable amount of mobility for various reasons. The first is because of its geographical position, followed by the infrastructure of inhabited areas, as well as traffic brought to the region by culture and tourism, the excellence of its hospitals, employment and educational prospects and more besides.

In terms of road mobility, the data in the report indicates that the critical areas the region needs to deal with are not caused by poor infrastructure as such, but by the high number of users (people and businesses, each with their own means of transport). On the other hand, traffic congestion is a phenomenon that everyone has to face daily in the major transit hubs and is testimony to the road infrastructure's incapacity to deal with the sheer volume of traffic caused by residents and enterprises. In the ten years between 1996 and 2006 there has, however, been considerable development in the road infrastructure: in 2006 there were 58 km of main roads per 100 km (Note 2), compared to 55 km 10 years earlier. These figures place Veneto in line with national figures, but still behind its competitor regions.

Just for its good geographical location, in 2007 Veneto's exports exceeded 50,557 million euro, a 9.2% increase on 2006, while its imports exceeded 39,844 million euro, a 7.7% increase on the previous year. The region's trade surplus was more than 10,713 million euro, up 15.5 percentage points on 2006. With 13.9% of the national total, Veneto is Italy's second leading exporting region behind Lombardia (28%) and ahead of Emilia Romagna, Piemonte and Toscana.

Overall Europe accounted for almost three-quarters of the value of Veneto's exports in 2007: EU15 accounted for more than half; 11.4% went to the 12 countries that have joined the EU since 2000; 6.5% to other Central European countries; and 5.2% to other Western European countries. The Americas accounted for 11.9% (North America 8.2%, Central and South America 3.7%), Asia 10.6%, Africa 3%, and Oceania 1.1%.

## *Opportunities*

Although in the last years policy intervention for innovation has become a concern to ensure competitiveness in the international scenario and the reform of the policy mix in favour of R&D has become a major challenge for policy makers, in our view the government's choices of policies and instruments are barely incisive to have a real impact. Several signals launched in the past few years seem to go in the right direction both in terms of policy governance (e.g. strengthening coordination as well as several attempts to improve evaluation) and policy instruments (introduction of automatic measures, selective interventions in key areas, rationalisation of funds for R&D). Nevertheless, these attempts are still insufficient to give the necessary impulse to the national and Regional innovation actors to encourage further investments in innovation and technological leverage, especially among SMEs.

So far, targeted and effective public support to innovation has not become a top priority for the central and regional government in terms of concrete actions and funding schemes with a long-term prospect, ensuring continuity in the direction of the reforms undertaken. However, interesting schemes and policy measures have been implemented at regional level and have resulted to be successful and 'attractive' for local companies, including SMEs. Therefore, there is no doubt that a clear strategic view for innovation priorities is required at central level while ensuring more coordination and a clearer allocation of responsibilities among the different policy levels. In addition, what is still missing in Italy and in the Region of Veneto is an evaluation system able to sustain the policy making process. It is necessary to go beyond mere monitoring or auditing practices and to implement proper evaluations that systematically assess the results and provide feedback for the allocation of resources. Evaluation is also closely linked to 'meritocracy', another concept that is also regrettably missing in the national culture. At this point, it has become of crucial importance to ensure that are the best (universities, firms, researchers, projects etc.) the ones that receive the (scarce) resources. Finally, in our opinion, future efforts in policy making should be directed to exploit the potential and maximise the opportunities brought about by Industria 2015 and by the new round of structural funds (2007–2013).

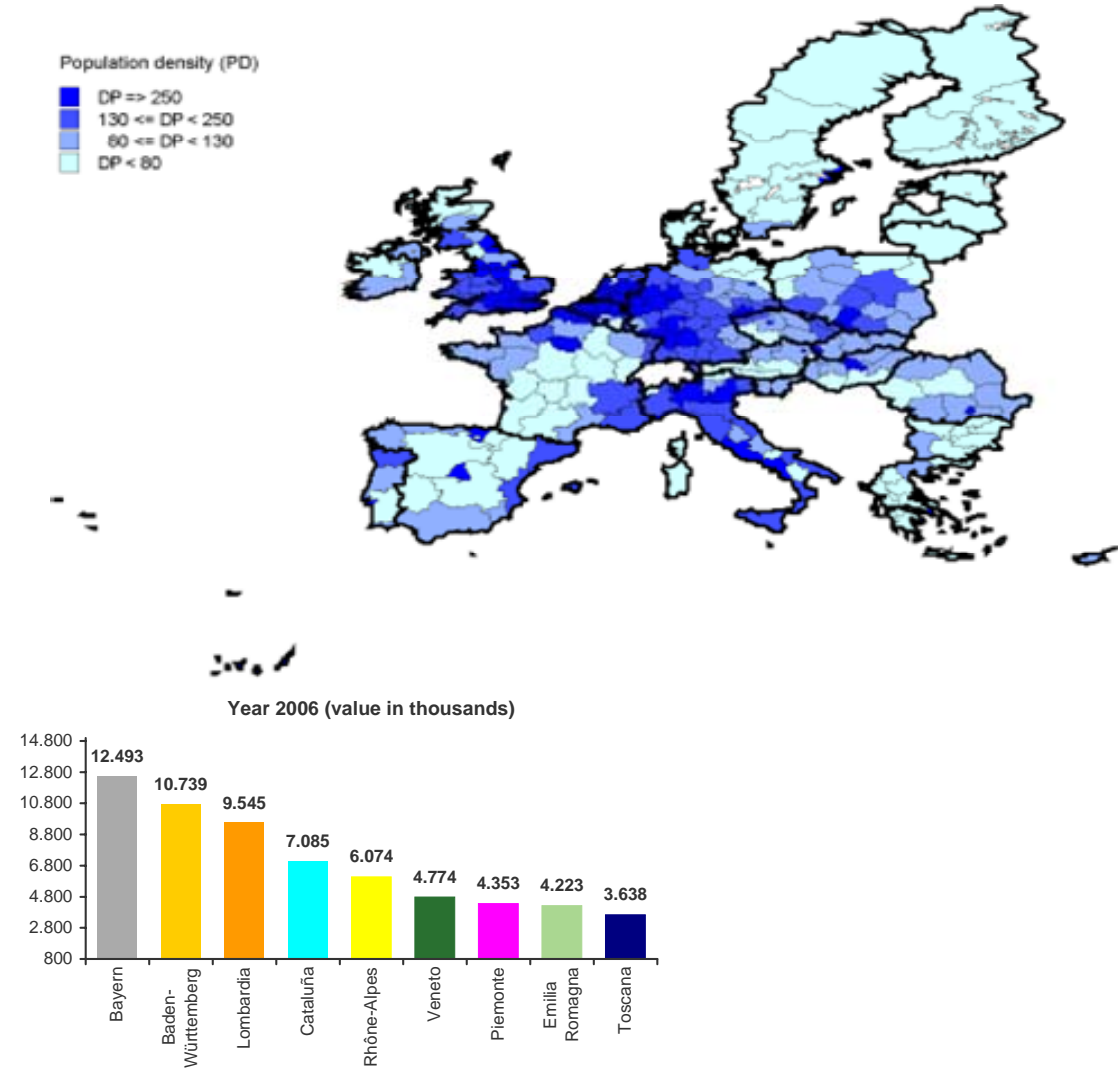
## *Population*

The demographic changes in a geographical area is representative of several significant social features: increased longevity due to better health and better economic well-being, and population growth due mainly to migration, which compensates for the general decrease in births. In all of the European regions considered demographic growth was observed. The area that recorded the greatest growth was Cataluña: population has increased by 16.6% over the last fifteen years and by 11.7% since 2001, reaching a little more than seven million residents at the end of 2006. For the Italian regions in 2006, the population of Veneto was 4,773,554, an increase of 5.4% compared to 2001 and of 9% compared to 1991. Emilia Romagna and Lombardia are quite near Veneto's figures; the growth of population, however, was more limited in Piemonte (+1.3% since 1991

and +3.3% since 2001) and in Toscana (+3.2% since 1991 and +4% since 2001). Given that these regions, of those considered, are the ones with the highest old-age index and the lowest birth rate, growth can probably be attributed predominantly to the immigration of foreigners.

**Fig. 2 - Resident population on 31 december**

**Population density (PD) - 2006**



**% variation 2006/2001 and % variation 2006/1991**

*economy- basic figures*

University graduates

The European Union recognises the fundamental role its education and training system has to play in the new knowledge-based society, highlighting it in the Lisbon Agenda. Over the last few years there has been a continuous rise in the education level, so that in Europe 17.9% of the population who are

at least 15-years old have a university degree. All of the foreign regions have high levels of university graduates and about one fifth of the population has a university degree. It should be remembered that in Italy the results of the recent reform have just begun to be seen, while in other countries reforms were made years ago so young people leave university much earlier than in Italy. In Italy the percentage of graduates is only 10.2% and all the Italian regions have results comparable to the national average; Veneto ranks last with 9.2% of graduates out of the population aged 15-years old and over. Despite the low levels of the Italian regions compared to the foreign ones, the reform of the university has had positive effects. Indeed, in all the Italian regions considered, the share of graduates has increased by about two points compared to 2003 and there has been a slight increase since 2006. The foreign regions have also recorded an increase in the percentage of graduates both in the short and long term, with Cataluña being the only exception with a slight decrease compared to 2006.

#### Unemployment rate

The data available for the European regions ends in 2007 and so a regional comparison on the impact of the current economic crisis on the labour force cannot be performed. In 2007 Italy's unemployment rate was 6.1%, a figure below the European average (7.2%) and much lower than in 2003 (-29%). Among the regions considered, Veneto had a low unemployment rate (3.3%) and was second only to Emilia Romagna (2.9%). In general, all of the Italian regions examined here have performed better than the other European regions, especially when compared to Cataluña and Rhône-Alpes, which both had 6.5%. Compared to 2006 only Piemonte experienced an increase in the unemployment rate, which rose by 5% . The regions with the biggest drops are the German regions and Veneto. One of the targets the Lisbon Agenda set was a significant reduction in the unemployment rate, and certainly progress has been made. In fact, over the last five-year period all of the regions examined experienced a significant decrease in unemployment, especially Cataluña, Baden-Württemberg, Bayern and Piemonte.

#### Employment rate

In 2007, the employment rate of the Italian regions considered here was notably higher than the national average (58.7%), but only Emilia Romagna was able to surpass the threshold of 70% set for 2010 by the Lisbon objectives. Specifically, Veneto reached an employment rate of 65.8%, ranking, among the Italian regions considered, behind Emilia Romagna (70.3%) and Lombardia (66.7%) and ahead of Piemonte (64.9%) and Toscana (64.8%). For the foreign regions examined, the circumstances of employment were quite satisfactory: the German regions surpassed 73% and Cataluña achieved 71%. Only Rhône-Alpes had figures similar to the Italian regions and recorded the smallest variation in the employment rate, both in the short and the long term. While the Italian regions recorded an increase in the employment rate, they did not experience large variations compared to 2006, with the exception of Emilia Romagna, which increased its employment rate by 1.3%. The greatest increases in the employment rate of the working-age population were in Baden-Württemberg and Bayern, with 2.8% and 1.7% respectively. In respect to 2003, all of the regions compared recorded an increase in the employment rate, especially Cataluña, which experienced an increase of over 7%.

