



Regione Lombardia

INNOVATION SYSTEM OF THE LOMBARDY REGION

With over 9.9 million residents recorded in 2014, Lombardy is the fourth most-populated region in Europe. Lombardy's gross domestic product, amounting to 33.835,7 per inhabitant (2014), is the fifth largest among European regions. Lombardy's production system is currently one of the most developed in Italy and Europe: at the end of 2014, there were approximately 813.000 active businesses (compared to some 4.800.000 at national level), out of which over 99% are micro and small companies, constituting the bases of the regional economy. Manufacturing industry is the leading sector by amount of businesses and fourth by workforce at a European level. Lombardy's economic eco-system is strongly export-oriented and thus largely exposed to the changes triggered by globalization.

INNOVATION FACTS & FIGURES

Lombardy's knowledge-based system is extremely articulated, boasts specialization in a range of technical-scientific disciplines and includes skills and research groups of international ranking. The knowledge-intensive service industry still has large margins for growth, especially compared to other regions or areas of Europe; in 2013, the percentage of people employed in high and medium-high technology manufacturing remains modest: 9.3% versus 19.8% boasted by Stuttgart in the Baden-Wuerttemberg region, Europe's leading region, and 10.5% by Piedmont, Italy's leading region (Eurostat, 2015).

The 13 academic institutions (6 public universities, 1 Polytechnic, 6 private universities) and a university school for advanced studies (IUSS Pavia) play an important role in producing graduates who are an important vehicle for transferring knowledge to the production world. Universities offer a strong tendency towards science; engineering courses (20.2%), mathematics, physics and natural sciences (14.9%) and medicine (11.9%) represent almost 50% of the overall offering (CNVSU - National Committee for the Evaluation of the University System, 2011). Graduates in scientific-technical disciplines are on the rise: in 2011, Lombardy counted 15.1 graduates per 1000 units of the workforce aged 20-29 (Istat, 2012). The contribution to the training of human capital is crucial, especially in light of the figures on the workforce holding a degree or advanced qualification, equal to 18.9% of the entire workforce, slightly below the European average (30.2%) (Eurostat, 2014).

Out of the students registered at universities in Lombardy in academic year 2012/2013, a good 24.255 were women, or 54.7% of the total.

Out of the R&D staff, women in Lombardy account for 1.34% of the active population, above the EU 27 average (1.26%).

In 2012, R&D expenditure in the Lombardy region as a percentage of GDP was 1.37% (Istat, 2015), over the Italian average of 1.31% (Istat, 2015) but still below the EU average (2.06%) and far from the 3% target set by EU 2020 (Eurostat, 2012).

In 2011, 1.326 patents from Lombardy applicants were filed at EPO (Istat, 2015), corresponding to 34% of the total Italian patents filed (Unioncamere, Patents Observatory, 2011-2012). Lombardy excels in high-tech patents with 12.6 patents confronted with 7.6 (per million inhabitants) on the Italian level (Eurostat, 2009). This figure is however still lower than the European average of 19.6 (Eurostat, 2009).

An important tool to enhance the wealth of university knowledge and the transfer of new knowledge to businesses are university spin-offs and startups. In 2013, Lombardy counted more than 110 of these spin-offs - 10,6% of all the national spin-offs, with an average age of 5,8 years (Netval — Network for the enhancement of university research, 2014).

Chart 1.3 - Spin-offs by university (anno 2013)

Milan Polytechnic	31
University of Milan	25
University of Pavia	22
Bicocca University of Milan	10
Catholic University of the Sacred Heart of Milan	7
University of Bergamo	7
San Raffaele University of Milan	6
University of Brescia	4
Total	112

