The aim of this chapter is to analyse data from the official statistics in order to understand the turnaround in business in the region of Veneto, or more precisely the actions implemented and strategies in place that are making it a leading force in the Italy. During the years when the recession was in full swing, Veneto's production system adopted defensive strategies aiming mainly at protecting its market share. However, when considering these factors, there is a considerable disparity in the adhesion to expansionary approach strategies: whereas over 55% of businesses with over 10 employees intend to extend their production range and around 45% intend to launch itself on new markets, among the smaller companies these strategies are undertaken by only 39.5% and 20.5% of companies respectively.

The main competitive factor, irrespective of the number of employees and of the economic sector, remains the quality of the product or service offered.

In order to expand a business, it remains fundamentally important to develop formal, productive relationships with different types of businesses, especially in a fragmented production system such as that in the Veneto region. Over the two year period 2011-2012, over 65% of Veneto's businesses maintained stable contractual or informal relationships with other businesses or organizations. There is a strong connection between the business relationships and international opportunities: a third of all companies with business relations are present on the international scene. Moreover, the importance of external markets is linked to the size of the company: out of those regional businesses with over 50 employees, almost one in two operate internationally.

In the three years from 2009-2011, an average of 42.7% of companies re-modernised, but over half of Veneto's companies stated that innovation was limited due to high costs and the lack of availability of external and internal funding. In 2012, however, company investment in research and development remained constant compared to 2011: there are over 1000 companies in the Veneto region involved in research who spend an average of one million Euros.

Which energies are needed to ensure a turnaround in Veneto's businesses?

6. Which energies are needed to ensure a turnaround in Veneto's businesses?[1]

The negative economic cycle of 2008-2014 caused a significant scaling down of Veneto's productive system: the number of active businesses went from 462,567 to 439,307 with a net loss of 23,260 units.
There are many factors that have contributed to the current crisis in the productive system creating a situation from which it is difficult to emerge: a negative global picture, the debt crisis that caused extremely negative financial conditions, the consequent lack of investment, the persistent fall of national and the slowing of European demand.
The fall in investments registered during the recession created a 'glitch in demand and sales weakening potential growth'. An investment deficit which is 'particularly severe in various fundamental, competitive sectors (research and infrastructure) and in certain countries, including Italy, is associated with the fragmentation of financial markets as opposed to a single market[2].
In reality, the recession came up against a situation characterised by structural issues that had already come to a head in the first years of 2000.
The current situation is actually what many economists consider to be a reflex action in response to 'a lost decade', a period characterised by stagnant productivity, erosion of competition and weak growth of established companies.
The reasons for this have been reiterated many times in this report: Business reduction, poor innovation and unsatisfactory investment in research, inadequate set up of family businesses, heavy tax burdens, the standard framework and the efficiency of 'system-country' etc.
The recession had a considerable effect on the economic performance of businesses. They have responded by putting in place significant restructuring processes. Business' organisational structures and strategies are in the process of changing, with repercussions on the flexibility of production, on where money is invested, on the placing of individual units within a 'value chain' and on the most dynamic markets.

The aim of this chapter is to analyse the data from official statistics in order to understand how the business world in Veneto has managed a turnaround, or to be more precise which actions and strategies does it have in place allowing it to become once more a leading force for the whole country.
A good part of this study is based on results from the 2011 Census for Industry and Services in order to have access to more detailed, regional information and to refer to a significant year of the recession. The scope of reference involves companies with more than 3 employees. Businesses with between 3 and 9 employees are referred henceforth as 'small businesses' for ease of understanding even if the term does not conform exactly to the standard definition[3].
There were 108,456 such businesses analysed with a total of 1,299,131 employees, the equivalent of 79.1% of the total number of employed in Veneto. Excluded from this study were those companies below the minimum threshold which in this case are those with between 1 and 2 employees, that make up 278,206 units employing 343,228 people in Veneto.
In analysing the structure of the business system, how it performed during the years of recession is of particular importance. The main strategies adopted are highlighted with particular emphasis on internationalisation, business relations and investment in innovation. This will be further supported by research carried out using data from more recent studies related to spending on Research and Development and patent issues.

6.1 Structure and governance

The governance model of Veneto's productive system is similar to the national average: relatively straightforward, made up of a large number of premises, predominantly family-run with centralised management.

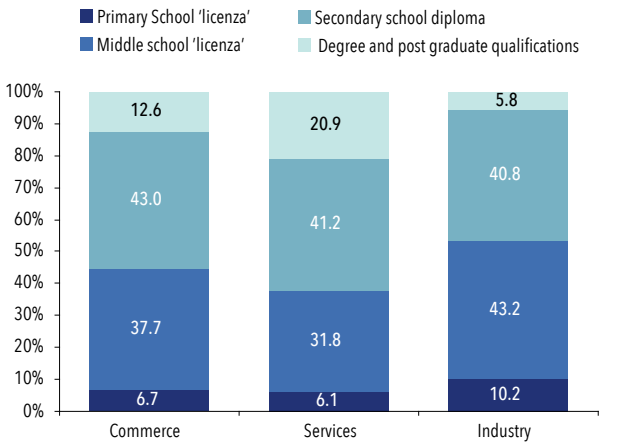
Family-managed business

The family business model seems to apply, to a certain extent, to the entire business system: In 91.6% of cases the main partner is an individual, but the percentage rises to 94.7% for smaller companies, dropping to 85% for companies that employ between 10 and 49 people, 55.1% for medium sized companies (50-249 employees) and remains very low (23.8%) for large businesses (over 250 employees).

[1] The term turnaround means the collective actions taken by a company, under the pressure of continuously worsening results, to overcome the period of difficulty and return to previous levels of performance or better.
[3] Pier Carlo Padoan, Sole 24 Ore newspaper, 1 April 2015
[3] Decree by the Ministry of Industry, 18 April 2005 (Officially Journal12 October 2005, no. 238); adaptation to EU legislation for the identification criteria of small and medium enterprises, updating of identification criteria of microenterprises and small and medium enterprises,

The highest percentage of companies whose main partner is an individual can be found in the building sector, with 94.2%, followed by the retail and services sector (around 92.2%) and 88.6% in manufacturing.
The vast majority of family-run small business owners are men (83.4% compared with 78.5% nationally). The main qualification held among them is the high school diploma (41.6%, as compared with the Italian average of 44%) followed by the middle school 'licenza' (37%); the number of people who attended university (degree and post graduate) is still low: 13.9% (average 14.8% in Italy).
By analysing the individual sectors, one notes that poor qualifications are predominantly held by workers in manufacturing: 43.2% of workers in this sector only has the middle school 'licenza': those working in the commercial sector and in non-commercial services are more likely to hold a high school diploma (43% and 41.2% respectively). The latter has the highest number of qualified workers with nearly 21% holding university qualifications.