It should be underlined that employment levels can be influenced by the different rules on retirement ages in individual European countries.

#### Female employment rate

The progressive demographic ageing and the subsequent decrease in the active-age population make it necessary to attract and keep the largest possible number of people in the labour market. Thus it is important to encourage an increase in the rate of female employment. The Lisbon objectives call for reaching a female employment rate of at least 60% by 2010. Despite greater female participation in the labour market in recent years, in 2007 the percentage of employed women in Italy was only 46.6%, quite far from the established objective, while the European average was equal to 58.3%. The Italian regions considered here recorded low levels of female employment, except for Emilia Romagna, which reached 62%. Veneto is last in the ranking, with 54% of women aged 15-64 in gainful employment. In 2007, the other European regions used for comparison had all surpassed the 60% threshold: in particular in Baden-Württemberg, where the female employment rate had reached 68.1%, and in Bayern, which achieved 67.1%. Compared to 2006, only Rhône-Alpes recorded a slight decline in the female employment rate, while in all the other regions an increase was recorded, especially in the German ones. Over the last five-year period, all of the regions experienced growth in the percentage of employed women: the greatest occurred in Cataluña (+13.3%).

#### GDP per capita

In the European context, Veneto has kept its high ranking for Gross Domestic Product (GDP) per capita in terms of Purchasing Power Standards (PPS). In fact in 2006, the most recent year for which data for comparison with the other European regions is available, GDP per capita in Veneto was equal to 28,700 euro, more than 17%, i.e. 4,200 euro, above the national average. Only Bayern, Lombardia and Baden-Württemberg surpassed the threshold of 30,000 euro of GDP per capita. When looking at the variation in GDP, the Italian regions seem fundamentally to grow more slowly than the other European regions considered: more generally the European regions clearly increased their GDP more than the Italian ones, both in the short term (2006/2005) and the medium term (2006/2002). There is a clear difference in GDP growth between the Italian average and the European average; the latter increased by more than one percentage point over the last year and by more than eight over the five-year period 2006/2002. This was thanks mostly to the contributions of the new EU Member States, which had very high growth rates. Among the European regions, Cataluña merits special mention as it has experienced the greatest growth both over the last year (+6.6%) and over the last five years (+16.0%). Of the Italian regions, Veneto had the highest growth rate in the long term (2006/2002), while Emilia Romagna had the highest growth rate between 2005 and 2006.

#### Innovation performance

Since 2000 the European Commission has used a range of tools to monitor the progress made by various geographical areas with the objective of increasing competitiveness through innovation. One

of these is the European Innovation Scoreboard, which gives an overall indication of innovation performance at a national level. Another scoreboard is for innovation performance at a regional level, which measures the innovative features of a region compared to the EU average and to the country of which it is part. The European Innovation Scoreboard 2005 confirmed the EU's weakness in innovation when compared to its principal global competitors, i.e. the United States and Japan, but it did highlight its rapid improvement. When it comes to the individual Member States, the world leaders are the small economies of Northern Europe, i.e. Sweden, Finland, Denmark, and Switzerland. Among the largest economies, the United Kingdom is the most innovative. The index for Italy, equal to 0.34, demonstrates the general lag when compared to the European average of 0.45, and the lack of improvement over the period 2001:2005 (-0.9%). In this context, looking at the overall index for regional innovation, it can be seen that Veneto is in circumstances similar to those of Italy. Among European regions, Veneto ranked 122nd out of the 203 regions considered, with an index in 2005 of 0.40, which is near the average value of 0.43. Compared to 2001, Veneto improved by 4.6 percentage points.

#### Employees in high- and medium-high technology content businesses

Market-oriented technology innovation is indispensable if we are to attain higher value added in services and high-tech sectors. The development of a knowledge-based economy therefore also implies the promotion of products with greater technology content. Despite Veneto beginning from a relatively disadvantaged position in terms of the overall innovation indicator analysed above, it is a geographical area which already possesses the bases for improvement. According to the OECD classification regarding technology, in 2008, Veneto had the third largest share of manufacturing firms with a high-technology content, comprising 9.3% of Italy's total, behind only Lombardia and Lazio. The percentage of employees in firms with high- and medium-high technology content was also rather significant in Veneto, 10.7% in 2007, which was higher than the Italian average of 7.6%. The German regions, led by Stuttgart, are centres of global excellence in the technology sectors and can be considered standard setters, but Veneto itself is in an excellent position in the ranking, which is based on the number of employees in firms with high- and medium-high technology content. Veneto ranks 20th among European regions. Furthermore, it has experienced the largest increase in the indicator in recent years, second only to Rhône-Alpes.

#### Tourist-density index

The tourist-density index, which is calculated as the ratio between the number of nights spent and the resident population, indicates the average number of tourists who are present in the region every day. Veneto had a tourist-density index equal to 35.1 nights spent per 1000 residents and is the region with the highest rate, more than double the national average (17.4). This figure illustrates Veneto's high density of tourists in comparison with its demographic size. The other regions with high tourist-density indices are Toscana (31.2 nights spent), Emilia Romagna (24.6) and Cataluña (24.3). Bringing up the rear with the lowest levels are Piemonte (6.5) and Lombardia (8.2). Veneto and Toscana are also the two regions that have experienced the largest increases both in the short and the long term,

confirming both the importance of tourism and its economic significance in these regions. The other regions have not experienced significant variations over the last five years. Compared to 2006, however, all the foreign regions considered here, and Piemonte, have recorded a slight decline in the average number of nights spent by tourists per 1000 residents.

#### Road Quality Indicator

Although many countries have declared they aim to move toward a more balanced mix of transport, and this includes objectives at European level, roads are currently the most exploited option, both for the transport of people and for freight. One index that is useful for measuring the degree of congestion on the road network is given by the kilometres of road available per 100 vehicles in circulation. If the south coast of Spain is left out, the map of Europe seems to reveal a central axis that begins in Denmark in the North, passes through Germany and ends in the South with Italy, where the situation is the most critical. In 2006 Lombardia and Veneto were the most congested Italian regions, with figures equal to 0.23 and 0.33 km of roads per 100 vehicles in circulation. Both the figures are below the Italian average, which was 0.44. In the other European regions only Cataluña recorded a lower figure than Veneto with 0.29. Finally, it should be noted that the situation remained basically the same in the short and medium term.

#### Motorisation rate

The number of motor vehicles available to the resident population is another indicator of the density of motor cars that weighs upon a geographic area, and therefore, upon road congestion. In 2006, the number of vehicles in circulation per 1000 residents was high in all Italian regions, especially in Toscana (722), Piemonte (716) and Emilia Romagna (714). Of the European regions, only Bayern has similar levels to those of the Italian regions. Veneto, with 678 vehicles available per 1000 residents, is in line with the Italian average, and it experienced an increase of 6.6 vehicles compared to 2005 and 13 over the last five years. Compared to 2005 only Cataluña experienced a decline, equal to 8 vehicles. Over the last five-year period, on the other hand, the value of the index declined in the European regions of Rhône-Alpes and Cataluña, and in the Italian regions of Piemonte and Lombardia. Bayern, however, recorded an increase of 25 vehicles, Toscana 18, and Baden-Württemberg 14.

#### *Trade and finance*

In 2007 Veneto's exports exceeded 50,557 million euro, a 9.2% increase on 2006, while its imports exceeded 39,844 million euro, a 7.7% increase on the previous year. The region's trade surplus was more than 10,713 million euro, up 15.5 percentage points on 2006. With 13.9% of the national total, Veneto is Italy's second leading exporting region behind Lombardia (28%) and ahead of Emilia Romagna, Piemonte and Toscana.

Between 1991 and 2007, Veneto's exports grew at an average CAGR of 8.7%, higher than the Italian average of 7.9%; between 1991 and 1997 CAGR was 14.1%. However, from 1997-2002, its average annual growth rate more than halved to 6.3%, dropping again to 4.9% between 2002 and 2007.

This phenomenon is also clear in the region's share of national exports, which rose progressively from 12.3% in 1991 to a maximum of 14.8% in 2002; the figure then settled at 13.9% in 2007, a share similar to that of the late 1990s.

In some ways, Veneto's import trends reflect those of its exports. In the long-term, imports also have an annual average growth rate above the national average (+8.4% compared with +7.5% between 1991 and 2007). Here, however, Veneto's growth was slightly above that of the entire North East (CAGR +8.9%). The average annual growth rate of Veneto's imports, like that of its exports, has progressively fallen over time: it went from 10.8% between 1991 and 1997 to 8.3% between 1997 and 2002, then to 5.7% between 2002 and 2007. Exports also fell at national level, although variations in the average annual growth rate are far more modest: growth dropped from 8% from 1991-1997 to 7.2% from 1997-2002, but rose to 7.4% in the most recent five-year period.

At national level, investments experienced five consecutive declines beginning halfway through 2007. In the second half of 2008 they experienced a further decline highlighted by a fall in business confidence, the progressive decline of the employment of plants and the reduced access to bank credit, which became more selective after the summer. The decline was still clearer in the results for investments in vehicles and construction from the beginning of 2008. All of this translated into a fall in overall investment of 2.9% in 2008 compared to the previous year; this fall was larger for investments in machinery and equipment, down by 4.7%, but not in vehicles, down by 1.9%, and construction, which fell by 1.8%.

At regional level the most recent figure refers to 2006 when the increase in investment was +1.5% on the previous year, a rise that was driven primarily by investment in construction, +15.1%, and in industry in a strict sense, +3.8%; investment in services was stagnant, +0.6%, and was negative in agriculture, -9%. In 2007 an aggregate increase of 1.2% is estimated, while a 1.4% fall is expected in 2008, and an even greater one in 2009. In fact, sector investigations revealed a weakening in the dynamics of investments in the first part of 2008, which was accentuated by the difficulties experienced in the second part of the year. A recovery in investment activity will be slow and dependent on the effects of the international financial crisis, and therefore on the normalisation of financial and credit markets and an improvement in the general framework. The information in our possession today estimates a decline in 2010, even though less severe, and followed by a progressive recovery in 2011-2012.

### *Infrastructure*

In order to analyse the physical nature of Veneto infrastructure, i.e. looking at actual physical resources, we can refer to what are known in literature on the subject as concentration or "absorption"

indicators, which are calculated for every type of infrastructure. Regional data for 2007 indicates that the different types of infrastructure in Veneto have grown since 2000 with values above the national average (set at 100). If, however, data on different types of infrastructure is studied in relation to surface area, resident population and vehicles on the roads the results are different. According to investigations carried out by Sole 24 Ore (an Italian financial newspaper) based on Istat and Bank of Italy data, the biggest inadequacies can be found in the regions of the North of Italy, which are traditionally the driving force behind Italy's development. Emilia Romagna, Toscana and Veneto featured in particular, but Lombardia and Piemonte are also just above halfway on the list.

As regards road network in relation to surface area, developments were made in the ten-year period from 1996 to 2006. This was in line with national figures but still behind Veneto's competitor regions in Italy.

