



THE REGIONAL INNOVATION SYSTEM OF PIEDMONT

Renato Lattes and Raffaella Giordana

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Foreword

During the last century, Piedmont, or better still, the Province of Turin, was undoubtedly one of the areas throughout the Italian territory marked by the most intense technological/scientific research activity linked in particular to industrial process and product innovation. This took place in numerous sectors: Turin was the birthplace of cinema in terms of production; Turin was the birthplace of the telephone company (formerly SIP, then STET, then Telecom); Turin was the birthplace of the car manufacturing industry; it was in Ivrea and in the Canavese area that Olivetti originated, developed and came to an end; etc.

Only a few dozen years ago, as a consequence and a heritage of this background, several important technological scientific research centres of national level were located in the Province of Turin, (those of STET, RAI, FIAT, and those of Olivetti, etc.). Olivetti no longer exists; the other research centres still exist, even though reduced in terms of human resources employed (and perhaps also in terms of objectives).

Since 2002 the European Commission has been using an index referred to as RIS (Regional Innovation Scoreboard) to assess the innovative ability of its regions; the index is constructed on the basis of a well-defined set of indicators (and varied over time)¹. The last assessment in 2006, relating to an interval of five years, indicates that Piedmont, on a nationwide scale, holds second place, on an equal footing with Lombardy, after Latium². It should be noted that, in the five-year period taken into consideration (2000-2004, the very difficult years of the industrial crisis), Piedmont experienced a 22.5% decrease in its RIS, more than double (-10,9%) the Italian average. In Europe, out of 208 regions taken into consideration, it holds 73rd place, with a value similar to that of Provence, Wales, Dusseldorf, and Yorkshire³.

In absolute terms, with an expenditure of 1,895 million Euro for investments in research in 2004, Piedmont holds third place in Italy after Lombardy and Latium, and second place after Latium (1.87%) for value of the expenditure with reference to the regional GDP (with its 1.67%)⁴. However, when compared with other European regions, similar in terms of industrialisation index and economic size⁵, the ratio between expenditure in research and regional GDP is similar only to that of Catalonia and lower than all the others⁶.

Furthermore, it is interesting to point out that the expenditure in research, in Piedmont, is largely due to private individuals. Enterprises are responsible for 77.9% of this

¹ In 2006, the RIS used seven indicators: percentage of population with a degree and employed in scientific-technological sectors; percentage of active working forces who take part in training activities; percentage of persons employed in medium to high technology manufacturing sectors; percentage of persons employed in high-technology services; public expenditure for research in percentage out of the GDP; patent applications to the EPO per million inhabitants.

² In actual fact, Latium is not easily comparable to the other Italian regions, in that all the Public Research Institutions have their accounting headquarters here; consequently, all the expenses for research carried out by them also in decentralized premises are attributed to Latium.

³ Most of the data quoted here and a large part of the arguments are drawn from: “*Senza Rete*”, 2007; *Ottavo Rapporto su Torino*. L’EAU VIVE and GIORGIO ROTA Committee. Published by Guerini and Associates. Further on, we will also draw extensively from this source which appears to be the most well-informed and well-organised.

⁴ The previous remark on the distorted accounting for Latium applies here too.

⁵ Baden-Wurttemberg, Bayern, Nordrhein-Westfalen, Catalana, Rhone-Alpes, North-West, South-west, Stockholm.

⁶ Many of these regions come close to the objective of 3% established in the strategy of Lisbon, 1% of which pertaining to the public sector.

expenditure, as compared to an Italian average equivalent to 47.8%. This represents 1.3% of the regional GDP, the highest quota in Italy (Lombardy: 0.84%; national average: 0.54%).

Conversely, in Piedmont, only 21.2% of the expenditure in research is due to public spending (the Italian average is 50.7%); 4.7% of this is due to public institutions, and 16.5% to Universities⁷.

Due also to the fact that expenditure in research in Piedmont is primarily concentrated in the enterprises, as we have seen, as a result of the severe industrial crisis, over the last few years the leading position that the Region held at national level has also been weakened.