Fig. 6.1.1 - Percentage distribution of business owner qualifications by sector. Veneto 2011



Source: Veneto region Processing- Regional Statistical System on ISTAT data

In Veneto's microenterprises, 53% of executives (average 46.3% nationally) has had previous experience as an employee while 34.3% were self-employed. The number of executives without past work experience is low (12.7%), although it does vary according to the sector: from 8% in the construction industry to 18.6% in commerce. In the services sector, Health and Social Services stand out with a figure of 27.9%.
In relation to the responsibility for management of the entire company, 83% of the main executive business partners or members of his shareholding family directly manage the business. The figure stands at 72% for companies with over 10 employees.
The decision to delegate company management directly to individual managers depends overwhelmingly on the size of the company ranging from 2.5% for small businesses to 10% for those businesses with more than 10 employees.

6.2 Weighing up strategies and reports to determine where businesses in Veneto are heading.

During 2011, the strategies adopted by the production system in Veneto were mostly defensive with priority given to protecting their market share. 70% of all businesses, regardless of size, . There was a disparity among the type of companies that chose to implement an expansion strategy in addition to protecting their pre-existing market share and those who didn't: over 55% of companies with more than 10 employees intended to increase their production range and around 45% intended to launch themselves in new markets; that figure, however, stood at 39.5% and 20.5% respectively for microenterprises.

Defensive strategies are more prevalent; some attempts at expansion by medium/big businesses

12.3% of microenterprises and 17.9% of those employing over 10 worked with other companies, which is often instrumental to achieving the above. These strategy profiles affect the various sectors in different ways: the care taken in protecting each business' market share is something that most companies in all sectors have in common, especially commercial enterprises (74.9%); 51% of industrial companies extended their product range. The main disparity among the different sectors related to new market research given that it applied to 47.2% of industrial businesses but little more than 20% of commercial enterprises and

in accordance with EU legislation as per the European Commission recommendation no. 2003/361/CE of 6 May 2003 (O.J.E.U. 20 May 2003, L 124). In summary, the decree states: the category of micro, small and medium businesses (together known as SMEs) is defined as businesses that a) have fewer than 250 employees and b) have an annual turnover of less than 50 million Euros, or have an annual balance sheet total of less than 43 million Euros. Within the SME category, a small enterprise is defined as one that: a) employs fewer than 50 people and b) has an annual turnover or annual balance sheet total not exceeding 10 million Euros. within the SME category, a microen-

construction businesses and 15% of the tertiary sector, excluding commercial enterprises.

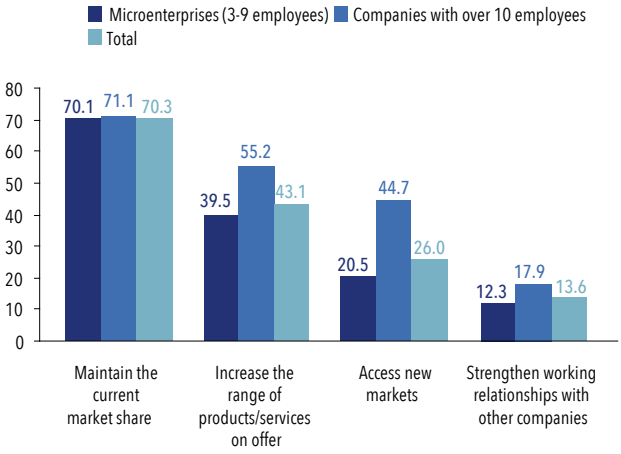


Fig. 6.2.1 - Percentage of companies according to company's main strategic direction and size of the company

Source: Veneto Region Data Processing- Regional Statistical System on ISTAT data

For most companies in Veneto as well as nationally in 2011, improving the quality of a product was the main focal point in improving competitiveness.

Focusing on quality to win competition

Price-based competition was also considered important by one out of three Veneto companies but this applied mostly to microenterprises.

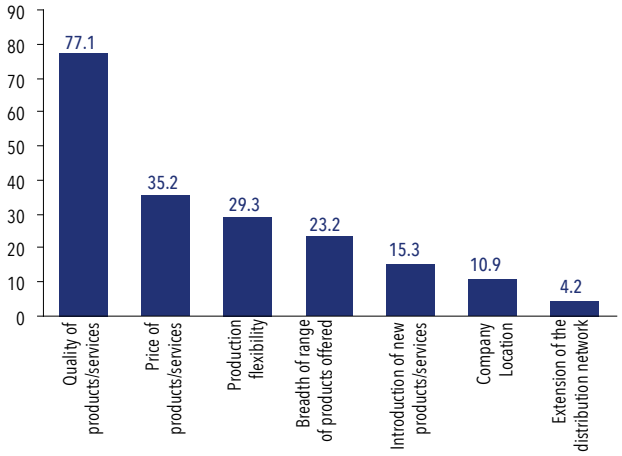
The third competitiveness factor for all companies was production flexibility by varying demand (30%), which increased to 38% for those companies with over 9 employees.

Nearly a quarter of companies in Veneto also considered the diversification of products/services on offer to be a way of improving their position.

The profiles cited by larger companies, though on a limited scale, need to be taken into consideration.

Two further points that need to be made: Where the company is located is more important for small businesses because they operate within a limited market. There is little general interest in extending the distribution network, deemed important for only 4.2% of companies.

Fig. 6.2.2 - Percentage of companies according to their main competitive strengths – 2011



Source: Veneto Region Data Processing- Regional Statistical System on ISTAT data

Networking to compensate for small business size?

From the point of view of the different sectors, the quality of a product and production flexibility is of paramount importance, especially in manufacturing , while companies in the services sector associate price competitiveness strategies with quality of service.

In a production system such as that in Veneto, made up of different businesses, the ability to initiate formal productive relations among different types of companies may prove to be useful business growth. From the data, it can be observed that productive relations with other companies tend to be associated with more structured and expansive business strategies.