A look at the length of the road network compared to number of vehicles using the roads confirms that the network in Veneto is not sufficient to sustain all of the traffic using it: there are just about 38 km for every 10,000 vehicles; Italy has 50 km, Emilia Romagna 52 km, Piemonte and Toscana more than 60 km. Out of Veneto's competitors, only Lombardia has a lower figure with 26 km. In terms of road mobility, the data in the report indicates that the critical areas the region needs to deal with are not caused by poor infrastructure as such, but by the high number of users (people and businesses, each with their own means of transport). On the other hand, traffic congestion is a phenomenon that everyone has to face daily in the major transit hubs and is testimony to the road infrastructure's incapacity to deal with the sheer volume of traffic.

## *II.2.2 SWOT analysis of the region*

### *Strengths*

- Strategic geographical position.
- Higher local presence (Spill-over) and greater presence of enterprises (enterprise/resident ratio of 1:10).
- Strong and multi sector production system; its system has been able to maintain a level of economic development that has been consolidated and has remained stable over time, thus providing a clear signal of high productivity.
- Greater ability to adapt to markets; flexibility and easy adjustment to market changes as well as to customers' requirements.
- Good entrepreneurial level and incremental innovation.
- Strongly traditional and established production companies. Excellent products and firms enhancing the positive image of the "Made in Veneto" worldwide.
- Significant number of companies and operators employed at all processing/production levels.
- Presence of well established small/medium size companies and international leading companies highly motivated and export oriented.
- High level employment (66.4% in 2008).
- Enhance of female employment (+2.7% from 2007 to 2008).
- Attraction of work force with different features because of positive net migration from other Italian regions or from abroad.
- Increasing number of people graduates with a scientific degree (maths, science, technology).

### *Weaknesses*

- Poor funding and low investments in R&D (impact of R&D costs over Regional GDP = 0.7).
- Poor capacity for radical product innovation; Limited product innovation and development skills capable to yield innovative solutions revitalising and refreshing the most important sectors.
- Scarce business-making attitude making it difficult to implement innovation and upgrade strategies within the company.
- Lack of “financial instruments for innovation”.
- Small-size, prevalently companies family with a difficult generational turnover. Self-acting strategies and reluctance to teamwork.
- Absence of skilled labour and young people ready to train and take over traditional manual jobs (cabinetmaker, carpenters, inlayer).
- Mismatching between job demand and job supply with reference to old workers fired for the crises.

### *Opportunities*

- Take advantage of a local collaboration networks (45 Production districts recognised by the Veneto Region)
- Training new professional roles to supply accurate management, sales and marketing consultancy in SMEs.
- Carrying out accurate market analysis to penetrate new emerging markets.

### *Threats*

- Inefficient research/enterprise collaboration
- Potential competitiveness of new and emerging countries in focus sectors

- Lack of a proper national and regional innovation policy; research and innovation policy intervention is a strong fragmentation of instruments and measures that are often conceived as short term or even una-tantum initiatives.
- Risk of excluding from labour market workers with low or obsolete competences.

## **PART III. Main actors contributing to the development of innovative capability and entrepreneurship of the region of Veneto**

### **III.1 The general situation of the business sector, mostly focusing to innovative entrepreneurship**

#### *Present situation of the regional business sector*

The demography of Veneto businesses in 2008 closed on a positive note: the number of active businesses on Veneto's Business Register increased by 2,549 units last year. When compared with 2007, growth in 2008 was equal to 0.6% when considering all sectors and reached 1.4% excluding agriculture. Although Veneto's annual growth is well below the national average and despite fierce competition, Veneto is Italy's third-ranking region for the number of active businesses with 8.7% of the national total: a value that highlights the major role the region plays.

On 31 December 2008, there were 462,567 active businesses in Veneto, a 0.75% drop in its business population, 32,427 start-up businesses and 35,884 cessations were recorded in 2008. The business population in 2008 was the lowest in the last fifteen years, highlighting the first consequences of 2008's economic crisis. The figure is the result of the difference between the high number of start-up businesses (7.0%) and of cessations (7.8%), with a similar trend being seen nationwide. Figures for kind of ownership in 2008 reveal a fall in the number of sole traders (the 2007 figure, 61.8%, dropped to 60.4% in 2008) while the number of corporations showed an annual increase of 7.5%, which brought their figure for 2008 to 17% of the total number of active businesses in Veneto. In Veneto's traditional sectors, commerce and real estate were hit hardest by the stagnation, especially regarding their share of Veneto's overall economy. The former recorded practically zero growth, while the latter grew by one percentage point last year, the lowest in recent years, which confirms the slowdown in growth of this sector in Veneto.

The highest increase in active businesses was in the business-service sector, which recorded growth of 3.2% in the last year. This figure confirms the trend of the labour force shifting towards some key activities in the service economy in a context where the trend towards long-term tertiarisation is fuelling structural changes in the economy at both regional and national level.

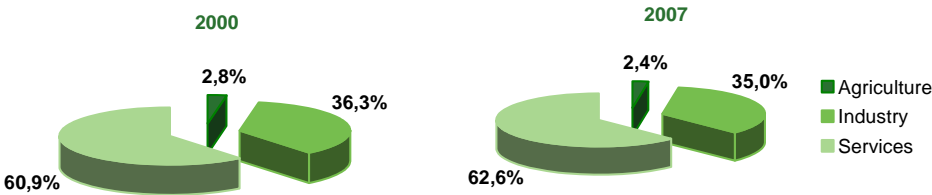
Despite a fall in the share of value added from industry in the strictest sense last year, the growth of Veneto's manufacturing businesses in 2008 was more consistent than in services: after five years of decline, industry in the strictest sense recorded annual growth of 1.6%, reaching 66,898 active businesses, while tertiary businesses increased by 1.3% on the previous year. Veneto's fashion industry showed the most consistent developments in the region's manufacturing sector: hide- and leather-working businesses had annual growth of 6.5%, while textile and clothing businesses grew by 4.4%; behind them came vehicle-manufacturing businesses, which grew 4.9% in the last year. The food, printing and paper industries increased their population by two percentage points. However,

Veneto businesses in sectors such as chemicals, coke, rubber and plastic, mechanical goods, and printing and paper, grew less than the national average. The metal industry holds the highest share of Veneto businesses: almost one Veneto business in five works in this sector. However, it grew less than the average of Veneto's total manufacturing sector in the last year. In 2008, the number of businesses in the jewellery, furniture and sports items sectors fell by 0.5% and those in the wood industry fell by 1.9%.

Artisan businesses maintain their key role in Veneto's economy: almost one third of Veneto's active businesses belong to the artisan production system, which is traditionally the backbone of Veneto's production.

An overall look at Veneto businesses shows that restructuring is taking place with an emphasis on services: from 2000 to 2007 the share of wealth produced by this sector grew by 1.8%, reaching 62.6%, which is still below the national figure (70.5%) This process demonstrates that the mainly industrial Veneto is also following the trend of the main economies, which have an a value added share in services of over 70%; the United Kingdom, in particular, had a value added of 76.3% in the tertiary sector, compared with 23.1% value added in industry. In Veneto, the share of wealth produced by industry was 34.9% in 2007; though still high it has fallen in the last few years (Fig. 3).

**Fig. 3 - Percentage distribution of regional added value per sector. Veneto - Years 2000 and 2007**



Source: processing by Regione Veneto - Direzione Sistema Statistico Regionale on Istat data

**Percentage distribution of regional added value per sector. Veneto - Years 2000 and 2007**

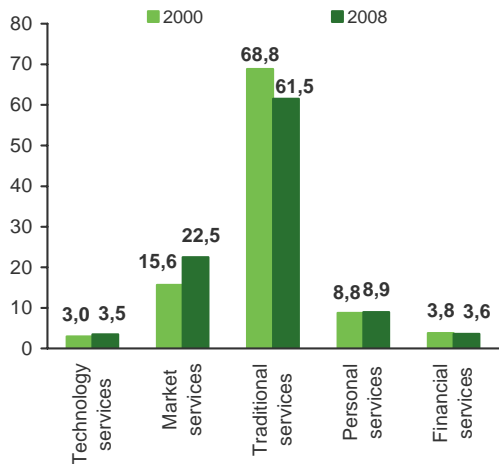
	Agriculture	Industry	Services	Total
2000	2835,3	36499,8	61254,1	100,0
2007	2648,2	38325,9	68656,0	100,0

*Business sectors per technology level*

Veneto is home to 9.3% of Italy's high-tech industry, ranking third after Lombardia (22%) and Lazio (9.6%), so at first glance it would seem a hub of high-tech excellence. However, 53% of Veneto's production industry was still low-tech in 2008. Long-term analysis points to some of the region's peculiarities: there has been a drop in the number of both low-tech and high-tech businesses, which probably find it more profitable to relocate to other parts of the world, mainly to cut costs and secondly to take advantage of more developed technology. It is becoming clear that Veneto's manufacturing

industry has developed thanks to mid-range products, but ones that are highly specialised and require high-level techniques rather than high technology. Higher level skills struggle to emerge, also in the tertiary sector, but they do exist. The tertiary sector, which has been reclassified on the basis of different knowledge levels, highlights the prevalence of traditional services, which account for 61.5% of the entire sector, as well as the dynamic nature of services with a high knowledge content. From 2000 to 2008 businesses dealing with market services, namely business consultancy, transport and real estate, grew by 65.8%, and high-tech services, i.e. telecommunications, Information Technology, plus R&D, increased by 35.2%.

**Fig. 4 – Percentage share of service-sector businesses per knowledge level. Veneto - Years 2000 and 2008**



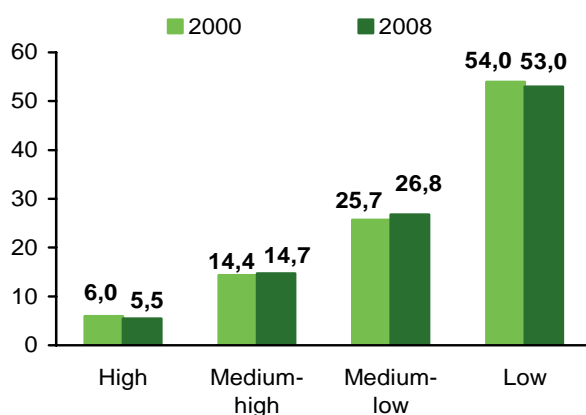
Source: processing by Regione Veneto - Direzione Sistema Statistico Regionale on Infocamere data

**Percentage share of service-sector businesses per knowledge level. Veneto - Years 2000 and 2008**

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Technology services	3,0	3,2	3,2	3,2	3,3	3,4	3,4	3,4	3,5
Market services	15,6	16,8	17,8	18,7	19,5	20,4	21,3	22,0	22,5
Traditional services	68,8	67,4	66,4	65,7	64,7	63,7	62,8	61,9	61,5
Personal services	8,8	8,7	8,6	8,6	8,8	8,8	8,8	8,9	8,9
Financial services	3,8	4,0	3,9	3,8	3,7	3,6	3,7	3,7	3,6
Total services	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0

There has also been widespread change at sub-sector level. The manufacturing sector has had to adapt in that it needs to contain its production costs and raise its product quality and consequently its technology content (Fig. 5).