The new situation of revival of a number of important sectors (starting from the motor vehicle manufacturing sector) and the installation of new research centres by very important international industrial protagonists (Motorola, General Motors Powertrain, Microsoft, etc.), can constitute a significant new opportunity for the metropolitan area of Turin and, perhaps, more in general, for Piedmont.

To conclude: the presence of important research centres linked to big industries, is an effective strong point also as regards Piedmont's position on the international scenario. On the contrary, the weakness of the presence and of public expenditure for research is an element of weakness, also for attracting new foreign investments.

This is true especially as regards the major enterprises. As far as the SMEs are concerned, there are mainly data on the innovative companies – see page 5 – that indicate a certain number of SMEs definable as such; however, the SMEs involvement in research, both on their own account, and in cooperation with universities or other public research centres appears to be very limited; I believe that it can be affirmed that the ones engaged in research are those existing in the incubator of the Polytechnic and in the Scientific/technological Parks, in particular in Environment Park and in Bioindustry Park.

Piedmont holds third place, in Italy, for the number of patents per capita submitted to the EPO in 2003 (after Emilia-Romagna and Lombardy). The data in our possession only go as far as 2003 and show a gradual increase in patents ascribable to Piedmont (from 336 a year, in 1990, to 566 in 2002), while in 2003 there was a sharp drop to 340.

Other indicators of the innovative processes (such as: the balance of payments of technology, import-exports of high-tech) also confirm a number of partial conclusions: Piedmont maintains a position of excellence at national level (more moderate at European level), despite the progressive erosion of its supremacy and a drop in investments (private, by enterprises, which are the most important ones); increasing difficulty in drawing value into the region from the results of their research activity can also be perceived.

These difficulties probably also depend upon the lack of significant relations between the different public and private protagonists of the research itself, which prevents the region from acting as a “system”⁸.

⁷ In the other European regions taken into consideration, while the amount of investment in research of the enterprises, compared to the regional GDP, very often does not differ to any great extent from that of Piedmont, the amount of public investments is, on the contrary, very much higher.

⁸ With regard to the topics in question, it should be underlined that 70-80% of the research activities and statistically significant “innovations” are carried out in the province of Turin. The following survey on the Universities, non-academic research Centres, and Institutions that facilitate the transfer of acquired knowledge to the enterprises and the production system also refers for the most part to the province of Turin, also because significant data are more easily retrievable here.

The actors of the RIS

The two Turinese Academies, the University and the Polytechnic, exhibit contradictory aspects with respect to the national scenario. In terms of human resources, the University of Turin employs 3.5% and the Polytechnic 1.4% of the teachers – professors and researchers – of the Italian academies⁹, whilst in Piedmont the persons employed in general represent 8% of the national total.

The ability to train specialised personnel in scientific research is considerable. The contribution of the Polytechnic exceeds 14% for holders of research allowances and 40% of the dottorandi (doctoral students) out of the national total in the field of engineering. The contribution of the University is 7% for holders of allowances (with excellence in agricultural and veterinary sciences), ranging from 10 to 20%, with respect to the national total, for dottorandi. However, only a very limited percentage of holders of allowances and dottorandi manage to organise themselves in the academies.

As far as the scientific production is concerned, the results are highly differentiated from one area to another; in general not excellent¹⁰. The Polytechnic qualifies in terms of quality of research in the three areas of "civil engineering and architecture", "industrial and information engineering", and "sciences and technologies for evaluation and enhancement of cultural heritages".

The University qualifies in medical sciences (especially as a "megastructure": 300 researchers), in biological sciences, in agricultural and veterinary sciences, in physical sciences, and in juridical sciences, etc..

