



# **PhD holders' careers & employability**

## **in PIEDMONT**

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## 1 – Characteristics of industrial system in Piedmont

### 1.1 - Definition of the Italian environment.

Talking about work, innovation, development and industry, Italy is a very complex environment in which can be distinguished three different clusters coincident with the geographical division of Italy.

The northern part (comprehending Valle d'Aosta, Piedmont, Liguria, Lombardia, Trentino Alto Adige, Veneto, and Friuli) is the most developed in terms of industry, innovation, work places and richness especially because of the presence of big firms related with the manufacturing and service sectors. The middle part of Italy is widely diversified: in fact there are some regions which are cutting-edge in terms of innovation in industry processes and products (for example Emilia-Romagna, Lazio) and other which are slower to be industrial. At all it is possible to say that prevalent firms are middle and little and that there are very few big companies. The southern part (including islands) is very poor in terms of industry, even if the government spends every year many money financing firms 'growth. In addition, it is necessary to say that firms in the south are more specialized in providing services.

### 1.2 – Piedmont's industry and employment environment

Talking about Piedmont, the history of this region in the northwest of Italy varies from agriculture to manufacturing.

By the way, the richness and employment of this region has been related on automotive production since FIAT was established in Torino. Starting from the sixties a lot of Small and Medium Enterprises (SMEs) had been created in order to produce and support production for FIAT. These kinds of structure persist, as is reported in Table 1, as well as in the rest of Italy: firms are mainly small or medium and they work as function of a limited number of big companies.

<b>Firm's dimension (number of employees)</b>	<b>Number of firms</b>	<b>Composition</b>
1 employee	11,526	34.3%
2-9 employees	15,479	46.0%
10-49 employees	5,369	16.8%
50-249 employees	840	2.5%
> 250 employees	167	0.5%
<b>TOTAL</b>	<b>33,651</b>	<b>100.0%</b>

Source: ISTAT – ASIA.

**Table 1 - Total number of firms by dimension in Piedmont in 2010.**

Talking about this topic, is also important to underline the number of people employed for each dimension of firm.

Firm's dimension	N. of employees	Composition
1 employee	11,526	2.7%
2-9 employees	60,729	14.3%
10-49 employees	102,753	24.1%
50-249 employees	82,496	19.4%
> 250 employees	168,210	39.5%
<b>TOTAL</b>	<b>425,714</b>	<b>100.0%</b>

Source: ISTAT – ASIA.

**Table 2 - Total number of employees by firm dimension in Piedmont in 2010.**

As shown in Table 2, over the 40% of total employment is given by firms whose have less than 50 people as work force. It is an interesting datum especially for people whose are looking for a job in Piedmont: it is quite common to find a specialised job in SMEs.

Concentrating on last years of crisis is crucial to discuss how it has had an important effect on Piedmont manufacturing companies, in particular due to the conformation of environmental firms. The crisis of a big company has several effects on all satellite companies whose sink with it.

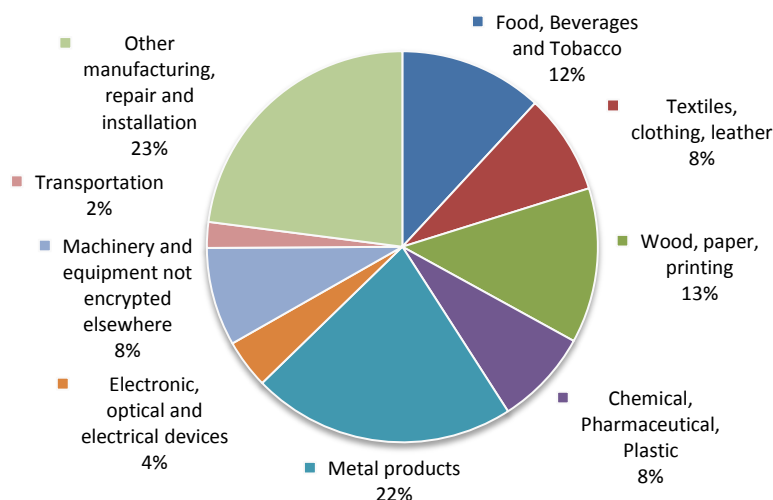
For example, since 2009 automotive crisis, firms had decreased from over 37.600 in 2007 up to 33.200 in 2010. This decrease has had, of course, a significant impact in occupation. In particular, over a period of 4 years (from 2007 to 2010) were burned around 50.000 working places, almost the 10,6% of the total amount of people employed in 2007.

### 1.3 - Characteristics and composition of the industrial system in Piedmont

Having a look on data reported in Table 3 we can observe that, at regional level, industries that have the largest number of firms are those concerning “other manufacturing, installation and reparation” and “metal products”: those two industries together are about the 45% of the total of Piedmont’s firms. It follows, at a discreet distance, firms from wood, paper and printing (12.8%) and food and beverages (11.9%). Then, with less than 10% of all companies, the remaining fields.

Source: Author’s personal elaboration

**Figure 1 - Total number of firms in each industry in Piedmont in 2010.**



Also in terms of employment the trend is negative in almost all sectors with the exception of food and beverage that since 2007 has increased a total of 2.13% of its size in terms of number of enterprises.

Industry	Number of firms	Composition
Food, Beverages and Tobacco	37,056	8.7%
Textiles, Clothing, Leather	37,126	8.7%
Wood, Paper, Printing	26,933	6.3%
Chemical, Pharmaceutical, Plastic	53,410	12.5%
Metal products	64,910	15.2%
Electronic, Optical and Electrical devices	22,351	5.2%
Machinery and equipment not encrypted elsewhere	54,633	12.8%
Transportation	99,167	23.3%
Other manufacturing, repair and installation services	30,613	7.2%
<b>TOTAL</b>	<b>426,199</b>	<b>100.0%</b>

Source: ISTAT - ASIA

**Table 3 - Total number of employees in each industry in Piedmont in 2010.**

### 1.4 - Analysis of the territory

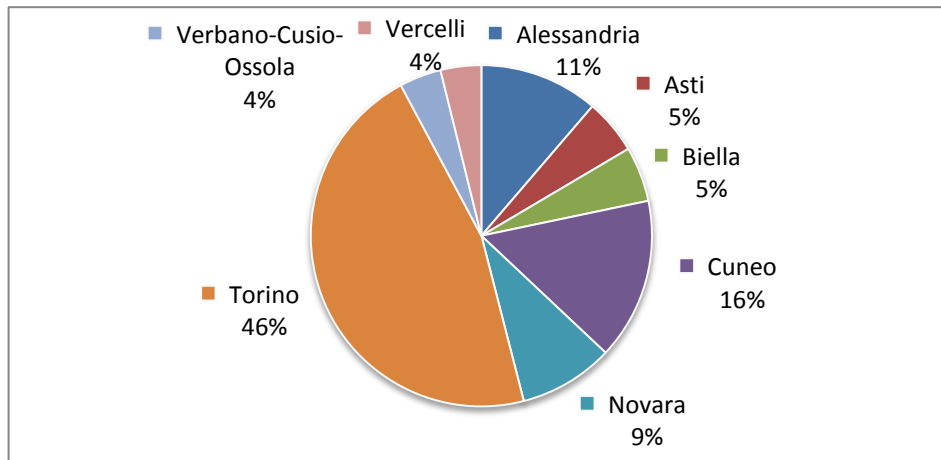
In 2010, the analysis of the industrial system according with the breakdown of the Piedmont province reveals an image of a region with areas that are in very different situations. First of all, provinces in the period 2007 - 2010 showed negative changes in terms of both number of companies and number of employees. However, we observe that some provinces, influenced by developments in the areas of activity that best characterize them, lose much more than others and most of the regional average, so that for some provinces 2010 had been the year where there were the greatest losses over the past years. Provinces with greater changes than the average regional are in the northern part of the region: Biella, losing in four years 15% of its industrial businesses and 21% of employees, is the province where the presence of companies belonging to the textile sector is higher and where the performance of the sector has had a significant territorial dynamics. Losses are high also in Verbano-Cusio-Ossola (VCO) (13% of companies and 19% of employees) and in Novara that in four years has 12% fewer businesses and nearly half of this loss occurred in 2010 alone.

### 1.5 - Industry density for province

In terms of geographical distribution, the industrial system is mainly concentrated in Piedmont's provinces of Torino, Cuneo and Alessandria, where in total are located more than 72% of the total enterprises.

Table 5 and Figure 5, highlight the differences between provinces: the province of Torino with 46% of the total of enterprises in the region is the area which altogether also records the highest

density, approximately 2.27 firms per square kilometre, followed by Novara with 2.26 firms per square kilometre.



Source: Author's personal elaboration.

**Figure 2 - Firms sorted by province in 2010.**

## 1.6 - Clusters

As in the most part of Italy, also in Piedmont there are several industrial clusters that can be cited in order to have a good perspective of the territory and hence of the industrial environment.

About specialities manufacturing, it feels a general loss about typicality of Piedmont's manufacturing, in particular in automotive, textile and mechanic industries. Those were historical specialities, locked with some firms whose were leader at a multinational level, and that follow the descendent parabola of the most important firms. This evolution represent the most evident effects of technology change ongoing in most advanced industrial systems: corporate restructuring have created a new picture of local economy, more based on new industries high-medium tech and less linked with automotive industry. What helped this process was the progressive creation of some cluster among the Piedmont's territory. The growth of the outlying provinces is accompanied by the estate of their traditional specializations, with the provinces of Biella and Vercelli specialized in textiles; Cuneo in the food, rubber and non-metallic minerals; Asti in feeding, wood and electrical equipment; VCO with fabricated metal products, paper, wood, non-metallic minerals; Novara with chemistry and Alexandria with Rubber-plastics, other manufactures and jewellery.

Of course, in Torino there is still a strong weight of vehicles, but the microeconomic analysis show strategies of growth of the automotive industry companies that are totally different from the past: today are based on the key variables of innovation and internationalization.

Clusters can be divided by the following four categories:

- 1) **Clusters in traditional sectors**, such as the rice of Vercelli, the wine of Asti, Cuneo and Alessandria, the taps of Novara, Vercelli and VCO, the household products of the VCO;
- 2) **High-tech clusters**, born within traditional sectors, such as the case of industrial design in Torino;

- 3) **Clusters in high-technology sectors**, such as aeronautics and pharmaceutical in Torino, Vercelli and Novara;
- 4) **Clusters subjected to change**, as the cases of nanotech or hydrogen, which refer to companies still positioned in the first stages of research and industrialization of innovation, rather than in the early stages of production.

