

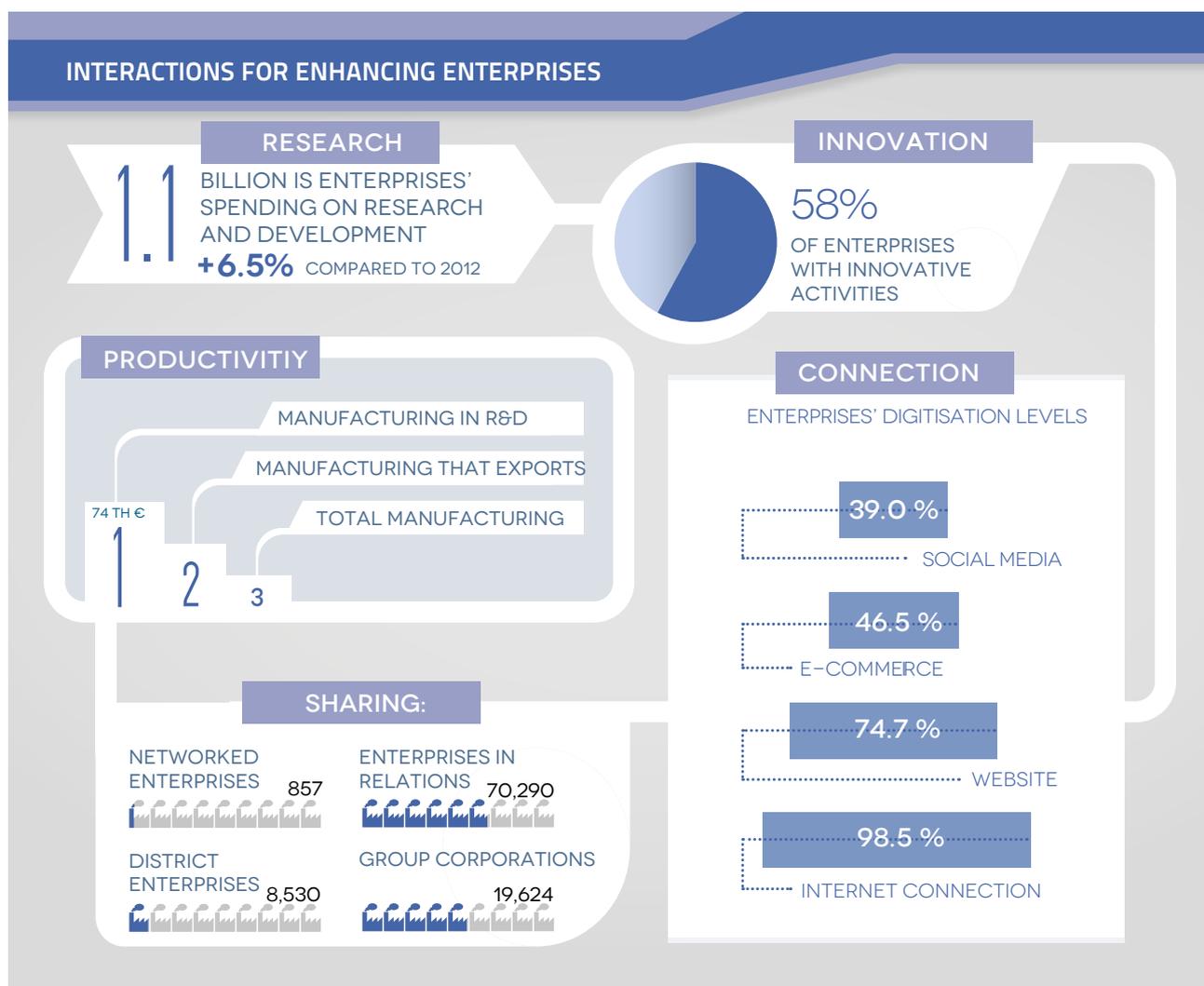
## Chap. 5 – Innovation: Engine for Recovery if Created in Collaboration

In a comparison with Europe Veneto is a moderate innovator, but in terms of the national average it is the second region in Italy for enterprises' propensity to innovate.

These trends show how the connection between enterprises, other than the digital connection, may present itself as a greater guarantee of success for the growth, internationalisation, productivity and competitiveness of the 437 thousand Veneto enterprises.

The use of the web's potential is more intense in Veneto compared to average national trends, both as an opportunity to promote themselves in a global shop window, and as an instrument for closing commercial deals. But the real engine that can re-launch the system of Veneto enterprises is research. In 2013 spending on Research & Development (R&D) supported by enterprises, public institutions, non-profit private institutions and universities in Veneto amounted to 1.6 billion euros, an increase of over 5% compared to 2012.

Analyses carried out evidence that the propensity for export is tending to grow with the increasing size of enterprises and that the winning strategy for facing foreign markets involves a market capacity for investing in R&D. The added value generated by enterprises is in fact greater when the enterprise makes investments in R&D, even if the size of the effect is different based on the enterprise size.



The territory is no longer conceived as just a physical space, connected by settlement and infrastructure networks, but it is also considered as a place with a complex network of socio-economic connections, favoured by the community of culture, history and human skills. These are the connections that create innovation.

Innovation is considered to be the engine that can relaunch the system and support the positive turning point that the economic cycle is adopting. According to Kondratiev's theory, the depression phase that the world is trying to come out of is nothing more than a phase of the fifth economic cycle which began in 1885-1890. In fact, in 1925 the Russian economist first hypothesised the wave theory: it integrated an economic and political analysis within a historical context made up of wars, important discoveries and changes to public opinion, coming to a result that in a capitalistic economy would have followed trends. His "K-cycle" can be broken down into 4 phases: prosperity, recession, depression and development; this is based on small inventions and innovations that trigger technological revolution.

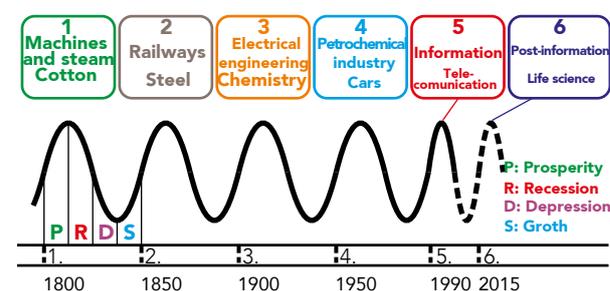
As confirmation of Kondratiev's theory, Joseph Schumpeter demonstrated the correlation between technological innovation and the start and end of the various economic cycles. Development of the innovations occurs in when the economic crisis is in full swing and their introduction produces a phase of rapid growth and even financial euphoria. The "Schumpeter-Freeman-Perez" paradigm, currently revived and revised by the research Danial Šmihula considers the following waves:

- The era of machines and steam;
- The era of railways and steel;
- The era of electrical engineering and chemistry;
- The era of petroleum, the car and mass production;
- The era of information and telecommunications;
- The "hypothetical era of the post-information technological revolution" (2015-2035?).

Unlike Kondratiev and Schumpeter, Šmihula<sup>1</sup> believes that each new cycle is shorter than its predecessor due to the speed of technological progress and the application of the new technologies. According to him the economic crisis in the 2007-2010 period is the result of one of the impacts of the "wave of the technological revolution of information and te-

lecommunications". Some authors<sup>2</sup> expect that the sixth wave may be guided by innovations related to the efficiency of clean resources and technologies. Others<sup>3</sup> more prudently limit themselves to studying the current technological and digital revolution, also defined as the economy of knowledge, as a result of the accumulation of knowledge from previous technical-economical paradigms, with a progression to development connected to past and future waves of innovation.

**Fig. 5.1 – Kondratiev's theory of economic cycles**



Source: Veneto Region Processing – Directorate of Regional Statistical System on Kondratiev, Schumpeter, Nefiodow, Šmihula

Present day experts believe that innovation is the cause and effect of continuous transformation and, conversely to the claims of Schumpeter, that there is a continuous interconnection between economic growth, technological development, social and cultural factors so as to affect every aspect of people's lives.

This chapter will analyse the state of the art of innovation and research in Veneto in an international comparison. The identikit of the Veneto enterprise involved in research will be presented in relation with its economic performance and its degree of international outlook. Reference will be made to the various types of entrepreneurial "connections" as tools to make use of "critical mass" for the purpose of making investments in research that are not otherwise available.

Confindustria Veneto will also provide a contribution for identifying the trajectories of innovation for Veneto enterprises.

<sup>2</sup> James Bradfield Moody and Bianca Nogrady

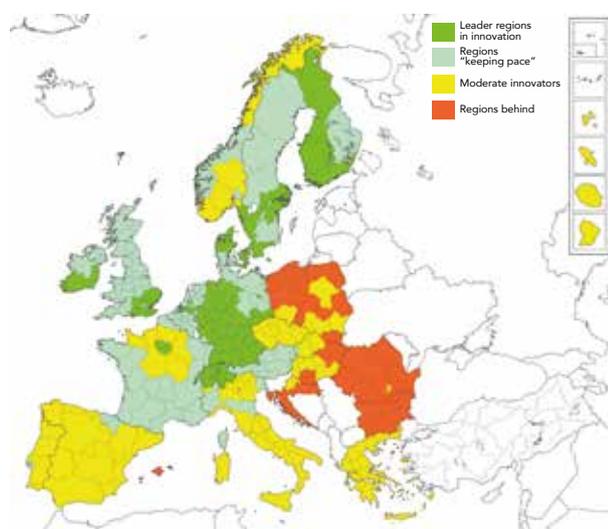
<sup>3</sup> Carlota Perez, Freeman e Soerte

<sup>1</sup> Šmihula, Daniel (2011): Long waves of technological innovations

## 5.1 Veneto's innovation capacity in the European context

Research, innovative capacity and knowledge depend on various factors such as: entrepreneurial culture, competence of the work force, education and training institutes, innovation support services, and still, mechanisms for technological transfer, mobility of researchers, sources of funding and creative potential. Development of a more innovative society may help enterprises to maintain a competitive advantage, to create products with a high added value and therefore protect or create jobs.