The number of foreign citizens among those enrolled in the Piedmontese Universities during the academic year 2005/06 amounted to 2,343 (2.4% of the overall number of students enrolled). Among the first-year students 613 (3.3% of the overall number of first-year students). 156 of these students were from Albania, 109 from Rumania, and 36 from Morocco. It is important to note that among the foreigners there is a marked increase in the numerical superiority of females compared to males. Among the Italian students, the females account for 60.6% at the University of Turin, 26% at the Polytechnic, and 60.3% at the University of Eastern Piedmont, and among the foreign students, 69.9%, 33.3%, and 69.6%, respectively.

According to a recent survey¹¹, there are 184 Research Centres in Piedmont, 113 of which are public and 71 private. In the province of Turin there are 95 public research centres: 71 university departments, 14 CNR centres (with approximately 150 researchers¹²) and a dozen "independent centres" (including the RAI Research and Innovation Centre).

The 5 "mixed" public-private centres are all located in Turin; within the sphere of information engineering and economic-social sciences.

At least 40 private Research Centres are located in the province of Turin, 17 of which are located in the city of Turin, 9 in the Canavese area, and 5 along the axis of Val Susa.

The main sectors are industrial and information engineering and the chemical sector.

⁹ The University of Eastern Piedmont contributes by 0.5%.

¹⁰ We refer both to the results of the analyses carried out by the Comitato di indirizzo per la valutazione della ricerca del Miur (Ministry of Education committee for assessment of research), and to the annual CENSIS survey for *Repubblica*.

¹¹ Boffo, Calderoni, Gagliardi, 2006.

¹² Equivalent to 5% of the national total; more or less the same as the university teachers.

In addition to the IRCC (Candiolo Cancer Research Institute), all the other Centres with more than 50 researchers belong to the industrial engineering sector: more than 1,000 researchers at Telecom Italia Lab; 870 at the FIAT Research Centre; 400 at the Motorola Research and Development Centre; 200 at the Prototipo Tesy Ing.; 190 at GM Powertrain; and over 50 at Hutchinson and RTM.

In 2004, the Observatory of the Turin Chamber of Commerce assessed 1,570 innovative businesses¹³. They correspond to 0.7% of all the Turinese enterprises. 1,267 of them are manufacturing concerns; the other 303 enterprises belong to the services sector. 28.4% have less than 10 employees; 40% from 10 to 50 employees; and only 7.4% have more than 250 employees¹⁴. The fact that the great majority of the “innovative enterprises” belong to the industrial manufacturing sector is also considered by many experts to be a limit. In particular, the following are considered: the Electronics sector (372 enterprises), the Advanced Services sector (303), the Mechanical sector (255), the Metal and Metal Products sector (224), the Rubber and Plastic Articles sector (136), the Transportation Facilities sector (87), etc.

7.7% of the Italian centres that act as an interface between those who produce innovative know-how and those who use it to produce goods and services, and namely to promote “technological transfer”, are located in Piedmont. We refer to: a. Scientific-technological Parks ; b. university incubators; c. Chamber of Commerce agencies and laboratories.

Four of the seven Piedmontese scientific-technological parks are located in the province of Turin. The two most vital appear to be: Environment Park and Bioindustry Park.

The Region of Piedmont is currently preparing the project for the re-organisation of all the parks, implemented through FinPiemonte¹⁵ which is its major shareholder. The aim is to attack its critical points: unsustainable financial situation; difficulty in supplying services to enterprises (except for real-estate companies); limited specialisation; weakness of managerial resources¹⁶.

Since its creation, the Polytechnic of Turin has given hospitality, in its incubator 13P, to 80 new enterprises¹⁷. In 2004 it won the “Best science based incubator award”, after the incubators of Peking and Oxford.

The University of Turin, in turn, is currently starting up two incubators: one relating to the chemical pharmaceutical sector, and the other to biotechnologies.

There are numerous initiatives aimed at promoting relations between the University and enterprises: they consist on the one hand of Service Centres (Corep, Torino Wireless, Association for the technological district of the Canavese area, Alps-Irc), and on the other of projects promoted by Public Institutions (Diadi, Proteinn).