## 2 – Research actors in Piedmont

### 2.1 - Research centres and laboratories

In this section we provide a broad description<sup>1</sup> of Piedmont research centres, focusing both on private and public sector institutions. In the following tables, we have summarized the main characteristics of research institutions. We focus on recruitment practices highlighting how to apply for available jobs (e.g. self-nomination or participating in a public competition), if considered institutions offer some kind of training (lectures, seminars or advanced training) and additional job-related information.

Beyond the widespread network of academic research centres, Piedmont counts 18 non-academic centres<sup>2</sup> divided according to the way they are managed and funded (public, private or both). Nine of these are completely financed and managed by public sector:

- The National Research Council (CNR), this centre has own institutes and territorial sections based in the Provinces of Biella (Institute of Macromolecular Studies), Verbania (Institute of Ecosystem Study) and Torino (Institute of Plant Virology, Institute of Electronics and the Institute of Research on Firms and Development). On each institute's website is possible to seek for available jobs<sup>3</sup>;
- The Agriculture Research Centre (CRA), that operates in Piedmont through two research units respectively on rice and wine culture;
- ENEA is the National Agency for Energy and Sustainable Development that operates in environment protection, biotechnology and radioprotection. The laboratories are based in Saluggia, in Torino province;
- RAI Research Centre (CRIT); it was established in 1930 as a telecommunication research centre. At present the Centre contributes to the evolution of the broadcasting and multimedia system and supports the Rai Group in its choices in the technological field and the phases of experiment and introduction of new products and systems;
- A section of the National Institute for Nuclear Physics (INFN) is based in Torino holding several research groups on nuclear physics, particle physics and theoretical physics;
- The National Institute of Metrology (INRIM) is the national public body with the task of carrying out and promoting scientific research in metrology. It holds four doctoral courses on magnetism and offers thesis proposal for master's students;

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<sup>1</sup> The information contained therein is taken from organization's own website.

<sup>2</sup> For a detailed list of research centres, laboratories and related websites see Appendix 6.3.

<sup>3</sup> See Appendix 6.3.



- Founded in 1952, the University Institute of European Studies (IUSE) is the result of the collaboration between the University of Torino, the City of Torino and the Province of Torino. IUSE promote education and research relating to Europe as a whole and is also a recognized European Documentation Centre;
- IZTO is the Veterinary Medical Research Institute for Piedmont, Liguria and Valle D'Aosta. It supplies products and services for safeguarding public health, through control programmes for food safety and animal health;
- The Torino Astronomical Observatory is based in Pino Torinese. Over the last few years, the Observatory's research programmes have spanned theoretical and observational astrophysics, the design and development of instrumentation and space science. It operates through its research groups in Planetology, Solar Physics, Extragalactic, Astrometry and Technology.

As shown in Table 6, the recruitment procedure for all of the research centres that has provided information is based on a public call and a subsequent procedure of selection. Most of them have a training section that offers lectures and seminars to both students (Lectures and seminars column) and researchers (Advanced training column).

	Self-proposal	Public competition	Lectures and seminars	Advanced training	No job-related info
<b>CNR – National Research Council</b>		<input type="checkbox"/>			
<b>CRA – Agriculture Research Centre</b>		<input type="checkbox"/>		<input type="checkbox"/>	
<b>ENEA</b>					<input type="checkbox"/>
<b>CRIT – RAI Technological Innovation</b>					<input type="checkbox"/>
<b>INFN</b>		<input type="checkbox"/>	<input type="checkbox"/>		
<b>INRIM</b>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>IUSE</b>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IZSTO</b>			<input type="checkbox"/>		<input type="checkbox"/>
<b>Torino Astronomical Observatory</b>		<input type="checkbox"/>	<input type="checkbox"/>		

Source: Author's own elaboration.

**Table 6 – Information provided by public research centres websites.**

In Piedmont there are four research centres that belong to private organizations or are the result of partnerships between firms operating in the same sector. They cover a broad spectre of scientific fields<sup>4</sup>:

- The Institute for Cancer Research is a private non-profit institution founded and supported by the Fondazione Piemontese per la Ricerca sul Cancro-Onlus (FPRC) and operated by the Fondazione del Piemonte per l'Oncologia (FPO: a joint venture between the FPRC and the Regione Piemonte). It is linked to the Department of Oncology of the University of Torino. It offers several professional advanced training courses, three PhD<sup>5</sup> programs and a Master Degree under an agreement with the University of Turin. The first, a four-year course, is open to young graduates in Medicine, Biological Sciences, Biotechnology, Chemistry, and Pharmacology. It is aimed at training for basic and translational research in biomedical science fields. The second is a four-year course, aimed at training graduates in the fields at the interface of medicine, life sciences mathematics and physics. The third, a four-year course, is

<sup>4</sup> For websites and other information see Appendix 6.3.

<sup>5</sup> PhD in Molecular Medicine (Cell Sciences and Technology), PhD in Complex Systems and Post Genomic Biology and the PhD in Human Oncology.

open to medical doctors and Biological Science graduates and mainly aimed at training clinical researchers.

All programs are open to Italian and foreign students. Fellowships are provided on competitive basis.

- Proplast Consortium was created in 1997 by Bayer, Basell, Guala and Mossi & Ghisolfi Group and conducts applied research in materials engineering. Environmental sustainability and development of high-performance polymeric compositions are at the heart of its activity;
- The FIAT Research Centre is an applied research orientated centre operating in the six areas involved in the automotive production (powertrain, vehicle, systems, info-mobility, materials and manufacturing). The CRF website offer both traineeships and working opportunities, current positions are listed in Fiat S.p.A. Careers section. The selection procedure provide a first one-stop-shop application before you can apply for position in CRF;
- ISCAT is an R&S company operating in the renewable energy in Italy, Spain and Portugal.

As shown in Table 7, the recruitment procedure for all the private research centres that has provided information is based on a self-proposal by sending an updated Curriculum Vitae to the related human resource division. All the centres, apart for ISCAT, offer an advanced training programme.

	Self-proposal	Public competition	Lectures and seminars	Advanced training	No job-related info
<b>IRCC – Cancer Research Institute</b>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Proplast Consortium</b>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
<b>CRF – FIAT Research Centre</b>	<input type="checkbox"/>			<input type="checkbox"/>	
<b>ISCAT s.r.l Research Centre</b>					<input type="checkbox"/>

Source: Author's own elaboration.

**Table 7 - Information provided by private research centres websites.**

The research centres listed in Table 8 are the result of cooperation between the public sector (usually universities or public companies) and firms or bank foundations:

- SITi and ISMB are the result of a partnership between a city-based bank foundation (Compagnia di San Paolo) and Polytechnic of Torino. The former is a non-profit

organization that operates in logistics while the latter is an applied research centre in the ICT;

- CReSO is a research centre in agriculture that result from a partnership between public and private;
- Founded in 1998 and placed in Torino, CSP – ICT Innovation is a non-profit making research body that performs experimental development and industrial research activities. CSP, then, works with Piedmont public administration and performs technology-transfer activity towards the business world;
- ENI – Donegani Novara Institute is one of the four research centres hold by the petrochemical public company ENI, its activity is focused on research on solar energy and biomasses.

	Self-proposal	Public competition	Lectures and seminars	Advanced training	No job-related info
SITI				☐	☐
ISMB	☐			☐	
CReSO	☐		☐		
CSP – ICT Innovation		☐			
ENI – Donegani Novara Institute	☐				

Source: Author's own elaboration.

**Table 8 - Information provided by public-private cooperation research centres websites.**

Research centres and higher education institutions carry out both basic and applied research in Piedmont's 380 research laboratories<sup>6</sup>:

- 190 belongs to the University of Torino;
- 82 belongs to Polytechnic of Torino;
- 8 to the University of Eastern Piedmont;
- 11 to National Research Centre;
- 26 belongs to various public institutions;
- 63 are private.

<sup>6</sup> Data are available at <http://www.regione.piemonte.it/innovazione/ricerca/attori/laboratori.html>

The most recent acknowledgement about the presence of research laboratories in Piedmont go back to 2005 with the Survey on Public Research Laboratories<sup>7</sup> (Unicredit, 2005) and the related subsequent upgrade<sup>8</sup> (Unicredit, 2006).

## 2.2- Research foundations

Research foundations are non-profit organizations funded by private or public institutions. As for previous section, in the following paragraph we provide a short description for each research foundation and we sum up relevant job-related aspects in Table 9.

- Fondazione Rosselli was created in 1988 in Torino. The foundation's main objective is fundamental research applied to the economic, social and political fields, especially dealing with public policy at both the national and European levels. Over the years the research activity of the foundation has expanded considerably, at present it covers five macro areas: Research, Innovation and Competitiveness, Communications and Media, Government and Public Services, Culture, Politics and Society, Finance;
- Collegio Carlo Alberto is a foundation created in 2004 at the joint initiative of a local bank foundation (Compagnia di San Paolo) and the University of Torino. Its mission is to foster research and education in the social sciences, especially economics;
- Fondazione Fitzcarraldo is a private centre for planning, research, training and documentation on cultural, arts and media management, economics and policies. The foundation is at the service of those who create, practise, take part in, produce, promote and support the arts and culture;
- Fondazione Giovanni Agnelli was founded in 1966 by FIAT. It is a private centre for research in human and social sciences that, since 2008 has been focused on education issues;
- Fondazione ISI is a mainly public funded foundation, established in 1983 by the Piedmont Regional Authority. Its core mission is the promotion of scientific research within the international cooperation, fostering the creation of research groups and of innovative and interdisciplinary labs, with a special focus on the science of complex systems;
- Fondazione Luigi Einaudi is a private foundation founded in 1964 in honour of Luigi Einaudi, member of the Italian Liberal Party and second President of the Italian Republic. Unlike the other foundations, as highlighted in the following table, Fondazione Luigi Einaudi does not promote any kind of lectures or training and select people on the basis of a public competition. That is because, each year, this foundation offers several scholarships for graduates and doctorates. Offered scholarships are in economics theory, development related problems, history of economics and history of Piedmont;
- Fondazione per l'Ambiente was established in 2004 as a mainly public-funded non-profit organization that promotes research, communication and experts' training in the sector of environmental policies at local level.