**Fig. 5 – Percentage share of manufacturing-sector businesses per technology level. Veneto - Years 2000 and 2008**



Source: processing by Regione Veneto - Direzione Sistema Statistico Regionale on Infocamere data

**Percentage share of manufacturing-sector businesses per technology level. Veneto**

	2000	2001	2002	2003	2004	2005	2006	2007	2008
High	6,0	6,0	5,9	5,8	5,7	5,7	5,6	5,6	5,5
Medium	14,4	14,4	14,4	14,5	14,6	14,5	14,6	14,7	14,7
Medium	25,7	26,0	26,3	26,6	26,7	26,7	26,8	26,9	26,8
Low	54,0	53,7	53,4	53,1	53,0	53,1	52,9	52,8	53,0
Overall 1	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0

Source: processing by Regione Veneto - Direzione Sistema Statistico Regionale on Infocamere data

### *Comparison on innovative situation of the business sector of the region with the EU competitors*

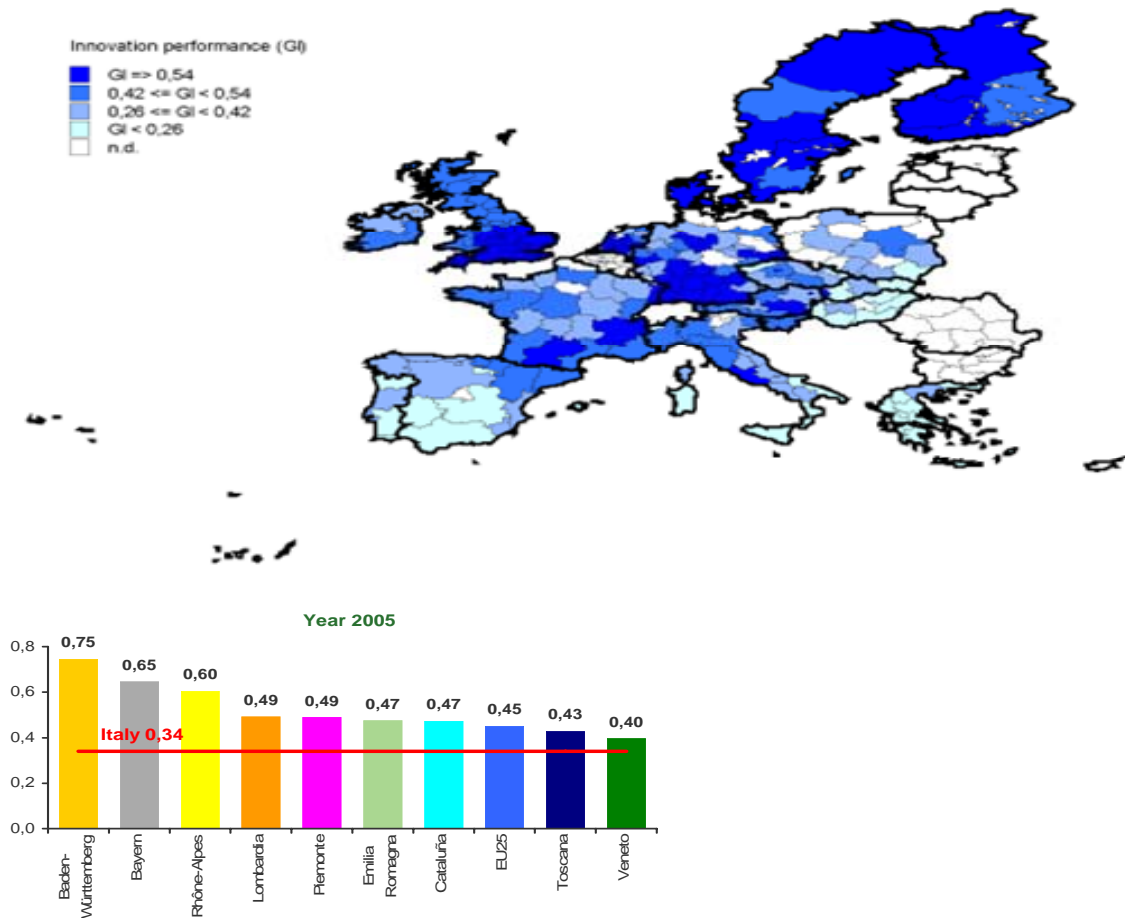
Since 2000 the European Commission has used a range of tools to monitor the progress made by various geographical areas with the objective of increasing competitiveness through innovation. One of these is the European Innovation Scoreboard, which gives an overall indication of innovation performance at a national level. Another scoreboard is for innovation performance at a regional level, which measures the innovative features of a region compared to the EU average and to the country of which it is part.

The European Innovation Scoreboard 2005 confirmed the EU's weakness in innovation when compared to its principal global competitors, i.e. the United States and Japan, but it did highlight its rapid improvement. When it comes to the individual Member States, the world leaders are the small economies of Northern Europe, i.e. Sweden, Finland, Denmark, and Switzerland. Among the largest economies, the United Kingdom is the most innovative. The index for Italy, equal to 0.34, demonstrates the general lag when compared to the European average of 0.45, and the lack of improvement over the period 2001:2005 (-0.9%).

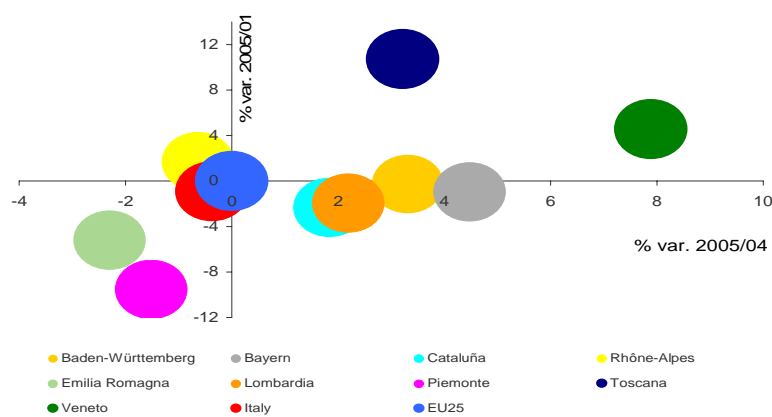
In this context, looking at the overall index for regional innovation, it can be seen that Veneto is in circumstances similar to those of Italy. Among European regions, Veneto ranked 122nd out of the 203

regions considered, with an index in 2005 of 0.40, which is near the average value of 0.43. Compared to 2001, Veneto improved by 4.6 percentage points.

**Fig. 6 - Innovation performance (\*) - 2005**



**% variation 2005/2004 and % variation 2005/2001**



(\*) The regional indicator is a synthesis of the following five indicators: population with a post-secondary education, participation in lifelong learning, employment in mid-high technology manufacturing, employment in high-technology manufacturing, R&D expenditure by the public sector, R&D expenditure by private enterprises, and applications for high-technology patents.

Source: processing by Regione Veneto - Direzione Sistema Statistico Regionale on European Commission data

Employees in high- and medium-high technology content businesses:

Market-oriented technology innovation is indispensable if we are to attain higher value added in services and high-tech sectors. The development of a knowledge-based economy therefore also implies the promotion of products with greater technology content.

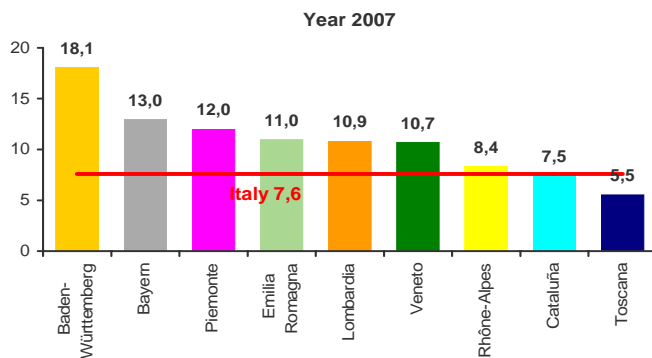
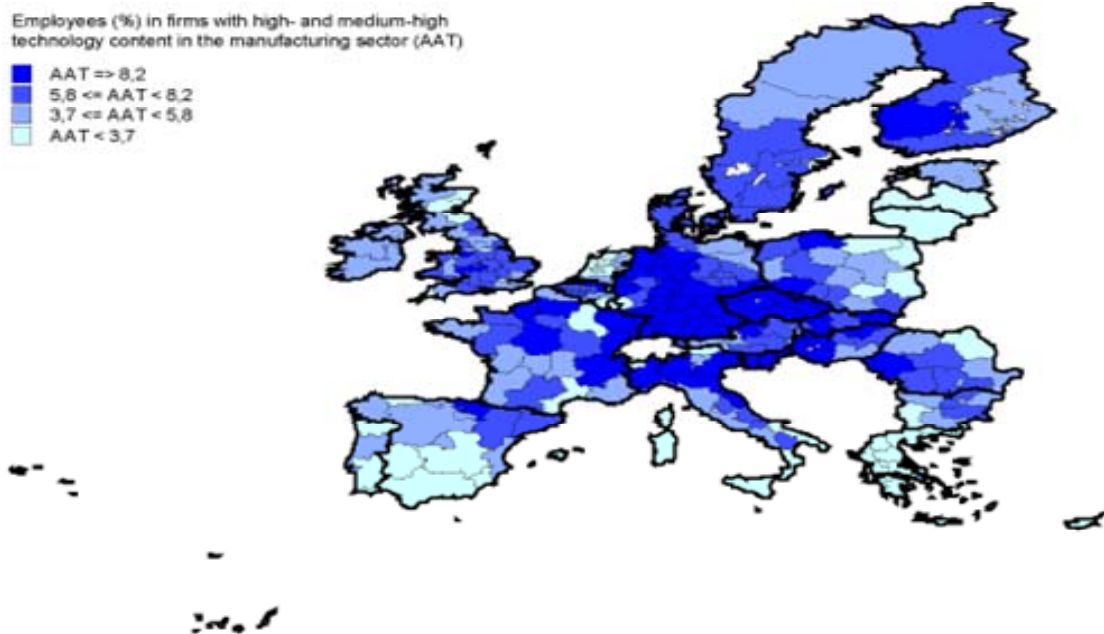
Despite Veneto beginning from a relatively disadvantaged position in terms of the overall innovation indicator analysed above, it is a geographical area which already possesses the bases for improvement.

According to the OECD classification (Note 3) regarding technology, in 2008, Veneto had the third largest share of manufacturing firms with a high-technology content, comprising 9.3% of Italy's total, behind only Lombardia and Lazio.

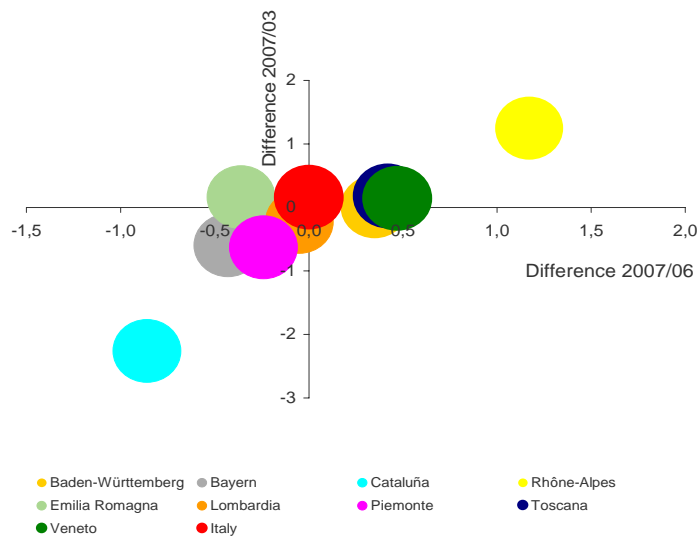
The percentage of employees in firms with high- and medium-high technology content was also rather significant in Veneto, 10.7% in 2007, which was higher than the Italian average of 7.6%.