¹³ Defined as enterprises that comply with at least one of the following criteria: a) product or process design activities and/or research activities; b) filing of patents for industrial inventions in Italy and/or with the EPO; c) relations of cooperation with institutional protagonists of public research, occurring over the last five years; d) participation in research programmes initiated within the sphere of the European Union; and e) use of installations and equipment with a high technological content within the context of production and/or design; f) belonging to a field of activity which by its very nature is “innovative”.

¹⁴ In the province of Turin, 95% of the enterprises have less than 10 employees, and this is an evident factor of weakness.

¹⁵ The Local Finance Institution also used as an operating arm of certain measures of regional industrial politics.

¹⁶ Difficulties widely existing in many of the Italian parks.

¹⁷ Belonging 38% to the ICT sector, 13% to the automation sector, and 12% to those of telecommunications and energy.

The public financing of research in Piedmont, has very often been characterised by intense fragmentation¹⁸.

During the period 2002-2005, the Piedmont Region allocated 33.5 million Euro from CIPE funds, supplemented by 9 million Euro of regional resources, to the financing of applied scientific research projects¹⁹. In addition, 15 million Euro were allocated by the Region in the form of automatic incentives in support of expenditures for research and development in industrial enterprises²⁰.

With the 2004 announcement for “facilitated operations in support of industrial research and pre-competitive development projects of the SMEs”, 99 enterprises were financed for an average contribution of 83,000 €, and with that of 2005, 111 enterprises received an average of 350,000 €.

That is to say, partly correcting the tendency towards fragmentation.

These data stress the importance of the financings implemented, in turn, by the Turinese Banking Institutions: the San Paolo Group which, in 2006, allocated over 30 million € for 180 scientific, economic, juridical research projects; the CRT Foundation which, in 2005, made 96 allocations for over 13 million €.

It is a well known fact that in Italy, in these fields of research and innovation, the interventions of private capital in the form of “Venture capital” are as yet prudent and limited.

It is referred to as a “sporadic and pioneer state of the art” (Einaudi Centre, 2005).

The territory of the province of Turin is considered as the incubator of the main initiatives in this field.

“Eporgen Venture” is the first example of an Italian “venture capital” company founded by non-institutional private investors (coming from the Canavese area and the territory around Turin and Biella). Established in 2004, it solicits proposals from Italian and foreign researchers to assist them financially in formulating projects that can be scientifically and industrially proposed to other financiers or large and medium-sized companies. In 2004, with Bioindustry Park, it launched the initiative “Discovery”, which led to the creation of 6 new enterprises in the park, to be accompanied for 36 months, with an allocation of 3 million € by Eporgen, and 2.7 million € by the Region. In 2006 a second edition was started up.

Torino Wireless promoted the creation of two Venture Capital instruments set aside for immediately subsequent periods of development and growth by small innovative enterprises (ICT, biotech, advanced mechanics, energy, innovative services. The first is “Piemontech”, which sustains the enterprises by participating in their capital with investments ranging from 20,000 to 270,000 €, and offering assistance in drawing up corporate strategies, seeking new customers, new partners, internationalisation, etc. The second is “Innogest” (set up in partnership with Ersel), one of the main Italian Venture Capital funds, allocated to enterprises already set up, which have been in existence from

¹⁸ The main source from which, so far, I have drawn, or rather “copied”, a large part of the information quoted here, *“L’ottavo rapporto di ricerca su Torino”* edited by the “Giorgio Rota” Committee and by “Eau vive”, quotes an interesting remark that I should like to underline: “...*fragmentation*, according to an *approach of the Mediterranean countries, which tend to make ample use of widespread incentives, namely of small sums assigned to finance research by numerous subjects* (Russo, 2006).”

¹⁹ 634 projects were financed, with an average contribution of 67,000 € per project.

²⁰ With an even greater degree of fragmentation, 1,250 enterprises received an average amount of 12,000 euro: less than half a researcher for one year.

one to three years, with investments ranging from 500,000 to 3 million € for each individual transaction.