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<sup>7</sup> <http://www.regione.piemonte.it/innovazione/images/stories/ricerca/dwd/labpubb05.pdf>

<sup>8</sup> <http://www.regione.piemonte.it/innovazione/images/stories/ricerca/dwd/labpriv06.pdf>

	Self-proposal	Public competition	Lectures and seminars	Advanced training	No job-related info
Fondazione Rosselli	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
Fondazione Collegio Carlo Alberto	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
Fondazione Fitzcarraldo			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fondazione Giovanni Agnelli			<input type="checkbox"/>		<input type="checkbox"/>
Fondazione ISI	<input type="checkbox"/>		<input type="checkbox"/>		
Fondazione Luigi Einaudi		<input type="checkbox"/>			
Fondazione per l'Ambiente	<input type="checkbox"/>			<input type="checkbox"/>	

Source: Author's own elaboration.

**Table 9 - Information provided by research foundations websites.**

### 2.3 - Scientific Parks and Innovation Hubs in Piedmont

Scientific Parks are centres for technological transfer between the public sector and private companies; they are promoted and developed by the Piedmont Regional Authority as a tool for regional industrial policy and funded through the European Structural Funds programs of 1994 - 1999 and 2000 - 2006. Scientific Parks aim to create and concentrate technology domains in a precise place, in order to create a technological environment based on a specific scientific field. Some scientific parks provide also a business incubator, managed by the scientific park itself. They differ significantly from university business incubator for the reasons presented in section 3.3.

At present there are five scientific parks in Piedmont as is shown below:

- Bioindustry Park, located in Canavese and created in 1998, promotes research in life sciences and hosts companies of the chemical, pharmaceutical, diagnostic, bioengineering and information science fields.
- Environment Park is a public joint-stock company that operates in the real estate services and provides expert technical advice in green building, green chemistry, plasma nano-tech, clean tech and advanced energy.
- Science and Technology Park in Valle Scrivia
- Tecnogrande
- Tecnoparco del Lago Maggiore

	Self-proposal	Business incubator	Lectures and seminars	Advanced training	No job-related info
Bioindustry Park		<input type="checkbox"/>			<input type="checkbox"/>
Environment Park	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
Science and Technological Park in Valle Scrivia		<input type="checkbox"/>			<input type="checkbox"/>
Tecnogrande	<input type="checkbox"/>	<input type="checkbox"/>			
Technological Park of Maggiore Lake		<input type="checkbox"/>			<input type="checkbox"/>

Source: Author's own elaboration.

**Table 10 - Information provided by scientific parks and innovation hubs websites.**

After 2006, with the new European Funds for Regional Development planning, Regione Piemonte has decided to invest more in innovation and technological transfer creating twelve innovation hubs, six of which integrated with the scientific parks.

Innovation hubs<sup>9</sup> are groups of independent undertakings (innovative start-ups, small and medium enterprises, large enterprises, research organisations etc.) operating in a particular sector or geographic reference area. Their objective is to boost innovation by promoting intensive interaction, common use of installations and exchange of knowledge and experiences, as well as effectively contributing to transferring technologies, networking and disseminating information between hub members. They support industrial competitiveness and promote the aggregation of small and medium enterprises, large companies and research organisations to share knowledge and make innovative product and service investments converge along common design and development lines (Regione Piemonte, 2013)<sup>10</sup>.

<sup>9</sup> For a detailed list of innovation hubs see Appendix 6.3.

<http://www.regione.piemonte.it/innovazione/poli-di-innovazione.html>.

<sup>10</sup> [http://www.regione.piemonte.it/innovazione/images/stories/dwd/poli\\_Innovazione2014.pdf](http://www.regione.piemonte.it/innovazione/images/stories/dwd/poli_Innovazione2014.pdf)

## 2 - How to reach the labour market

Internet development, before and after the global crisis, has changed labour market during last fifteen years. Once it was quite simple, in Italy, to get a job doing a short time research and having few or no specific competences. As said, global crisis has changed this dimension of employment. Currently, recruiting process is simpler in terms of total amount of people reached by announcement but is more difficult for people who want to apply because of a large increase in competition even taking a look at facilitation in mobility for people.

### 3.1 - Visible market

With visible market is meant a labour market place accessible to everybody and that is diffused among all the territory. As said, the large diffusion of Internet has provided several instruments that have been added on common ones.

We identified two different types of visible market: web-based and physical. On web-based markets belong social networks (such as LinkedIn, Facebook, Viadeo), firms' web sites and web sites dedicated on recruitment (like Monster). On physical structure, belongs the employment through most common channels, in particular used in past years, like the auto candidature by phone or by presenting one's Curriculum Vitae (CV) directing on the Human Resources (HR) office of the firm.

The recruitment for public sector, even though is a form of visible market, needs a separate discussion and for this reason it will be discussed in a different section.

#### 3.1.1 - Web-based structures

##### 3.1.1.1 - Social Networks (SN)

"Social recruiting" is a widespread reality and can be very precious because it is integral and fundamental part of the strategy for job searching.

Social Networks used by people and companies vary from SN dedicated on "life in general" (as Facebook, Twitter, Youtube) to SN "business oriented" (as LinkedIn or Viadeo).

The research conducted by Adecco (one of the main Italian Agency for Work Research) shows that over the 94% of Italian recruiters often uses Social Networks (SN) to look for candidates.

In particular, they use the Net (and then SN) in order to verify the CV (16%), to enlarge the number of possible candidates (16%), to find out targeted candidates (15%) and for other stuff not well explained.

Another interesting datum pointed out by this research is the different perception of SN utility between HR recruiters and candidates. If for SN like Facebook, Twitter, Youtube or Viadeo the perceived utility is almost the same, for LinkedIn cannot be said the same thing. In fact, if for the



78% of recruiters LinkedIn is really important, only 28% of candidates think that it is a useful tool to find a job.

Indeed, with less workplaces available and a major competition rising, is necessary to become more an evangelist than an explorer, looking for a job in internet. It means that the real strategy to follow is to stand out from other users, in particular those whose are not using SNs to search a job. The candidate has to be concentrated on building a strong personal profile in order to guarantee proactivity versus the market and in order to attract the largest number possible of opportunity of job.

#### ***3.1.1.2 - Sites And Web's Coverage For On Line Recruitment<sup>11</sup>***

There are several sites dedicated to on-line HR research and selection that often is called, using a technical term, "e-recruiting".

Services generally offered by those sites are several (consultation of job offers, possibility of on-line application for a job, possibility of job alert, newsletter for a specific profile, etc.). In Italy, most famous sites are Monster Italia, Infojobs, ThlCareers, JobiJoba, Corriere Lavoro, Trovit Lavoro, Indeed and Carrer Jet, but are several those whose are marginal or very focused on a specific category of people. Unfortunately no one of them is focused on people holding a PhD.

However, for PhD is possible to find a job also on generic platforms. A list of the most famous platforms for job recruitment in Italy can be found in Appendix 4.

#### ***3.1.1.3 - Firms' websites***

Generally each company has a website with a dedicate area for HR recruiting. Those sections report addresses where has to be sent the curriculum or allows the on-line loading of it. Sometimes can happen that a site publishes also open opportunities and the possibility of a direct application for the job.

### **3.1.2 - Physical Structures**

#### ***3.1.2.1 - Employment Services Company***

Employment Services Company are societies whose are involved in the provision of professional labour, for an indefinite period or term. The workers are directly employed by the agency and are made available to the user companies with a contract of gainful employment. To be entered you

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<sup>11</sup> In this chapter are presented only main intermediaries, a full list of them can be consulted at the following addresses:

- Ministero del lavoro e delle politiche sociali: <http://www.lavoro.gov.it/Lavoro>
- Centro di contatto: [centrodicontatto@welfare.gov.it](mailto:centrodicontatto@welfare.gov.it); toll-free number 800-196196

- Centres for employment:

- <http://www.lavoro.gov.it/lavoro/euopalavoro/sezioneeuopalavoro/utilities/glossario/centriimpiego>

- Labour agencies:

- <http://www.lavoro.gov.it/lavoro/md/arealavoro/occupazione/domandaofferta/agenzie+per+il+lavoro.htm>

- Centers Informagiovani: <http://www.infoegio.it>

need to compile your CV in a pattern or a free form provided (on paper or drawn directly on the site of the agency). Some agencies prefer a curriculum open plan, others require a special form. The curriculum can be sent by post, fax, e-mail or delivered in person at the headquarters of the Agency. Some agencies also require a photograph and a willingness to be interviewed. It is necessary (worth the exclusion of applicants) to add the authorization to the processing of personal data in accordance with Law No. 196/2003 with a specific signature (in addition to the signature of your resume). The registration and the inclusion in the database of an agency are free. Getting into a database of an agency is not a bound. An employee may apply to more than one agency and be added to most databases. After the engagement, it is the agency that pays the worker and the firm in which he/she works.

### 3.2 – Informal networks

What has been named by us “hidden market” can be more precisely defined as the hidden way to meet the labour market and to find a job. In Italy, for a cultural factor, is quite diffused the world of mouth and it is quite common to find a job using it. A recent survey conducted by Union Camere and the Ministry of Labour, has demonstrated that six employers on ten (more than a half) prefer to hire candidates signalled by other employees. Similarly, the last available Annual Report on Labour Forces (ISTAT 2014) shows that about 82% of new workers seek job through informal networks, 26% between new workers in the 15 - 34 aged tier of population. It happens because they can trust in the hired person thanks the guarantee provided by the internal employee, whose, knowing him has surely several information more than the employer. However the has underlined also that, even if the previous practice is quite common is not enough to get the job. Employers, in fact, are more sensible on abilities and also a signalled person can be “defeated” by a candidate with a high preparation and high competencies.