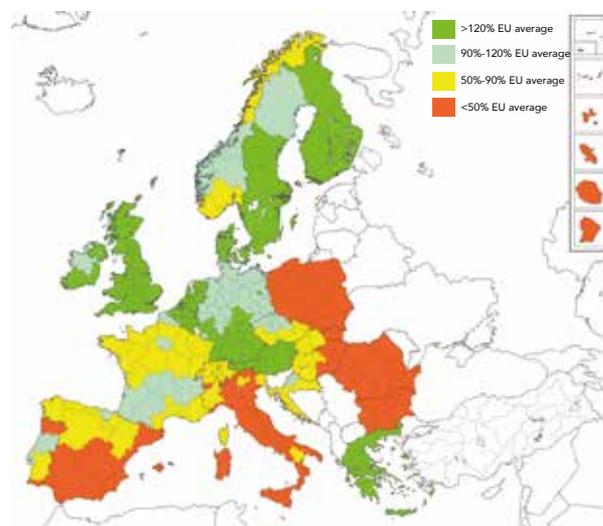
**Fig. 5.1.1 – Classification of European regions based on innovative performance – Year 2014**



Source: Veneto Region Processing – Directorate of Regional Statistical System on European Commission data – Regional Innovation Scoreboard 2014

In the same European Strategy 2020 the priority of “intelligent growth” promotes knowledge and innovation as engines in our future growth. Europe favours innovation and the transfer of knowledge to the entire Union, the optimal use of information technology and communication and incentivises the transformation of innovative ideas into new products and services. To combat the challenges that our current society is facing, from energy efficiency to demographic changes, investments in research and innovation must be increased, so as to ensure a more efficient and sustainable future for both people and our territory.

**Fig. 5.1.2 - % Share of innovative SMEs collaborating with each other – Year 2014**



Source: Veneto Region Processing – Directorate of Regional Statistical System on European Commission data – Regional Innovation Scoreboard 2014

In particular, the 2014-2020 EU framework programme for research and development, Horizon 2020, aims to remove barriers to innovation, to close the gap between research and market and to make interaction between the public and private sector easier.

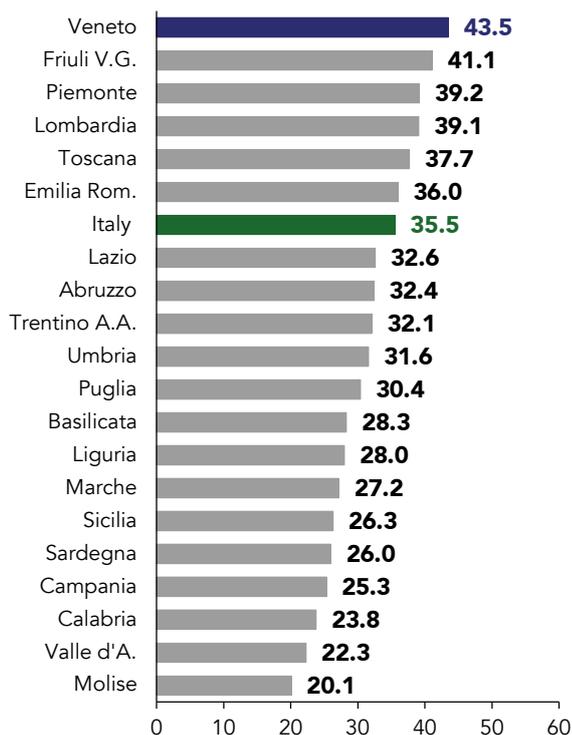
A comparative assessment of the innovative performance of the regions of the European Union has been carried out in the latest RIS Report – Regional Innovation Scoreboard – published in 2014 by the European Commission. Based on the measurement of 11 indicators<sup>4</sup> the regions are classified into 4 groups: innovation leaders (34), regions “keeping pace” or “innovation followers” (57), moderate innovator regions (68) and regions that are behind

<sup>4</sup> The indicators used in the Regional Innovation Scoreboard are: population that has completed education after high school; spending on R&D in the public sector; spending on R&D in the private sector; SME spending on innovation; number of SMEs innovating on their own; number of SMEs with cooperative innovation with one another; number of patent applications; number of SMEs that have introduced process or product innovations; number of SMEs who have introduced marketing or organisation innovations; number of employed in medium/high technological level manufacturing industry and in high knowledge intensity services and, finally, sales of innovative products in relation to the market or the enterprise



Veneto is the second region in Italy in terms of enterprise propensity for innovation: 58% of enterprises with at least 10 employees carried out innovative activities in the reference period.

**Fig. 5.2.2 – Percentage of enterprises with 10 or more employees with product/process innovative activities by region – Year 2012**



Source: Veneto Region Processing – Directorate of Regional Statistical System on Istat data

The available data allow us to observe a strong tendency to combine product/process innovative activities and organisational/marketing innovations (56.6%); next are the enterprises that have exclusively introduced innovations of an organisational/marketing nature (25%) and those that only dedicated themselves to product/process innovative activities (18.4%)

Solely focusing on the enterprises that carried out innovative activities aimed at the introduction of product/process innovations, Veneto rises to the top of the regional rankings, with 43.5% of enterprises with 10 or more employees, in the face of a national average of 35.5% of enterprises. 10.8% of these enterprises with product/process innovative activities also maintain cooperation agreements for

innovation: the number of enterprises who decide to cooperate with the outside and national indications show how collaborations with universities or foreign partners are infrequent



**... although with few investments**

In 2012 enterprises in Veneto invested a total

of 2.6 billion euros for innovation; average spending on innovation per employee in Veneto was equal to 5,600 euros, a value lower than the Italian average of 6,300 euros.



**New opportunities arise in enterprise computerisation**

It is common knowledge that the use of new information and communication techno-

logies contributes to enterprises' competitiveness, opening the way towards new channels and new opportunities; trends show how good digital maturity may present itself as a greater guarantee of success in terms of the growth, internationalisation, productivity and competitiveness of the enterprise. Internet connections are used by 98.5% of enterprises in Veneto, against the Italian average of 97.7%. The percentage of Veneto enterprises connected to the internet via fixed or mobile broadband connection is equal to 95.4%, greater than the Italian average by one percent.

The use of the web's potential is more intense in Veneto compared to the average national trend, both as an opportunity to promote themselves in a global shop window, and as an instrument for closing commercial deals. In fact, 39% of Veneto enterprises use social media and 3 out of 4 enterprises in Veneto own an enterprise website (for Italian enterprises the figures are 37.3% and 70.7% respectively). 46.5% of enterprises in Veneto actively use e-commerce, 5 percent higher than the Italian average. In particular, 43.1% have made purchases online, which is well above the Italian average (38%); 9.6% have made sales on the web, in line with the national average (10%). The uncertainties brought on by the crisis have also had repercussions on enterprises' intention to invest in industrial property, which at times is mistakenly seen as an unnecessary cost.

European Patent Office (EPO) data show how the national trend has returned to a positive status in 2015, after several years of decline in patenting activities, with a growth of +9% compared to 2014: the main fields of patenting concern mechanical

engineering (37.2%) and chemistry (22.5%). Italy remains one of the top European countries for the number of applications submitted, but it remains a little behind in the rankings concerning the number of patents per million inhabitants (64.3%), an indicator that is dominated by the countries of Northern Europe.

**Veneto innovative enterprises show interest in asserting their patent rights on the European technological market**

Our country's delay increases if we focus on the levels of patenting intensity in the high-tech, ICT

and biotechnology fields.

In 2015 Veneto is the third region in Italy in terms of numbers of patent applications, with over 500 applications, immediately after Lombardy and Emilia Romagna;

The regions most oriented towards patenting, in relation with the resident population, are Emilia Romagna, Lombardy, Marche, Friuli Venezia Giulia and Veneto.

## 5.3 Investing in research and development Research in Veneto

In 2013 internal spending on Research & Develop-

ment (R&D)<sup>5</sup> sustained by enterprises, public institutions, non-profit private institutions and universities in Veneto amounted to 1.6 billion euros, an increase of over 5% compared to 2012.

R&D spending in Veneto compared to 2012 increased considerably in the sector of enterprises and universities (+6.5% and 5.7% respectively) and moderately in non-profits (+3.5%). Public administration, however, underwent a modest reduction (-3.5% compared to the previous year). The contribution of the private sector, cumulative of enterprises and non-profit private institutions, (67.4%) was in line with the objective of private funding of two thirds of R&D spending; university sustains 25.3% of spending in Veneto, and the remaining public sector incurs the remaining 7.3%.

The distribution of Veneto spending is significantly different from the national average, which however sees a weighting of 57.7% in the private sector, while public administration contributes 14%, a percentage that includes the substantial contribution from central government, and 28.3% from universities.

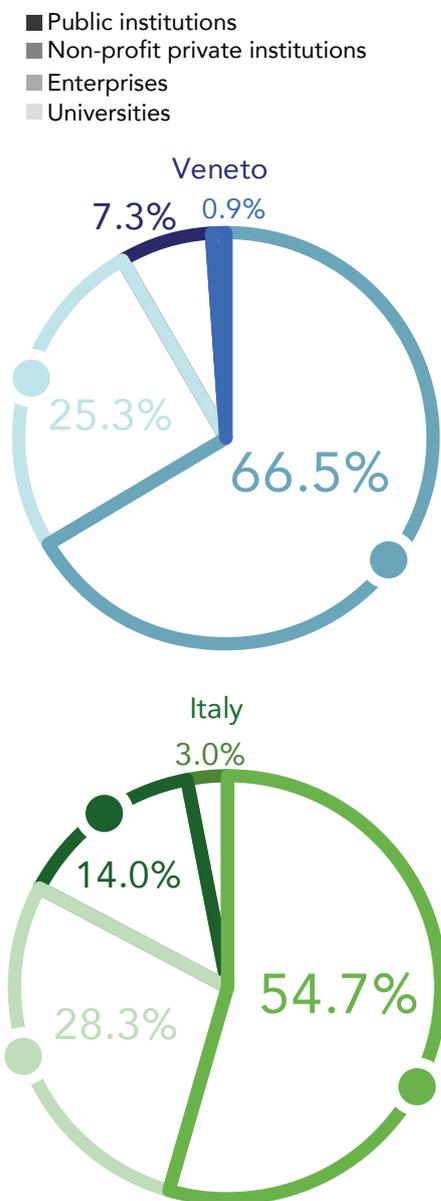
<sup>5</sup> Research is intended as "the complex of creative works undertaken systematically, both for the purpose of increasing the body of knowledge (including knowledge of man, culture and society) and for using such knowledge in new practical applications".