In February 2007, the “Italian Venture Capital Pole”, which groups together 11 funds (six Italian and five international), capable of contributing at all stages of development of the enterprises, was created at 13P under the direction of Torino Wireless

An in-depth study was carried out, by numerous surveys, on the important subject of the relations between the protagonists of innovation in Piedmont (Universities, research centres, enterprises), more particularly in the metropolitan area and in the province of Turin, where the presence of 70-80% of the activities and subjects concerned is concentrated.

It revealed a situation of imbalance and with several critical points. The functions of creating and divulging knowledge prevail, while those of promoting and supporting enterprises, and of promoting the adoption and exploitation of innovation in existing enterprises are weak.

The enterprises tend to carry out the innovations by resorting to internal resources or other enterprises. When they innovate, less than 10% of the enterprises resort to Research Centres and Universities. Very often the reason they give is that they are not acquainted with the services offered, their costs, and the time necessary for starting up and concluding the projects.

The Universities are perceived as a closed world, even though they are beginning to provide themselves with their own structures for technological transfer, patent offices, etc.²¹.

Centres of intermediation and technological transfer, scientific-technological Parks, and incubators are the protagonists chiefly involved in local innovation. However, the results are less interesting than expected. Especially as far as the scientific-technological parks are concerned, they reveal limits concerning managerial abilities, specialisations, and marketing and promotion abilities.

With regard to the relations between the financiers of the research and the enterprises, a survey carried out on the start-up of 442 innovative enterprises showed that 98% of those interviewed stated that, despite the fact that they had had the possibility of access to private sources of financing outside the enterprise, only 2 out of 98 made use of the latter.

This can probably be explained by the series of reasons mentioned previously and by some, of which mention will be made further on: the entrepreneurs, and especially the “minor” ones, do not “trust” the Universities, Research Centres, and not even the Structural Funds; they are afraid of the forms, the complicated questions bureaucratically full of attachments; they have much more faith in themselves and in their own support network, including financial support, of a family nature; the SMEs in Piedmont, on the contrary, make

²¹ A qualified witness affirms: “*Even when the University goes so far as filing a patent, it misses the chance, and doesn’t know how to sell it. It is a cultural problem: the awareness that the proceeds of the patent are not dirty money, but serve to carry out further research has not yet entered into its DNA*”. Other witnesses in other researches (on the reorganisation of Mirafiori) pointed out that “*the Italian universities lack a number of preliminary conditions to enable the creation of a system of interdependence and concatenation upon which several innovative clusters of international fame are based. The osmosis between University and enterprise is limited, not only because many enterprises do not consider it useful for their business, or because the use that they make of the resources that the university environment can provide is limited, but also because the University itself does not encourage mobility of the teaching staff and transfer of knowledge which travels by means of the human factor*”.

extensive use of the Credit line Associations that the Region has organised extremely well, in terms of efficiency and efficacy²².

The contributions distributed through public initiatives have also been used very little (9% of the enterprises concerned) due to the complexity of the bureaucratic course and due to the lack of promptness in distributing the funds.

The new regional law for promoting the RIS

The remarks set forth up till now could be summarised by stating that, despite their critical points, in Piedmont there is no lack of important elements of a system of innovation capable of introducing itself as such on the international scenarios. The “real weak point is the lack of relations between these elements”.

It is the aforesaid deficiencies, due to the lack of an adequate direction²³, that the regional law 4/2006 (2nd February, 2006) aimed at organising, promoting and coordinating the “Regional system for research and innovation”, attempts to obviate. The protagonists constituting the system are identified in the “public and private subjects who have as their purpose the implementation of programmes for research, innovation and technological transfer to the production system”, as well as in the economic and social trade organisations, cultural foundations, foundations originated by banks, and banking institutes, local and functional autonomies, regional health administrations and in the Regional Council of Economy and Labour.

An allocation of 270 million Euro, divided into 40, 80, and 150, is contemplated during the three-year period 2006-8.

In March 2006, the Council set up the “Regional Committee for Research and Innovation”, as a regional community system of connection, consultation and participation (12 permanent members and 25 variable).