### 3.3 - Entrepreneurship

In Piedmont are located several incubators, three of these belong to the academic world (Università degli Studi di Torino – 2i3T; Politecnico di Torino – I3P; Università Piemonte Orientale - Enne3). Besides those who have been cited, there are other incubators belonging to firms or technology parks (for example, the incubator of the Bio-industry park, the incubator of the Parco Scientifico e Tecnologico Tecnogrande SpA), but they are minor instead of the academic ones. By the way they will be presented in next sections. It follows brief information of the three academic incubators. Business incubators differ significantly from research and technology parks in their dedication to start-up and early-stage companies. Research and technology parks, on the other hand, tend to be large-scale projects that house everything from corporate, government or university labs to very small companies. Most research and technology parks do not offer business assistance services, which are the hallmark of a business incubation program. However, many research and technology parks house incubation programs.

### **I3P**

I3P, the Innovative Enterprise Incubator of the Politecnico of Torino, is the main university based incubator in Italy and one of the best at European level. In 2014, I3P ranked fifth in Europe and fifteenth in the world ranking UBI (University Business Incubator), the Global Benchmark Report annual ranking of the best academic incubators. The ranking, realised by Sweden Ubi Index (University Business Incubator), considered 300 incubators in 67 countries and evaluates assessment, benchmarks index and performances. I3P's mission is to promote the creation of new science-based businesses with validated growth potential, either founded by university researchers or entrepreneurs from outside the university sphere. It provides open spaces and professional consulting services to start the business as well as a network of entrepreneurs, managers and investors.

Founded on 1999, I3P by now has launched 161 start-ups that have been able to exploit the results of research in different fields: from cleantech to medtech, from Information Technology to electronics, mechanical, energy, to other industrial. In 2011, I3P launched TreataBit, an incubator dedicated to consumers digital projects, such as portals, e-commerce, social networking sites, web and mobile applications. TreataBit, since November 2011, has supported 152 business ideas, 82 of them launched their product/service and 36 became start-up. Every year I3P collects 300 new business ideas, examines about 100 business plans in detail and digital projects, and accepts 15 new enterprises. Promoter of important initiatives for technology transfer, incubation and growth of enterprise, the activity of I3P follows the global strategies of Piedmont in order to sustain research, technology innovation and new entrepreneurship.

### **2i3T**

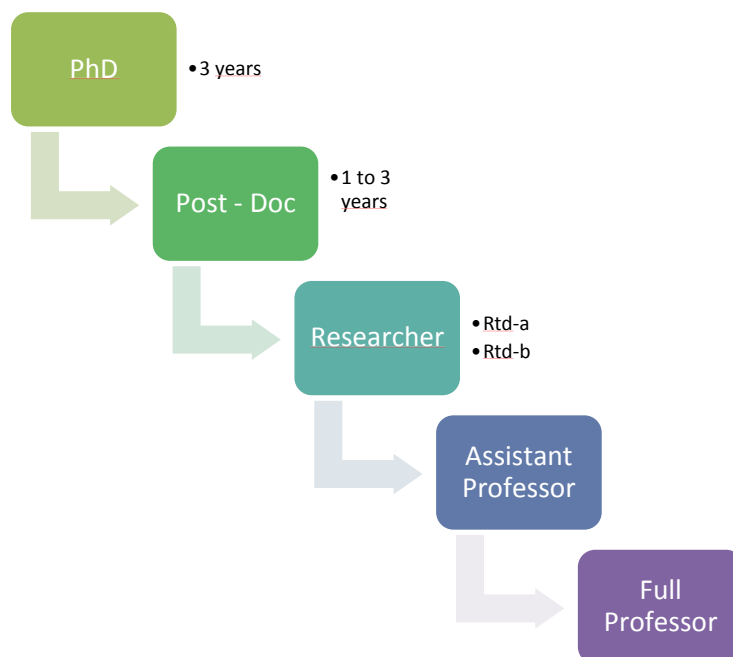
2i3T manages the Business Incubator and Technology Transfer process at the Università degli Studi di Torino. It focuses primarily on commercially valorisation of the results of academic research by creating, promoting and supporting new, knowledge-intensive businesses.

Ideas that have blossomed from research and that are suitable for technology transfer are identified by scouting activities. They are then nurtured and developed with an eye to drawing-up a project business plan to assess the feasibility of the business. Next comes the pre-incubation phase which sees the project team accompanied towards the founding of their business, which can also be housed at our facilities while we support the development phase. State of the art laboratories, equipment and workspaces are also made available to budding businesses.

### **Enne3**

Enne3 is the University Enterprise Incubator, located in Novara, which works to promote and develop technologically innovative business projects, with particular attention to the territory of Eastern Piedmont.

### 3.4 - The academic career path



Source : Authors' personal elaboration.

**Figure : Academic career path.**

The first step to get into the Italian academic career is obtaining a PhD, for whom selections usually starts in September and courses last for 3 years. Anyway, scholars could be allowed by their tutor to end their studies in 4 years but in these cases, students must provide themselves their own financial support. National and international PhD courses have the same validity and allow researchers to get into the next step, the Post-Doc. Postdoctoral researchers are employed by universities for a period that can vary between one and three years. During this period, researchers are provided with a scholarship that can be extended for a maximum of six years as implementation of 2010 legislation. PhDs can find a Postdoctoral position by looking at public competitions declared by universities<sup>12</sup>.

After this extension, researchers can attempt to be assumed by universities as RTD a (Ricercatore a tempo determinato tipo A) or RTD b (Ricercatore a tempo determinato tipo B). These two positions are characterized by the same duties, payments and length (3 years without possibility to be renewed) but only RTD B are inserted in a sort of tenure track. Despite their colleagues with a RTDA type contract, at the end of their period they can assess to associate professor positions and subsequently full professor positions.

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<sup>12</sup> For a complete overview of all Italian fellowships advertised, see <http://bandi.miur.it/bandi.php/public/cercaFellowship>

The academic career is at the moment a difficult path to be pursued. Difficulties can be resumed by two main parameters:

- From one side, scholars are not sure about their possibilities to upgrade their position (i.e. from Postgraduate to RTD), so there is a lot of uncertainty about steps and career progressions.
- On the other side, the academic career is characterized by a precarious condition that accompanies researchers up their promotion to associate professor. Furthermore, the long time, the strong competition between scholars and the huge number of positions existing between the end of the PhD and the position of associate professor make that scholars' condition still remains precarious almost until the age of 40.

### Academic curriculum

When applying for position at university, an academic curriculum is required. Usually, this kind of CV differs from that submitted to enterprises. In fact, in an academic curriculum is more important to highlight all past activities in which the applicant was involved despite selecting only the most relevant. In this section we provide practical advices to develop an academic curriculum based on the European CV structure.

Structure of an academic curriculum:

- Anagrafical data. If you have a position in foreign universities or research centres remind to provide, as contacts, your institutional e-mail and your phone number;
- Work experiences. In this section the applicant should enter all the past academic work experiences, since his graduation. Those experiences that have none to share with research or teaching can be left apart. There are different ways to list past and current work experiences, for example in chronological order or for relevance of time devoted. We recommend using the former criteria. For each experience, the applicant should highlight the period, the position hold (fellow, researcher, assistant professor, full professor) and the name of the institution. It could be useful to add informations about main activities and responsibilities for each position hold. In this section is also possible to insert past experiences in the university administration;
- Education and training. In this section the applicant should insert his doctoral experience, his master degree and eventual specific training received (for example summer school attained). For each experience is important to highlight the principal subject of the PhD, the name and type of the organization providing it and the dates. Remember to highlight also scholarships or grants;
- Personal skills and competences. In this section the applicant should inserts his/her mother tongue and other languages learnt. A self-assessment in understanding, speaking and writing by using the *Common European Framework of Reference for Languages* should be provided. Apart from languages, technical skills as capacity of data analysis and competencies in particular software's should be insert;

This second part of the academic curriculum is devoted to bring light on publications, teaching experiences and a wide range of activities like key note speeches, membership in scientific committees, etc. The same citation style should be used for all the publications presented in the CV.

- Financed projects and scientific reports and books.
- Publications presented should be in chronological order from the most recent.
  - Articles in peer review journals;
  - Working papers;
  - Book chapters;
  - Presentations and key note speeches;
- Teaching activities should be presented in detail.

### 3.5 - Public Sector

Public sector can be reached by using three way:

- a) Competitions
- b) Enrolment lists available at the job centres (for figures not qualified)
- c) Coordinated and continuous collaboration

It follows the description of competitions and coordinated and continuous collaboration. Points (b) and (c) are left out due to his orientation on people without qualification and so because it is not oriented on PhDs.

#### A - COMPETITIONS

Public competition is the ordinary modality through Public Entities recruit workforce, verifying the professionalism requested.

Typologies of completions are several:

- by exams: the selection happens only using the result reported in a specific exam.
- based on qualifications: it does not provide any specific examination and it is based on an assessment by a committee previously chosen, the school curriculum, professional publications made and experiences in the field;
- by exams and qualifications: the evaluation is done by summing a rate given on the scholastic curriculum and points obtained in a specific exam;
- course-competition: there is a pre-selection for the admission on a course with a restricted number of places oriented to the training of candidates;
- public selection: it is a selection conduct in order to verify the professionalism required by the qualification.

Necessary requirements: to join a public competition people need to have, at the expiration date for presenting the application, the following requirements:

- Italian nationality or of another EU country;
- Age not lower than 18 years old.
- Physical adequacy to the job;
- To have no criminal conviction;
- To enjoy political rights;

The call is the act by which the Public Administration expresses its intention to recruit staff.

How to inquire about the existence of a competition:

- Applying calls that are posted at the Praetorian Register Entity that issues them and quite often can be found by consulting the website of the organization itself. Official publications that report the calls are the Official Gazette of the Italian Republic IV special series "Competitions and Examinations" which publishes the competitions organized by the governmental agency, local health authorities and, sometimes, by the municipalities on the national territory (out every week on Tuesday and Friday);

BUR - The Official Bulletin of the Region (each region publishes its newsletter where you can find the official competitions organized by local authorities).

In Table 11 are summarized the main channels used by Italian PhDs to find an occupation as is previously discussed. Results revealed that PhDs are more employed in public sector than in the private one, thus, public selection is the main channel used to access the job market (56,5%). Followed by, web-based structures (15%) such as social networks, specialized websites on recruitment and demand-supply matching represent a relevant channel to access to the job market. Hidden market and signalling is still an important slice of the pie (13,7%) while internship and employment service companies play a non-relevant role (ISTAT 2014).