**Tab.5.2.1 - Indicators of computerisation of enterprises with at least 10 employees. Veneto and Italy - Year 2015**

	Veneto	Italy
Percentage of enterprises:		
with internet connection	98.5	97.7
with fixed or mobile broadband connection	95.4	94.4
with fixed broadband connection	91.4	91.8
with mobile broadband connection	65.3	63.3
with website	74.7	70.7
who use social media	39.0	37.3
who use e-commerce (on-line sales and/or purchases)	46.5	41.6
who make sales on-line	9.6	10.0
who make purchases on-line	43.1	38.0

Source: Veneto Region Processing – Directorate of Regional Statistical System on Istat data

**Fig. 5.3.1 – Percentage distribution of internal R&D spending by institutional sector. Veneto and Italy – Year 2013**



Source: Veneto Region Processing – Directorate of Regional Statistical System on Istat data

**In 2013 R&D spending in Veneto was equal to 1.13% of GDP**

The percentage of GDP spent on R&D in Veneto was equal to 1.13% in 2013, an increase compared to 2012. In the same year Italy

spent 1.31% of Gross Domestic Product on R&D, a figure that is slowly but constantly getting closer to the national target of 1.5% established by the Europe Strategy 2020. In the rankings of European countries Italy lies in 16th position, with a difference of 0.7 percent compared to the European average (2%). In Veneto R&D personnel<sup>6</sup> amounts to over 23 thousand units over all sectors, with a 1.9% annual growth. In Italy the overall number of employees involved in R&D increased by 2.7% in the same period. In this context females are also generally undervalued: around 80% of those employed in R&D are male.

The sector with the greatest employment of R&D staff is the entrepreneurial sector, with a percentage similar to that related to spending; furthermore, of the over 15 thousand R&D personnel of the enterprises in Veneto, almost 27% work as a researcher. The percentage of researchers in Italian enterprises was equal to 34.6% in the same year.

### Research in Veneto enterprises

There are over one thousand Veneto enterprises that invested in research and development in 2013; they use 94.6% of their R&D spending in our region and the remaining portion in other Italian regions, including mainly Lombardy and Friuli Venezia Giulia (1.4% and 1.2% respectively). More than one third of Veneto enterprises who carry out research state that they belong to a group: alone these cover over 60% of total spending carried out by Veneto enterprises.

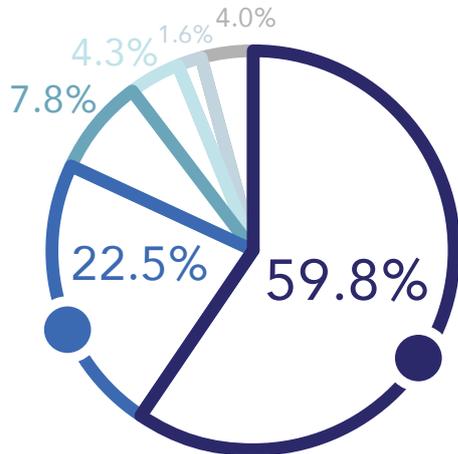
The prevalent type of research is applied research, to which 45.8% of R&D spending in Veneto enterprises is allocated; to follow around 39.4% of spending is allocated to experimental development and the remaining 14.7% to basic research, a type of research that Veneto enterprises contribute more towards than the national average.

Almost three quarters of spending on R&D among Veneto enterprises is allocated for current spending for internal staff and over 15% for other current spending; around 5% is allocated to external consultation and an equal amount is spent on in

<sup>6</sup> The number of employees is expressed in full time equivalent (FTE) units. One FTE is equivalent to one person working full time (8 hours a day) for one working year, which is quantified as an average of 220 days of work. For example, a person with a part-time job contract of 6 hours a day is equivalent to 0.75 FTE (6 out of 8 hours), while a person who works 4 hours is equal to 0.5 FTE.

**Fig. 5.3.2** - % Distribution of internal R&D spending in Veneto enterprises by enterprise revenue class – Year 2013

■ up to 1 million €      ■ between 1 and 2 million €  
■ between 2 and 5 million €      ■ between 5 and 10 million €  
■ between 10 and 50 million €      ■ over 50 million €



Source: Veneto Region Processing – Directorate of Regional Statistical System on Istat data

investments for plants, equipment, moveable and immovable property.

The enterprises that are most likely to invest are the largest and most structured enterprises: around 60% of spending on R&D pertains to enterprises with an annual revenue of over 50 million euros and another 20% to countries with a revenue between 10 and 50 million euros.

**Over 80% of Veneto enterprises involved in R&D are SMEs**

Small and Medium Enterprises contribute 37.4% in terms of spending, but they cover

over 80% of the Veneto enterprises involved in R&D.

The main contribution to R&D spending in Veneto enterprises comes from the enterprises in the manufacturing sector,

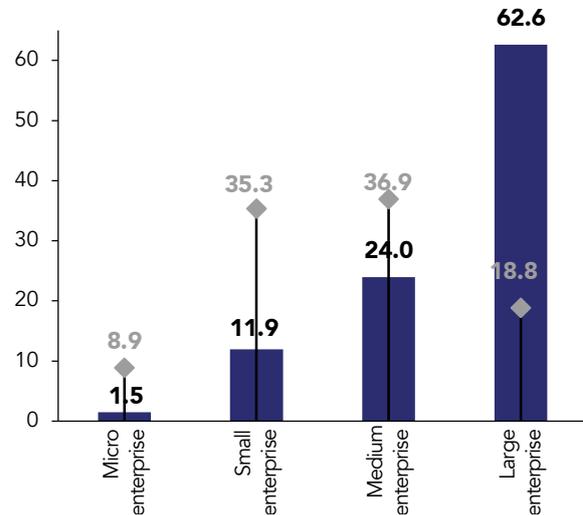
**The contribution of manufacturing enterprises exceeds 70% of spending**

with a percentage of over 70%; this is followed by professional, scientific and technical activities, including the sector dedicated to Research and Development, with more than 10% of spending among enterprises from Veneto.

with a percentage of over 70%; this is followed by professional, scientific and technical activities, including the sector dedicated to Research and Development, with more than 10% of spending among enterprises from Veneto.

**Fig. 5.3.3** - % Distribution of internal R&D spending of Veneto SMEs and large enterprises – year 2013

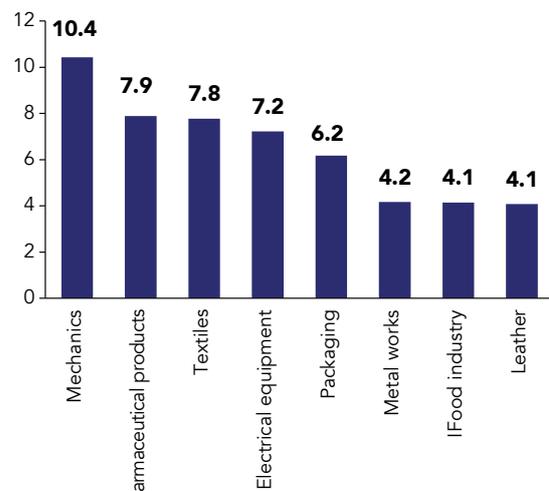
■ % spending      ◆ % enterprises



Source: Veneto Region Processing – Directorate of Regional Statistical System on Istat data

Within the manufacturing sector more than a quarter of spending for enterprises from Veneto comes from mechanics enterprises (28.4%), followed by electronics enterprises (19.0%), fashion enterprises (15.9%), chemical enterprises (8.7%) and metal enterprises (8.4%).

**Fig. 5.3.4** - Internal R&D spending in enterprises from Veneto: the main products and/or production techniques (%) – Year 2013



Source: Veneto Region Processing – Directorate of Regional Statistical System on Istat data

**Products to which Veneto enterprises allocate their research are, above all, mechanics, the pharmaceutical industry and the textile industry**

Going on to investigate the products and/or production techniques subject to research and development products from the

mechanics industry (to which 10.4% of spending is allocated), pharmaceutical industry (7.9%), textile industry (7.8%), electrical equipment manufacturing (7.2%), packaging (6.2%), metal working (4.2%), the food industry (4.1%) and from leather production (4.1%) emerge.

In 2013 Veneto enterprises invested over 100 million euros in the energy sector, equal to around 10% of total spending: the main areas of research include energy efficiency for industry and transport, nuclear fusion, production and treatment of fossil fuels such as petrol and natural gas, and renewable energy sources.

Furthermore, in the same year almost 8 million euros were invested in nanotechnologies and over 3 million euros in biotechnologies.

## 5.4 Innovation as the answer to productivity problems

Through the introduction of new technologies over the years it has been possible to continuously increase work productivity and consequently increase the economical wealth of a determined region. A country's economic performance is fundamentally determined by the capacity to develop and apply technological progress. Although spending on research and development (R&D) is only one of the factors towards technological change, it has been the most used variable in literature as a measure of innovative activity.

By using the new Istat information system, only available for the year 2013, which enables thorough analysis of the competitiveness of the enterprises of industry and services (excluding financial services), we tried to analyse the possible connections between investments made in research and development activities and productivity, defined as the ratio between the added value generated and the staff employed in the enterprise.