In September it identified the “general guidelines of intervention” for reaching the objectives, which include 14 priority sectors of intervention, distinguished according to two scientific-technological paradigms of: science-push and market-pull. Differentiated logics of intervention correspond to each of them: in the first, the financing goes directly to the research activities carried out in the sector; in the second, the financing goes to sustain the demand for services and products within “technological platforms”, which originate from the intersection between mature sectors and certain innovative technologies (especially ICT and industrial design).

In December 2006, the Regional Council set up the Scientific Committee, advisory board of 5 researchers.

In January 2007 the Council approved the three-year research programme, prepared by FinPiedmont, to which the Council entrusted an action of accompaniment and implementation of the new law.

²² It should also be pointed out (in some way or other as confirmation of the predominant role of the major enterprises, perhaps also in terms of lobby) that the FIAT and Telecom Research Centres manage to be awarded approximately 80% of the European financings of the Framework Programmes. Lastly, it should be underlined that the concept of “minor enterprise” and “minor entrepreneurs” do not go in parallel, even in Piedmont, in the sense that the majority of the entrepreneurs in question possess more than one and do not allow them to grow beyond a certain threshold for tax, trade-union reasons, etc.

²³ According to a number of experts, in Europe, and even less so in the Mediterranean area, the case in which the relations between the protagonists are created spontaneously is less easy than in the USA.

According to many commentators, the regional law (30th January, 2006, no. 4), described herein in broad outline, is moving in the right directions, in that it tackles many of the weak points in the “system of research and innovation in Piedmont”.

Among the criticisms that are raised it is possible to quote: the excessive proliferation of organisations that is taking shape; choices not yet made with regard to the priority sectors to be developed (14 + 2 to be supported, frankly, present the risk of dispersion of the regional support); the limited consequence that the supports aimed at greater internationalisation of the research/innovation system still have.

However, the Regional Council intends to provide several answers to this latter objection by a measure currently undergoing preparation, which is aimed at: a – curbing the “brain drain”; b – encouraging the return of Italian researchers who have been working in foreign laboratories for more than two years; c – encouraging foreign researchers to come to the Piedmontese Universities to continue their researches; d – attracting foreign “Visiting Professors” (for six months, renewable once).

It intends to start up this policy in experimental terms by means of an agreement with the Piedmontese Academies (University of Turin, Polytechnic of Turin, University of Eastern Piedmont, University of Gastronomic Sciences of Bollengo).

The essential administrative instrument that it aims to use is the “research allowance” contemplated by law no. 449/1997, modulated in different terms of duration and amount of resources according to the specific objectives.

Piedmont RIS in the Mediterranean

With regard to the identification of projects of a certain importance which have linked outside Mediterranean countries with the Piedmontese “research/innovation” system, we are not faced with many examples²⁴, at least as far as we are aware.

Among the most important experiences I should like to mention: A. the Environment Park project for the environmental reclamation of the industrial area of Rabat, in Morocco; B. the cooperation of “Enzima” (the Association of Piedmontese scientific/technological parks) and, on its behalf, the cooperation of Environment Park in the design of 6 scientific/technological parks in Tunisia²⁵; C. the birth of “Nettuno”, UNINETTUNO International Telematics University, the Network for the University everywhere²⁶.

We asked the University of Turin whether it considered it useful to set up a sort of “Observatory” to record the research projects started up by departments, faculties, and Professors in connection with other University and research institutions located in other countries.

²⁴ Our information, however, is undoubtedly lacking, due to the fact that, directly, we have merely made reference to the University of Turin, Environment Park and Bioindustry Park.

²⁵ It should be born in mind that a few years ago Environment park, in agreement with the Piedmont Region, also attempted to construct other water purification and environmental reclamation projects in Morocco (for example at Khouribga).