In the two years between 2011 and 2012, over 65% of companies in Veneto had stable relations with other companies or organisations either on a contractual or informal level. Productive arrangements relating above all to commissioned orders and subcontracting were the most prevalent.

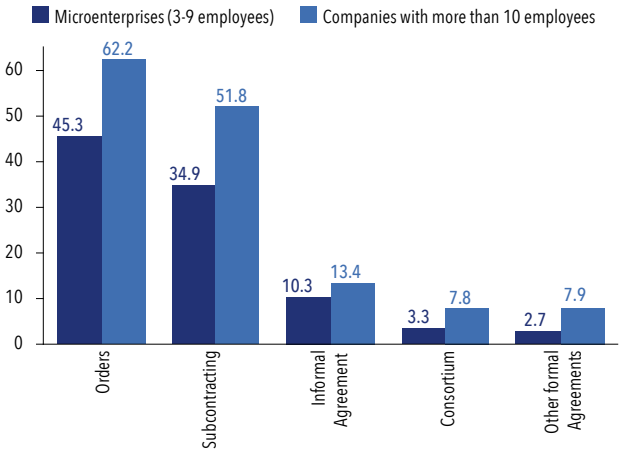
The bigger the company, the more likely there is to be an interest in managing business relations

In those two years, 45.3% of microenterprises and 62.2% of other companies in Veneto transacted business with other companies as customers and, during the same period, 34.9% of microenterprises and 51.8% of businesses employing over 10 people, acted as subcontractors Larger scale companies are more likely

terprise is defined as one that: a) has fewer than 10 employees and b) has an annual turnover or annual balance sheet total not exceeding 2 million Euros

to adopt more formal arrangements, such as consortia or joint ventures, whereas informal agreements affect essentially both microenterprises and medium sized businesses, as well as large businesses.

Fig. 6.2.3 - Percentage of enterprises who have transacted business with other companies according to type of business relationship and size of the company .



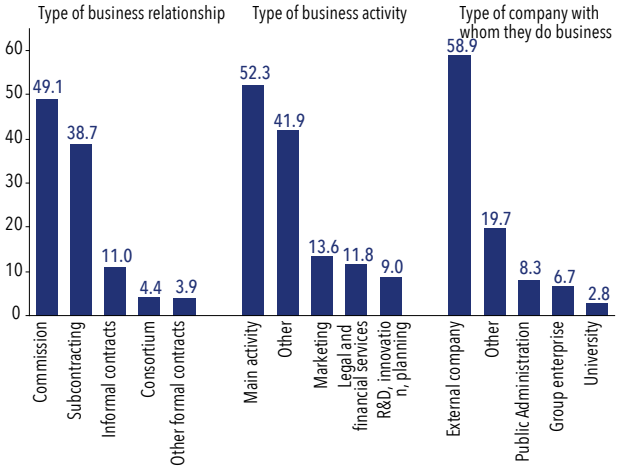
Source: Veneto Region Data Processing- Regional Statistical System on ISTAT data

Business to business relations are more widespread in the industrial sector, with 80.2% of manufacturing companies and 85.1% of building companies stating that they had transacted business with another company in the two years from 2011-2012. In manufacturing, dealing with other companies is common, particularly in metal manufacturing (87.1%), optical and electronics manufacturing (86.4%) and in mechanical manufacturing (85.7%). For service sector companies, barely 55% had business dealings with other companies.

Looking at the reasons why companies transact business with one other, it is revealed that over half of companies in Veneto transacts business related specifically to business management; followed by marketing services (13.6%), legal and financial services (11.8%) and innovation, research and development (9%).

Nearly 60% of businesses use private companies independent from any groups to which the business may

Fig. 6.2.4 - Percentage of companies who have transacted business with other companies, according to type of business relationship, type of business activity and type of company with whom they do business. Veneto 2011-2012



Source: Veneto Region Data Processing- Regional Statistical System on ISTAT data

belong; this is followed by companies who deal with public administration bodies (8.3%), those who transact business with group member companies (6.7%) or with universities and research centres 2.8%). What pushes a Veneto company to transact business with other companies?. The main reason is the need to reduce production costs whether there be any agreements in force or not.

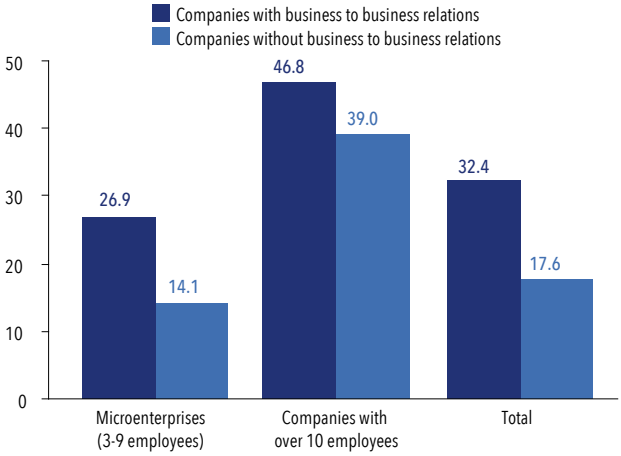
Business relations as a means of reducing costs and improving competitiveness.

The intention of developing new products or processes is one of the most popular reasons given by businesses that make transactions with other companies as a customer or with whom they have network contracts. Interest in accessing new markets is the main reason given by those companies who choose franchising, consortia or other formal contracts.

,The data establishes that networking is a necessity for most businesses: 69.4% of companies adopt network collaboration to support their market share. Less than half (46.4%) do it to increase their range of products and services on offer and around a third to access new markets (32.1%). Companies with business to business relations have a target market that tends to be much broader than that of other companies: two thirds of companies who do not have business to

business relations operate only within a local market, whereas this figure drops to 40% for those companies who transact with other businesses.

Fig. 6.2.5 - Percentage of companies active on the international market according to business relations and size of the company – Veneto 2011



Source: Veneto Region Data Processing- Regional Statistical System on ISTAT data

There is, in fact, a strong correlation between the existence of a business relationship and being active on the international market: only 17.6% of companies without business to business relations are active internationally while the figure is nearly double (32%) for those companies with business to business relations. Nearly half of companies with over 10 employees (46.8%) are 'internationalised' and work within a network; the figure is 26.9% among microenterprises. Similarly, there is a connection between those companies who work with other companies and activities linked to innovation: one in two such companies, in fact, declared to have invested in innovation activities while only 29.2% of companies who do not transact business with other businesses did the same.