The German regions, led by Stuttgart, are centres of global excellence in the technology sectors and can be considered standard setters, but Veneto itself is in an excellent position in the ranking, which is based on the number of employees in firms with high- and medium-high technology content. Veneto ranks 20th among European regions. Furthermore, it has experienced the largest increase in the indicator in recent years, second only to Rhône-Alpes.

Fig. 7 - Employees (%) in firms with high- and medium-high technology content in the manufacturing sector- 2007



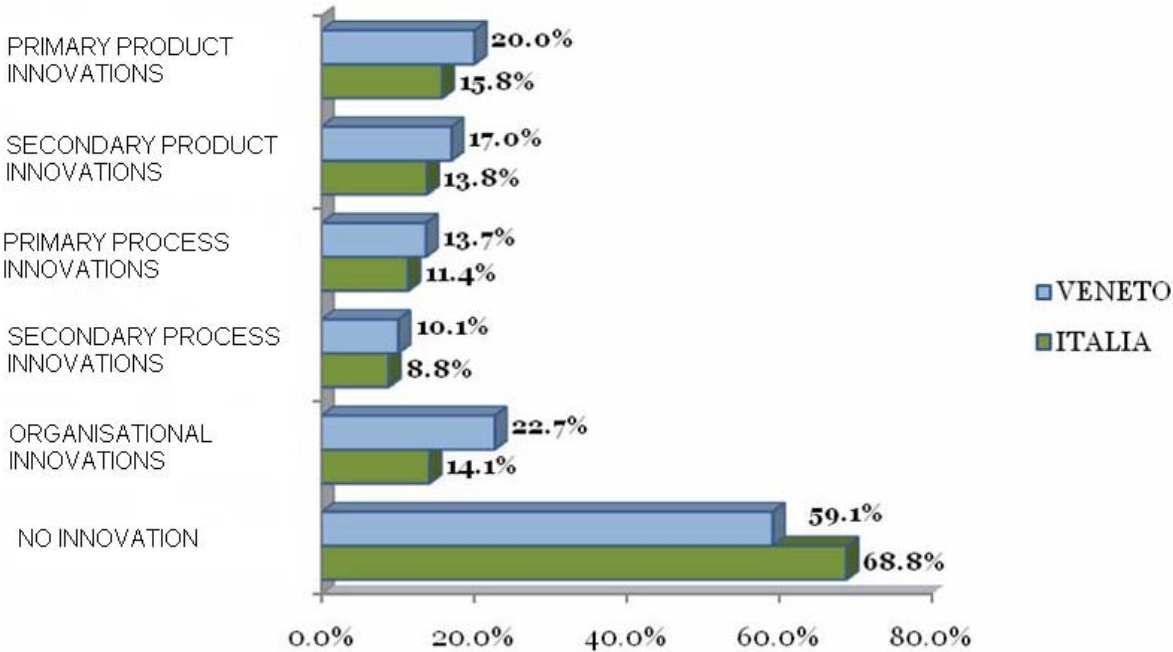
Difference 2007/2006 and difference 2007/2003



Source: processing by Regione Veneto - Direzione Sistema Statistico Regionale on Eurostat data

A 2008 report on Veneto by Met (A survey on Veneto business) underlines better regional innovative indicators compared to the national one.

Fig. 8 - Types of innovation introduced by companies



## III.2 Entrepreneurship policies in the region-country mostly focusing on the impacts for the innovative enterprises, start-ups and spin-offs

### *National innovation policy mix*

The latest report on the incentive system for enterprises published by the Minister of Economic Development in June 2007 and the Document for Economic and Financial Programming for the period from 2008 to 2011 show that Italian companies still devote few resources for investing in R&D and technological innovation. Past governments recognised the importance of innovation as a driver of the national economic development and competitiveness, and the need to create an environment favourable to innovation and technology transfer has become a priority in the national policy formulation process. Even if several reforms regarding the incentive systems were introduced, it has been during since mid 2006 that a turning point has taken place. The system of support to enterprises has been thoroughly revised and reformulated.

The new policy approach has been developed along two major strategic lines:

3. generalised (horizontal) support addressing all companies through automatic incentives (tax credit);
4. Industria 2015, the new national policy plan (Initiatives for industrial Innovation) which strongly links industrial and innovation policy to help Italian companies recover their competitiveness.

Industria 2015 identifies three strategic areas: industrial innovation, innovative finance and enterprise networks. For each of these areas new implementing instruments have been conceived and introduced in the actual policy mix.

The underlying philosophy of Industria 2015 is to concentrate measures, projects, and resources on selected thematic priorities. The most important part of the plan refers to the enhancement of the competitiveness of the productive system by realising industrial innovation projects (five big industrial programmes in strategic technology areas: energy efficiency, sustainable mobility, life sciences, new technologies for the 'made in Italy', and technologies for cultural heritage) that will favour the creation of partnerships and synergies among universities, research centres, private enterprises, financial capital, and also local entities. The industrial innovation projects coordinate the activities of large scale public and private enterprises, industrial and technological districts and research and innovation in order to implement medium- to long-term industrial initiatives that make industry more competitive.

In addition, in an effort to rationalise the financial instruments, most of the existing funds supporting R&D and innovation have been gathered into three main Funds: Competitiveness, Enterprise, Financing and FIRST (to sustain research projects). The measures presented in Industria 2015 have been turned in operating instruments through the provisions of the 2007 and 2008 Budget Laws.

### *New or significantly changed innovation policy measures*

According to the INNO Policy Trend Chart report 2008, we report in the table the new innovation policy support measures.

<b>IPM N°</b>	<b>Title</b>	<b>Innovation policy framework category</b>	<b>Organisation responsible</b>
IT 93	Tax credit for R&D	2.3.2 Indirect support to business R&D (tax incentives and guarantees)	Ministry of Economic Development/Ministry of Economy and Finance
IT 94	Industrial Innovation Project — energy efficiency	2.2.3 R&D cooperation (joint projects, PPP with research institutions) 2.3.1 Direct support to business R&D (grants and loans)	Ministry of Economic Development
IT 95	Industrial Innovation Project — sustainable mobility	2.2.3 R&D cooperation (joint projects, PPP with research institutions) 2.3.1 Direct support to business R&D (grants and loans)	Ministry of Economic Development

The 2007 and 2008 Budget Laws foresaw the introduction of several measures to support R&D and innovation. However, some of them have not yet been rendered operative. At the time of writing, only the Tax credit for R&D and two industrial innovation projects — one on the field of energy efficiency and the other on sustainable mobility — have been activated.

#### *Tax credit for R&D (IT 93)*

The automatic incentive consists in a credit tax for enterprises that invest in research and precompetitive development. The 2007 budget law foresaw a bonus of 10 % of eligible expenditures (15 % if research contracts are assigned to universities and public research centres) for a maximum of EUR 15 million/year. The 2008 budget law has raised the ceiling from 15 % to 40 % for research contracts assigned to universities and public research centres, and the maximum amount from EUR 15 million to 50. The increase from 15 % to 40 % has the objective to promote closer networking between the business and science communities, and is expected to have an important impact. The instrument has just become operative (17 April 2008).

#### *Industrial Innovation Projects*

The industrial innovation projects proposed in Industria 2015 are also addressed in the 2007 and 2008 Budget Laws. The projects aim to coordinate activities of large scale public and private enterprises, industrial and technological districts and the world of research and innovation. The programme's objective is to encourage the creation of partnerships between universities, research centres, private enterprises and financial capital of national and international scope, in order to implement medium and long-term industrial initiatives that make industry more competitive.

The industrial innovation projects as well as all the interventions managed by the Ministry of Economic Development in favour of enterprises will be funded through the Fund for Competitiveness. Although the Fund was foreseen in the 2007 Budget Law and endowed with EUR 1.1 billion for the period from 2007 to 2009, it has only become operative (through a ministerial decree) in 2008.

In addition, a fund to facilitate access to credit by SMEs and to rationalise the functioning of the public guarantee funds and risk (venture) capital funds was also foreseen in the 2007 budget law. The fund, called Fund for Enterprise Financing, has been endowed with EUR 300 million for the period 2007-2009. However, it has not become operative yet. Finally, the Fund for Scientific and Technological Research gathers in a single fund all the funds that were managed by the Ministry of University and Research. The total available resources (2007–2009) amount to EUR 1.2 billion. However, like the Fund for Enterprise Financing, it has not become operative yet.

#### *High-tech fund for SMEs (IT 55)*

The establishment of a fund for the public participation in risk capital of enterprises operating in hightechnology sectors (information technology, electronics, nanotechnologies and micro technologies, electro medical instruments, high-technology mechanics for industrial automation), was announced in the Second Action Plan for ICT launched in 2005 (IT 55, High-tech funds for SMEs) but it has become operative only in 2008. The beneficiaries of the measure are start-ups in high-technology sectors, venture capitalists and institutional investors in Southern Italy, and the available funds amount to EUR 86 million. The action is intended to promote investments in risk capital during the initial phase of a company's activity, including funding the analysis, valuation and development of the original business idea prior to the phase of launching the business. Investments may also be directed towards financing the development and first sales of a product.

#### *Tax exemption for high-tech enterprises*

This measure has been included in the 2008 Budget Law and consists on a reduction of social security payments for R&D personnel employed in high-tech start-ups. This measure has the objective of fostering the creation of high-tech companies, but despite its importance it has not become operative yet.

Finally, it is worth mentioning the introduction of 'novelty assessment' for patents submitted to the Ufficio Italiano Brevetti e Marchi (Italian Patent Office) as a way to reinforce and protect intellectual property.

#### *Trends in innovation policy at regional level*

At regional level, instruments specifically devoted to R&D and technological innovation count at present for 20 % of the total instruments (36 % are decentralised instruments, while 10.8 % are purely regional measures). They represent the second priority after the consolidation and development of the productive system. The incidence of such instruments is more relevant in the Northern-Central regions

(24 %) than in the Southern (7.8 %). Tuscany, Emilia-Romagna and Lazio are the regions that have allocated more financial resources on such instruments for R&D. One of the most recurrent measures is Law 598/94 for innovation. Measures directly formulated and managed by the regions (whose number and relevance is strongly increasing in the overall framework and have doubled from 2005 to 2006) are focalised on more specific objectives: new entrepreneurship, access to credit, environment/energy/services and infrastructures to firms. In the last years, more emphasis has been given by these interventions on innovative activities within firms. Resources are more frequently provided through grants or loans on easy terms; rarely, through intervention on risk capital.

The overall picture, however, shows that regional instruments are still too fragmented (too many measures addressing different objectives and topics). In this sense, one major change is a new orientation in the regional innovation policy favouring intervention for specific objectives and projects, avoiding general broad measures and support initiatives.