²⁶ Whose physical headquarters is currently located in Rome, but which originated at the Polytechnic of Turin; it is not by mere chance that the dean is Prof. Rodolfo Zich, formerly rector of the Polytechnic of Turin. It consists of a “remote University”, which transmits its lessons in four languages: Italian, French, English and Arabic. The lessons are held via satellite (RAI 1 and RAI 2) and via cable. Although perhaps insufficiently used, with its extraordinary opportunities, it is an actual structure of widespread connection between the European Universities and the students of the southern and eastern shores of the Mediterranean.

Perhaps there would be a certain amount of interest which we hope to be able to cultivate also by means of adequate attention on the part of the Piedmont Region itself. It appears to us to be a useful instrument if importance is given to the objective of strengthening and multiplying the relations with the countries outside the Mediterranean area.

Conclusions

The purpose of the review that we have attempted to give on the evolution of the system²⁷ of research and innovation in the Piedmont Region²⁸, in schematic terms, is to explain that in our Region, in these fields, there are important traditions and important potentials; there exist several areas, sectors, clusters of excellence.

Over the past few years, practical political/administrative and political/institutional foundations have been laid to encourage the positive evolution of the situation. Especially as far as two central matters may be concerned: A) greater regularity in the relations and exchanges between the protagonists, capable of furthering the objectives of coordination by the Piedmont Region, in that it is considered useful by the protagonists (consequently willing to cooperate and be coordinated, even though dialectically); B) a more accentuated change in the field of internationalisation of the system, both as regards the research and innovations that develop within the universities, the CNR, the Parks, and the other centres attributable to the public sector, and in those that are carried out in the private Research Centres, and of the enterprises, etc.

Over the past few years, in Turin a great deal of effort (in terms of political, institutional, intellectual, relational initiatives, etc.) has been concentrated and spent on the attempt to link up much more than in the past with worldwide protagonists of enterprise innovation, in many fields, including new fields.

The crisis of the previous industrial model, which grew up with the development of FIAT, Olivetti, Facis, Pirelli, Michelin, etc., matured over the last twenty years of the past century and precipitated further during the early years of 2000, pushed considerably in this direction: important results were obtained with the arrival of Motorola, as well as Microsoft, GM Powertrain, etc.

However, even though substantial steps forward have been taken, the level of internationalisation, both of research, and of university and post-university training, and of the localities and instruments of technological transfer still appears to be insufficient.

There is no doubt that, due to the aforementioned reasons, over the past few years attempts have been made to link up above all with points of excellence located in the most highly advanced areas of the developed world (especially North America and Europe).

Even though with some delay, over the last few years, fundamental relations have also been sought with China and India.

As far as the connections with “underdeveloped” countries are concerned, new initiatives aimed at cooperating with Vietnam, Bangladesh, etc. appear to be springing up in the University, while old relations of cooperation with Latin America (both by the Polytechnic, and the University) and, perhaps, also with Universities of the Mediterranean area, are strengthened.

²⁷ As mentioned previously, it is not yet a “system”; it can become one even more.

²⁸ In particular, in the province of Turin where a large part of the protagonists and main activities are concentrated, in both the public and private sectors.

It would probably be useful to establish a strategic idea, that aims at imagining a Turin, a Piedmont which, in the not too distant future, can be given the role of a “bridge”, between Europe and the Mediterranean area, also in these sectors; which furthers and encourages, with specific initiatives, the presence and exchange of students with the countries of the southern and eastern shores of the Mediterranean (both for university degree courses, and for doctorates, as well as for research allowances).

With the awareness that a young Mediterranean immigrant who comes to study in our Universities is a potential “ambassador” of Italian society and institutions in his country of origin, he builds bridges, and perhaps even development.

Turin is also the centre of various UNO training Agencies²⁹.

The prospect of working is also periodically put forward from various parts because Turin is becoming an important centre of advanced training in various fields, extremely open to the outside world, utilising the existing public and private resources in the best way possible, increasing, differentiating, and qualifying them.

A complex scheme, not taken for granted, which could nevertheless afford interesting prospects and to which we intend to give our contribution.

²⁹ It is considered the third UNO centre in terms of importance after New York and Geneva.