In 2013 there were almost 1,200 enterprises in Veneto who carried out R&D; this is prevalently small-medium enterprises (with a very low percen-

tage of micro-enterprises) belonging to the manufacturing sector.

In percentage terms there represent 0.3% of enterprises located in the region but the percentage increase if compared with staff employed (10% of regional staff) and the added value generated by the same (18% of regional added value). Over 30% of large Veneto enterprises invest in research and this percentage increases (55%) if only enterprises in the manufacturing sector are considered.

The regional production structure is altogether characterised by a large presence of "micro" enterprises (over 90% of the regional total, a

The regional production structure is altogether characterised by a large presence of "micro" enterprises (over 90% of the regional total, to which almost 44% of staff employed in Veneto are attributable) that mainly operate in the domestic market and have a most propensity for making investments in R&D, partially due to the difficulty in accessing bank funding. These are production units that are mainly set up as individual firms, which mainly seem to represent forms of self-employment, with which the objectives of growth and productivity are exceptionally associated. For this reason, we have decided to focus the analysis on other on other enterprise sizes<sup>7</sup>: small, medium and large enterprises, which employ 56% of regional staff and generate 72% of added value in the private sector, are more likely to invest in R&D activities and more open to international markets.

The analysis was performed by comparing the economic performance of the enterprises compared to the following business models: enterprises that export their products abroad (exporters), those who invest in research and development (R&D), and those who do both (exporters and R&D).

From an initial analysis of average and median<sup>8</sup> data of certain enterprise variables, the diversity between enterprises that invest in R&D and the total en-  
<sup>7</sup>A micro enterprise employs fewer than nine staff members and has a revenue under 2 million euros; a small enterprise employs from 9 to below 50 staff members and has a revenue between 2 and 10 million euros; a medium enterprise employs from 50 to below 250 staff members and has a revenue between 10 and 50 million euros; a large enterprise employs over 250 staff members and its revenue exceeds 50 million euros.

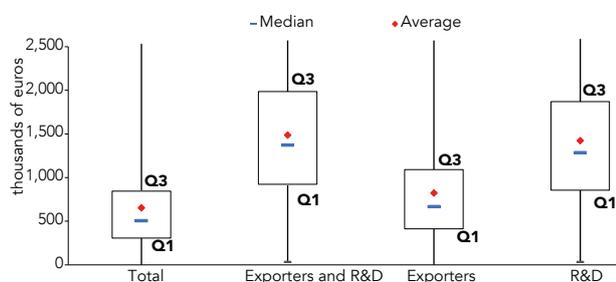
<sup>8</sup> The median (2nd quartile) is defined as the value assumed by the statistical units located in the middle of the distribution, or rather the value that leaves 50% of enterprises below and 50% above

trepreneurial world in Veneto emerges (excluding micro enterprises).

**Do those involved in research earn more?**

Those who carry out research are certainly of a larger size, both in terms of employees and in terms of added value produced and revenue earned, also compared to the number of employees. The result of the study will further investigate this phenomenon in relation to the size class and the various business models.

**Fig. 5.4.1 – Distribution of added value among small enterprises (\*) by type. Average and position indices (\*\*). Veneto – Year 2013**

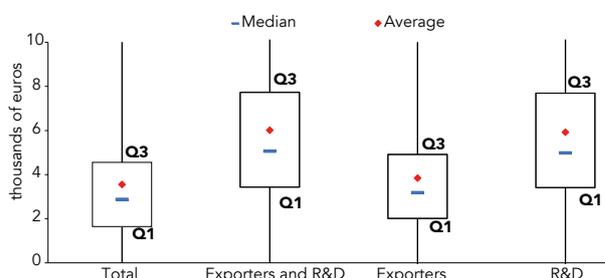


(\*) Enterprise that employs from 9 to below 50 staff members and has a revenue between 2 and 10 million euros.

(\*\*) This type of graph, called a "box plot" enables us to concisely represent the significant parameters of the distribution, highlighting the differences (or any similarities), even between several groups. The "box" is delimited by the first (Q1) and third (Q3) quartile. By using this graph it is possible to have a graphical view of both the position indices (median and quartiles), and the variability indices (the height of the box represents the inter-quartile gap).

Source: Veneto Region Processing– Directorate of Regional Statistical System on Istat data

**Fig. 5.4.2 - Distribution of added value among medium enterprises (\*) by type. Average and position indices (\*\*). Veneto – Year 2013**



(\*) Enterprise that employs from 50 to below 250 staff members and has a revenue between 10 and 50 million euros.

(\*\*) This type of graph, called a "box plot" enables us to concisely represent the significant parameters of the distribution, highlighting the differences (or any similarities), even between several groups. The "box" is delimited by the first (Q1) and third (Q3) quartile. By using this graph it is possible to have a graphical view of both the position indices (median and quartiles), and the variability indices (the height of the box represents the inter-quartile gap).

Source: Veneto Region Processing– Directorate of Regional Statistical System on Istat data

A first item of interest emerges from the study of the distribution of added value by enterprise size. We decided to analyse the added value in order to have a measurement free from the costs of raw materials, therefore comparable even between different sectors.

**The added value produced is greater among those involved in research**

The average and median data for the added value generated by enterprises are

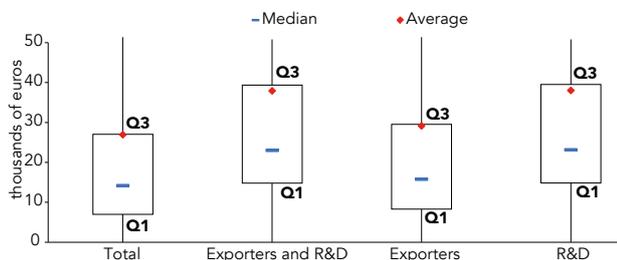
greater, within each size class considered, when the enterprise makes investments in R&D. This seems to be more evident

**Tab.5.4.1 - Average and median values of certain enterprise variables. Veneto – Year 2013**

	Total enterprises (a)			R&D enterprises		
	Employees	Added value	Revenue	Employees	Added value	Revenue
	Number	Euros	Euros	Number	Euros	Euros
Median	14.0	588,979	2,279,047	48.0	3,057,165	10,353,169
Average	32.3	1,719,872	8,295,437	134.0	9,823,439	42,810,903

Source: Veneto Region Processing– Directorate of Regional Statistical System on Istat data

**Fig. 5.4.3 - Distribution of added value among large enterprises (\*) by type. Average and position indices (\*\*). Veneto – Year 2013**



(\*) Enterprise that employs over 250 staff members and has a revenue of over 50 million euros. (\*\*) This type of graph, called a "box plot" enables us to concisely represent the significant parameters of the distribution, highlighting the differences (or any similarities), even between several groups. The "box" is delimited by the first (Q1) and third (Q3) quartile. By using this graph it is possible to have a graphical view of both the position indices (median and quartiles), and the variability indices (the height of the box represents the inter-quartile gap).

Source: Veneto Region Processing– Directorate of Regional Statistical System on Istat data

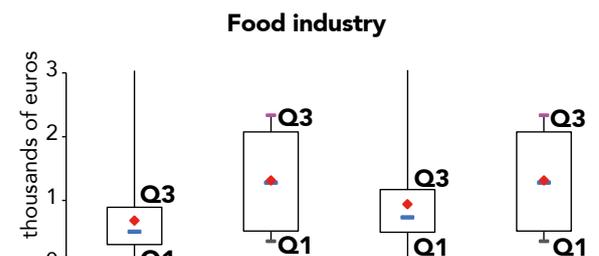
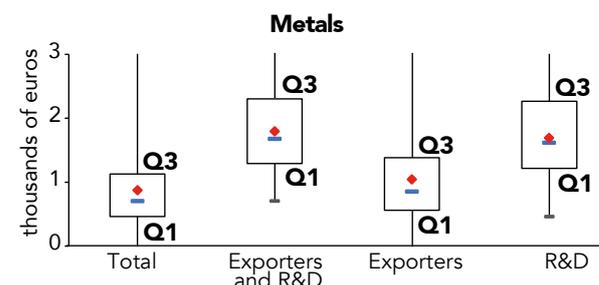
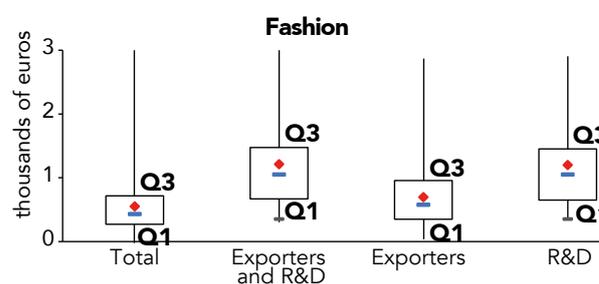
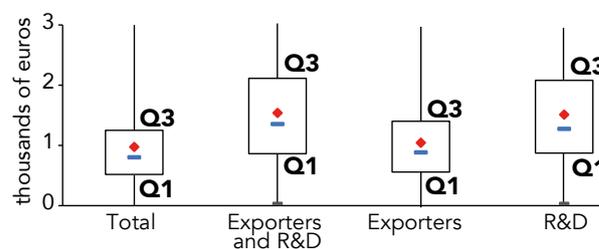
in small and medium enterprises.

While overall small enterprises (over 23 thousand units) record an average added value of little more than 500 thousand euros, the same variable stands at almost 1.5 million euros for small enterprises that carry out R&D.

Presence in international markets doesn't seem to greatly influence the performance of the added value in this type of enterprise: the average added value in small enterprises who export stands at around 820 thousand. For medium sized enterprises (3,682 units) the same thing is happening: the average added value of all enterprises attributable to this size class stands at 3.5 million euros, which becomes 3.8 million euros for medium exporter enterprises, to then reach almost six million euros for the 440 medium sized enterprises that carry out R&D. Even the trends of the median value confirm the importance of investments in R&D for the economic growth of medium-sized enterprises.