The policy documents recently formulated at governmental level address a new modern regional policy, non-sectoral, focused on specific areas and sites, based on a multi-level governance, with strategic objectives but designed to address specific local peculiarities. The new policy is inspired by the recent national policy framework (Industria 2015) and foresees a role also at regional level through selected projects and the focused combination of different policy instruments (incentives, regulation, public demand orientation, material and immaterial infrastructures creation). This is intended to reduce general, non focused policy initiatives. Also, the offsetting nature of too many interventions tends to be lessened. The selection process should be aimed at reinforcing local production systems development (industrial innovation projects for local systems) and to permit them an international dimension. One explanatory example could be the technological districts that are newly conceived operating models which enable regional governments to be promoters of research action for the social and economic growth of their territories. They are initiatives planned and implemented in agreement with the central government, concerted with local stakeholders, focused on specific technological themes and sectors, envisaged as systemic programmes articulated in different measures, instruments and actions.

Another emerging trend in policy formulation, as in the RTDI field, is the promotion of policy making at municipality level. According to the new EU strategic orientation, in addressing the urban dimension as a strategic priority, the new Strategic Framework for regional policy and the POR planning framework has introduced analysis, strategies and programmes for municipalities and urban networks that are becoming the new target for policy strategies and projects on competitiveness and territorial balances. According to the 2007–2011 DPEF and the indication of the new Community Strategic Framework, the regional development policy will be aiming in the coming years to reduce the persistent under spending of resources in the southern regions (especially in the R&D field) and to stimulate competitiveness and productivity recovery in the whole national territory. This may be achieved only through an integrated approach among the different policy making levels, a more effective decentralisation process and an improvement in resources-spending effectiveness.

The increased responsibilities of regions should have been accompanied by adequate transfer of resources from the central government, and above all, by a gradual improvement of internal technical

skills and competencies necessary to manage instruments that are becoming more and more complex. Such a process has occurred only in some of the most advanced Italian regional systems and is still a weak point for many regions that have only recently undertaken a new course towards more autonomy in the definition and implementation of effective local development policies.

### *Specific Policies and Programmes for Innovative Start-ups*

Despite the absence of a specific policy designed to support gazelles, there have been some support instruments developed to favour capital markets, in particular the venture capital sector.

- Law 388/00, Articles 103 and 106 foresaw a public cofinancing scheme for young enterprises wishing to develop innovative projects. Unfortunately, results of this measure cannot be considered satisfactory, also due to a very slow take-off. (IT 41 — Support to the promotion and development of new innovative enterprises).
- The High-tech fund for SMEs (IT 55) announced in 2005 also foresaw the establishment of a fund for the public participation in risk capital of start-ups located in the Mezzogiorno and operating in high-tech sectors. Despite a long delay, the measure has finally become operative in 2008.
- TTVenture, a private fund (seed, venture capital, private equity) recently launched to support the creation and the growth of high-tech SMEs in biomedicine, energy, environment, agrofood and materials.
- Law 388/00 (Article 106) also contemplates the promotion and technical assistance for innovative start-ups in high-technology sectors. Under this framework, a measure was launched to encourage the creation of business incubators that can favour the birth of innovative companies through the provision of services supporting the start-up phase (IT 51 Incubators for start-ups).

A real novelty has come with the 2008 Budget law and the measure regarding the tax exemption for high-tech enterprises which consists on a reduction of social security payments for R&D personnel employed in high-tech start-ups. This measure has the objective to foster the creation of high-tech companies, but despite its importance it has not become operative yet.

Last but not least, The Ministry for Foreign Trade, through the agency for the promotion of Italian firms located in foreign markets (SIMEST) has just announced the launch of a venture capital fund for startup companies. It aims to support the start-up phase of those SMEs that have decided to set off an internationalisation project outside the EU. It is without any doubt an important measure since up to now there was not any public support for SMEs at this level. It is also a sign of integration between support measures for start-ups and internationalisation policies in order to promote competitiveness.

At regional level there are also several interesting initiatives that have recently emerged. One of these is the Lombardy Region Seed capital for start-ups. Finlombarda (the regional office in Lombardy that provides financial assistance to enterprises) has created a Seed Fund endowed with EUR 10 million to finance the establishment of new firms (start-ups and spin-offs) operating in the fields of energy,

health, environment and food. The maximum amount to be given is 150 000 EUR to sustain firms in the very early stages of their life cycle when mortality rates are high and when the relation between risk and profits does not attract private operators. The Lombardy region is one of the Italian regions that has first focused the attention on the problem of the financial gap faced by innovative start-ups.

There are also other initiatives such as prizes, for example the 'Start Cups' or the Hypo-Prize. The Start-Cups are business plan competitions that favour the creation of high-tech enterprises and are organised at regional level in collaboration with universities. The idea of the Start Cup contest is to spot the best innovative ideas with high-potential commercial success and to guide candidates in the elaboration of a business plan. The prize consists on a lump sum money (up to EUR 20 000) and free access to the University's incubators. This initiative aims at disseminating an entrepreneurial culture in Universities (something relatively new and unusual in Italian Universities), allowing the birth of new firms from innovative ideas. Likewise, the objective of the 'Hypo-Prize for new innovative enterprises' is to identify the most promising and innovative entrepreneurial ideas (also deriving from research projects). It is a new initiative sponsored by a credit institute (Hypo Group Alpe Adria) in collaboration with Aifi (Italian Association of private equity e venture capital) and five Italian Universities (Brescia, Castellanza, Padova, Trieste and Venice). The 'Hypo Innovazione' prize, which will be launched on an annual basis, will allow the winner to obtain a credit of EUR 150 000 at zero interest rate and without guarantee. This is an interesting initiative towards a more active Italian banking system that supports those business ideas with high potential but without the necessary financial resources.

Some support measures for innovative start-ups are integrated with other policies, especially with internationalisation and with fiscal (tax) policies. Examples are the tax exemption for high-tech enterprises measure, which consists of a reduction of social security payments for R&D personnel employed in high-tech start-ups (although it has not become operative yet), and the venture capital fund (promoted by the Ministry for Foreign Trade through SIMEST — the agency promoting Italian firms in foreign markets) to support the start-up companies that have decided to launch an internationalisation strategy outside the EU. This measure is a clear sign of integration between support measures for start-ups and internationalisation policies in order to promote competitiveness.

#### *Main tools supporting research and innovation in the region of Veneto*

With reference to the regional strategic plan for scientific research, technology development and innovation 2008-2010 (according to regional law 9 / 2007 art. 11), we report the table with the main tools supporting research and innovation in the region:

Budget lines	Activities / beneficiaries	Total € already financed	Allocation for 2008
Facilitated funds for investement in innovation technology and environmental protection – Law 598/1994	Activities: Projects of industrial research and pre-competitive development.  Beneficiary: SMEs	€ 51.200.000	€ 15.000.000 required
Special fund for innovation technology and products' quality – Regional Law n.12/1992 art. 6	Activities: Projects of industrial research and pre-competitive development.  Beneficiaries: mainly public bodies	€ 13.000.000	€ 10.500.000
Special fund for the development of science and technology parks in the Region of Veneto – Regional Law n. 36/1995	Activities: - feasibility studies - building's construction - innovation and research projects - regional network's projects  Beneficiaries: - Veneto Innovazione spa; - Public bodies - Public equivalent bodies - Cooperative companies	€ 7.800.000	No more financed
Regional cluster – Regional Law n. 8/2003	Activities: - industrial research and pre-competitive development, technology transfer, knowledge transfer.  Beneficiaries: - SMEs operating in the region - public body - associations class - etc.	€ 70.000.000	€ 15.500.000
Agreement on negotiated planning beetwen MUR and Region of Veneto 17.03.2004	Activities: - Scientific research's projects, pre-competitive development and/or linked training , dissemination of technologies related to the nanotechnologies.  Beneficiaries: - SMEs	€ 26.000.000	To negotiate
Agreement on programme Region of Veneto / Ministry of Economic Development / Ministry of university and research 28.09.2004	Activities: - Activities on biotechnology and nanotechnologies sectors.  Beneficiaries: - SMEs and Universities department throught CNR - CIVEN	€ 32.000.000	Estimated  € 4-5.000.000
Contribution for research and innovation (Docup Ob 2 2000-2006 - Misura 1.7; P.O.R. 2007-2013)	Activities: Action a) applied research and innovation; Action b) contribution for the utilization of qualified bodies for research activities; Action c) contribution for investement on industrial	€ 24.000.000	-

	research. Beneficiaries: - SMEs		
Activities of research and technology transfer (Docup Ob 2 2000-2006 - Misura 2.3; P.O.R. 2007-2013)	Activities: Development of SMEs research and technology innovation through the increasing activities of laboratories, research centres, technologies parks and universities.  Beneficiaries: mainly public bodies	€ 7.400.000	-
Regional Law n.9/2007 Promotion and coordination of scientific research, economy and innovation development in the productive regional system	Activities: - industrial research - experimental development - cooperative research - process innovation and organisational innovation - technology transfer - process innovation - cluster innovation Beneficiaries: - singol or joined companies - productive cluster - public bodies or equivalent public bodies - science and technologies parks and incubators - universities and private/public research centers	-	€ 7.690.250
Total		€ 231.400.000	

There are others actions in P.O.R. 2007-2013 not directly linked with research and investment, but regarding transverse innovatives topics; Axis 1 of POR "Innovation and knowledge economy" ha a total amount of € 190.129.062.

### III.3 Main actors contributing to the development of innovative capability of the region

#### *Technology Transfer Institution (TTIs) in the region of Veneto*

According to an EC study (EU 2004:7) the “Technology Transfer Institutions (TTIs) are industrial liaison offices, technology transfer offices, contract research organisations and other innovation support providers such as technology parks and incubators, play an increasingly important role in the creation and reinforcement of the relationships between industry and public research organisations (PROs).”

According to the study “Open innovation in Veneto – map of TTIs” , the TTIs in the region of Veneto are 88. The main TTIs category refers to analysis laboratories and industrial tests (44,5% on the total); then there are research laboratories for applications practices and thematic centres (11,4%) and public research centers (6,8%) and companies incubators (5,7%).

Tab. TTIs for category:

<b>Type</b>	<b>n.</b>	<b>% on the total</b>
Laboratories of analysis and industrial tests	40	45.5%
Research laboratories for applications practices	10	11.4%
thematic centers	10	11.4%
public research centers	6	6.8%
incubators	5	5.7%
multi sectors centers	4	4.5%
special companies and laboratories of the chamber of commerce	4	4.5%
sciences and technologies parks	3	3.4%
bic	3	3.4%
local development agency	1	1.1%
experimental laboratories	1	1.1%
TTOs	1	1.1%
<b>Total TTIs in the region of Veneto</b>	<b>88</b>	<b>100%</b>

The 88 TTIs have an average age of 19 years old; the oldest TTI has been set up in 1929: Istituto Zooprofilattico Sperimentale delle Venezie operating in food industry and feeding; then in the 50s: Stazione Sperimentale del Vetro and Fondazione Giacomo Rumor, institutions operating in long regional traditions sectors. In the 60s-70s there was a stop on the initiatives related to innovation and knowledge transfer, in fact in twenty years has been set up just 8 TTIs, some laboratories and 2 public research centers. From the 80s the numbers of TTIs have been increased considerably, until the 90s with the 36,4% of set up TTIs. After the 2000 has been founded 5 incubators, TTOs, laboratories and specialized centers in nanotechnologies and biotechnologies.