Business contracts have a positive impact on international market competitiveness

The effects of these business relations were most definitely positive for the international competitiveness of Veneto companies, specifically in the case of formal and informal contracts different from orders and subcontracting: 22.6% of companies in Veneto who had set up contracts in those two years state that business relations had had a positive impact on the company's competitiveness, compared with 12.6% who saw a reduction in competitiveness for contracts that were set up. The national picture is very different: fewer companies saw an improvement in competitiveness (18.8%) as compared to those who reported a deterioration.

6.3 Internationalisation

Markets

If we base the level of internationalisation of a region on the value of exports and the number of workers abroad, Veneto holds a very strong national position. Exports as a share of GDP stands at 35% compared to 25% nationally and there were 27,800 workers in 2014 nearly 14% of all Italian workers abroad. The percentage of exports that made up a company's turnover was 41.9% compared to an average of 39.1% for the rest of Italy.

In this context where there are many companies, including smaller ones, competing internationally, it is necessary to state that over half of companies in Veneto operate exclusively within local markets. Around one in five extends its range nationally and over 27% internationally, of which a proportion of little less than 20% operate even outside the EU. This average result demonstrates the differing behaviours in terms of both size of the company and type of business activity. Data from the IX census for industry and services confirms the importance of external markets in company expansion: of all regional businesses with over 50 workers (medium and big enterprises), nearly one in two was active on the international market, a figure that increased with the size of the company, while the same strategy was adopted by around 30% of companies with 10 to 50 employees

The bigger the company, the larger its global market

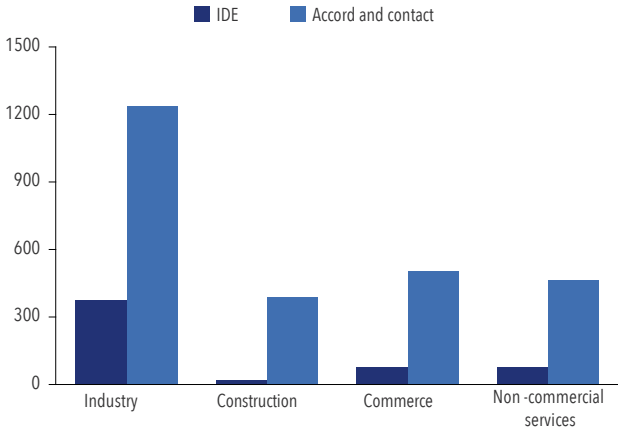
Observing the different economic sectors, businesses in Veneto operating in the services sector are shown to be more likely to operate locally, whilst, at the other extreme, companies in the industrial sector are shown to be more exposed to international markets, exceeding the 50% of the total number of regional businesses active in markets outside the EU.

The manufacturing enterprises that have chosen to the greatest degree to operate on international markets are those in the sectors of agri-food processing, machinery manufacturing, optics production and chemical-pharmaceutical manufacturing.
As far as factors that have stood in the way of the competitiveness of Veneto's companies, the most recorded causes are a lack of financial resources and issues linked to poor demand. Administrative and bureaucratic responsibilities were among the most commonly cited factors: for small and medium companies in particular, administrative restrictions are a real burden on competitiveness.

There are still many obstacles to small business globalisation

For large, international companies, however, it is the social and environmental context that is mainly singled out as a source of problems.
It is also clear that, as the average size increases, companies tend to experience fewer problems.

Fig. 6.3.1 - Veneto enterprises which have carried out at least part of their production activity abroad (*) 2011



(*) through direct investments abroad (IDE) and/or international agreements and contracts.
Source: Veneto Region Data Processing- Regional Statistical System on ISTAT data

The Internationalisation of production

In the current economic landscape, the traditional model of producing for export no longer seems to be enough to face up to the challenges of a global market: restoring business competitiveness in Veneto will also be determined by the recovery of production and commercial internationalisation. It is necessary to work towards goals aimed at reinforcing business presence in established markets, without overlooking the conquering of markets in new emerging economies, especially in the wake of the financial crisis, from which the European economy is very slowly emerging.
According to the results from the IX Industry and Services Census, the number of companies in Veneto having carried out some of their production abroad stands at 3 out of every 100. The bigger the company, the more it is inclined towards internationalisation.
Structured production and commercial internationalisation (FDI, Foreign Direct Investment) is significant amongst large companies (for companies with over 100 employees, around 1 in 10 made FDIs), while small and medium enterprises (SMEs) favour more flexible options (via agreements or contracts).
Economically speaking, there is a significant level of structured internationalisation (FDIs) amongst manufacturing industries (more than half of Veneto enterprises that declared making FDIs in 2011 belong to this sector), whereas production decentralisation via contracts or agreements are relatively more significant, as well as for the manufacturing industry, for the construction industry and certain sections of the services industry, such as ICT, transport and commercial activities..

3% of companies relocate

In terms of geographical location, , international investments made by the regional manufacturing industry stay mainly within the EU, with most investments coming from enterprises of the fashion industry, and, slightly less investments are made in China and other leading Asian markets.
The main reason why some businesses choose to relocate part of their activities abroad is to reduce labour costs: more than 50% of businesses in Veneto that signed commercial contracts or made FDIs in 2011 declared that reducing labour costs was one of the main reasons for such a decision.

Production is carried out abroad above all to reduce costs

Commercial agreements and FDIs are tools often used by Veneto businesses to conquer growing market shares in the countries in which they have chosen to invest.
Over half of Veneto businesses which declared making FDIs in 2011 destined a large part of their foreign

production for sale in the countries/areas in which it was produced. In this case, production internationalisation processes implemented by enterprises did not have the main objective of reducing production costs but rather that of closely observing and progressively conquering shares in new markets.