In the case of large enterprises, the connection between investments in R&D and economic performance is less obvious because around 2/3 of enterprises belonging to this size class are active on international markets and around 1/3 carry out R&D. The average added value of large enterprises from Veneto stands at 27 million euros, which then reaches 38 million for large enterprises involved in R&D.

**Fig. 5.4.4 – Distribution of added value among small enterprises (\*) for certain manufacturing sectors. Average and position indices (\*\*). Veneto – Year 2013**

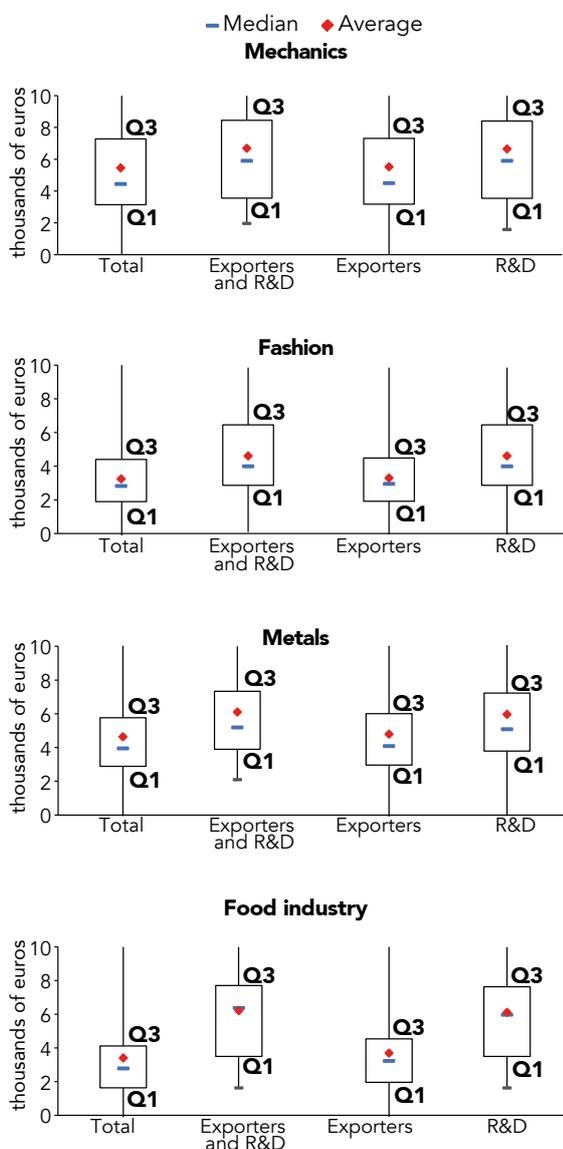


(\*) Enterprise that employs from 9 to below 50 staff members and has a revenue between 2 and 10 million euros.

(\*\*) This type of graph, called a "box plot" enables us to concisely represent the significant parameters of the distribution, highlighting the differences (or any similarities), even between several groups. The "box" is delimited by the first (Q1) and third (Q3) quartile. By using this graph it is possible to have a graphical view of both the position indices (median and quartiles), and the variability indices (the height of the box represents the inter-quartile gap).

Source: Veneto Region Processing– Directorate of Regional Statistical System on Istat data

**Fig. 5.4.5** – Distribution of added value among medium enterprises (\*) for certain manufacturing sectors. Average and position indices (\*\*). Veneto – Year 2013

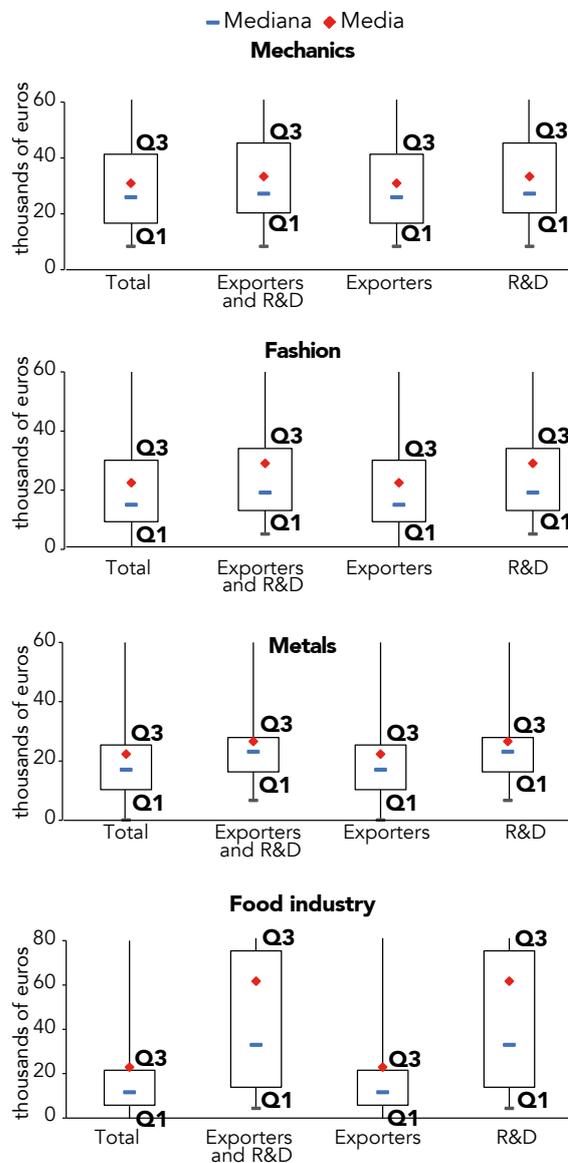


(\*) Enterprise that employs from 50 to below 250 staff members and has a revenue between 10 and 50 million euros.

(\*\*) This type of graph, called a "box plot" enables us to concisely represent the significant parameters of the distribution, highlighting the differences (or any similarities), even between several groups. The "box" is delimited by the first (Q1) and third (Q3) quartile. By using this graph it is possible to have a graphical view of both the position indices (median and quartiles), and the variability indices (the height of the box represents the inter-quartile gap).

Source: Veneto Region Processing– Directorate of Regional Statistical System on Istat data

**Fig. 5.4.6** – Distribution of added value among large enterprises (\*) for certain manufacturing sectors. Average and position indices (\*\*). Veneto – Year 2013



(\*) Enterprise that employs over 250 staff members and has a revenue of over 50 million euros. (\*\*) This type of graph, called a "box plot" enables us to concisely represent the significant parameters of the distribution, highlighting the differences (or any similarities), even between several groups. The "box" is delimited by the first (Q1) and third (Q3) quartile. By using this graph it is possible to have a graphical view of both the position indices (median and quartiles), and the variability indices (the height of the box represents the inter-quartile gap).

Source: Veneto Region Processing– Directorate of Regional Statistical System on Istat data

From an analysis of the information for some of the main sectors of regional manufacturing, it is observed that the dynamic of average and median values is related to the presence of investments in R&D in this case as well.

The sectors of the food industry, the fashion aggregate (textiles, clothing and processing of leather), metals and mechanics were chosen because they are the most important sectors for commercial internationalisation in Veneto and they present some differences in the degree of technological intensity used in production. For example, fashion, the food industry and metal processing (excluding weapon manufacturing) are commonly considered sectors that traditionally have medium-low technological intensity, while mechanics is a sector that is specialised in medium and high technological intensity manufacturing.

The average and median values are higher in the mechanics and metal processing sectors and tend to increase when the enterprises are involved in R&D; this is more obvious in the intermediate size classes. The average added value of small enterprises in the metallurgy sector who invest in R&D is around double the overall average of enterprises in the sector: the added value goes from an average of 874 thousand euros for the entire sector to 1.8 million euros for enterprises in the sector who carry out R&D. The trends of small and medium sized enterprise performance confirms and outlines how the results of innovative enterprises are substantially greater than the other enterprises in the sector considered: for example in the Food and Beverage sector the average added value stands at 3.4 million euros, which becomes 6.2 million euros for industries in the sector that invest in R&D, while for enterprises in the same sector that are present on international markets the average added value stands at 3.7 million euros. The second indicator considered in this section is work productivity.

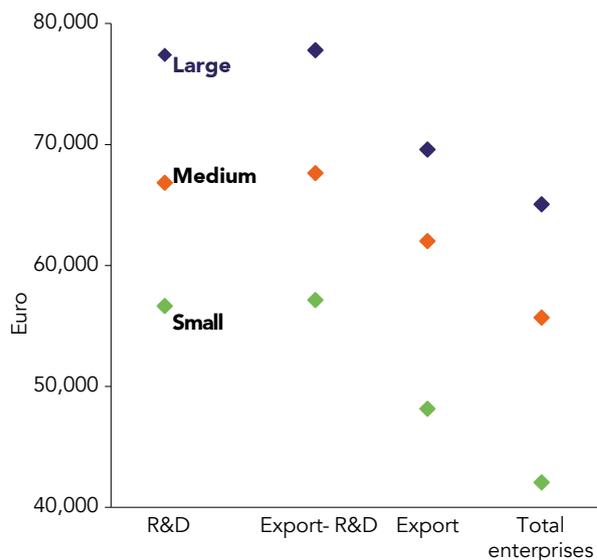
The size of the enterprise, investments in capital goods and technological progress influence the way in which work and its productivity are combined in the production process.

In general there is a positive correlation between enterprise size and productivity, measured in terms of added value per employee. In fact, productivity levels grow with the increasing enterprise size.

Productivity trends, however, also depend on investments in research and innovation. In fact, what matters for productivity trends stems from the process and product innovations generated by enter-

prises. We have observed that the added value per employee relationship is always greater when the enterprises are innovators and this occurs in all of the size classes examined.