Tab. TTIs for category and founded year

Type	n.	before 50s	50s	60s	70s	80s	90s	from 2000
experimental laboratories	1		1					
sciences and technologies parks	3						2	1
TTOs	1							1
incubators	5							5
bic	3					2	1	
special companies and laboratories of the chamber of commerce	4			1		2		1
local development agency	1						1	
thematic centers	10	1					7	2
multi sectors centers	4		1				3	
public research centers	6			2			1	3
Research laboratories for applications practises	10				1	4	3	2
Laboratories of analisys and industrials tests	40	1	3		4	11	14	7
<b>Total TTIs</b>	<b>88</b>	<b>2</b>	<b>5</b>	<b>3</b>	<b>5</b>	<b>19</b>	<b>32</b>	<b>22</b>
%	100%	2.3%	5.7%	3.4%	5.7%	21.6%	36.4%	25.0%

*TTIs regional network: collaboration beetwen innovation actors*

The high number and types of TTIs in the region suggest a new question on the grades of collaboration among the actors in the network.

The 'Open innovation' study considers different types of collaboration: a simple information sharing, a joint problem solving, projects sharing or patents sharing. The TTIs in the region are mainly oriented to actives collaboration in order to realize projects (1/3 on the total).

Tab. Number and percentage of collaboration with regional bodies per types of collaboration

Type of collaboration	n.	Regional actors involved	TTIs involved
Information sharing	203	45	30
Researchers sharing	21	12	8
Projects sharing	117	32	28
Patents sharing	1	1	1
Total n° of collaboration	342		

Tab. Number and percentage of collaboration with bodies outside the region per types of collaboration

Type of collaboration	n.	Non regional bodies involved	TTIs involved
Information sharing	30	27	9
Researchers sharing	5	5	1
Projects sharing	9	5	11
Patents sharing	2	2	2
Total n° of collaboration	48		

Moreover regional TTIs have a good collaboration with the universities, in particular with the university of Padua. The bridging skill between industrial system and university system is an emerging characteristic of the TTIs network; in fact more than an half of the TTIs collaborate with at least one university (mainly the regional one) on the management in sharing projects (61.5% on the total TTIs) and on sharing information (56.4% on the total TTIs).

The main actors in the TT system are the regional development agency and two science and technologies parks of Venice and Padua.

The researchers mobility is very limited and the study suggests an higher mobility from the universities to the companies.

The TTIs network is characterised by four important points that have a lot of links with the other actors; in particular Veneto Innovazione, the local development agency has the most important role in the network, bridging the different actors in the network; the second central actor is the science and technology park Galileo of Padua following by Fondazione Giacomo Rumor and Treviso Tecnologia (special company of the chamber of commerce of Treviso).

The research underlines that the TTIs network has a 'star shape' with a lot of points (actors) not linked on each others, but just joined to a central point.

### *Open innovation and the boundaries of the knowledge sharing*

A big problem concerning the open innovation context is linked to the TTIs skill of bridging towards new markets of technology and scientific knowledge (outside the regional and national boundaries). There are just few TTIs specialized on research of external knowledge, therefore the system is not oriented to sustain the companies process of open innovation. If we analyse the collaboration between the centers on informal information sharing, we can notice that they mainly remain inside the local area.

The TTIs are not oriented to knowledge sourcing activities because there is a limited demand from the regional companies (mainly SMEs operating in traditional sectors); the SMEs don't require a specific service concerning external knowledge sharing, but there're some spill-over phenomena: informal knowledge and information sharing through personal contact; these phenomena decrease the services demand that represents for the companies a high cost and an uncertain result.

According to this study the companies operating in mature sectors should improve their competitive differential investing in innovation.

The regional industrial system could develop the innovation capacity through the internationalization of R&D activity, looking for adequate foreign partners.

In the TTIs system the work division underestimates the future demand on foreign knowledge and partner.

### III.4 SWOT analysis for the general situation of the business sector mainly identifying the main problems innovative enterprises are faced with

*SWOT analysis of the regional business sector*

<p><b>STRENGTHS</b></p> <ul style="list-style-type: none"> <li>• Good entrepreneurial level and incremental innovation</li> <li>• Presence of well established SMEs and international leading companies highly motivated and export oriented</li> </ul>	<p><b>OPPORTUNITIES</b></p> <ul style="list-style-type: none"> <li>• Take advantage of a local collaboration networks</li> <li>• Training new professional roles to supply accurate management, sales and marketing consultancy in SMEs</li> <li>• Improvement of technology transfer mechanisms to reduce the existing gap between research and the market</li> </ul>
<p><b>WEAKNESSES</b></p> <ul style="list-style-type: none"> <li>• Poor funding and low investments in R&amp;D</li> <li>• Poor capacity for radical product innovation; limited product innovation and development skills capable to yield innovative solutions revitalising and refreshing the most important sectors</li> <li>• SMEs' limited access to funds</li> <li>• Small-size companies with difficult to emerge</li> <li>• Low SMEs' awareness of the opportunities deriving from a collaboration with the universities or research centers</li> <li>• Lack of a proper national and regional innovation policy</li> </ul>	<p><b>THREATS</b></p> <ul style="list-style-type: none"> <li>• Potential competitiveness of new and emerging countries in focus sectors</li> <li>• Cooperation difficulty in some sectors because of small size of regional companies</li> </ul>

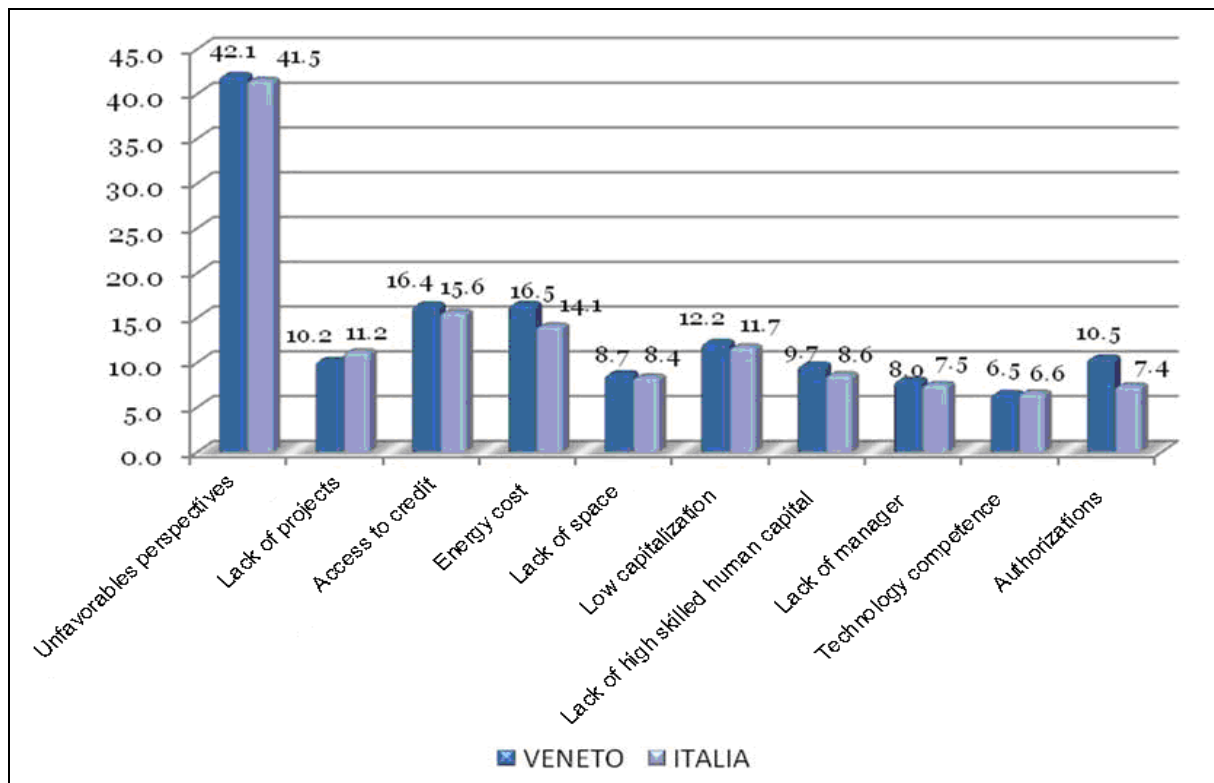
#### *The weakness and the factors that decrease the investment*

According to the report on Veneto by MET 2008, the regional companies have some factors that limit their capability to realize development strategies through investments.

The negatives perspectives in their own business sector represent the most important reason to decrease the investment of the regional companies; there are other critical factors: SMEs' limited access to credit (16,4% companies in Veneto, 15,6% in Italy), high energy cost (16,5% in Veneto, 14,1% in Italy), low corporate capitalization (12,2% in Veneto, 11,7% in Italy), few high skill human capital (9,7% in Veneto, 8,6% in Italy).

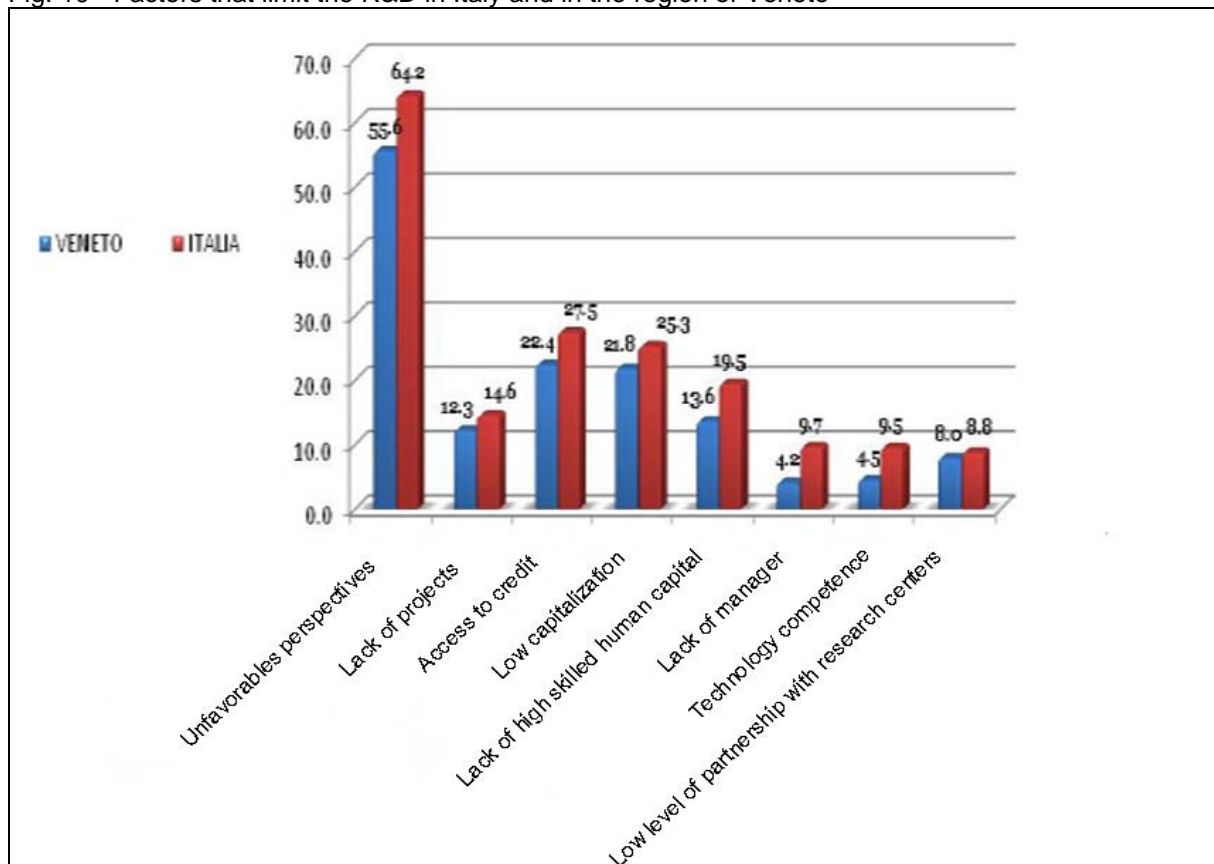
In general the resource's availability represents an weakness element: 13,3% of the companies renounces to advantageous programme of investment because of lack of resources.