Type of selection	Composition
Public selection	56,53%
Web based structures	15,15%
Informal networks	13,69%
Entrepreneurship	7,89%
Internship	3,51%
Employment service companies	0,64%
<b>Total</b>	<b>100%</b>

Source: Author's own elaboration.

**Table 11 – How PhDs access the job market.**

## 4 – PhDs

The aim of this section is to compare occupational outcomes and employment trajectories for PhD graduates from the three universities based in Piedmont<sup>13</sup> with those of PhD graduates from all Italian universities. This section is divided as follows: Section 4.1 reported a brief description of the PhD course in Italy from an historical perspective and highlighting the main trends of last ten years; and Section 4.2 showed the occupational trajectories for PhD graduates in Italy, using the data obtained from the ISTAT' survey on occupational trajectories of PhD students after three and five years from their graduation. We start from inquiring the sector of activity and occupational conditions (e.g. type of contracts and wages). The survey was conducted in 2009<sup>14</sup> using the CATI (Computer Assisted Telephone Interviewing) technique, and has involved PhD graduates in 2004 and 2006. The response rate was about 70%. Unfortunately, data cannot be observed at university level; in fact they have been codified on regional bases.

### 4.1 PhD in Italy

PhD courses have been introduced in Italy in 1980, with law n.28/1980 and presidential decree n.328/1980, as part of a wide reform of the Italian higher education system. The admission took place by means of an examination and led to a three years grant funded by the state and provided to fulfil a research project previously proposed to the doctoral school. In 1999, as answer to a process of expansion of the national higher education system, universities were authorized to accept PhD students without a grant. Since then about a half of the PhD students have a scholarship (Ballarino and Colombo, 2010). This change of regulation led to a great expansion in PhD students' number and, as a consequence, in 2003 there were about 13.000 students while only in 1999 they were few more than 2.000 students. The expansion of PhD students' number continued until 2007 (see Figure 6) and then experienced a strong reduction (-15% in 2008 - 2009).

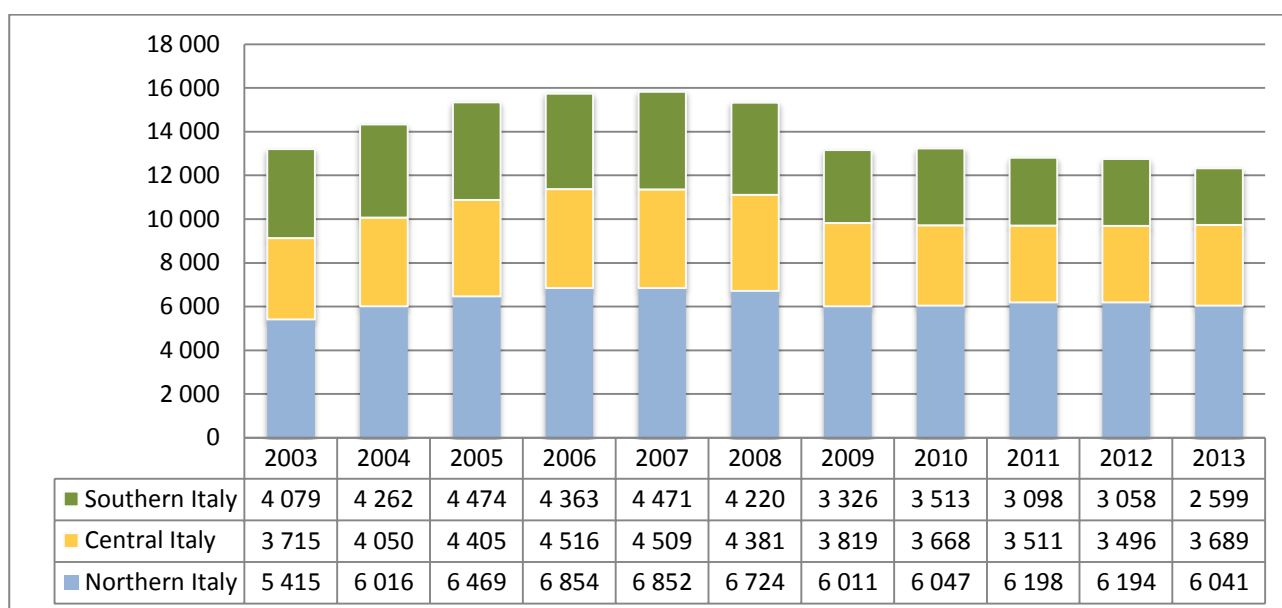
Considering the period 2003 - 2013, as reported in Figure 6, it is worth noticing that: while the reduction of positions called has been of about 10% at north of Italy (blue bars) and 16% for centre of Italy (yellow bars), universities in southern Italy (green bars) experienced a reduction of about 40% of available places and subsequent enrolment. The overall reduction of available places is due to a change in ministry's policy in 2008 and an overall reduction of available grants (-16%). In Figure 7 is showed the number of PhD students at first year across the same period (2003 - 2013) represented in Figure 6. As highlighted, the number of PhD enrolments at first year is affected by the same trend previously described, and is slightly smaller than the number of available places. In the last two years, the number of enrolled students has been stable, however it's the lowest point (-13%) since the peak reached in the academic year 2007/2008.

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<sup>13</sup> University of Torino, Polytechnic of Torino and University of Eastern Piedmont.

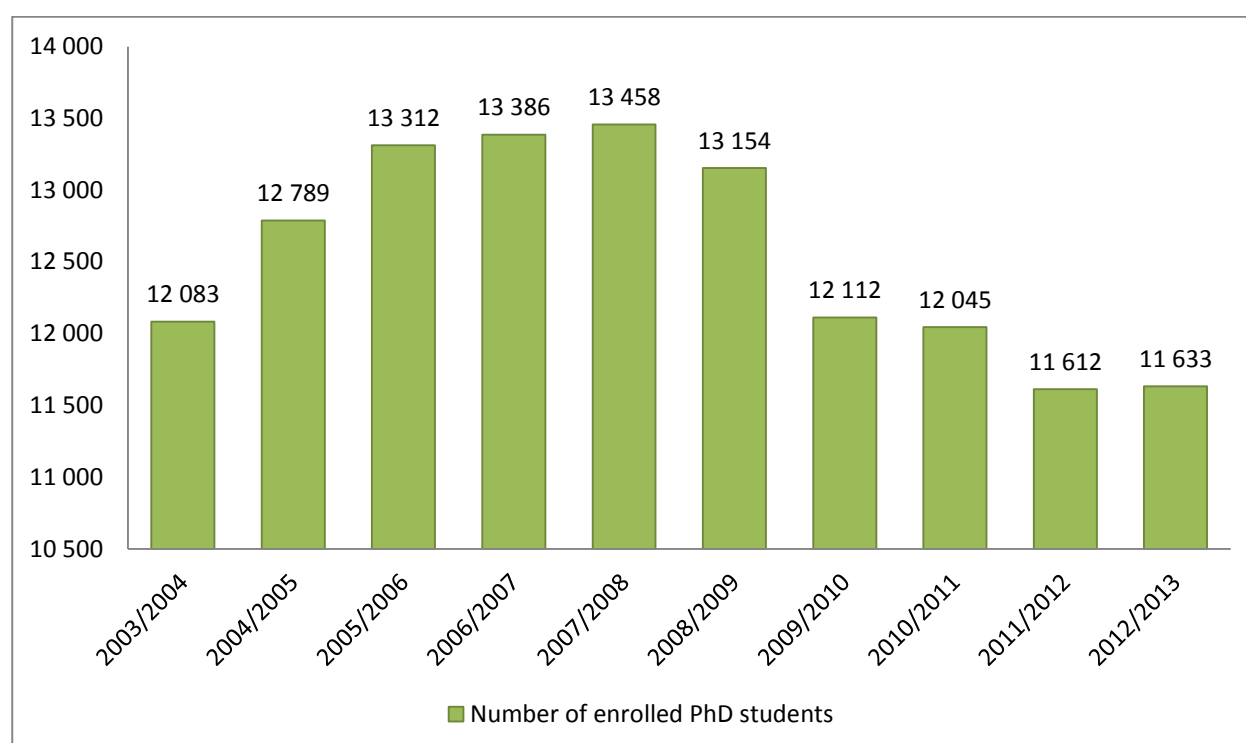
<sup>14</sup> Actually ISTAT is conducting an update of this survey with the CAWI (Computer Assisted Web Interviewing) technique, involving PhD graduates in 2008 and 2010.





Source: Anvur (2014).

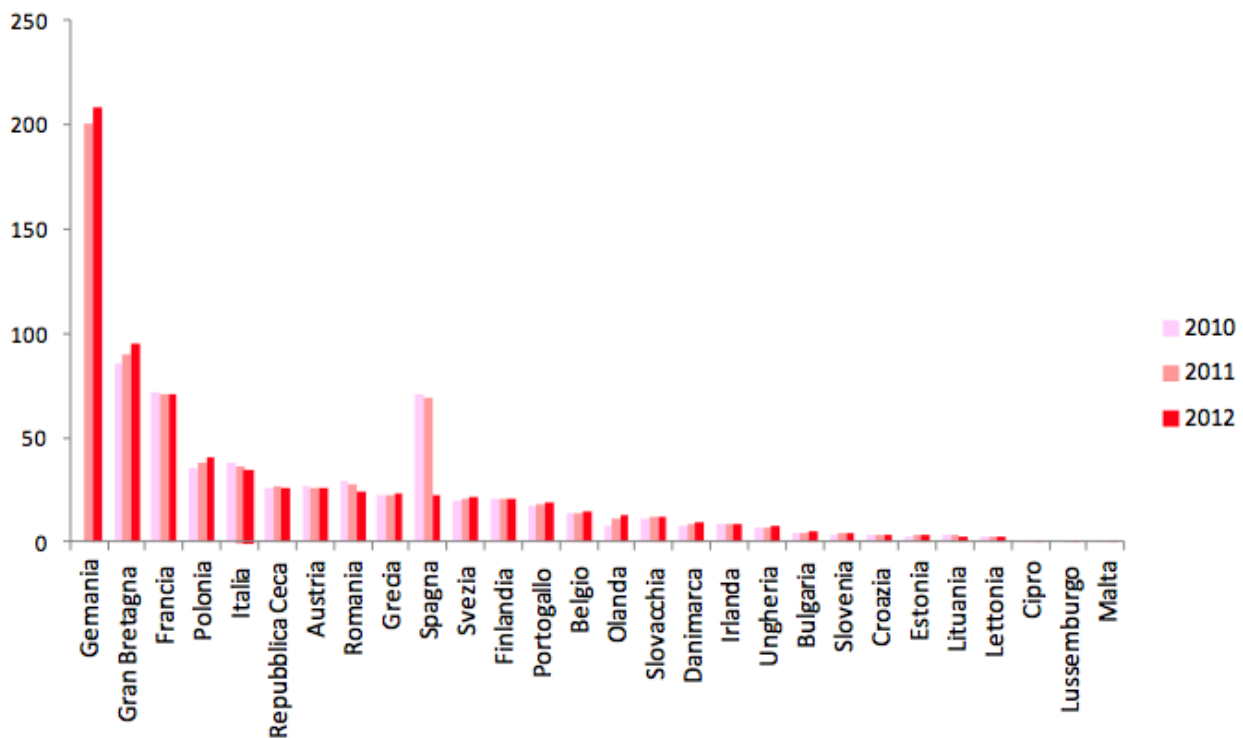
**Figure 6 – Number of PhD available places in Italy during the academic years 2003 - 2013.**



Source: Anvur (2014).