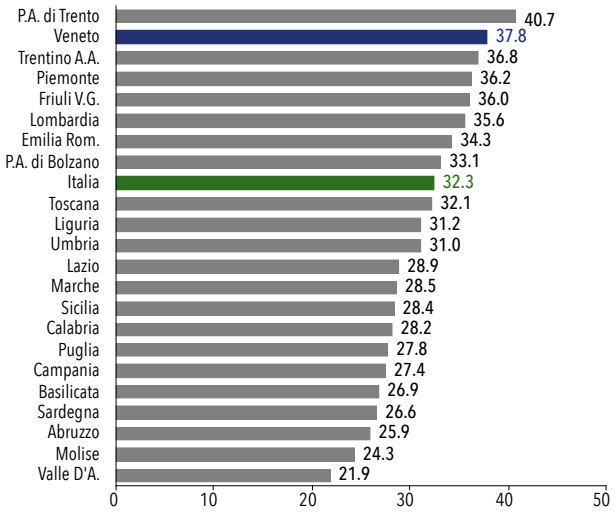
6.4 An Inclination towards Innovation

The OECD (Organization for Economic Cooperation and Development) defines innovation as
"the transformation of an idea into a new or improved product introduced on the market, into a new or improved operational process used in industry and commerce or into a new approach to a social service
"Innovation as well as creativity and know-how are factors that allow companies to be competitive in a strongly competitive and selective market like the Italian and global markets.
In the three years from 2009 to 2011, on average 42.7% of companies carried out innovations but there is significant differentiation in company size: 37.8% of Veneto microenterprises and nearly 60% of companies with at least 10 employees.

In the manufacturing sector there is an inclination towards innovation

The more innovative microenterprises are found in manufacturing and in communication and IT services. The sectors with the highest number of innovative companies with more than 10 employees are, again, manufacturing, in particular mechanical engineering companies.
On an national level, the independent province of Trento and the region of Veneto proved to have the highest number of innovative microenterprises, with 40.7% and 37.8% respectively, as compared to the national average of 32.3%.
Overall, the most common forms of innovation used by companies in Veneto are product and organisational innovation: around 20% of microenterprises and 35% of businesses with over 10 employees declared having introduced these new innovative developments over the course of the three year period studied. Less common, however, were innovative actions undertaken by businesses in Veneto in the fields of marketing and processing.

Fig. 6.4.1 - Percentage of enterprises with 3-9 employees engaging in innovation, by region. 2011



Source: Veneto Region Data Processing- Regional Statistical System on ISTAT data

Innovation mainly concerns general research activities (16.4% of the total number of businesses in Veneto with at least 3 employees) the purchasing of advanced technology new machinery or equipment (over 13%), the purchasing of IT software and hardware (around 10%). Following these, and to a greater extent for bigger companies is innovation in technical and design planning and marketing.
Over half of companies in Veneto declared that, in the three years from 2009 to 2011, the introduction of innovations was either restricted or even made impossible by the disparity between internal or external company financial resources and the very high costs of innovation. Between 5 and 10% of companies identified problems relating to the existence of markets dominated by consolidated companies, the lack of qualified staff and the difficulty in identifying partners with whom to work on innovation activities.
The use of internet use, social media sites and e-commerce is becoming more and more widespread in business, even if larger companies are more likely to use them. A detailed explanation of the methods of ICT use and reasons why can be found in chapter 5 of this report.

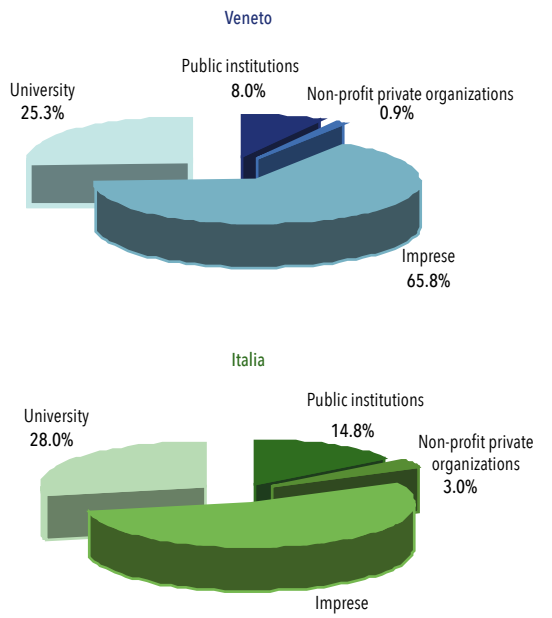
The ever increasing use of ICT in business

6.5 Investing in Research & Development

Research in Veneto

From the results of the study on Research & Development (R&D)[4], it appears , in 2012, total spending on R&D by all institutional sectors in Veneto came to 1.6 billion euros, 2.2% more overall than in 2011. R&D spending has increased considerably in the public sector (+27.2%) and to a lesser extent in the University sector (+2.6%); in the same period, the business sector remained substantially unchanged (+0.1%). The non-profit sector, however, saw a sharp contraction of -23.5% compared to the previous year. Private sector spending on R&D was confirmed at around 67% while spending by public administration bodies reached 8%. These results were in line with the EU objective of private sector funding for two thirds of R&D.

Fig. 6.5.1 - Percentage distribution of intra-muros company spending on R&D by sector. Veneto and Italy 2012



Source: Veneto Region Data Processing- Regional Statistical System on ISTAT data

Veneto's spending distribution is considerably different from the national average, which has a private sector burden of 57.1%, whilst public administration bodies contribute for a total 14.8%, figure that includes central governments' huge share.

Total R&D spending by Veneto's businesses was 1,028 million Euros, of which 87.8% comes from businesses registered in Veneto and the remaining 12.2% from businesses registered outside of Veneto but who carry out research within production companies located in our region.

Spending on R&D in Veneto in 2012 was equal to 1.05% of GDP

R&D spending as a percentage of GDP in Veneto was 1.05% in 2012, 0.4 percentage points higher compared to the year before. Italy spent 1.26% of GDP that same year which was an increase from 2011.

We're far from, but on the right track to, achieving the Europe 2020 objective, which set Italy an R&D spending target of 2.5 as a percentage of GDP.

There were over 22,000 R&D staff[5] in all sectors in Veneto, with a year on year increase of 3.9%. In Italy, the total number of staff employed in R&D rose by 5.3% in the same period. For staff numbers too, it is the entrepreneurial sector that has the highest figures, with a percentage similar to that of its spending; moreover, of the over 15,000 R&D employees in companies operating in Veneto, nearly 25% researchers. The number of researchers in Italian businesses was 34.2% for the same year.