Fig. 9 - Factors that limit the investment in Italy and in the region of Veneto



Note: MET survey 2008., based on 3020 interviews

Fig. 10 - Factors that limit the R&D in Italy and in the region of Veneto



Note: MET survey 2008, based on 3020 interviews.

## **PART IV. Suggestions and proposals for over-passing problems of entrepreneurship (innovative SMEs) in the region of Veneto**

### *Suggestions for over-passing problems*

Based on the inno policy trend chart 2008, the National Innovation System is subject to a number of challenges that in broad terms can be grouped under the following three general categories: (i) the creation of an innovation-friendly environment (especially for SMEs); (ii) the improvement of the educational attainment and skills of the population; and (iii) the improvement of innovation financing. In practical terms the creation of an innovation friendly environment means acting on four main fronts.

1. Increasing the amount of funds (both public and private) allocated to R&D activities: the Italian government still devotes an insufficient amount of public funds to sustain research and development. The latest value recorded by the EIS indicators for Public R&D expenditure is 0.56, below the average of EU-15.
2. Reinforcing and rationalising the incentive system to foster R&D and innovation within SMEs, as the lack of R&D and innovation within SMEs (that represent 98 % of the Italian industrial fabric) is one of the reasons often cited for the drop in competitiveness of the Italian industry.
3. Improving the existing technology transfer mechanisms to reduce the existing gap between research and the market.
4. Establishing a system based on 'meritocracy', ensuring that the 'best' (firms, researchers, projects, universities) are the ones that receive the (scarce) resources: this has been an often cited pitfall of the Italian system that is calling for an urgent intervention by the majority of the NIS' stakeholders.

### *The urgent challenges*

Three main challenges can be extracted. The selection of these specific challenges has been made on the basis of several indicators (EIS, OECD, and IMD), national policy debates, and publications as well as on the basis of the considerations and judgment of the country correspondents. According to the latter, the challenges described here below need to be urgently addressed:

#### *Challenge 1: Innovation financing (especially venture capital)*

SMEs' limited access to funds is a key challenge for the Italian system as increasing global competition calls for investments in innovation. Shortage of finance both from public and private sources has been recognised as one of the main factors that hinder innovation. Funds for innovative SMEs from private banks and venture capital are rather scarce in Italy.

#### *Challenge 2: Mobility of talents*

By mobility of talents we refer to the flow of university graduates, researchers, scientists and high skilled human capital to and from the country. Talent flows account for the 'brain-drain' as well as for the 'brain-gain' phenomenon. The degrees of retention and attraction of skilled human capital are important indicators of the efficiency of educational and labour market systems of the country. Having young researchers,

professionals and university graduates moving abroad may put a serious and strong impediment on innovation in the next years as the brightest human resources move away, taking with them high levels of skills and know-how. Likewise, the country is not appealing to foreign students (graduates and postgraduates) as shown by the low percentages of foreign students enrolled in the university system.

*Challenge 3: Improvement of technology transfer mechanisms to reduce the existing gap between research and the market*

Technology transfer processes should be further promoted since one of the flaws of the Italian system is its difficulty in generating innovation from knowledge and research inputs. An index developed to measure the efficiency of technology transfer between university and enterprises shows very low levels for Italy (3.60 whereas the same index for countries like Denmark, Finland, Germany, Sweden or the US is around 6.00 to 6.69). As a consequence, out of 19 countries Italy is placed in the 17th position followed only by Portugal and Russia. A recent survey carried out by Netval (the Italian network for the valorisation of university research)<sup>24</sup> on a sample of 50 Italian universities shows that the policies adopted by Italian universities in support of technology transfer consist mostly of measures to protect intellectual property and of incentives to create spin-offs. More than 80 % of Italian universities adopt these types of measures, whereas only 57 % of them collaborate directly with the industry in R&D programmes, while just 12 % involve students in research projects. The report also shows that between 2003 and 2005 the patents registered in the EPO and in USPTO have increased by 56 % and 33 % respectively and by 2005 the academic spin-offs active in Italy were 205 almost double than in 2003 (104). The EIS indicators also show a poor performance of Italy in international comparisons; cooperation between firms or between firms and research centres registers an indicator that is half of the EU average, showing a persisting difficulty of the SMEs Italian system to activate virtuous exchange processes to acquire new technologies and develop new applications. Also, the indicator of high-tech exports is very low with respect to the EU average, whereas the indicators of sales new-to-market products and sales new-to-firm products are closer to the averages. Indicators related to the registration of EPO, USPTO and triad patents show values below the EU average. More positive figures are recorded for Community trademarks and designs, which register indicators around or above the EU average. This is a sign of the traditional leadership in the 'made in Italy' sectors where design, creativity and invention have contributed to the consolidation of Italian products in international markets.

The Italian National Reform Programme highlights among its priorities the promotion of scientific research and technological innovation (priority number two) and the reinforcement of education and training (priority number three). In particular, the importance of technology transfer as one of the most important tools for achieving economic growth in the long term and the need to strengthen networks of relations and cooperation between universities, laboratories and enterprises have been significantly stressed in the document. Also, the National Reform Programme foresees several interventions to encourage technology transfer such as the reinforcement of the Industrial liaison offices (ILOs) and the support of the RIDITT Network. The question of mobility of talents, although mentioned in the National Reform Programme — one of the actions envisaged in reforming the university system foresees 'empowering support for university internationalisation programmes, which contemplate mobility of students, teachers, PhD candidates and research grant holders' — is not one of the central issues of the reform, which is more focused on the general reinforcement of education and training of human capital. Likewise, the question of innovation

financing is mentioned in the document, which contemplates the need to 'rationalise, coordinate and update market-oriented venture capital instruments' and the creation of a fund for investment in risk capital of high-tech enterprises. However, they look more like general statements than specific planned actions/measures to be shortly activated. In summary, it can be said that the technology transfer challenge has been treated more extensively in the National Reform Programme whereas the issues of venture capital and mobility of talents have received fewer attention.

### *Proposals for regional actions*

According to 'Libro Bianco 1' the Region of Veneto can over-passing the problems with this specific actions:

1. Network to produce efficient innovation:
  - Support to multi-year programmes to promote joined activities among universities, STPs, laboratories and research and innovation centres on priorities innovation fields;
  - Development of human resources with trasverses skills promoting an external consulence's service for SMEs in order to develop companies organisational process;
  - Support to cooperative research of companies with the same problem or specific need;
  - Support to a long term research carried out by private-public partnership.
2. The value of human resources: people as innovation's engine:
  - Create a private-public co-financing fund for Ph.D grant;
  - Give loans to universities researchers in order to realize industrial research projects;
  - Create essential requirement to "adoption in the distance of researchers" by a company in order to develop specific research.
3. Toward a new finance for innovation:
  - Create a seed capital fund to SMEs for pre-seed financing and start up financing.
4. Monitoring and evaluation of the regional innovation results:
  - Create a new system of statisticals indicators on R&D, more specific for the regional area;
  - Create a database on companies technologies and technologies capabilities of the suppliers;
  - Create an evaluation system ex-ante, in progress and ex-post for the regional research and innovation programmes.
5. Strategic planning: a few clear objectives:
  - Periodical identification of strategic territorials sectors in order to concentrate regional investements.
6. Communicate the regional innovation:
  - Increase the attractive potential on the actors outside the Region promoting the knowledge internationalization.
7. New innovative companies:
  - Support spin off set up by single or group of technicians or researchers;

- Create a fund to facilitate the licencing of patents by universities, researches centers and the promotion to private companies.
8. Optimize the results of technology transfer and incremental innovation:
- Selection and diffusion of innovation transferable to different sectors;
  - Training for the technicians staff of the companies;
  - Incentives to the researchers mobility;
  - Analysis of the technological requirements for companies cluster.
9. Support to radical innovation:
- Identify strategic regional actions financed by POR 2007-2013 or regional law 9-2007.

## PART V. Main Conclusions

The main conclusions of this report can be summarized this way:

- The most critical feature is the amount of research conducted by Veneto's production system. Although Veneto is starting to show some dynamism in this field, it is emblematic of the Italian model of "innovation without research": much of the innovation produced is informal and thus escapes detection by statistical research based on objective indices. Eurostat figures show that between 2000 and 2005, regional expenditure on research and development was lower than the Italian average, which is already modest by European standards, both in terms of percentage of Gross Domestic Product and number of researchers.
- Despite a general critical situation, there are some actors in the manufacturing sector that follow virtuous development strategies in the innovation field and they have good results in foreign trade. Respect other regional systems these strategies are developed already in small companies; in Veneto SMEs re-launch the regional economy and they feel less the effect of international crisis.
- Despite some critical features, the regional industrial system is one of the most dynamic and solid in Italy. For example the diffusion of investment: 43% of regional companies makes investments in the last three years vs. 34,7% of Italian data.
- The traditional Veneto model of "innovation without research" shows a shift towards a larger R&D activities, at least for the most innovative enterprises.
- The regional performance of research and innovation are encouraging: the companies which carry out R&D activities and the innovation (process/product/organisational) are higher than national percentage in the last three years.
- Research and innovation demand come from small companies too: from this reason policy should develop tools of easy access from SMEs and support's procedures.
- There is strong growth in advanced innovative strategies, as well as in ones that literature describes as "modern": today about 18% of businesses consider innovation to be an essential requirement for remaining on the market; 15% innovate because it is an essential part of their sector; and 10% innovate to keep up with their competitors.
- The internationalization of the companies is one of regional success key;.
- In the general climate of uncertainty, fears are rife concerning the development of a credit crunch, that is of a restriction in the supply of credit to the production sectors, with severe and deep consequences in the real economy. Thanks to a regional sound economy the problem of the access to credit is limited; but this phenomenon is increasing mainly for the innovative companies presenting dynamic strategies so it's important to develop specific tools and pay attention to the guarantee.
- There is a lack of high skilled human capital which limiting the development of innovative SMEs.
- The presence of regional cluster facilitates R&D projects of SMEs.

## Annex

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#### Innobarometer

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#### Innovative Regions

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#### ISTAT - National Statistical Service

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

#### Organisation for Economic Co-operation and Development

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