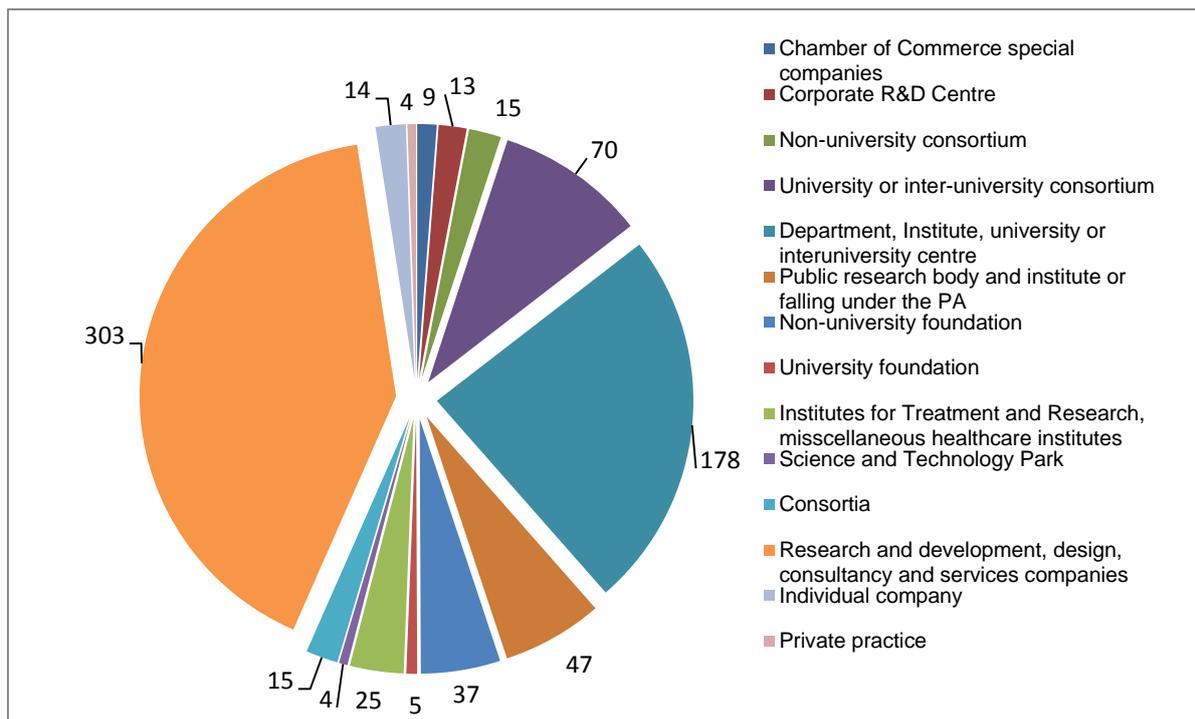
Source: Netval, 2014

These academic institutions are complemented by a multitude of top-ranking public and private research centres. Lombardy boasts, in fact, a high concentration, with 12 Institutes of the CNR - National Research Council (out of a national total of 110), 21 local Organizational Support Units (OSU) of the CNR (CNR, 2012) 3 divisions of the National Institute for Nuclear Physics and 18 Institutes for Treatment and Research (out of a national total of 48), finishing off with the only European Joint Research Centre (IRC) located in Italy, at Ispra/ Varese.

Risk capital availability for spin-offs and start-ups has improved of late, thanks to the presence in the Region of 72 out of the 114 members of the Italian Private Equity and Venture Capital Association (AIFI, 2015).

With 26.7% of the researchers and 27.9% of private investments out of the national total in 2012, Lombardy remains by far the leading region for the scale of private funds allocated to R&D (Istat, 2015). Lombardy counts 267 research facilities housed in private businesses (AIRI, 2008) and 182 businesses who lead the way in innovation (European Commission, 2008). A unique specificity indeed that distinguishes Lombardy on the international stage.

Chart 1.4 - Breakdown of registered Research and Technology Transfer Centres (CRTT), 2015