Tab.6.5.1 – Number of full-time employees in R&D Veneto - 2012

Total employees			of whom: researchers		
M	F	Total	M	F	Total
11,883.5	3,134.9	15,018.4	2,923.5	737.7	3,661.2

Source: Veneto Region Data Processing- Regional Statistical System on ISTAT data

Research by businesses in Veneto

There are almost 1000 businesses in Veneto involved in research with average spending per company of over one million Euros. Unsurprisingly, the amount invested is proportionate to the size of the company and its turnover: larger and more structured companies invested the most in R&D both based on spending distribution per size of turnover and when comparing SMEs and large companies. Over 60% of R&D investment comes from companies with an annual

[4] By research is meant "all creative work undertaken systematically, both with the aim of increasing overall understanding (including knowledge of man, his culture and society) and in order to use said acquired understanding in new practical applications".

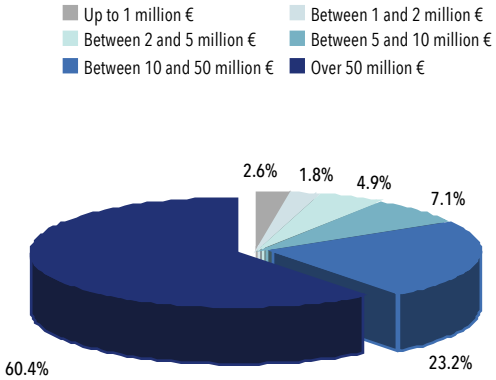
[5] The number of employees in expressed in full time equivalents (FTE) An FTE is a person who works full time (8 hours a day) for a full working year, which is calculated as being an average of 220 working days. For example, someone on a part-time contract of 6 hours a day is equal to 0.75 FTE (6 out of 8 hours), while someone working for four hours a day is equal to 0.5 FTE.

[6] This expression refers to combined personal rights, that is to say, the moral right to be recognised as the author of a work or creator of a solution or brand, and patrimonial rights, related to the economic exploitation of the results of personal creative activity.

turnover of more than 50 million Euros a year and a further 23% from companies with a turnover of between 10 and 50 million Euros. Small and medium enterprises contribute 35.8% in spending terms but make up 80% of businesses in Veneto involved in R&D

Around 80% of Veneto's businesses involved in R&D are SMEs

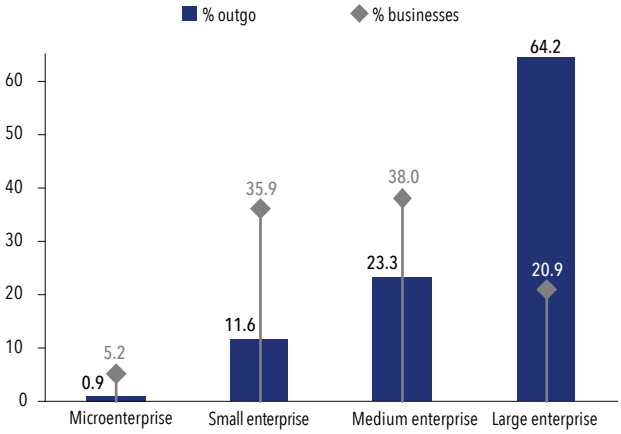
Fig. 6.5.2 - Percentage distribution of intra-muros R&D spending by Veneto enterprises per company turnover size - 2012



Source: Veneto Region Data Processing- Regional Statistical System on ISTAT data

Veneto's businesses have invested 95% of their R&D spending in our region and the remaining 5% in other Italian regions, mainly Lombardy and Friuli Venezia Giulia.
There are three types of company research: basic research, i.e. experimental or theoretical work undertaken mainly to acquire further knowledge without reference to any specific application; applied research defined as original work undertaken to acquire further knowledge in reference to a practical or specific application; finally, experimental development, systematic work based on existing knowledge acquired through research and practical experience undertaken with the aim of completing, developing or improving materials, products, production processes, systems and services.

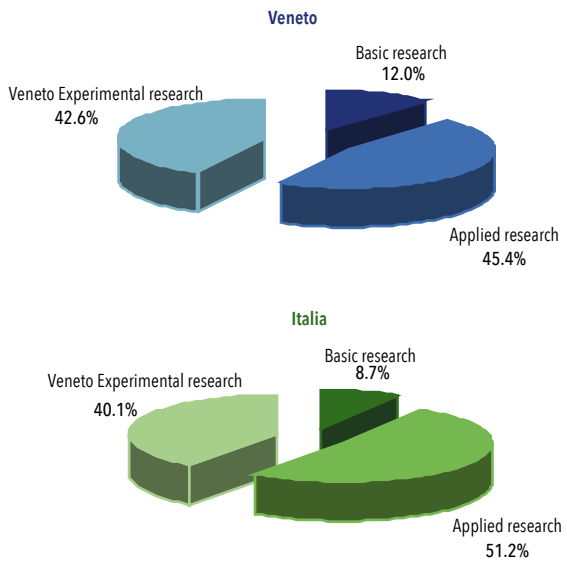
Fig. 6.5.3 - Percentage distribution of intra-muros R&D spending by SMEs and large companies in Veneto – 2012



Source: Veneto Region Data Processing- Regional Statistical System on ISTAT data

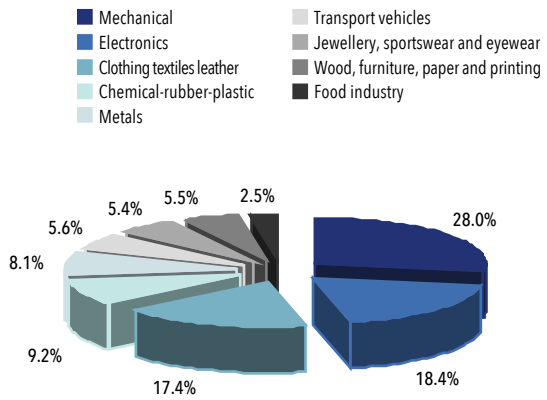
Company spending for basic research is higher in Veneto than the national average (12% compared to 8.7% nationally). In confirmation of the Veneto region's practical savoir faire attitude, we also see a greater occurrence of experimental development (42.6%) than the national average (40.1%), to the detriment of applied research, which remains prevalent in Veneto (45.4% compared to 51.2% nationally).
Companies in Veneto who invested in R&D are primarily manufacturing enterprises, which cover more than two thirds of total R&D spending; following them are professional, scientific and technical companies, commercial activities and ICT services with investments of between 5% and little more than 10%.
Within the manufacturing sector, over a quarter of spending by Veneto's companies comes from mechanical engineering enterprises (28%) followed by electronics businesses (18.4%), fashion (17.4%), chemical (9.2%) and metal manufacturing (8.1%).
Looking more closely at products and/or production methods that were subject to R&D, it emerges that 12.1% of R&D spending is invested in pharmaceutical products, followed by textile industry products (6.9%) mechanical engineering products (6.8%), packaging industry products (6.3%) electrical appliances (6%) metal work products (4.7%), food industry products (4.3%) and leather goods (4.1%). 12% of research and development spending in Veneto is allocated to pharmaceutical products