**Figure 7 – Number of PhD enrolment at first year in Italy during the academic years 2003 - 2013**

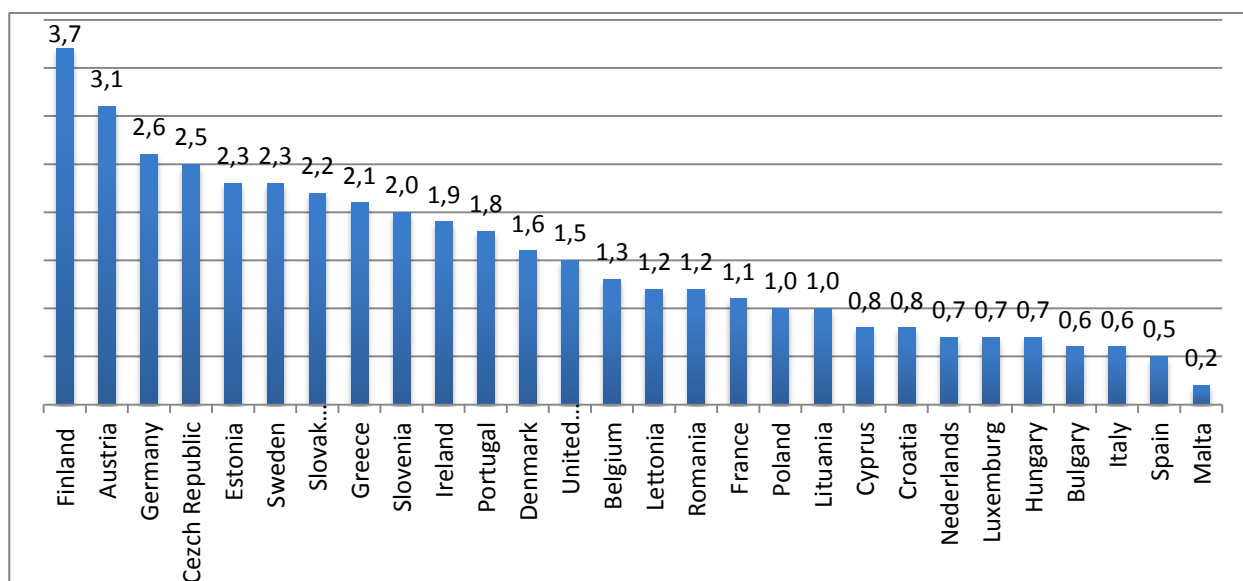
The reduction of number of Italian PhDs in the last decade is in countertrend within Europe. Despite the fact that Italy is the fifth country per total number of PhDs enrolled (34.629), preceded only by Germany (208.500), UK (94.494), France (70.581) and Poland (40.000), by comparing the number of PhDs in 2010 with that in 2012 (Figure 8). It is worth noticing that Italy is the only Higher Education System, with Romania and Spain, which experienced a substantial reduction in PhDs enrolments.



Source: ADI

**Figure 8 – European trend in PhD enrolment.**

In relative terms, considering the number of PhDs per thousands people, the situation is completely different (Fig. 9). Italy is last but two, followed by Spain and Malta, with its 0,6 PhDs per thousands people.



Source: ADI (2014).

**Figure 9 – PhD as percentage of population.**

Despite the negative trends and situation affecting Italian PhD system in recent years, the role played by doctoral training inside society has generally increased in the last two decades pushed by national and international organizations. These have encouraged investments in R&D to overcome prevailing challenges of globalization (Pedersen, 2014). In fact, doctoral-level research plays a crucial role in driving innovation and economic growth, and contributes significantly to the national and international knowledge base. Businesses are attracted to countries that make this level of research readily available (Halse and Mowbray, 2011; Smith, 2010), while individuals who attain this level of education benefit from higher wages and higher employment rates (OECD, 2013). At European level both Bologna Process (1990) and Lisbon Strategy (2000) fostered funding and enrolments for doctoral programs. The former led to the creation of the European Higher Education Area and recognized three cycles in higher education: Bachelor (three-years degree), Master (two-years degree) and PhD (usually three or four-years degree). The latter was a development plan whose aim was to make the EU the “most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion” (European Council, 2000). Doctoral training is at the centre of the Lisbon Strategy as the vector that leads knowledge transfer between universities and industries. Today, the PhD is not considered only in the perspective of an academic career but also in that of professional training. In the following section, the analysis of occupational outcomes for PhD graduates in Italy, and specifically in Piedmont is reported.

## 4.2 Occupational trajectories for PhD graduates in Italy

What are the occupational outcomes of the Italian PhDs graduates? Do they work mostly in private companies or in the public administration? What is their salary? These are some of the questions we want to answer over this section. We start from describing the employment rate of PhDs graduates and making a comparison between the Italian regions. As highlighted in the following table, the employment rate of PhD students that have graduated from universities based

in Piedmont is far (4 - 5%) from the average of the same index for Italian PhD graduates and is the biggest value of all Italian regions.

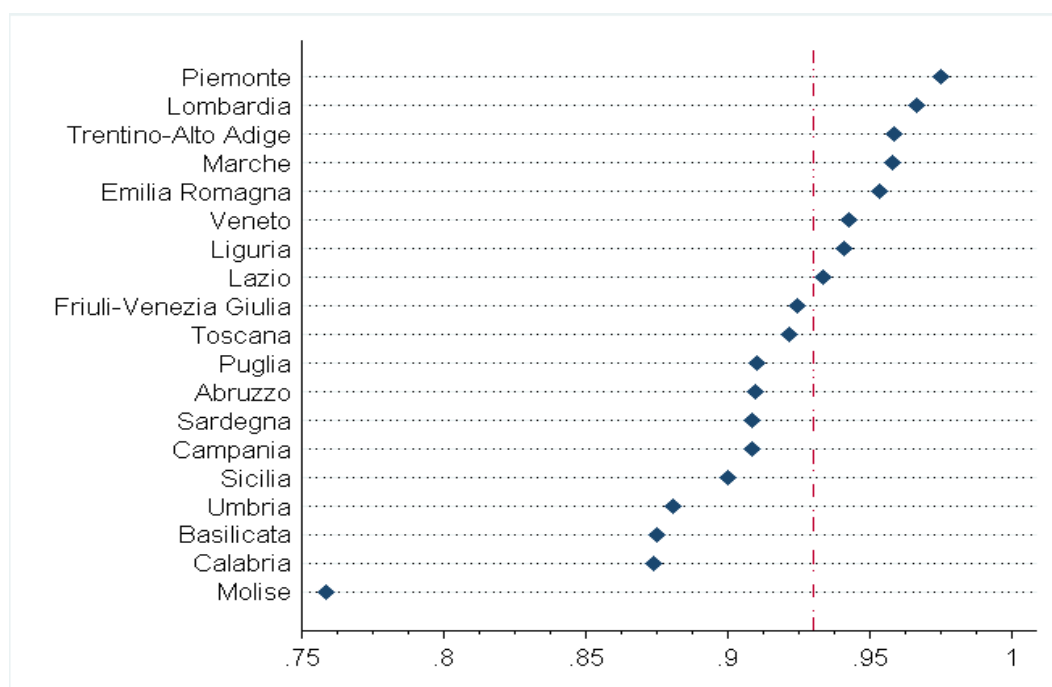
	Italy		Piedmont	
	2004	2006	2004	2006
<b>Unemployed</b>	5,53%	7,39%	1,67%	2,26%
<b>Employed</b>	94,47%	92,61%	98,33%	97,74%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Source: Author's own elaboration.

**Table 12 – Comparison of PhDs' employment rate (%) in Italy and Piedmont.**

Generally, as showed by the annual survey on graduates conducted by Almalaurea<sup>15</sup> (Almalaurea, 2014), the unemployment rate for PhDs in Italy (7%) is much lower than that for graduates from Bachelor (26,5%) or Masters (23%). However, it differs on regional basis, as shown in Figure 10, which compare the employment rate for each region reporting also the related average value (the vertical dash-dot-dot line). Two trends need to be clarified: apart for Molise (a very small centre-south region), all regions have an employment rate for PhD graduates between 87-97%. Nonetheless, also with very smooth differences, some exception and less clearly than for other data, we observe the classical tri-partition between northern, centre and southern regions. Exceptions regard central Italy regions, Emilia-Romagna and Marche perform like a northern region while Toscana and Umbria as southern Italy regions. By virtue of these exceptions we can identify a partition that assumes more the characteristics of a north-south dualism.

<sup>15</sup> Almalaurea is an inter-university consortium established in 1994 with the aim to investigate occupational outcomes of graduates.



Source: Author's own elaboration.