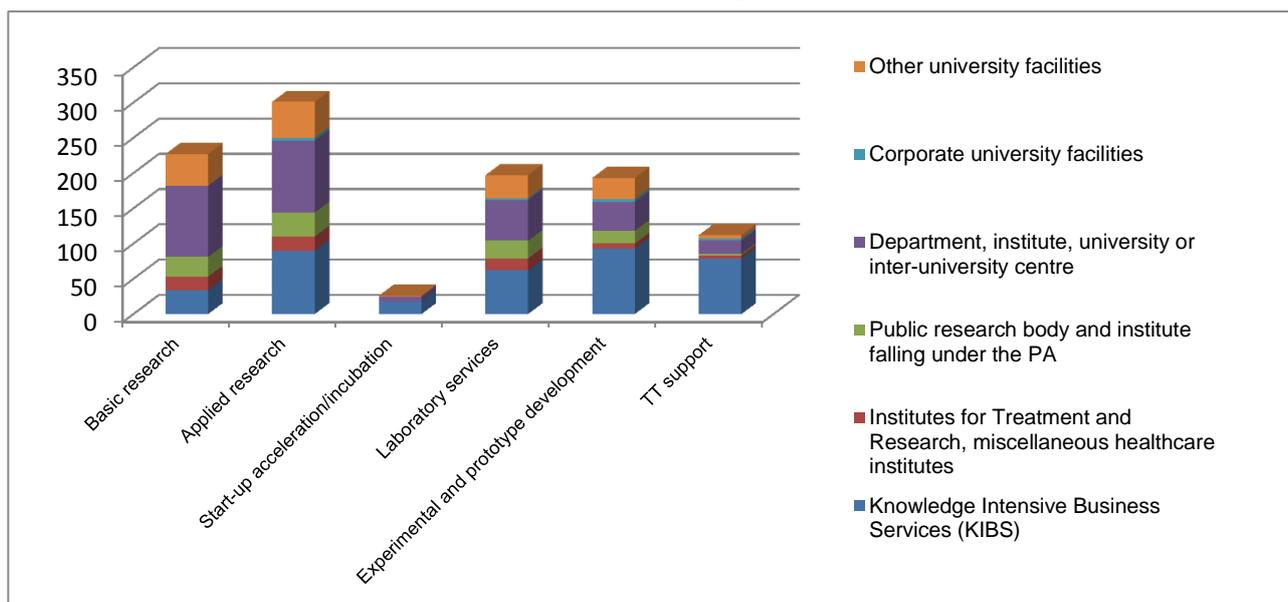


Source: processed from QuESTiO data (2015)

Lombardy also boasts an articulated research system active in a range of scientific areas and related fields of application. The key drivers, in terms of number of centres located in Lombardy, are: Health, Energy and the Environment, Advanced Manufacturing, Nutrition and ICT.

Such a large presence testifies to the dynamism of the production and scientific fabric vis-a-vis innovation. These actors play a variety of roles and provide services ranging from basic research to technology transfer support services (such as the protection of intellectual property).

Chart 1.5 - Services offered by registered CRT, 2015



Source: processed from QuESTiO data (2015)

A good 26 entities provide business accelerator/incubator services and, to date, have helped create over 250 start-ups in Lombardy through strategic advisory, physical environments, shared logistical equipment and facilities (at affordable conditions), training and dedicated finance.

Despite the meager resources in play, owing also to regulatory competition with the State, Lombardy's innovation system stands out for its ability to generate innovative ideas, knowledge and technology. The impact of new knowledge on the scientific community is one of the highest at a European and national level. This is proved by the high percentage of Research Projects of National Interest (PRIN) granted to Lombard research bodies: in 2011, projects funded in the framework of PRIN in Lombardy were 32 out of a total of 349. Furthermore, Lombardy received 13.19% of subsidies (MIUR – Italian Ministry for Education, University and Research).

INNOVATION STRATEGY

Regione Lombardia, in keeping with the policies implemented over the years, based on balanced top-down and bottom-up decisions, has identified, following a period of rationalization, 7 Specialisation Areas, and has changed to a radically new vision. Specialisation Areas include and well represent the majority of the economic and scientific bodies situated in the Region, and help consolidate their leadership in their respective field.

The 7 Specialisation Areas – SA so far are (choice based on territorial skills – Entrepreneurial Discovery Process):

- Aerospace,
- Agrifood,
- Eco-industry,
- Creative and Cultural Industries,
- Health Industry,
- Advanced Manufacturing,
- Sustainable mobility.

The Specialisation Areas, therefore, constitute a new approach and a means for Regione Lombardia to decode the particularities of the Region in a different way, and through them develop a new regional strategy and fine-tuning the priorities.

The process of identifying the Specialisation Areas requires a continuous and inclusive mechanism ever alert to systematically capturing and enhancing new strategic skills.

Regione Lombardia points an ambitious challenge for its production system - to shift towards emerging industries characterized by higher growth rates, compared to the currently available ones. Therefore, the Region focuses on tools supporting the creation of enabling environments for enterprises so they can grow and evolve into emerging industries. One of the important tools leading to the achievement of this ambitious goal are clusters and other business combinations. Specifically, Clusters are widely regarded as effective tools for the creation of an “open space” where businesses, knowledge institutions and business support organizations can come together to research and explore radically new cross-sectoral business solutions.

In Lombardy, a total of 9 Regional Technology Clusters (RTC) have been created so far in the following areas: Agri-food; Aerospace; Green Chemistry; Energy, Construction and Environment; Smart Factory; Land and Sea Mobility; Life Sciences; Smart Communities Technology; Living Environment Technology. According to the principle of full inclusion, Regione Lombardia gives the territory the opportunity of aggregating enterprises, research centers and other economic entities in new clusters in strategic fields such as, for example, creative and cultural industries. Regione Lombardia seeks also to turn clusters into effective tools of “soft” governance between the territory and the regional administration in order to have trustworthy interlocutors to involve

systematically in the planning of regional strategies. In a medium-long time period, clusters will eventually develop, becoming vigilant sentinels of their specific system of skills. In this process, large enterprises will play an important role as catalysts of skills and attraction of resources, of knowledge and technology with a positive effect on SMEs.

Recently, according to the European Secretariat for Cluster Analysis (ESCA) requirements, 8 Clusters received Bronze Label and the 9th Cluster (Energy Cluster – “LE2C”) is obtaining the Gold Label.