**Fig. 5.4.7 – Average productivity per enterprise type and size class (\*). Veneto – Year 2013 Large Medium Small**



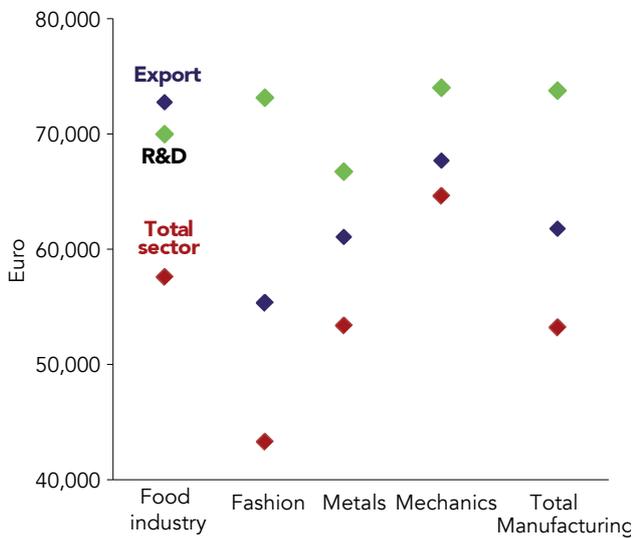
(\*): A small enterprise employs from 9 to below 50 staff members and has a revenue between 2 and 10 million euros; a medium enterprise employs from 50 to below 250 staff members and has a revenue between 10 and 50 million euros; a large enterprise employs over 250 staff members and its revenue exceeds 50 million euros.

Source: Veneto Region Processing – Directorate of Regional Statistical System on Istat data

**Productivity is greater for those involved in research**

For large enterprises, productivity among innovator enterprises is 77 thousand euros, around 7 thousand euros greater than the figure recorded by large exporter enterprises and 12 thousand euros greater than the average figure for large enterprises. The same thing happens for the other two size classes: productivity of medium sized enterprises is equal to 56 thousand euros, which then becomes 67 thousand euros per employee for enterprises in the same size class that are involved in R&D, while for small enterprises the average added value per employee goes from 42 thousand euros to a productivity of 57 thousand euros for innovator enterprises belonging to this size class.

**Fig. 5.4.8 – Average productivity for certain manufacturing sectors. Veneto – Year 2013 Export, R&D, Total sector**



Source: Veneto Region Processing– Directorate of Regional Statistical System on Istat data

The analysis of the dynamics concerning the productivity of some of the main sectors in the manufacturing segment also indicates a similar trend between productivity and innovator enterprises, with the exception of the food industry, where productivity of exporter enterprises is slightly greater than that of innovator enterprises.

The fashion sector is the sector in which there is the greatest gap in the performance of enterprises who invest in R&D: the productivity of enterprises in the sector who invest in research activities is 30 thousand euros greater than the average value recorded for the total of textile- clothing-leather enterprises (from 43 thousand euros to 73 thousand euros). Investment in research and development in this sector, such as in smart textiles where innovative technologies are used (integration of electronics and micro-mechanics) which provide intelligent properties and functions to the fabrics without compromising the customary technical characteristics and fit, requires knowledge and generates important economic returns for enterprises in the sector.



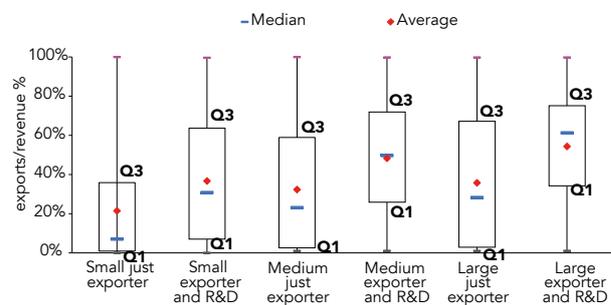
**Mechanics records the highest productivity**

The mechanics sector records the highest average productivity among the sectors examined: 65 thousand for sector enterprises which then beco-

mes 74 thousand for innovator mechanics enterprises. This is due to the fact that the mechanics segment is one of the industrial sectors characterised by high added value production.

Enterprises of the metallurgy sector are those that record the lowest productivity among the innovative enterprises of the four sectors examined: in 2013 average productivity almost reached 67 thousand euros.

**Fig. 5.4.9 – Distribution of the export/revenue relationship by enterprise type and size class (\*). Average and position indices (\*\*). Veneto – Year 2013**



(\*) A small enterprise employs from 9 to below 50 staff members and has a revenue between 2 and 10 million euros; a medium enterprise employs from 50 to below 250 staff members and has a revenue between 10 and 50 million euros; a large enterprise employs over 250 staff members and its revenue exceeds 50 million euros.

(\*\*) This type of graph, called a “box plot” enables us to concisely represent the significant parameters of the distribution, highlighting the differences (or any similarities), even between several groups. The “box” is delimited by the first (Q1) and third (Q3) quartile. By using this graph it is possible to have a graphical view of both the position indices (median and quartiles), and the variability indices (the height of the box represents the inter-quartile gap).

Source: Veneto Region Processing– Directorate of Regional Statistical System on Istat data

Over the course of recent years the capacity to introduce innovations has become essential for enterprises to be successful in the context of international competition. Analysis of the propensity for export among enterprises that invest in R&D, measured as the percentage of revenue exported out of the total, highlights that the propensity for export tends to increase with the increasing size of the enterprise and that exporter enterprises who invest in research and development have greater propensity for export compared to solely exporter enterprises. On average, small exporter enterprises export 20% of their goods, while for small exporter enterprises

who invest in R&D the percentage of foreign sales out of total sales is slightly below 40%.

For medium-sized exporter enterprises the value of the revenue earned abroad is a little over 30%, while enterprises of the same size that export and invest in research and innovation have an average propensity for export of 48%, with a median value slightly higher than the average (50%). This is an asymmetric distribution of the enterprises observed and therefore means that over half of exporter and innovator enterprises have a propensity for export that is higher than the average. The trends in propensity for export among large enterprises follows the same dynamic as the other two size classes, with slightly higher average and median values.

The analysis of this variable clearly indicates that small enterprises are less likely to export compared to large enterprises, who more frequently turn to foreign markets also thanks to the possibility of better handling the higher fixed costs arising from commercial internationalisation. Size, however, does not seem to be the only characteristic that matters for enterprises' international opening: in large enterprises' internationalisation strategy the size is associated with the capacity to invest in research in development, as well as a greater capital intensity and wide use of skilled labour.

These characteristics aren't necessarily the exclusive property of medium and large enterprises but they can also be found among small enterprises, in a smaller amount.

## 5.5 Working together to benefit from investments in innovation

The necessity to maintain an important role in international competitiveness surely depends on the offer of innovative and high quality products/services, high level skills, comprehensive projects, excellent use of technology and substantial investments. Elements that are poorly combined with the industrial "dwarfism" that characterises the industrial landscape in Italy and Veneto.

In Veneto the average enterprise size is of little more than 4 employees and micro enterprises represent over 90% of the total. In most cases

the small enterprise does not have the resources to face the challenge of globalisation.

SMEs in Veneto and in Italy cannot compete on the markets with the leverage of costs, therefore to maintain their own independence they must focus on the "networks", forms of aggregation for achieving better performance: establishment of groups, districts, sector associations, consortia, collaborations with research institutes, etc.

There are many economists<sup>9</sup> who have identified the "network economy" as the basis of Veneto's success since the eighties, a concept that goes beyond administrative-management relations, but rather arises from the existence of a community characterised by shared values and a strong sense of ancient belonging which combines technological progress with globalisation. At the basis of the relations between players in the network there is trust. Not necessarily in hierarchal order, the players in the network include: the final enterprise, suppliers, contractors, customers, the "team" of employees, service enterprises, unions, banking institutes, sector associations, training institutions, research entities and political players.

As thoroughly examined in the analysis in last year's Report<sup>10</sup>, over 65% of Veneto enterprises held stable relations, whether contractual or informal, with other enterprises or institutions in the two year period 2011-2012. In this case there was a prevalence of productive agreements, in particular commissioning and sub-supply.

45.3% of micro enterprises and 62.2% of other enterprises in Veneto have managed relations with other enterprises as a commission and, simultaneously, 34.9% of micro enterprises and 51.8% of businesses with at least 10 employees have been sub-suppliers or sub-contractors. Furthermore, it is rather frequent for enterprises of a larger size to turn to formal agreements such as consortia or joint ventures, while informal agreements substantially concern small, medium and large enterprises.

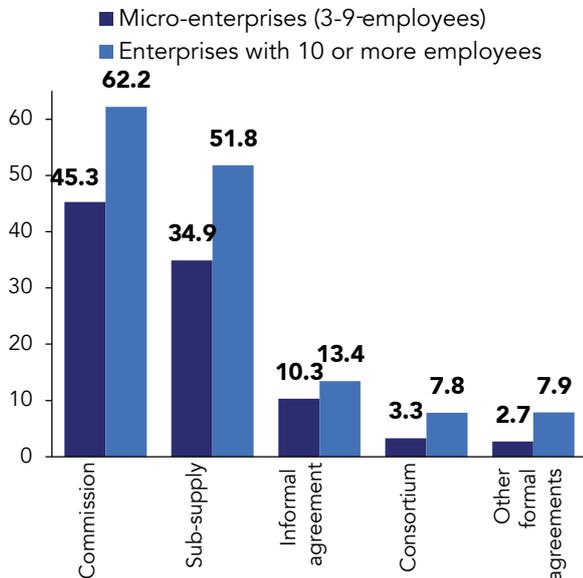
**Size and innovation are essential for facing foreign markets**

**The interest in managing relations grows with the increasing size of the enterprise.**

<sup>9</sup> Beccatini, Rullani 1993; Hirsch-Kreinsen 2002

<sup>10</sup> Region of Veneto, Statistical Report 2015 – chapter 6: Which energies are needed to ensure a turnaround in Veneto's businesses?