**Figure 10 – Employment rate (%) of PhD graduates by region in Italy.**

Despite the emphasis put by both national and international organizations on the predominant role of PhDs in knowledge transfer, few PhDs work in the industry sector (both public and private). In fact, also if affected by a slightly positive trend, only about 9,6% of people completing a doctoral training work in industry, while the majority (above 90%) works in the so called third sector<sup>16</sup>. The remaining 1.2% has a job in agriculture. As we can see, not only employment rate per sector is similar between Piedmont and Italy, but also wages, that are quite the same.

	Piedmont	Italy	Average wages - Piedmont	Average wages - Italy
<b>Industry</b>	9.6%	7.7%	1,795€	1,780€
<b>Services</b>	89.2%	90.7%	1,554€	1,560€
<b>Agriculture</b>	1.2%	1.6%	1,420€	1,450€
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>1,575€</b>	<b>1,580€</b>

Source: Author's personal elaboration.

**Table 13 – Occupation of PhD graduates for sector of activity in Italy and Piedmont.**

<sup>16</sup> Services include research conducts at university or at a public administration, professional activities, healthcare system, informatics and finance.

#### 4.2.1 PhDs employed in services

Many research show that academically trained scientists have a strong “taste for science”. For example, they prefer upstream research, freedom in choosing research projects, publishing and interactions with the scientific community (Kornhauser 1962; Blume 1974; Stern 2004; Aghion et al. 2008; Lacetera 2009). Moreover, academia has traditionally been seen as the most desirable place to conduct science, offering faculty members a high degree of freedom, sufficient resources to conduct research, as well as job security (Roach and Sauermann, 2010). This is pointed out also by Fox and Stephan (2001) that, using the US Survey on Doctoral Recipient, find that the number of students aspiring to become a faculty member is larger than the number of those who will find employment in that sector. For this, before to get into analysis of PhDs employed in industry, we focus on detangling employment in the third sector and especially in university.

As we can notice, the landscape is heterogeneous. Universities play a key role (42%) in the occupational trajectories of PhDs graduates after three and five years from their thesis defence. The trend, as it was observed with the 2009 survey, is slightly decreasing. Actually, we expect after the reduction of available funds since 2008<sup>17</sup> and the subsequent higher education system reform in 2010<sup>18</sup> that redefined recruitment procedures, the trend to be more pronounced (see ADI, 2014). In the Table 14, we show also the average wages earned by PhDs.

Apart for universities, about another 40% of PhDs is employed in other institutions of education, professional activities, public research centres and healthcare.

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<sup>17</sup> Decree n.133/2008.

<sup>18</sup> Law n.240/2010.

	PhDs employment rate - Piedmont	PhDs employment rate - Italy	Average PhDs' wages - Piedmont	Average PhDs' wages - Italy
Universities	53.65%	42.21%	1,450€	1,457€
Other educational inst.	11.43%	12.36%	1,215€	1,163€
Public research centres	7.86%	7.55%	1,694€	1,883€
Other research institutions	4.24%	2.68%	1,625€	1,682€
Professions	7.37%	10.21%	1,800€	1,903€
Informatics	1.57%	1.79%	1,742€	1,366€
Information	1.98%	1.9%	1,321€	1,485€
Human resources	0.32%	0.34%	1,715€	500€
Healthcare	5.95%	11.57%	2,077€	2,097€
Trade	0.87%	0.95%	1,469€	1,733€
Transport	0.00%	0.34%	1,600€	-
Finance	0.93%	1.05%	2,068€	2,375€
Public Administration	2.29%	4.78%	1,811€	1,975€
Other public services	1.57%	2.27%	1,563€	1,050€
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>1,560€</b>	<b>1,554€</b>

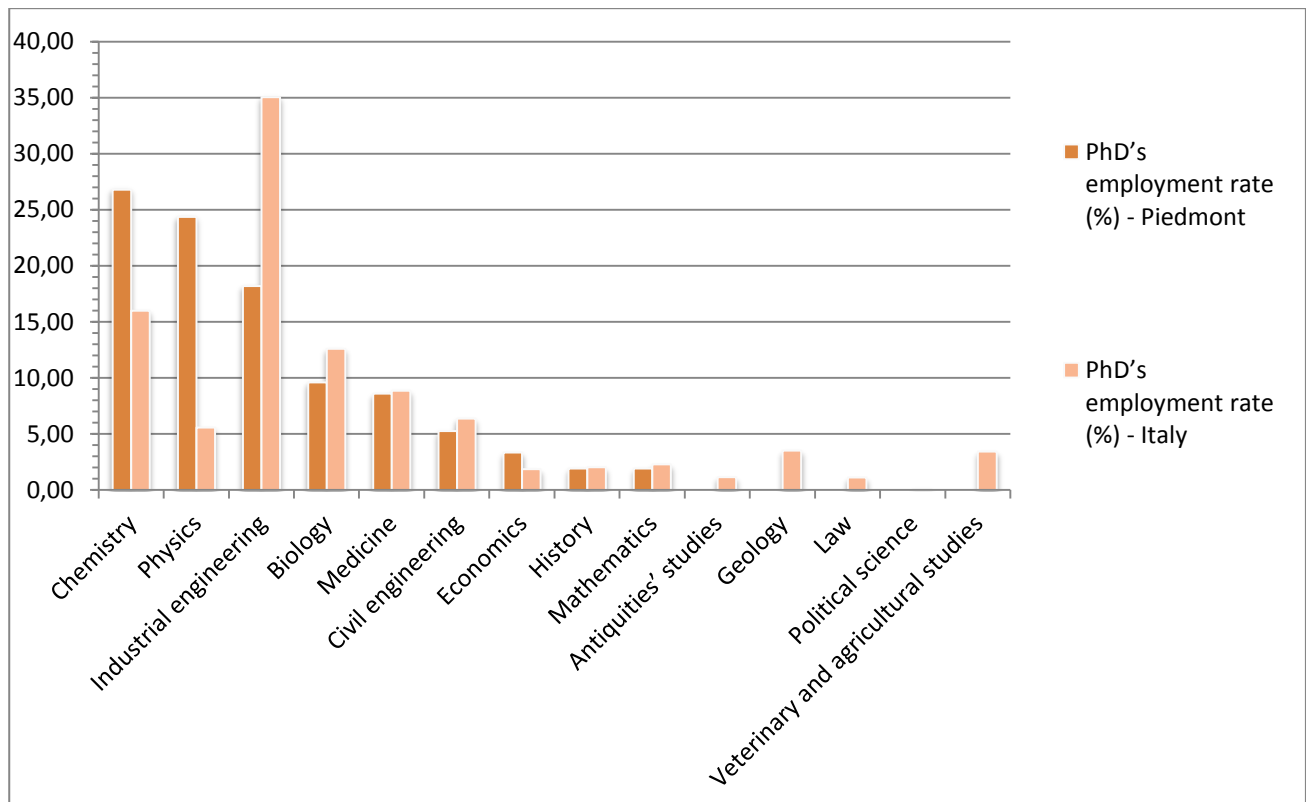
Source: Author's own elaboration.

**Table 14 – Comparison of employment rate and average wages by typology of service between Piedmont and Italy.**

#### 4.2.2 PhDs employed in industry and agriculture

As we have seen in the previous paragraph, only about 9,5% of the Italian PhDs graduates have a job in industry or agriculture, 10,7% for those who completed their PhD in one of the universities based in Piedmont. As shown in Figure 11, the presence of scientific fields is not homogeneous inside this little minority. Considering only those who have a job in industry, PhDs with a scientific or technical background are the most employed, in fact more than 18% in Piedmont (35% in Italy)

come from engineering (both civil and industrial) while another 69% is represented by those who take their PhD in Chemistry (26,8%), Biology (9,62%), Medicine (8,59%) and Physics (24,3%).



Source: Author's personal elaboration.

**Figure 11 – Comparison of employment rate by academic field in Italy and Piedmont.**

#### 4.2.3 What kind of stability by holding a PhD?

Holding a PhD doesn't lead to the same degree of stability in different sectors. As we can see in Table 16, having a job in industry seems to be more stable than be employed in agriculture or services. About 85% of PhDs working in industry have a permanent contract, despite the 63% of agriculture and 48% of services, where scholarships and post-doc are more frequent.

In table 16, the various typologies of contracts have been summarized in the following three categories:

- Permanent contracts.
- Fixed-term contracts. Because of the variety of short-term contracts' typology in Italy, this voice is heterogeneous.
- Scholarships and post-doc.



Type of contract	Industry	Agriculture	Services
Permanent contracts	85.12%	63.46%	48.21%
Fixed-term contracts	13.68%	30.53%	28.06%
Scholarships and post-doc	1.20%	6.01%	23.73%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Source: Author's own elaboration.

**Table 15- Typology of contracts by sector of activity.**

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## 6 – Appendixes

### 6.1 – Appendix 1 – List of the major Employment Services Companies in Italy

ADECCO - <http://www.adecco.it>

ADOC GROUP — <http://www.adhr.it>

AGENZIA PIU' - <http://www.agenziapiu.com>

ALI - <http://www.alispa.it>

ARTICOLO 1 — <http://www.articolo1.it>

ATEMPO - <http://www.atempospa.it>

CAREWORK INTERNATIONAL <http://www.carework.it>

DIMENSIONE DEL LAVORO - <http://www.dimensionedellavoro.com>

GE.VI — <http://www.gevi.it>

GI GROUP — <http://www.gigroup.it>

HUMANGEST — <http://www.humangest.it>

INTERIM 25 ITALIA - <http://www.interim25italia.it>

J.O.B. — <http://www.jobspa.it>

KELLY SERVICES — <http://www.kellyservices.it>

LAVORINT RISORSE — <http://www.lavorintrisorse.it>

MANPOWER — <http://www.manpower.it>

METIS — <http://www.eurometis.it>

OASI LAVORO - <http://www.oasilavoro.it>

OBIETTIVO LAVORO — <http://www.obiettivolavoro.it>

OPEN JOB — <http://www.openjob.it>

ORION — <http://www.orioncooperativa.org>

PUNTO LAVORO — <http://www.puntolavorospa.it>

QUANTA — <http://www.quanta.com>

RANDSTAD — <http://www.randstad.it>

START PEOPLE — <http://www.startpeople.it>

TEMPOR — <http://www.tempor.it>

TEMPORARY — <http://www.temporary.it>

## 6.2 - Appendix 2 – List of innovative firms in Piedmont

This appendix contains a list of innovative firms<sup>19</sup> based in Piedmont and divided by sector of activity (due to classification issues it is possible to find the same firm in different categories). The same list, with more detailed information and contacts, can be found at [www.impreseinnovativepiemonte.it](http://www.impreseinnovativepiemonte.it)