Fig. 6.5.4 - Percentage distribution of intra-muros R&D spending by Veneto and Italian enterprises by type of research – 2012



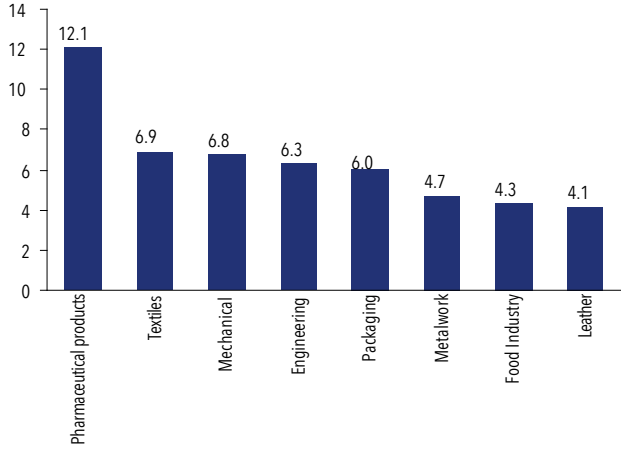
Source: Veneto Region Data Processing - Regional Statistical System on ISTAT data

Fig. 6.5.5 - Percentage distribution of intra-muros R&D spending by Veneto's enterprises by economic category in the manufacturing sector – 2012



Source: Veneto Region Data Processing- Regional Statistical System on ISTAT data

Fig. 6.5.6 - Intra-muros R&D spending by Veneto's enterprises: main products and/or production techniques (%) – 2012



Source: Veneto Region Data Processing- Regional Statistical System on ISTAT data

It is interesting to observe research in the most innovative and high-tech fields: In 2012 Veneto's businesses invested over 78 million Euros in the energy sector, which is 8.2% of total R&D spending, over 9 million Euros in nanotechnology and nearly 3.8 million Euros in biotechnology.

In 2012 there were over 14,000 working in R&D

In 2012, Veneto's businesses employed over 14,000 individuals in R&D, 80% of who are men. Women are much better represented in the commercial sector (where you find over 60% of female R&D employees), in contrast to the manufacturing sector, which is more consistent numerically and is revealed to be an essentially male sector, with the exception of the fashion sector, in which almost 47% of employees are women.

In the manufacturing industry which, as previously mentioned, is the biggest sector, around 16% of R&D employees carry out basic research activities, little more than 40% worked in applied research and finally, nearly 44% in experimental development. The composition of employees per type or research carried out in the main tertiary sectors is substantially different: in the commercial sector, the percentage of basic research employees is much higher (nearly 35%), whilst other sectors, including ICT and other company services, have a much larger number of employees working in applied research.

6.6 Protecting intellectual property

Investment in research, innovation and creativity requires careful safeguarding by employing appropriate industrial property protection tools, which are a fundamental strategic asset for a company's competitiveness.
Industrial property is one of the two main categories – the other being literary and artistic property – that make up intellectual property6 . According to Article 1 of the Italian Industrial Property Code, industrial property includes trademarks and other distinctive logos, designations of origin, quality guarantees, designs and prototypes, inventions, utility models, graphical representations of semiconductor products, confidential company information and new plant varieties. The rights to industrial property are acquired via patenting or registration; the following in particular are subject to patenting: inventions, utility models and new plant varieties. Trademarks, designs and prototypes and the graphical representations of semiconductor products are instead subject to registration.
The development of these tools is fundamental in terms of the creation of a value chain – that links ideas , application developments, patents and environmental conditions – to promote the country's development which is also useful for attracting investment from abroad.

Decrease in patent applications

Patents are strongly tied to technological innovation; analysing patent intensity can therefore provide useful information about a country's and/or region's innovation production.
In 2014, the Italian Patent and Trademark Office (UIBM) received 67,540 patent applications, 0.8% fewer than in 2013. Lombardy is Italy's most innovative region with 18,194 applications (26.9% of all Italian applications), a yearly increase of 0.3%.
In 2014, Veneto made 6,082 patent applications, a decrease of 5 percentage points compared with 2013, representing 9% of the national total and putting it in fifth place for number of patent applications made per region in Italy.
The financial crisis also had serious repercussions on business interest in industrial property investment which, whilst for more forward-thinking companies is viewed as a financial crisis exit strategy, by most of them it is considered a cost and not an investment.
In 2014, the UIBM received 1,294 innovation patent applications from Veneto: 250 utility model patent applications, 4,408 trademark registration applications and 130 design registration applications.

Tab.6.6.1 – Number and percentage share of patent and registration applications made to the Italian Patent and Trademark Office (UIBM) by type. Veneto – 2014

	Number	Share
Innovations	1,294	21.3
Trademarks	4,408	72.5
Designs	130	2.1
Utility Models	250	4.1
Total	6,082	100.0

Source: Veneto Region Data Processing - Regional Statistical System on data from the Ministry for Economic Development –Italian Patent and Trademark Office (UIBM)