**Fig. 5.5.1 – Percentage of enterprises that have held relations by main type of relation and enterprise size. Veneto – Years 2011:2012**



Source: Veneto Region Processing – Directorate of Regional Statistical System on Istat data

Relations are most widespread in the industrial sector, in particular in the metal, optics and electronics and mechanics industry. However, the percentage of Veneto enterprises in the service sector that hold relations with other entities is not even at 55%.

Over half of Veneto enterprises have relations specifically for the management of the enterprise's main activities; this is followed by marketing functions (13.6%), legal and financial services (11.8%) and innovation and research and development (9%).

The main reasoning for the above relations is the necessity to reduce production costs.

The intent to develop new products or processes is one of the most stated reasons by enterprises who take on network commissions or contracts, just as the interest for accessing new markets is the most cited reason for enterprises that choose franchises or consortia and other formal agreements.

The data allows us to observe that for most the network is a necessity: 69.4% of enterprises maintain these types of collaborations to support their own market share. Less than half (46.4%), does so to expand the range of products and services offered, and around a third does so to access new markets (32.1%).

The effects related to these relations, specifically in the case of formal and informal agreements other

**Agreements have a positive impact on competitiveness in foreign markets**

than commission and sub-supply, have proven to be more than positive for the

foreign competitiveness of Veneto enterprises: 22.6% of Veneto enterprises who have developed agreements in the two year period in question ascribe a positive impact on the enterprise competitiveness, compared to 12.6% who indicate a reduction in competitiveness related to the new agreements. Next we will provide a brief overview of specific forms of relation: network contract, enterprise groups and the district system in the regional view.

### The network contract

Regulation of the network contract was introduced with Italian law n.33 of 2009 (converting Italian Decree Law 5/09). This is an innovative legal instrument in Italian law to encourage more systematic and conscious collaboration processes between enterprises around shared products, leaving the full operational independence of the enterprises intact. With the aim of making several entrepreneurial efforts converge on common objectives, without imposing constraints to their operation, network contracts have been structured around the following distinctive elements: the increase of the competitive and innovative capacity of adherent enterprises; the sharing of knowledge and information; operational independence of the individual adherent enterprises; the absence of constraints related to territorial factors, the size of the enterprise and the sector of business.

**The network contract has taken on macro-economic significance**

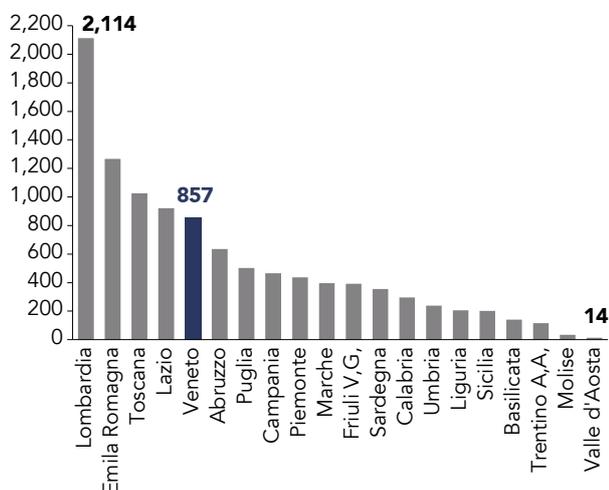
Since 2010, the year of introduction of this instrument, the growth of

network contracts has been exponential: from 19 networks in 2010 to 1,227 in 2013, going on to reach 2,200 networks in 2015 involving over 11,000 enterprises<sup>11</sup>. Trends in the last two year period also appear to be particularly significant in light of the fact that the network contracts stipulated have benefited from lower fiscal incentives compared to what happened until 2013, both in terms of natio-

<sup>11</sup> Source Confindustria on InfoCamere data. The figure relating to 2015 is obtained by using the updated figures as at January 2016; the number exclusively refers to network contracts without legal subjectivity.

nal concessions, no longer renewed, and regional concessions; the latter were provided in a greater amount in Lombardy, Emilia Romagna and Abruzzo. Lombardy and Emilia Romagna are also the regions with the greatest number of enterprises participating in networks, 2,114 and 1,266 respectively between 2011 and August 2015. In Veneto there are 857 enterprises in networks, a share of 8.1% of the national total, a figure that is evolving over the years: 250 enterprises entered into networks in 2014 and there are already 173 who have entered into networks half way through 2015.

**Fig. 5.5.2 – Number of enterprises in networks by region – Years 2011: August 2015**



Source: Veneto Region Processing - Directorate of Regional Statistical System on Confindustria data

Nationally, in 2011 enterprises in networks, excluding those in the agricultural sector and individual firms (for which it was not possible to collect information), employed 340,000 staff members, with an aggregate turnover of 86 billion euros, corresponding to an added value of over 19 billion euros. These are mostly aggregations between enterprises in close geographical proximity. 74.1% of networks exclusively involve enterprises belonging to the same region, 58.4% to the same province. Smaller sized networks are most prevalent: 89.9% are composed of less than 10 enterprises, 45.8% less than four enterprises. Over the years, however, the proportion of enterprises made up of ten enterprises and over has doubled, going from 8.2% in 2011 to 16.3% in August 2015.

The enterprises that enter into networks are mainly

micro-enterprises: the proportion of enterprises with less than 50 employees is 87.6%, of which 45.8% have less than 10 employees; however 10.3% are production units who employ between 40 and 249 staff members, while only the remaining 2.6% have 250 or more employees.

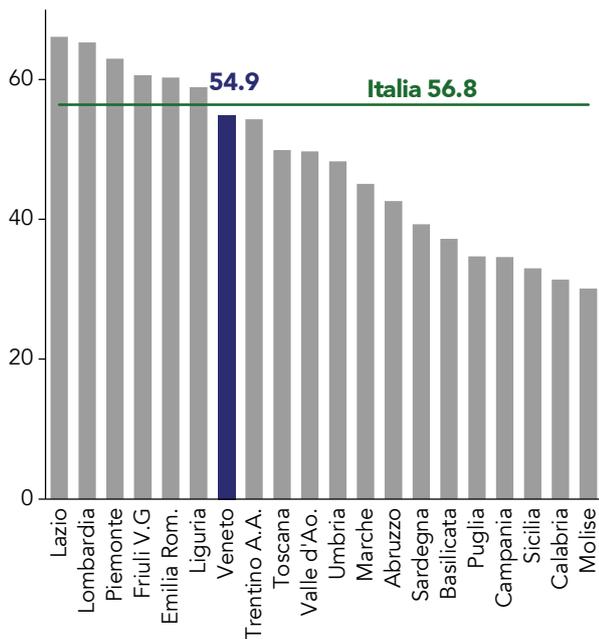
Networks are mainly multi-sectoral: 84.0% of networks are made up of enterprises belonging to different production sectors, while 45.1% of these are at least half made up of enterprises belonging to the same production sector. In terms of number of participating enterprises the mechanics sector is at the top of the rankings (12.0% of the total), followed by the technological services sector (11.8%). Integration between manufacturing and services is strong: in 53.6% of networks participated in by manufacturing enterprises there are also service enterprises, above all technological services (in 32.5% of cases). Internationalisation and technical-scientific research are topics that are significantly present in the networks' objectives: 24.5% is aimed at the penetration of foreign markets while 14.9% focuses on R&D. In both cases the percentage of manufacturing enterprises is 59.0% and 63.9% respectively.

## Enterprise groups

The type of entrepreneurial relationship that most constitutes an organisational, financial and productive governance feature of our entrepreneurial landscape is represented by the enterprise group. In very simple terms we could say that the group is made up of an aggregation of enterprises, each as an independent legal entity, controlled by a single economic entity and subject to unitary management. In general the formation of a group is dictated by a tax and equity necessities or strategic necessity. In both cases the economic advantages are much greater and of higher impact on both the organisation and management of the enterprise. Through upstream integration, the group structure enables enterprises to have privileged procurement channels, with a flow of incoming materials characterised by times and methods in line with the requirements of the central enterprise, with a more controlled quality and greater possibilities for customisation; through downstream integration, enterprises are able to have privileged distribution channels and therefore are better able to reach their target market; to create horizontal integrations in the same business area to increase production capacity and therefore the market share; to diversify business, creating several business lines to focus on

new market segments with enterprises created ad hoc, in order to dilute the risks and not prejudice the image of the main enterprise in case of failure.

**Fig. 5.5.3 – Percentage of employees of joint stock enterprises belonging to groups by region compared to employees of joint stock enterprises overall – Year 2014**



Source: Veneto Region Processing - Directorate of Regional Statistical System on Istat data

Ultimately, the widest objective could be summarised as the creation of a network of enterprises in which common activities are amalgamated and rationalised and, at the same time, the particularities of each unit are enhanced in order to avoid waste and duplications and to increase the competitive capacity of the group<sup>12</sup>.

In 2013 in Veneto, the groups present involved 19,626 active joint stock enterprises, around a quarter of Veneto joint stock enterprises and they employed 530,412 staff members in total, over half of those employed by Veneto enterprises<sup>13</sup>.

61.7% of joint stock enterprises in groups belong to

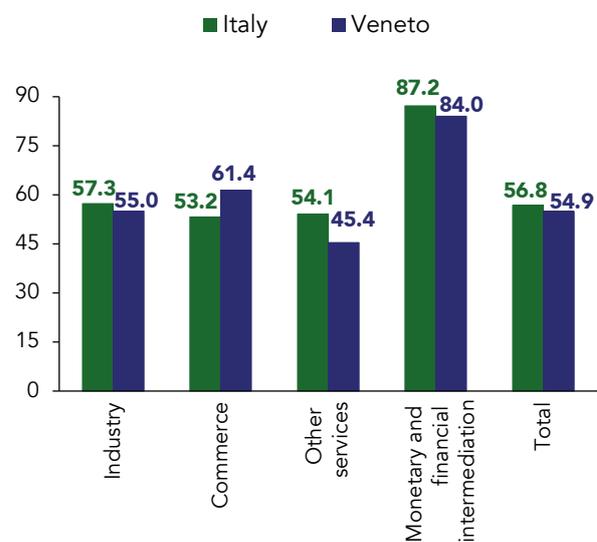
<sup>12</sup> Franceschetti, 2003

<sup>13</sup> The analysis of the structural characteristics of the enterprises that belong to groups is explored in more detail for enterprises that have the legal form of joint stock enterprise to ensure a homogenous evaluation compared to a same field of observation.

the service sector, and 34.2% to industry.