### 6.2.1 Agro-food

[ALPIFLOR](#)

[Ardea Seal](#)

[CANTINA DELLA PORTA ROSSA SRL](#)

[CASEIFICIO COOPERATIVO VALLE JOSINA SAC](#)

[COTOR SRL](#)

[Dolciaria Orsobianco Srl](#)

[E.N.S. EUROPEAN NUTRITIONAL SUPPLEMENTS S.r.l.](#)

[Enocontrol Scarl](#)

[Erbe di montagna della dott.sa Baghino Samantha](#)

[GIAN DI SASSONE PIERINO & C. S.A.S.](#)

[Nocciole Marchisio spa](#)

[OR S.A.S. DI ALESSANDRO OCCELLI & C.](#)

[QUADERNO DI VIAGGIO SRL](#)

[Tecnogrande S.p.A.](#)

[Tecnolab del Lago Maggiore](#)

[VALVERBE SOC.AGR.COOP.](#)

### 6.2.2 Environment – Energy

[A.S.T.R.A. REFRIGERANTI S.P.A.](#)

[ARES S.r.l.](#)

[BCE srl](#)

[Benassi S.r.l.](#)

[Biochemtex S.p.A.](#)

[Biogest SRL](#)

[BP AUTOMATION DI G. PIETROBON & C. S.A.S.](#)

[CALEFFI S.p.A.](#)

[Campeggio Valle Gesso di Fenocchio F. & C. s.a.s.](#)

[COTOR SRL](#)

[DAVIFIL SRL](#)

[Digital Domus snc](#)

[Enocontrol Scarl](#)

[F.Ili Boscaro srl](#)

[LUXTRON SRL](#)

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<sup>19</sup> To go to the website press CTRL and click on firm's name.

Olivero Gianpaolo & C. S.a.s.  
Protezione Ambientale  
QUADERNO DI VIAGGIO SRL  
Rigamonti ghisa  
Tecnolab del Lago Maggiore

### 6.2.3 Automotive

COTOR SRL  
DEROSSİ MASSIMO SRL  
E. SASSONE Srl  
J/D electronic s.n.c. di Bocale Giuliana & C.  
M.T.M. srl  
NICE srl  
QUADERNO DI VIAGGIO SRL  
Shield  
Tecnolab del Lago Maggiore

### 6.2.4 Design

13 RICREA SAS DI A.MENSI & C.  
Bertolotto Porte S.p.A.  
G.T.C.A. SRL  
NICE srl  
Politekne  
QUARTAROLI GIOIELLI  
ZUCCHETTI RUBINETTERIA SPA

### 6.2.5 Green construction

ARES S.r.l.  
CALCE PIASCO S.p.A.  
DAVIFIL SRL  
Digital Domus snc  
G.T.C.A. SRL  
New Line Srl  
QUADERNO DI VIAGGIO SRL  
Rigamonti ghisa  
Tecnolab del Lago Maggiore  
VELLA GIUSEPPE & FIGLIO SRL

### 6.2.6 ICT

3C Informatica S.R.L.  
Building Intelligence Group Srl  
castellino software snc  
Centro Sviluppo Sistemi Srl  
CLUSTIN  
Digital Domus snc

DIPLO

HAL SERVICE SRL

INFORMATICASYSTEM S.R.L.

Istituto Europeo per lo Sviluppo Socio Economico

LEONARDO TRAVEL SERVICE

LUXTRON SRL

MONDO EDP S.R.L.

NICE srl

QUADERNO DI VIAGGIO SRL

RW CONSULTING s.r.l.

S.E.R. - Servizi Editoriali e Radiofonici srl

Seritel Srl

SIMAU S.r.l.

Tecnilab

Tecnolab del Lago Maggiore

### **6.2.7 Materials**

A.T.S.

Benassi S.r.L.

Biochemtex S.p.A.

Biogest SRL

FERREROLEGNO S.P.A.

FORNITURE INDUSTRIALI B.M.G. di Alessio Barsanti & C. s.a.s.

GREEN HAS ITALIA S.p.A.

M.E.C. METODOLOGIE ECOLOGICHE E CRIOGENICHE SRL

Momentive Specialty Chemicals S.r.l.

New Line Srl

NIS S.r.l.

Nova Res s.r.l.

Olivero Gianpaolo & C. S.a.s.

PESSINA SRL

PIEFFE

QUADERNO DI VIAGGIO SRL

S.&T. snc di Finco Giulia & C.

Shield

SIMER SAS

Tecnolab del Lago Maggiore

VANZETTI EQUIPMENT S.r.l. UNIPERSONALE

### **6.2.8 Mechatronics**

LUXTRON SRL

MG Elettrotecnica srl

Shield

Tecnolab del Lago Maggiore

### **6.2.9 Media and visual**

Castellino software snc

Istituto Europeo per lo Sviluppo Socio Economico

QUADERNO DI VIAGGIO SRL  
Sonitus di Negro Riccardo  
Tecnilab  
VideoAstolfoSullaLuna

#### **6.2.10 Life sciences**

ALPIFLOR  
Biochemtex S.p.A.  
Biogest SRL  
Enocontrol Scarl  
Genesynthesis SRL  
QUADERNO DI VIAGGIO SRL  
SAPI MED S.p..A.  
Tecnolab del Lago Maggiore

#### **6.2.11 Textile**

Città Studi S.p.a.  
DAVIFIL SRL  
FALPI  
Filatura di Trivero s.p.a.  
LAWER  
**QUADERNO DI VIAGGIO SRL**  
TONELLA SRL

#### **6.2.12 Transport**

ARES S.r.l.  
Benassi S.r.L.  
CAMPIA IMBALLAGGI SRL  
F.LLI BIGARAN SRL  
F.Ili Boscaro srl  
LEONARDO TRAVEL SERVICE  
QUADERNO DI VIAGGIO SRL  
Tecnolab del Lago Maggiore



## 6.3 - Appendix 3 – List of research centres in Piedmont

### Public research centres:

**Centro Ricerche ENEA di Saluggia** - <http://www.saluggia.enea.it/>

**CNR - Consiglio Nazionale delle Ricerche** -  
<http://www.cnr.it/istituti/PerRegione.html?regione=Piemonte>

**CRA - Consiglio per la ricerca e la sperimentazione in agricoltura** -  
<http://sito.entecra.it/portale/index2.php>

**Unità di ricerca per la risicoltura (Vercelli)** -  
[http://sito.entecra.it/portale/cra\\_dati\\_istituto.php?id=226&lingua=IT&access\\_flag=0](http://sito.entecra.it/portale/cra_dati_istituto.php?id=226&lingua=IT&access_flag=0)

**Centro di ricerca per l'enologia (Asti)** -  
[http://sito.entecra.it/portale/cra\\_dati\\_istituto.php?id=211&lingua=IT&access\\_flag=0](http://sito.entecra.it/portale/cra_dati_istituto.php?id=211&lingua=IT&access_flag=0)

**CRIT - Centro Ricerche e Innovazione Tecnologica RAI** -  
<http://www.crit.rai.it/IT/home.htm>

**INFN - Istituto Nazionale di Fisica Nucleare - sezione di Torino** - <http://www.to.infn.it/>

**INRIM - Istituto Nazionale di Ricerca Metrologica** - <http://www.inrim.it/n/index.php>

**IUSE: Istituto Universitario Studi Europei** - <http://iuse.it/>

**IZSTO - Istituto Zooprofilattico Sperimentale del Piemonte, Liguria e Valle d'Aosta** -  
<http://www.izsto.it/>

**Osservatorio Astronomico di Torino** - <http://www.to.astro.it/index.php?lang=en>

### Private research centres:

**Centro Ricerche ISCAT s.r.l.** - <http://www.iscat.com/>

**CRF - Centro Ricerche Fiat** - <http://www.crf.it/it-IT/Pagine/default.aspx>

**Consorzio Proplast** - <http://www.proplast.it/Default.aspx>

**IRCC - Istituto per la Ricerca sul Cancro** - <http://www.ircc.it/irccit/>

Partnership research centres:

**CReSO – Consorzio di ricerca, sperimentazione e divulgazione per l'ortofrutticoltura piemontese** - <http://www.cresoricerca.it/>

**CSP – Innovazione nelle ICT** - <http://www.csp.it/>

**ENI - Centro Ricerche per le Energie non Convenzionali - Istituto Donegani Novara –**  
<http://www.eni.com/it IT/innovazione-tecnologia/centri-ricerca-eni/istituto-donegani/istituto-donegani.shtml>

**ISMB - Istituto Superiore Mario Boella** - <http://www.ismb.it/>

**SITI - Istituto Superiore sui Sistemi Territoriali per l'Innovazione** - <http://www.siti.polito.it/>

## 6.4 – Appendix 4: web portal dedicated on recruitment:

- Miojob.Repubblica - – Recruiting web page of the daily “La Repubblica”-. <http://miojob.repubblica.it>
- TrovaLavoroIt – Recruiting web page of the daily “Il Corriere della Sera”. TrovolavoroIt is partner of ERA (European Recruitment Alliance), a European association in which take part most qualified recruitment websites from France, Germany, Ireland, Poland, Czech Republic, Slovakia, Spain, Switzerland, Great Britain, Hungary and United States. <http://lavoro.corriere.it>

Almalaurea – Project managed by a consortium of Italian Universities with the partnership of the Government. The service offers on graduates the possibility to publish in the CV and to consult several job offers. <http://www.almalaurea.it>

*On line recruiting portals that offer the possibility to insert the CV and to consult a huge list of job vacancies as well as a job alert service.*

- Cliccalavoro - <http://www.cliccalavoro.it>
- Jobonline - <http://www.jobonline.it>
- Monster - <http://www.monster.it>
- Stepstone - <http://www.stepstone.it>
- Talentmanager - <http://www.talentmanager.it>
- MioJob Kataweb - <http://miojob.kataweb.it>
- Infojobs - <http://www.infojobs.it>
- Jobcrawler – <http://www.jobcrawler.it>
- FACECV Face your CV - <http://www.facecv.it/>