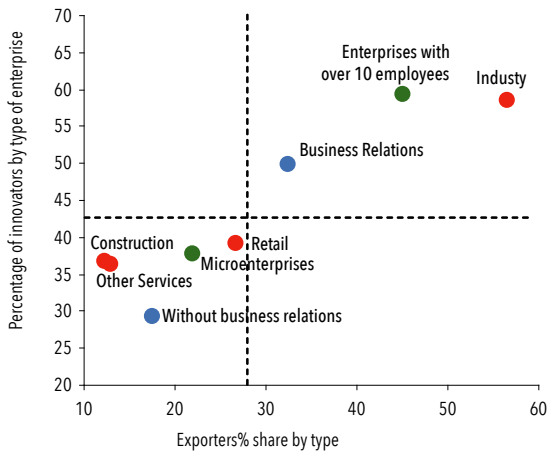
The most innovative province in Veneto is Padua, with 1,877 patent applications; followed by Vicenza (1,487) and Verona (1,125). On the other hand, the provinces in Veneto that made the fewest applications were Belluno (85) and Rovigo (68). Essentially, over the course of 2014, 1,234 patent applications were made per million inhabitants, compared with 1,111 nationally, and 13.9 patent applications per 1000 companies (13.1 nationally).
As far as European Community industrial property protection is concerned, in 2012, Italy made 4,132 European patent applications to the European Patent Office (EPO),making it much less innovative than Germany with 22,666, France with 8,211 and the United Kingdom with 5,054. However, our country did make more EC patent applications than Spain (1,511), Ireland (300), Portugal (74) and Greece[7] (53).
In 2010, Veneto[8] made 351 European patent applications, 213 fewer than in 2009, and significantly fewer than its main European competitors: Bavaria (3,299) Baden Württemberg (3,079, Île-de-France (1,388) and Rhône-Alpes (816). This negative result can be mainly attributed to Veneto's economic spirit which favours primarily labour intensive sectors rather than those which are capital intensive9 but it is certainly also due to the high cost of European property intellectual protection that discourages smaller companies from making such an investment.

[7] Data from 2011.
[8] Eurostat data relating to European patent applications made to the EPO by regions in Europe are available up to 2010.
[9] Labour intensive sectors are traditional sectors where there is a large work force. Vice versa for 'capital intensive' sectors who are more technologically advanced and in which labour use is less prevalent.

6.7 Reflecting on the competitive strength of Veneto's businesses

Several elements emerge from the analysis undertaken that help to understand the efforts required by businesses in order to overcome difficult periods and to improve their performance.
In 2011, a fifth of Veneto's businesses judged their competitive skills to be weaker than those of their main competitors. This problem affects mainly companies in the construction sector – which is unsurprising, given the serious situation recorded by the real estate market in the past few years – and companies who have made no innovations in the 3-year period.
. Difficulties also emerge for manufacturing and for those businesses operate internationally, precisely because they are more aware of being exposed to global competition.
Moreover, microenterprises with business relationships, subcontractors or those who operate as customers of larger companies and are suffering the fall in demand are all aware of their weak position..
Those companies that consider their competitive skills to be on a par with or better than their competitors have directed their strategies mainly towards increasing the range of products or services offered, bringing back outsourced activities to within the company and also accessing new markets.
Business strategies are strongly linked to the size of the company, but the business sector is just as important.
Larger businesses have a stronger strategic capacity and an expansionary logic based on increasing the products/services offered, searching for new markets becoming more internationalised and investing more in innovation and research.
In terms of economic activity, seems that in Veneto manufacturing is performing most strongly compared to other business sectors, focusing more on increasing strategic options, including abroad, searching for partnerships in order to improve its competitiveness, and is more mature in terms of investments both in innovation and R&D.
However this vision is not entirely comprehensive: network relations, probably due to the predominance of small and medium-sized businesses, are seen

Fig. 6.7.1 - Graph depicting type of enterprise by percentage share of innovators and exporters



(*) The dotted lines indicate the average regional value of the percentage share of exports (x-axis) and innovators (y-axis). Source: Veneto Region Data Processing- Regional Statistical System on ISTAT data

by Veneto's businesses not so much as a competitive strategy, but more as a tool for reducing costs, a way of means of reaching new markets: investment in marketing and design still being the prerogative of big businesses.
On the one hand, Veneto's small and medium enterprise is still tied to a competitive strategy based on price which is risky in today's globalised market where cheap labour can be found elsewhere.
Small businesses appear to want to continue to invest in know-how, thus be more conservative, but, on the other hand, they present skills that often come from our own artisan traditions and decidedly post-Fordist organisation models and production processes, that focus on merit, efficiency and team work. This can be very successful in an international market that rewards flexibility and personalisation capacity.
There is also a transitive association among enterprise, internationalisation and the propensity towards innovation.
This mix in strategies is proving very effective, in particular for a sector of excellence in Veneto manufacturing: mechanical engineering.
The mechanical engineering sector occupies a primary role, in that it is the basis for all production processes, through the provision of machinery to other transformation and manufacturing industries; thus

its development coincides with of regional industrial progress.
In 2014, this highly specialised sector included 3,880 businesses which exported goods worth 10.7 billion Euros successfully establishing the right balance between internationalisation and product innovation and business organisation. This type of economy requires quality business services with increasing frequency.
Our regional tertiary sector is perhaps too dominated by commerce which, with nearly 103,182 companies, certainly supports the tourist economy but also suffers the effects of all the problems linked to reduced business size.
Veneto's distribution channels in the same way as national channels, have a limited level of internationalisation. This lack is certainly detrimental to manufacturing enterprises (especially in the food sector) because it denies important showcases on foreign markets and the opportunity of discovering the consumer behaviour of new markets, through Italian and Veneto distributors,
Retailers have not invested much abroad, due to their limited size that cannot be compensated for by building networks, but also most probably because of weaker innovation in commercial products.
The importance of innovation and research as a means of overcoming the economic crisis is widely reported. The term 'innovation' certainly finds itself in the top 10 words that are most used in political- institutional, economic, industrial and managerial contexts.
In Veneto, it appears that businesses believe that now, more than ever, innovation is needed to emerge in the market of reference, whether on a local or international scale; indeed, there was no reduction in R&D spending during the economic crisis.
The fall in demand did, however, force many companies to invest less in innovation and in industrial property protection, which are still considered to be costs.
The other heavy burden, especially for small businesses, is administrative and bureaucratic expenses, which divert funds otherwise intended to be used in investment.
Even if the current data tells us that the turnaround for Veneto's businesses has already begun, it is clear from that which has emerged that there is a lot more that can be done to improve business performance.
However, there is one thing upon which everyone is agreed – economists, managers and entrepreneurs – and it is a denominator common to all sectors: the competitive factor par excellence remains the quality of the product or the service offered.

[4] Per ricerca si intende "quel complesso di lavori creativi intrapresi in modo sistematico, sia al fine di accrescere l'insieme delle conoscenze (ivi compresa la conoscenza dell'uomo, della sua cultura e della società), sia per utilizzare dette conoscenze in nuove applicazioni pratiche".