The 530,412 employees of Veneto joint stock enterprises who belong to a group represent 54.9% of employees of Veneto enterprises overall; the percentage (61.4%) is greater in the commerce sectors, and even more so in monetary and financial intermediation (84%).

**Fig. 5.5.4 – Percentage of employees of joint stock enterprises belonging to groups by region compared to employees of joint stock enterprises overall. Veneto and Italy – Year 2013**



Source: Veneto Region Processing - Directorate of Regional Statistical System on Istat data

**Groups are prevalently made up of large enterprises**

Both in terms of enterprises and in terms of employees, the portion of joint stock enterprises in groups in relation to the total number of Veneto joint stock enterprises increases with increasing size: joint stock enterprises belong to groups with over 500 employees represent almost all joint stock enterprises of this size in Veneto and employ 92.4% of employees of enterprises in this class. 82.8% of enterprises from Veneto that are part of a group have their parent enterprise in Veneto; however the percentage is more reserved in terms of employees: 65.6% of people employed by Veneto enterprises organised into a group are employed by a Veneto vertex. 8.9% of group enterprises have

8.9% of group enterprises have

a parent enterprise located in another Italian region and the remaining 8.4% have a vertex located abroad; the latter employ 21.4% of Veneto employees.

## The Veneto district system

Veneto's production districts are an example of the utilisation of agglomeration economies that enable a stable form of shared labour between enterprises, with consequent specialisation/integration processes between units that remain independent, without assuming any control and a unitary management. Districts base their strength on strategic alliances, collaboration agreements, creation of consortia, systems based on cooperation and co-ordination between enterprises or other organisations under conditions of interdependence.

Interdependence that, in turn, "...may unfold both along the vertical dimension, in practice along the chain of value generation (for example a supplier and a customer), and in relation to the horizontal dimension, or rather between enterprises that carry out the same activities and operate in the same environment (for example two competitors)"<sup>14</sup>.

In the '80s, '90s and over half of the first decade of 2000, the creation and reinforcement of the Veneto district system have been a winning strategy that has allowed our industrial system to be competitive on international markets.

Subsequently, there have been many reflections by economists on their efficacy and their future in the face of the changing economic scenario, the problem of the generational continuum of enterprises that are mainly family-run and the changes to the social fabric (the loss of cultural homogeneity for insertion of immigrants has, in some cases, led to a closure of the working community).

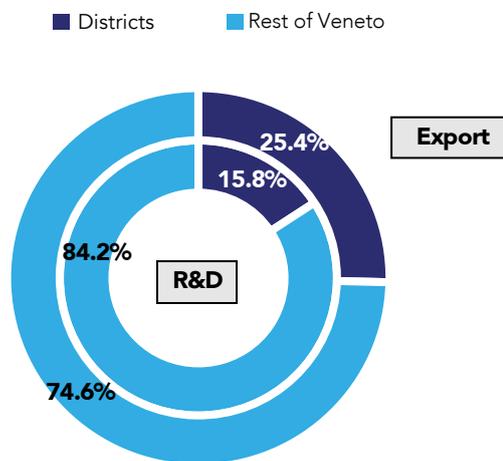
In this context, it has been necessary to review the pre-existing legislation<sup>15</sup> and the Region of Veneto has adopted new law on districts, the Italian Regional Law 30th May 2014, n. 13 "Regulation of industrial districts, regional innovative networks and enterprise aggregations", which defines the criteria for identifying industrial districts, regional innovative networks and enterprise aggregations, as well as the methods for implementing the interventions for local development.

There are 17 industrial districts recognised by the Regional Council of Veneto, with Resolution n.2415

<sup>14</sup> Soda, 1998

<sup>15</sup> Italian Regional Laws on Production Districts, R.L n.8 of 4th April 2003 and R.L n.5 of 16th March 2006

**Fig. 5.5.5 – Exports and spending on research and development in enterprises belonging to industrial districts (% distribution). Veneto – Year 2013**



Source: Veneto Region Processing - Directorate of Regional Statistical System on Istat data

of the 29th September 2014, and they are an established strong point of Veneto's economy. These are the footwear district of the Riviera del Brenta, the tanning district of Arzignano, the mechanics district of Alto Vicentino, the furniture district of Livenza, the eyewear district of Belluno, the goldsmith district of Vicenza, the technical footwear and sports items (Sportssystem) district of Asolo and Montebelluna, the artistic ceramics district of Nove and Bassano del Grappa, the district of electronic appliances and stainless steel of Conegliano and Treviso, the air conditioning and refrigeration district of Padua, the funfair district of Polesine, the fishery district of Polesine and of southern Venice, the marble and stone district of Verona, the classical furniture district of southern Verona, the prosecco district of Conegliano and Valdobbiadene, the artistic glass district of Murano and the glass district of Venice.

The industrial districts of Veneto represent around 16% of local units of the manufacturing sector in Veneto and they employ over a fifth of those employed at local units present in the regional territory.

Industrial districts are rewarded with a greater capacity for export: over 25% of regional foreign revenue is generated by district enterprises.

Around 16% of spending on research and development in the region is attributable to the industrial districts in Veneto.



gical transfer, training and development of human capital, internationalisation, energy efficiency, and participation in competitive tenders at the regional, national and European level. SINFONET is a transverse network which incorporates a number of materials, processes and technologies for its regulation, quality control, report and information handling and numerical simulation. Process innovation is well understood and shared within the industrial system this network belongs to in the general framework of the sub-supply paradigm in which foundries feel firmly rooted: producing three-dimensional objects through mould casting of a molten metal, in compliance with requirements defined by the customer as part of shared standards with increasingly restrictive quality tolerances.

The process of obtaining three-dimensional objects through melting a metal, casting, solidification and cooling presents complexities that are at times little known in the same industrial environment that uses these objects as normally available standardised commodities.

There are also largely unexplored frontiers in the context of the product, as foundry castings, parts of moving mechanical components, are subject to fatigue and shock stresses, variables that are often difficult to calculate but whose safety requirements are essential. In this context there are still many steps forward to be taken. In reality the identification of high standards would favour European producers, who produce with higher quality compared to more competitive countries in terms of price.

**...the innovative network of plastic rubber...**

Another example of an innovative network of B2B enterprises and manu-

facturers is the plastic rubber network.

The network, which has the University of Padua as its technical and scientific reference, focuses on the study of Materials and Technologies for Sustainability and Competitive Performance in the Supply Chain of Polymeric Materials.

It involves enterprises from Veneto from the entire supply chain such as designers, mould and machine manufacturers, manufacturers of raw materials and additives, transformers of plastic materials, suppliers of auxiliary systems (e.g. polymer drying), plastic and rubber recyclers and software enterprises. The areas of intervention are made up of:

- Technologies and procedures for effective and efficient recovery of polymeric materials through mechanical, chemical and energy recycling;

- Technologies and procedures for the effective and efficient use of renewable and/or eco- sustainable sources in the production of polymeric materials;
- Technologies and procedures for the economic, energy and environmental sustainability of the manufacturing processes in the context of plastic and rubber materials;
- Development of technologies in the context of extremely high performance polymeric materials.

**...the in-progress High Tech Manufacturing network...**

Another network which is currently being established – with the scientific support of the Uni-

versity of Padua – is the network related to High Tech Manufacturing.

It is being established to meet the need common to many enterprises in the manufacturing sector of offering high quality, safe and reliable products on the market that are able to satisfy customers who are increasingly less willing to tolerate uncertainty and the unexpected. It involves large and small sized production and service enterprises from different supply chains and focuses on the development of new knowledge and skills in an expansive interdisciplinary context with obvious advantages for the competitiveness of enterprises from Veneto.

The strategic development lines proposed by the High Tech Manufacturing RIN, in the context of mechanical and electronic industrial technologies, concern:

- New products and services and improving the quality of processes;
- The sharing of techniques aimed at improving and ensuring mechanical and electronic quality and reliability, with particular reference to the critical applications in the automobile, aeronautic and industrial sector etc.;
- Diagnostic techniques for the analysis of materials and components, reliability assessment and waste analysis in the mechanical context;
- Techniques for improving the safety and security of the products that make use of electronic systems;
- Techniques for mechanical, thermal and electronic multi-scale, multi-physical design and simulation of devices and systems.

Other activities include transverse actions on human capital for skill development in a wide interdisciplinary context along with technological training, the development of common laboratories for trials, tests and creation of experimental prototypes, internationalisation to establish industrial relations



with European clusters, missions at international research centres, and “economic intelligence” activities for the sectors represented by the RIN. An activity that the RIN intends to support in favour of the supply chains represented is to do with regulations, intended as the analysis of regulations and “pre-regulatory” documents to activate specific lobby actions and, where applicable, proposals for amendments to existing regulations.



### **...the requirements of the fashion sector**

Even in an apparently diverse sector such as

the fashion sector, requirements similar to those observed up until now have been highlighted. In fact, by analysing the sector it can be seen that it is mainly made up of a supply chain of B2B enterprises that produce for well-known brands, often managed by multi-national enterprises, in which there are higher technical and product skills.

This is when the requirements identified concern:

- Actions on human capital to increase possession of technical and specialist skills, which are not always easy to find on the market. In this context it is essential to oversee the entire educational sector, from technical training right up to universities;
- Introduction of automated and robotic processes that are currently hardly present in the sector;
- Innovation in design, with the use of 3D technologies and 3D printing;
- Innovation in the context of the sector’s supply chain.

